



COMPLIANCE OF ENVIRONMENTAL CLEARANCE MINISTRY'S LETTER

NO.:F. No. J-11011/108/2015-IA-II (I), DATED: 11/02/2019

Period – APRIL 2019 TO SEPTEMBER 2019

Expansion of Chemicals Manufacturing Unit By M/s. Atul Ltd, Valsad, Tehsil & Dist-Valsad,

SL. NO	CONDITION	COMPLIANCE STATUS
A	SPECIFIC CONDITIONS:	
i.	<p>Consent to Establish/Operate for the project shall be obtain from the State Pollution Control Board as required under the Air (prevention and control of pollution) Act, 1981 and the Water (prevention and control of pollution)Act, 1974.</p>	<p>Complied.</p> <p>We have obtained CTE after receiving ToR. CTE was granted by GPCB Vide No. GPCB/CCA- VSD-313(12)/ID: 23158/363958 on 25.7.2016 (CTE no. 80394) Valid Till-17/7/2023.</p> <p>We had applied for amendment in existing CTO after receiving EC. CTO amendment has been granted by GPCB Vide Letter No. GPCB/CCA-VSD-313(16)/ID: 23158/513897, Dated 17.7.2019 (CTO amendment No. AH 102080), Valid Till-03/11/2019. Renewal for the same has been granted till Year -2025 copy is awaited.</p> <p>Copy of CTE and CTO is also attached as Annexure-I and Annexure-II respectively.</p>
ii.	<p>The treated effluent of 3335 cum/day shall be recycled/reused to meet the requirement of different industrial operations, and the remaining treated effluent of 20514 cum/day shall be discharge to estuary of Par river through the existing pipeline.</p>	<p>Complied.</p> <p>We have obtained consent to produce 40327.167 TPM. Since the production during April 2019 to September 2019 is less than the consented production Quantity i.e. 17202 TPM, therefore, fresh Water Consumption, Qty of Reuse / Recycle & Discharge are very less as per stipulated conditions.</p> <p>The treated effluent recycled in system is Avg.331 KL/Day during the reported period from April 2019 to September 2019 which is well below the stipulated norms.</p>

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Remaining about **Avg. 9237.6 KL/Day** treated effluent has been discharged to estuary of Par river through the existing pipeline after achieving norms stipulated, which well within below limit as prescribed in stipulated condition.

Sr No	Month	Effluent Discharged to Estuary of Par River	Min KL/Day	Max KL/Day	Avg KL/Day
1	April-19	279679	9160	9486	9323
2	May-19	284864	9493	9497	9495
3	Jun-19	263811	8488	9100	8794
4	Jul-19	283200	9435	9445	9440
5	Aug-19	284191	9457	9489	9473
6	Sep-19	267058	8602	9200	8901

As mentioned above the production during April 2019 to September 2019 is less than the consented production quantity of **17202 TPM**, therefore, fresh Water Consumption, Qty of Reuse / Recycle & Discharge are very less as per stipulated conditions.

The Waste Water analysis at ETP outlet is monitored at regular interval for ensuring the compliance. The testing lab appointed is **M/s. Pollucon Laboratories Pvt Ltd**, Surat **NABL Approved TC – 5945**, issue date-**28/05/2019** and valid till **27/05/2021**.

The analysis reports were below the limits of quantization and within the permissible limit. A detail of analysis report of Monitoring report is attached in **Annexure- III**.

Monitoring details of final effluent discharged are as follows:

S.NO	PARAMETER	UNIT	LIMIT	Apr-19			May-19		
				Min	Max	Result	Min	Max	Result
1	pH		5.5 to 9.0	6.7	7.9	7.45	7.83	8.67	8.25
2	Temperature	°C	40	20	39	31.9	30.4	34.4	32.4
3	Colour	Co-pt	0	45	110	77.5	95	115	105
4	Suspended Solids	mg/L	100	75	95	86	75	93	84
5	Oil & Grease	mg/L	10	2	7	3.6	3.5	5.3	4.4
6	Phenolic Compound	mg/L	5	0.1	2	0.45	0.1	0.6	0.35
7	Cyanides as CN	mg/L	0.2	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*
8	Flourides as F	mg/L	2	0	2	1.2	0.2	1.3	0.75
9	Sulphides as S	mg/L	2	0	1.9	0.95	1.45	1.95	1.7
10	Ammonical Nitrogen as NH3	mg/L	50	26	49	40	39	49	44
11	Arsenic as As	mg/L	0.2	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*
12	Total Chromium as Cr +3	mg/L	2	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*
13	Hexavalent Chromium as Cr+6	mg/L	1	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*

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13	Hexavalent Chromium as Cr+6	mg/L	1	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*
14	Copper as Cu	mg/L	3	0.04	0.2	0.12	0.05	0.1	0.075
15	Lead as Pb	mg/L	2	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*
16	Mercury as Hg	mg/L	0.01	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*
17	Nickel as Ni	mg/L	5	0.06 6	0.084	0.075	0.06 8	0.08 2	0.075
18	Zinc as Zn	mg/L	15	1.9	2.3	2.1	2.9	3.9	3.4
19	Cadmium as Cd	mg/L	2	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*
20	Phosphates as P	mg/L	5	1.11	2.39	1.75	1.7	2.5	2.1
21	BOD(5 Days@20°C)	mg/L	100	70	80	75	79	85	82
22	COD	mg/L	250	234	246	240	241	247	244
23	Sodium Adsorption Ratio		26	20.3	23.7	22	22.8	25.2	24
24	Manganese as Mn	mg/L	2	0.29	0.41	0.35	0.05	0.25	0.15
25	Tin as Sn	mg/L	0.1	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*
26	Bio Assay test	%	90% survival of fish after 96hr in 100% effluent	100% survival of fish after 96hr in 100% effluent			100% survival of fish after 96hr in 100% effluent		
27	Pesticides/Insecticides	mg/L	Absent	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*

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		INTERNAL MONITORING DATA:-											
Date	pH			COD mg/l			BOD mg/l			Phenol mg/l			
	Min	Max	Avg	Min	Max	Avg	Min	Max	Avg	Min	Max	Avg	
Apr-19	6.30	8.10	7.2	198.70	220.70	209.7	24.80	27.30	26	0.09	0.11	0.1	
May-19	6.50	8.30	7.4	207.70	229.70	218.7	26.80	29.30	28	0.09	0.11	0.1	
Jun-19	6.60	8.40	7.5	207.40	229.40	218.4	24.80	27.30	26	0.19	0.21	0.2	
Jul-19	6.40	8.20	7.3	210.60	232.60	221.6	50.80	53.30	52	0.09	0.11	0.1	
Aug-19	6.30	8.10	7.2	212.06	238.06	225	52.80	55.30	54	0.29	0.31	0.3	
Sep-19	6.20	8.00	7.1	222.20	244.20	233.2	50.80	53.30	52	0.49	0.51	0.5	
Oct-19	6.30	8.10	7.2	202.70	224.70	213.7	50.80	53.30	52	0.49	0.51	0.5	
Nov-19	6.40	8.20	7.3	213.70	235.70	224.7	50.80	53.30	52	0.59	0.61	0.6	

iii.	Necessary authorization required under the Hazardous and other Wastes Management Rule, 2016 shall be obtain and the provisions contained in the Rules shall be strictly adhered to.	Complied.										
		We have obtained necessary authorization for Hazardous and other waste by obtaining Amendment in Existing CTO after receiving EC.										
		CTO amendment has been granted by GPCB Vide Letter No. GPCB/CCA-VSD-313(16)/ID: 23158/513897 , Dated 17.7.2019 (CTO amendment No. AH 102080), Valid Till- 03/11/2019 .										
		Renewals for the same has been received vide Provisional order (AWH-105110 valid till 30.9.2025). M/s Atul limited has its own TSDF, Incinerator facility for safely management and disposal of hazardous waste generated in their premises. The following are amended for Hazardous and other waste as follows.-										
		Hazardous Waste Disposal & Management										
		Name of waste	Waste Authorizati on as per CCA (In Kgs.)	Waste generated Kgs/Month								Disposal
				Apr-19	May-19	Jun-19	Jul-19	Aug-19	Sep-19	Oct-19		
		Al. Hydroxide	15417	0	0	0	0	0	0	0	0	Own TSDF
		Iron Sludge	80000	3500	11230	10000	10500	8500	6000	6000	6000	Own TSDF
		Iron Residue	62500	13940	11060	6920	7360	11540	10990	6660	6660	Own TSDF
Brine Sludge	242500	21350	22500	0	22360	22450	21950	17710	17710	Own TSDF		
ETP/Gypsu m Sludge	(41667+49 30000+200 0) =4973667	709100	717520	711860	717520	734290	701920	723120	723120	Own TSDF		
Inci. Ash	4620	0	0	0	0	0	0	0	0	Own TSDF		
Salt from MEE	1678710	67250	70580	65780	19300	42200	49840	37180	37180	Own TSDF		
Brass Residue	667	0	0	0	0	0	0	0	0	Own TSDF		
Hyflo	15750	15750	15740	7200	9000	13400	15600	7100	7100	Own Incinerat or.		
Waste / Salt Lime Dust	5000	2000	0	4500	4600	4800	4700	3200	3200	Own TSDF		

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Total		832890	848630	806260	790640	837180	81100	800970	
Epoxy Resin	130000	45800	69890	123090	72090	107310	41230	75310	Co-Pro
Spent Carbon	40000	8140	31420	35240	23950	31250	36500	14180	Co-Pro

Copy of CC&A/CTO is attached herewith:-



GUJARAT POLLUTION CONTROL BOARD
 PARYAVARAN BHAVAN
 Sector-10-A, Gandhinagar 382 010
 Phone : (079) 23222425
 (079) 23232152
 Fax : (079) 23232156
 Website : www.gpcb.gov.in

Received on 10/03/2019
 Received by
 E.M.S. (S) (S) (S)

S.P.A.D.
 Date: 19/07/2019

NO: GPCB/CCA-VSD-313(16) /D: 23158/ 513647

TO,
M/s. ATUL LIMITED,
 PLOT NO 5,6,29,30,33,34,35,37,38,80,81,84,85,91
 AT & P.O ATUL-396020,
 TAL:- VALSAD, DIST: VALSAD.

SUB: Amendment (AH- 102080) to Consolidated Consent & Authorization (CC & A) under various Environmental Acts/Rules.

REF: 1) Your Application inward No.156104 dated: 28/04/2019.
 2) CTE issued vide this office letter dated: 25/07/2016.

Sr.
 The Gujarat Pollution Control Board had granted Consolidated Consent & Authorization Order No. AWH- 87717 dated 04/11/2014, Which is valid up to 03/11/2019. This order was served vide letter No. GPCB/CCA-VSD-313/D-23158/306616 dated: 10/03/2015 is further amended with respect of following conditions

Sr. No.	Product	Existing Capacity (TPM)	Proposed Capacity (TPM)	Total Capacity (TPM)
1	Dyes	1,350.80	583.33	1,884.13
2	Chloro - Alkali Industry	3,403.99	4,100.00	7,500.00
3	Pesticide Technical	2,844.07	261.84	2,905.71
4	Bulk Drugs & Pharmaceuticals	350.00	0.00	350.00
5	Resin	2,990.90	441.67	3,432.57
6	Other Chemicals	20,551.60	651.00	21,202.60
7	Flavors & Fragrances	0.00	733.32	733.32
Total		31,237.96	6,770.95	38,008.91

8	Phosgene	2844 MT/Year	2158 MT/Year	5000 MT/Year
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SPECIFIC CONDITIONS:-

- (i) The unit shall manufacture the Phosgene gas in fully automated plant having multi levels of safety provisions.
- (ii) Unit will utilize the Phosgene gas immediately after its generation for their captive purpose only.
- (iii) Unit shall submit production data of Phosgene every month to this office.
- (iv) Unit shall use pipeline in case of emergency like breakdown, preventive maintenance only when old pipeline is under maintenance and unit shall get prior permission from Regional Office, Vapi before use of new pipeline.
- (v) Unit shall comply undertaking dated: 09/07/2016 given to the board.

M/s. Atul Limited (PCB ID-23138)

Clean Gujarat Green Gujarat
 ISO-9001-2008 & ISO-14001 - 2004 Certified Organisation

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iv.	National Emission standards for organic chemicals Manufacturing Industry issued by the Ministry vide G.S.R. 608(E) dated 21* July, 2010 and Amended from time to time shall be followed.	<p>Noted & Complied.</p> <p>We have been following the Standards for National Emission Standards since beginning. The Location of ambient air quality monitoring stations had been decided in consultation with GPCB so that at least one station is installed in the up wind and downwind direction as well as where maximum ground level concentration are anticipated. This also covers the impact, if any, of the project plant. The same had been shown to authority like SPCB, CPCB & MoEF during their visit to our factory. In total we had selected 10 Locations, and monitored successfully. Results are attached herewith.</p> <p>The Ambient Air Quality is being monitored at regular interval for ensuring the compliance. The testing lab appointed is M/s. Royal Environment Auditing & Consultancy Service, Surat NABL Approved TC – 5948, issue date-01/06/2019 and valid till 31/05/2021.</p> <p>The analysis reports were within the permissible limits. A detail of analysis report of Monitoring report is attached in Annexure- IV.</p> <p>The maximum values during the compliance period confirm that at no time the emission level went beyond the stipulated standards. Parameter wise summary is given below:</p> <p>Ambient Air Monitoring Report as per National Emission Standards:-</p> <table border="1" data-bbox="380 848 1349 1612"><thead><tr><th rowspan="2">Station</th><th rowspan="2">Parameter</th><th rowspan="2">Limit microgram/NM³</th><th colspan="3">Values for the period April 19- Sept 19</th></tr><tr><th>Min.</th><th>Max.</th><th>Avg.</th></tr></thead><tbody><tr><td rowspan="6">66 KV GEB</td><td>RSPM (PM2.5)</td><td>60</td><td>21.3</td><td>45</td><td>32.2</td></tr><tr><td>PM10</td><td>100</td><td>37.6</td><td>58</td><td>45.7</td></tr><tr><td>SO2</td><td>80</td><td>7.5</td><td>9.8</td><td>8.95</td></tr><tr><td>NOx</td><td>80</td><td>7.9</td><td>16.4</td><td>10.4</td></tr><tr><td>Ammonia</td><td>850</td><td>ND</td><td>ND</td><td>ND</td></tr><tr><td>HCl</td><td>200</td><td>ND</td><td>ND</td><td>ND</td></tr><tr><td rowspan="6">Opposite Shed D</td><td>RSPM (PM2.5)</td><td>60</td><td>27</td><td>56</td><td>41.7</td></tr><tr><td>PM10</td><td>100</td><td>34</td><td>60</td><td>46.8</td></tr><tr><td>SO2</td><td>80</td><td>7.9</td><td>13.5</td><td>10.4</td></tr><tr><td>NOx</td><td>80</td><td>8.3</td><td>11.3</td><td>9.6</td></tr><tr><td>Ammonia</td><td>850</td><td>ND</td><td>ND</td><td>ND</td></tr><tr><td>HCl</td><td>200</td><td>ND</td><td>ND</td><td>ND</td></tr><tr><td rowspan="6">Near West site ETP</td><td>RSPM (PM2.5)</td><td>60</td><td>24</td><td>42</td><td>34</td></tr><tr><td>PM10</td><td>100</td><td>37</td><td>62</td><td>51.7</td></tr><tr><td>SO2</td><td>80</td><td>8.3</td><td>11.2</td><td>9.9</td></tr><tr><td>NOx</td><td>80</td><td>7.2</td><td>10.2</td><td>9.1</td></tr><tr><td>Ammonia</td><td>850</td><td>ND</td><td>ND</td><td>ND</td></tr><tr><td>HCl</td><td>200</td><td>ND</td><td>ND</td><td>ND</td></tr></tbody></table>	Station	Parameter	Limit microgram/NM ³	Values for the period April 19- Sept 19			Min.	Max.	Avg.	66 KV GEB	RSPM (PM2.5)	60	21.3	45	32.2	PM10	100	37.6	58	45.7	SO2	80	7.5	9.8	8.95	NOx	80	7.9	16.4	10.4	Ammonia	850	ND	ND	ND	HCl	200	ND	ND	ND	Opposite Shed D	RSPM (PM2.5)	60	27	56	41.7	PM10	100	34	60	46.8	SO2	80	7.9	13.5	10.4	NOx	80	8.3	11.3	9.6	Ammonia	850	ND	ND	ND	HCl	200	ND	ND	ND	Near West site ETP	RSPM (PM2.5)	60	24	42	34	PM10	100	37	62	51.7	SO2	80	8.3	11.2	9.9	NOx	80	7.2	10.2	9.1	Ammonia	850	ND	ND	ND	HCl	200	ND	ND	ND
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	Near North ETP	RSPM (PM2.5)	60	27	40	34.2
		PM10	100	38	68	50.5
		SO2	80	6.4	10.6	8.97
		NOx	80	5.8	9.8	8.6
		Ammonia	850	ND	ND	ND
		HCl	200	ND	ND	ND
	TSDf	RSPM (PM2.5)	60	26	58	43
		PM10	100	7.8	59	44.97
		SO2	80	7.4	10.8	9.2
		NOx	80	6.3	9.5	7.9
		Ammonia	850	ND	ND	ND
		HCl	200	ND	ND	ND
	Main Guest House	RSPM (PM2.5)	60	12	38	23.2
		PM10	100	25	53	39.8
		SO2	80	4.5	10.5	7.5
		NOx	80	5.1	17.5	10.6
		Ammonia	850	ND	ND	ND
		HCl	200	ND	ND	ND
	Wyeth Colony	RSPM (PM2.5)	60	10	32	19.5
		PM10	100	26	50	38
		SO2	80	4.1	9.5	6.7
		NOx	80	4.6	14.2	9.4
		Ammonia	850	ND	ND	ND
		HCl	200	ND	ND	ND
	Gram panchayat hall	RSPM (PM2.5)	60	12	45	25
		PM10	100	29	47	38.8
		SO2	80	5.8	9.2	7.6
NOx		80	5.7	14.2	10.0	
Ammonia		850	ND	ND	ND	
HCl		200	ND	ND	ND	
Main office, North site	RSPM (PM2.5)	60	18	35	27.3	
	PM10	100	35	58	46.7	
	SO2	80	7.2	9.5	8.5	
	NOx	80	7.3	14.2	11.3	
	Ammonia	850	ND	ND	ND	
	HCl	200	ND	ND	ND	
Haria water tank	RSPM (PM2.5)	60	16.3	39	26.8	
	PM10	100	22.2	41.1	34.7	

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v.	<p>To control source and the fugitive emissions, suitable pollution control devices shall be installed to meet the prescribed norms and/ or the NAAQS.</p> <p>The gaseous emissions shall be dispersed through stack of adequate height as per CPCB/SPCB guidelines.</p>	<p>Complied.</p> <p>For controlling source & Fugitive emissions in the work zone environment and raw material storage area is being regularly monitored by NABL approved third party. Further also numbers of gas detectors are provided in work area for close monitoring. M/s. Atul Ltd has installed various APCM, special hood, suction pipe for gases emission, Alkaline scrubber and has stack height as per stipulated condition & CPCB guidelines. Elephant trunk with flexible hoods are also provided at potential leak points, sampling points, man holes, charging points and connected with scrubbers. M/s Atul Ltd. is also monitoring VOC as well as other chemicals in work area as per Factories Act and records are being maintained in Form No. 37. Solvents are stored in tank farms in separate tanks with proper earthing, flame arresters, lightening arresters, fencing, Fire hydrant system, Fire extinguishers, flame proof equipment, etc. safety measures. Dedicated Scrubbers with stacks of appropriate height (as per the central pollution control board guideline) have been provided to control the emission from various vents. Central exhaust system has been provided at strategic locations and the critical operations evolving the hazardous gases are routed through multiple stages scrubbing system.</p> <p>The maximum values during the compliance period confirm that at no time the emission level went beyond the stipulated standards. Parameter wise summary is given below, detailed analysis report are attached as Annexure-V.</p> <p>The Flue & Process Stack is being monitored at regular interval for ensuring the compliance. The testing lab appointed is M/s. Royal Environment Auditing & Consultancy Service, Surat NABL Approved TC – 5948, issue date-01/06/2019 and valid till 31/05/2021.</p> <p>1. Flue Gas Stacks & Its Emission Control Measures:-</p>																																																																																												
		<table border="1"> <thead> <tr> <th>SN</th> <th>Stack Details</th> <th>Capacity/Stack Htm</th> <th>Para</th> <th>Permissible Limits</th> <th>APCD</th> <th>Fuel</th> </tr> </thead> <tbody> <tr> <td rowspan="3">1</td> <td rowspan="3">FBC boiler E1</td> <td rowspan="3">34/56</td> <td>PM</td> <td>100 mg/Nm3</td> <td rowspan="3">Electro static precipitator</td> <td rowspan="3">Coal/ Lignite</td> </tr> <tr> <td>SO2</td> <td>600 mg/Nm3</td> </tr> <tr> <td>NOx</td> <td>600 mg/Nm3</td> </tr> <tr> <td rowspan="3">2</td> <td rowspan="3">FBC boiler E2</td> <td rowspan="3">34/56</td> <td>PM</td> <td>100 mg/Nm3</td> <td rowspan="3">Electro static precipitator</td> <td rowspan="3">Coal/ Lignite</td> </tr> <tr> <td>SO2</td> <td>600 mg/Nm3</td> </tr> <tr> <td>NOx</td> <td>600 mg/Nm3</td> </tr> <tr> <td rowspan="3">3</td> <td rowspan="3">FBC boiler E3</td> <td rowspan="3">50/80</td> <td>PM</td> <td>100 mg/Nm3</td> <td rowspan="3">Electro static precipitator</td> <td rowspan="3">Coal/ Lignite</td> </tr> <tr> <td>SO2</td> <td>600 mg/Nm3</td> </tr> <tr> <td>NOx</td> <td>600 mg/Nm3</td> </tr> <tr> <td rowspan="3">4</td> <td rowspan="3">FBC boiler W1</td> <td rowspan="3">45/70</td> <td>PM</td> <td>100 mg/Nm3</td> <td rowspan="3">Electro static precipitator</td> <td rowspan="3">Coal/ Lignite</td> </tr> <tr> <td>SO2</td> <td>600 mg/Nm3</td> </tr> <tr> <td>NOx</td> <td>600 mg/Nm3</td> </tr> <tr> <td rowspan="3">5</td> <td rowspan="3">Boiler (50 TPH2 Nos) (New boilers)W2,W3</td> <td rowspan="3">50/106</td> <td>PM</td> <td>50 mg/Nm3</td> <td rowspan="3">Electro static precipitator</td> <td rowspan="3">Coal/ Lignite</td> </tr> <tr> <td>SO2</td> <td>600 mg/Nm3</td> </tr> <tr> <td>NOx</td> <td>300 mg/Nm3</td> </tr> <tr> <td rowspan="3">6</td> <td rowspan="3">Hot Oil Unit (Resorcinol Plant)</td> <td rowspan="3">32.5</td> <td>PM</td> <td>150 mg/Nm3</td> <td rowspan="3">-</td> <td rowspan="3">CNG</td> </tr> <tr> <td>SO2</td> <td>100 ppm</td> </tr> <tr> <td>NOx</td> <td>50 ppm</td> </tr> <tr> <td rowspan="3">7</td> <td rowspan="3">Hot Oil Plant shed-B</td> <td rowspan="3">H: 19</td> <td>PM</td> <td>150 mg/Nm3</td> <td rowspan="3">-</td> <td rowspan="3">CNG</td> </tr> <tr> <td>SO2</td> <td>100 ppm</td> </tr> <tr> <td>NOx</td> <td>50 ppm</td> </tr> <tr> <td></td> <td></td> <td>Oil burner Shed B</td> <td></td> <td>PM</td> <td>150 mg/Nm3</td> <td></td> <td></td> </tr> </tbody> </table>	SN	Stack Details	Capacity/Stack Htm	Para	Permissible Limits	APCD	Fuel	1	FBC boiler E1	34/56	PM	100 mg/Nm3	Electro static precipitator	Coal/ Lignite	SO2	600 mg/Nm3	NOx	600 mg/Nm3	2	FBC boiler E2	34/56	PM	100 mg/Nm3	Electro static precipitator	Coal/ Lignite	SO2	600 mg/Nm3	NOx	600 mg/Nm3	3	FBC boiler E3	50/80	PM	100 mg/Nm3	Electro static precipitator	Coal/ Lignite	SO2	600 mg/Nm3	NOx	600 mg/Nm3	4	FBC boiler W1	45/70	PM	100 mg/Nm3	Electro static precipitator	Coal/ Lignite	SO2	600 mg/Nm3	NOx	600 mg/Nm3	5	Boiler (50 TPH2 Nos) (New boilers)W2,W3	50/106	PM	50 mg/Nm3	Electro static precipitator	Coal/ Lignite	SO2	600 mg/Nm3	NOx	300 mg/Nm3	6	Hot Oil Unit (Resorcinol Plant)	32.5	PM	150 mg/Nm3	-	CNG	SO2	100 ppm	NOx	50 ppm	7	Hot Oil Plant shed-B	H: 19	PM	150 mg/Nm3	-	CNG	SO2	100 ppm	NOx	50 ppm			Oil burner Shed B		PM	150 mg/Nm3		
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COMPLIANCE OF ENVIRONMENTAL CLEARANCE MINISTRY'S LETTER

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Expansion of Chemicals Manufacturing Unit By M/s. Atul Ltd, Valsad, Tehsil & Dist-Valsad,

		8	(Stand By)	H: 17	SO ₂	100 ppm	-	CNG	
					NO _x	50 ppm			
		9	Thermic fluid heater	H: 12	PM	150 mg/Nm ³			
					SO ₂	100 ppm	-	CNG	
					NO _x	50 ppm			

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	of DCO/DAP Plant					
10	DG set 1010 KVA(Standby)	H: 10	PM	150 mg/Nm3	-	Diesel
			SO ₂	100 ppm		
			NO _x	50 ppm		
11	DG set 1500 KVA (Stand By)	H: 11	PM	150 mg/Nm3	-	Diesel
			SO ₂	100 ppm		
			NO _x	50 pm		

2. Process Gas Stacks & Its Emission Control Measures:-

Sr. No.	Stack Details	Stack Height m	Parameter	Permissible Limits	APCD
Atul East Side					
1	New Phosgene plant-Furnace	15	PM	150 mg/Nm3	Alkali & Water Scrubber
2	New Phosgene plant -Reactor	15	CO	--	Alkali & Water Scrubber
			phosgene	0.1 ppm	
Caustic Chlorine Plant					
3	Dechlorination Plant (Hypo unit)	35	Cl 2	9.0 mg/Nm3	Alkali Scrubber
			HCl	20.0 mg/Nm3	
4	Common Stack of HCl Sigri unit 1& 2	25	Cl 2	9.0 mg/Nm3	Alkali Scrubber
			HCl	20.0 mg/Nm3	
Sulfuric Acid (East Side)					
5	Sulfuric Acid plant	30	SO ₂	2.0 kg/T	Water Scrubber With DCDA System
			Acid Mist	50.0 mg/Nm3	
6	Chloro Sulfonic Acid plant reactor	11	Cl 2	9.0 mg/Nm3	Caustic And Water Scrubber
			HCl	20.0 mg/Nm3	
FCB plant					
7	Foul Gas Scrubber	26.5	SO ₂	40.0 mg/Nm3	Caustic scrubber
			NO _x	25.0 mg/Nm3	
Incinerator					
8	Incinerator	40	PM	150.0 mg/Nm3	Alkali& water scrubber
			SO ₂	40.0 mg/Nm3	
			NO _x	25.0 mg/Nm3	
NI Plant					
9	Foul Gas	26.5	SO ₂	40.0 mg/Nm3	Caustic scrubber
	Scrubber		NO _x	25.0 mg/Nm3	
NBD Plant					

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10	Spray Dryer	21	PM	150.0 mg/Nm3	water scrubber
			NOx	25.0 mg/Nm3	
2-4-D & related Products					
11	Common Scrubber; 2,4D Plant	5	Cl2	9.0 mg/Nm3	Caustic scrubber
			HCl	20.0 mg/Nm3	
			Phenol	--	
12	Dryer-1	26.5	PM with Pesticide compound	20.0 mg/Nm3	Bag Filter, Water Scrubber
13	Dryer-2	26.5	PM with Pesticide compound	20.0 mg/Nm3	Cyclone, Bag Filter, Caustic scrubber
14	Dryer-3	26.5	PM with Pesticide compound	20.0 mg/Nm3	Cyclone, Bag Filter, Caustic scrubber
15	Dryer-4	26.5	PM with Pesticide compound	20.0 mg/Nm3	Cyclone, Bag Filter, Caustic scrubber
MPSL Plant					
16	Phosgene Scrubber at MPSL	7	Phosgene	0.1 ppm	Caustic scrubber
17	Central Scrubber at MPSL	7	Phosgene	0.1 ppm	Caustic scrubber
NICO Plant					
18	Central scrubber at Nico Plant	12	Acetonitrile	---	water scrubber
Ester Plant					
19	Scrubber at Ester plant for	12	Formaldehyde	10 Mg/Nm3	water scrubber
	Glyphosate				
Other					
20	MCPA	19	CL2	9 mg/NM3	Alkali& Water Scrubber
			HCL	20 mg/NM3	
			SO2	40 mg/NM3	
21	Fipronil	19	SO2	40 mg/NM3	Alkali& Water Scrubber
			HCL	20 Mg/Nm3	
22	Imidacloprid	20	NH3	175 Mg/Nm3	Water Followed By Acid Scrubber
23	Pyrethroids	19	SO2	40 Mg/Nm3	Alkali & Water Scrubber
			HCL	20 Mg/Nm3	
24	Stack at Amine Plant	5	NH3	175 Mg/Nm3	Caustic Scrubber
25	Central Scrubber MCPA Plant	19	HCl	20 Mg/Nm3	Caustic Scrubber
26	MPP plant scrubber	21	HCl	20 Mg/Nm3	Water & Alkali Scrubber
			Phosgene	0.1 ppm	

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27	Flavors & Fragrances Plant	21	HCl	20 mg/NM3	Water Scrubber Followed By Caustic Scrubber
28	Sulphur Black Plant	19	H ₂ S	--	Alkali & Water Scrubber
			NH ₃	175 mg/NM3	
29	Sulphur Dyes plant	19	H ₂ S	--	Alkali& Water Scrubber
			NH ₃	175 mg/NM3	
Atul West Site					
30	Shed A05/03/44	19	Cl ₂	9 mg/NM3	Caustic Scrubber
			HCl	20 mg/NM3	
31	Shed B2/12/24 Reaction Vessel	19	Cl ₂	9 mg/NM3	Caustic Scrubber
			HCl	20 mg/NM3	
32	Shed B18/02/24 Fan	19	SO ₂	40 mg/NM3	Caustic Scrubber
			Cl ₂	9.0 mg/Nm3	
			HCl	20.0 mg/Nm3	
33	Shed C5/20/15 Chlorinator	19	Cl ₂	9 mg/NM3	Alkali& Water Scrubber
			HCl	20 mg/NM3	
34	Shed D Niro Spray dryerNo.45	19	PM	150 mg/NM3	Water Scrubber
35	Shed D Niro Spray dryer No. 50	19	PM	150 mg/NM3	Water Scrubber
36	Shed E 7/12/49 Spray Dryer	19	PM	150 mg/NM3	Water Scrubber
37	Shed F 6/1/15 Reaction Vessel	19	Cl ₂	9 mg/NM3	Alkali& Water Scrubber
			HCl	20 mg/NM3	
38	Shed G 10/8/1 (receiver)	19	Cl ₂	9 mg/NM3	Alkali& Water Scrubber
			HCl	20 mg/NM3	
39	Shed H 11/6/17 Chlorinator	19	Cl ₂	9 mg/NM3	Alkali& Water Scrubber
			HCl	20 mg/NM3	
40	Shed K K-13/3/4 Final of Sulfuric acid plant	19	SO ₂	2 kg/T	Alkali& Water Scrubber
			Acid Mist	50 mg/NM3	
41	Shed J15/09/25	19	HBr	--	Alkali& Water Scrubber
			SO ₂	40 mg/NM3	
42	Shed J12/01/42	19	SO ₂	40 mg/NM3	Alkali & Water Scrubber
			Cl ₂	9.0 mg/Nm3	
			HCl	20.0 mg/Nm3	
43	Shed J12/03/36	19	SO ₂	40 mg/NM3	Caustic Scrubber

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			HCl	20.0 mg/Nm ³	
44	Shed N Scrubber Fan N20/08/24	19	Cl ₂	9 mg/NM ³	Caustic Scrubber
			HCl	20 mg/NM ³	
45	Shed N Scrubber Fan N20/02/41	19	SO ₂	40 mg/NM ³	Alkali & Water Scrubber
Atul North Site					
46	N-FDH Plant Catalytic Incinerator	31.5	PM	150.0 mg/Nm ³	Bag Filter
			SO ₂	40.0 mg/Nm ³	
			NO _x	25.0 mg/Nm ³	
			Formaldehyde	10.0 mg/Nm ³	
47	PHIN Plant	15.5	Phosgene	0.1 ppm	Water Scrubber Followed By Two Stage Caustic Scrubber With Ammonia/Steam Injection At stack
48	DDS (Pharma Plant)	20	NH ₃	175 Mg/Nm ³	Water Followed By Acid Scrubber
49	SPIC II Plant	30	SO ₃	---	Alkali & Water Scrubber
	(DCDPS)				
50	SPIC I Plant	30	NH ₃	175 Mg/Nm ³	Water Scrubber Followed By Two Stage Caustic Scrubber With Ammonia/Steam Injection At Stack
51	SPIC IV Plant	2	NH ₃	175 Mg/Nm ³	Alkali & Water Scrubber
		2	SO ₃	---	
52	PHIN II Plant	21	HCl	20 mg/Nm ³	Water Scrubber Followed By Two Stage Caustic Scrubber With Ammonia/Steam injection At Stack
			phosgene	0.1 ppm	

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Expansion of Chemicals Manufacturing Unit By M/s. Atul Ltd, Valsad, Tehsil & Dist-Valsad,

Flue Gas & Process Gas Stack Monitoring Details are attached as follows:-

Flue gas Stack Details:-

Sr. No.	Stack Details	Parameter	Permissible Limits	APCD	Apr-19			May-19		
					Avg.	Min	Max	Avg.	Min	Max
1	FBC boiler E1	PM	100 mg/Nm3	Electrostatic precipitator	75	70.9	79.1	FBC Boiler E1 was not in operation during the month.		
		SO2	600 mg/Nm3		98	93.7	102.3			
		NOx	600 mg/Nm3		120	115.5	124.5			
2	FBC boiler E2	PM	100 mg/Nm3	Electrostatic precipitator	FBC Boiler 2 was not in operation during the month.			FBC Boiler E2 was not in operation during the month.		
		SO2	600 mg/Nm3							
		NOx	600 mg/Nm3							
3	FBC boiler E3	PM	100 mg/Nm3	Electrostatic precipitator	80	77	83	85	83.1	86.9
		SO2	600 mg/Nm3		128	123.4	132.6	135	130.6	139.4
		NOx	600 mg/Nm3		145	140.1	149.9	152	146.9	157.1
4	FBC boiler W1	PM	100 mg/Nm3	Electrostatic precipitator	65	63.1	66.9	70	67.7	72.3
		SO2	600 mg/Nm3		95	92.9	97.1	98	95.3	100.7
		NOx	600 mg/Nm3		135	131.7	138.3	145	140.4	149.6
5	Boiler (50 TPH 2 Nos) (New boilers) W2,W3	PM	50 mg/Nm3	Electrostatic precipitator	41	48	44.5	48	46.2	49.8
		SO2	600 mg/Nm3		105	102	108	112	109.2	114.8
		NOx	300 mg/Nm3		95	92.6	97.4	99	97.3	100.7
6	Hot Oil Unit (Resorcinol Plant)	PM	150 mg/Nm3	-	N.D.			N.D.		
		SO2	100 ppm		N.D.			N.D.		
		NOx	50 ppm		45	41.8	48.2	46	42.6	49.4
7	Hot Oil Plant shed-B	PM	150 mg/Nm3	-	N.D.			N.D.		
		SO2	100 ppm		N.D.			N.D.		
		NOx	50 ppm		45	ND	ND	48	ND	ND
8	Oil burner Shed B	PM	150 mg/Nm3	-	Not running during the month			Not running during the month		
	(Stand By)	SO2	100 ppm							
		NOx	50 ppm							
9	Thermic fluid	PM	150 mg/Nm3	-	N.D.			N.D.		
	heater of	SO2	100 ppm		N.D.			N.D.		
	DCO/DAP Plant	NOx	50 ppm		40	36.9	43.1	45	41.6	48.4
10	DG set 1010 KVA (Standby)	PM	150 mg/Nm3	-	31	47.2	39.8	15	45	30.2
		SO2	100 ppm		1.9	6.9	4.4	3.5	6.3	4.9
		NOx	50 ppm		20	28	24.1	26	40	33.1
11	DG set 1500 KVA	PM	150 mg/Nm3	-	18	36	27.6	23	37	29.6
	(Stand By)	SO2	100 ppm		2	6.3	4.1	2.9	4.9	3.9
		NOx	50 ppm		13	31	21.7	19.6	30	24.8

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Expansion of Chemicals Manufacturing Unit By M/s. Atul Ltd, Valsad, Tehsil & Dist-Valsad,

Sr. No.	Stack Details	Parameter	Permissible Limits	APCD	Jun-19			Jul-19		
					Avg.	Min	Max	Avg.	Min	Max
1	FBC boiler E1	PM	100 mg/Nm3	Electro static precipitator	Not running during these month			87	83.2	90.8
		SO2	600 mg/Nm3					120	115.8	124.2
		NOx	600 mg/Nm3					135	130.3	139.7
2	FBC boiler E2	PM	100 mg/Nm3	Electro static precipitator	84	80.9	87.1	82	79.1	84.9
		SO2	600 mg/Nm3		132	128.3	135.7	127	123.7	130.3
		NOx	600 mg/Nm3		150	145	155	147	142.2	151.8
3	FBC boiler E3	PM	100 mg/Nm3	Electro static precipitator	81	78.3	83.7	82	79.4	84.6
		SO2	600 mg/Nm3		133	129.8	136.2	126	123.6	128.4
		NOx	600 mg/Nm3		148	143.2	152.8	138	135.3	140.7
4	FBC boiler W1	PM	100 mg/Nm3	Electro static precipitator	68	66.1	69.9	68	66.5	69.5
		SO2	600 mg/Nm3		96	94.3	97.7	94	92.3	95.7
		NOx	600 mg/Nm3		142	137.3	146.7	132	128.6	135.4
5	Boiler (50 TPH 2 Nos) (New boilers) W2,W3	PM	50 mg/Nm3	Electro static precipitator	47	44.8	49.2	47	44.3	49.7
		SO2	600 mg/Nm3		109	105.7	112.3	109	106.1	111.9
		NOx	300 mg/Nm3		95	92.9	97.1	95	93.2	96.8
6	Hot Oil Unit (Resorcinol Plant)	PM	150 mg/Nm3	-	N.D.			N.D.		
		SO2	100 ppm		N.D.			N.D.		
		NOx	50 ppm		42	38.2	45.8	38	35.8	40.2
7	Hot Oil Plant shed-B	PM	150 mg/Nm3	-	N.D.			N.D.		
		SO2	100 ppm		N.D.			N.D.		
		NOx	50 ppm		44	41.1	46.9	39	37.1	40.9
8	Oil burner Shed B	PM	150 mg/Nm3	-	Not running during the month			Not running during the month		
	(Stand By)	SO2	100 ppm							
		NOx	50 ppm							
9	Thermic fluid	PM	150 mg/Nm3	-	N.D.			N.D.		
	heater of	SO2	100 ppm		N.D.			N.D.		
	DCO/DAP Plant	NOx	50 ppm		43	39.8	46.2	42	40	44
10	DG set 1010 KVA (Standby)	PM	150 mg/Nm3	-	13	27	19.8	38	47	42.8
		SO2	100 ppm		3.7	6	4.6	3.6	6.3	4.9
		NOx	50 ppm		19	40	29.5	28.5	42	34.8
11	DG set 1500 KVA	PM	150 mg/Nm3	-	18.8	41	29.8	27.9	32.5	30.2

COMPLIANCE OF ENVIRONMENTAL CLEARANCE MINISTRY'S LETTER

NO.:F. No. J-11011/108/2015-IA-II (I), DATED: 11/02/2019

Period – APRIL 2019 TO SEPTEMBER 2019

Expansion of Chemicals Manufacturing Unit By M/s. Atul Ltd, Valsad, Tehsil & Dist-Valsad,

(Stand By)	SO2	100 ppm		2	6	4.0	2.7	6.6	4.6
	NOx	50 ppm		23	32	27.9	26.9	43	33.5

Sr. No.	Stack Details	Parameter	Permissible Limits	APCD	Aug-19			Sep-19		
					Avg.	Min	Max	Avg.	Min	Max
1	FBC boiler E1	PM	100 mg/Nm3	Electro static precipitator	65	61.4	68.6	60	57.2	62.8
		SO2	600 mg/Nm3		103	99.5	106.5	114	109.6	118.4
		NOx	600 mg/Nm3		123	118.9	127.1	142	137.4	146.6
2	FBC boiler E2	PM	100 mg/Nm3	Electro static precipitator	83	80.4	85.6	80	77.3	82.7
		SO2	600 mg/Nm3		108	104.7	111.3	107	103.5	110.5
		NOx	600 mg/Nm3		138	134.6	141.4	138	134.3	141.7
3	FBC boiler E3	PM	100 mg/Nm3	Electro static precipitator	73	71.1	74.9	68	66.5	69.5
		SO2	600 mg/Nm3		142	137.4	146.6	135	131.2	138.8
		NOx	600 mg/Nm3		147	142.3	151.7	132	128.4	135.6
4	FBC boiler W1	PM	100 mg/Nm3	Electro static precipitator	53	50.4	55.6	64	61.2	66.8
		SO2	600 mg/Nm3		105	101.4	108.6	110	106.2	113.8
		NOx	600 mg/Nm3		120	116.1	123.9	127	124.1	129.9
5	Boiler (50 TPH 2 Nos) (New boilers) W2,W3	PM	50 mg/Nm3	Electro static precipitator	34	32.7	35.3	29	27.6	30.4
		SO2	600 mg/Nm3		120	115.9	124.1	138	133.6	142.4
		NOx	300 mg/Nm3		84	81.7	86.3	98	95.9	100.1
6	Hot Oil Unit (Resorcinol Plant)	PM	150 mg/Nm3	-	N.D.			N.D.		
		SO2	100 ppm		N.D.			N.D.		
		NOx	50 ppm		22	20.3	23.7	28	26.5	29.5
7	Hot Oil Plant shed-B	PM	150 mg/Nm3	-	N.D.			N.D.		
		SO2	100 ppm		N.D.			N.D.		
		NOx	50 ppm		27	25.4	28.6	30	28.3	31.7
8	Oil burner Shed B	PM	150 mg/Nm3	-	Not running during the month			Not running during the month		
	(Stand By)	SO2	100 ppm							
		NOx	50 ppm							
9	Thermic fluid	PM	150 mg/Nm3	-	N.D.			N.D.		
	heater of	SO2	100 ppm		N.D.			N.D.		
	DCO/DAP Plant	NOx	50 ppm		42	39.9	44.1	38	35.8	40.2
10	DG set 1010 KVA (Standby)	PM	150 mg/Nm3	-	24	31.2	27.6	27	34.6	30.8
		SO2	100 ppm		4	5.5	4.8	5.6	7.2	6.4
		NOx	50 ppm		23	36.5	29.7	28.6	37	32.6
11	DG set 1500 KVA	PM	150 mg/Nm3	-	25	29.5	27.2	31.33	38.5	34.9
	(Stand By)	SO2	100 ppm		3.33	4.35	3.84	3.9	5	4.4
		NOx	50 ppm		19	30	24.8	32	44	37.8

COMPLIANCE OF ENVIRONMENTAL CLEARANCE MINISTRY'S LETTER

NO.:F. No. J-11011/108/2015-IA-II (I), DATED: 11/02/2019

Period – APRIL 2019 TO SEPTEMBER 2019

Expansion of Chemicals Manufacturing Unit By M/s. Atul Ltd, Valsad, Tehsil & Dist-Valsad,

Process Gas Stack Details:-

Sr. No	Stack Details	Stack Height mtr	Parameter	Permissible Limits	APCD	April			May		
						2019			2019		
Atul East Site						Avg.	Min	Max	Avg.	Min	Max
1	New Phosgene plant-Furnace	15	PM	150 mg/Nm3	Alkali & water scrubber	85	81.9	88	95	92	98
2	New Phosgene plant - Reactor	15	CO	--	Alkali & water scrubber	N.D.			N.D.		
			phosgene	0.1 ppm		N.D.			N.D.		
Caustic Chlorine Plant											
3	Dechlorination Plant (Hypo unit)	35	Cl 2	9.0 mg/Nm3	Alkali scrubber	3.2	2.7	3.7	Shutdown during visit		
			HCl	20.0 mg/Nm3		4.8	3.9	5.7			
4	Common stack of HCl Sigr unit 1& 2	25	Cl 2	9.0 mg/Nm3	Alkali scrubber	6.5	5.3	7.7	Shutdown during visit		
			HCl	20.0 mg/Nm3		6.8	5.4	8.2			
Sulfuric Acid (East Side)											
5	Sulfuric Acid plant	30	SO2	2.0 kg/T	water scrubber with DCDA system	0.9	0.6	1.2	1.1	0.5	1.7
			Acid Mist	50.0 mg/Nm3		6.3	5.4	7.2	7.8	7.4	8.2
6	Chloro Sulfonic Acid plant reactor	11	Cl 2	9.0 mg/Nm3	Caustic and water scrubber	Not running during visit			8.1	7.2	9
			HCl	20.0 mg/Nm3					15	15	16
FCB plant											
7	Foul Gas Scrubber	26.5	SO2	40.0 mg/Nm3	Caustic scrubber	Not in Use					
			NOx	25.0 mg/Nm3							
Incinerator											
8	Incinerator	40	PM	150.0 mg/Nm3	Alkali&	80	77.9	82	85	82	88
			SO2	40.0 mg/Nm3	water scrubber	18	16.9	19	18	15	21
			NOx	25.0 mg/Nm3		14	12.1	14	15	12	17
NI Plant											
9	Foul Gas Scrubber	26.5	SO2	40.0 mg/Nm3	Caustic scrubber	Not running during visit					
			NOx	25.0 mg/Nm3							
NBD Plant											
10	Spray Dryer	21	PM	150.0 mg/Nm3	water scrubber	Not in Use					
			NOx	25.0 mg/Nm3							
2-4-D & related Products											
11	Common Scrubber; 2,4D Plant	5	Cl2	9.0 mg/Nm3	Caustic scrubber	7.3	6.8	7.8	7.6	7.4	7.8
			HCl	20.0 mg/Nm3		8.1	7.5	8.7	8.4	6.9	9.9
			Phenol	--		N.D.			N.D.		

COMPLIANCE OF ENVIRONMENTAL CLEARANCE MINISTRY'S LETTER

NO.:F. No. J-11011/108/2015-IA-II (I), DATED: 11/02/2019

Period – APRIL 2019 TO SEPTEMBER 2019

Expansion of Chemicals Manufacturing Unit By M/s. Atul Ltd, Valsad, Tehsil & Dist-Valsad,

12	Dryer-1	26.5	PM with Pesticide compound	20.0 mg/Nm3	bag filter, water scrubber	7.2	5.9	8.5	7.5	6.6	8.4
13	Dryer-2	26.5	PM with Pesticide compound	20.0 mg/Nm3	cyclone, bag filter, caustic scrubber	7.9	6.3	9.5	8.3	6.5	10
14	Dryer-3	26.5	PM with Pesticide compound	20.0 mg/Nm3	cyclone, bag filter, caustic scrubber	9.5	8.9	10	9.8	9.6	9.6
15	Dryer-4	26.5	PM with Pesticide compound	20.0 mg/Nm3	cyclone, bag filter, caustic scrubber	8.1	7	9.2	8.5	7.9	9.1
MPSL Plant											
16	Phosgene Scrubber at MPSL	7	Phosgene	0.1 ppm	Caustic scrubber	N.D.			N.D.		
17	Central Scrubber at MPSL	7	Phosgene	0.1 ppm	Caustic scrubber	N.D.			N.D.		
NICO Plant											
18	Central scrubber at Nico Plant	12	Acetonitrile	---	water scrubber	--			--		
Ester Plant											
19	Scrubber at Ester plant for Glyphosate	12	Formaldehyde	10 Mg/Nm3	water scrubber	Not running during visit					
Other											
20	MCPA	19	CL2	9 mg/NM3	Alkali& water scrubber	Not running during visit					
			HCL	20 mg/NM3							
			SO2	40 mg/NM3							
21	Fipronil	19	SO2	40 mg/NM3	Alkali& water scrubber	Not running during visit					
			HCL	20 Mg/Nm3							
22	Imidacloprid	20	NH3	175 Mg/Nm3	water followed by acid scrubber	Not running during visit					
23	Pyrethroids	19	SO2	40 Mg/Nm3	Alkali& water scrubber	Not running during visit					
			HCL	20 Mg/Nm3							
24	Stack at Amine Plant	5	NH3	175 Mg/Nm3	Caustic scrubber	7.9	7.4	8.4	8.3	7.2	9.4
25	Central Scrubber MCPA Plant	19	HCl	20 Mg/Nm3	Caustic scrubber	Not running during visit					
26	MPP plant scrubber	21	HCl	20 Mg/Nm3	Water & Alkali Scrubber	Not running during visit					
			Phosgene	0.1 ppm							
27	Flavors &Fragrances Plant	21	HCl	20 mg/NM3	Water scrubber followed by caustic scrubber	--			--		
28	Sulfer Black Plant	19	H2S	--	Alkali& water scrubber	N.D.			N.D.		
			NH3	175 mg/NM3		18	15.9	21	19	16	21
29	Sulfer Dyes plant	19	H2S	--	Alkali& water scrubber	N.D.			N.D.		
			NH3	175 mg/NM3		17	15.2	18	17	15	20
Atul West Site											
30	Shed A05/03/44	19	Cl2	9 mg/NM3	Caustic scrubber	4.2	3.4	5	4.3	3.7	4.9
			HCl	20 mg/NM3		7.1	6	8.2	7.3	5.7	8.9

COMPLIANCE OF ENVIRONMENTAL CLEARANCE MINISTRY'S LETTER

NO.:F. No. J-11011/108/2015-IA-II (I), DATED: 11/02/2019

Period – APRIL 2019 TO SEPTEMBER 2019

Expansion of Chemicals Manufacturing Unit By M/s. Atul Ltd, Valsad, Tehsil & Dist-Valsad,

31	Shed B2/12/24 Reaction Vessel	19	Cl ₂	9 mg/NM ₃	Caustic scrubber	6.8	5.2	8.4	7.1	6.8	7.4
			HCl	20 mg/NM ₃		5.8	4.7	6.9	6.2	4.9	7.5
32	Shed B18/02/24 Fan	19	SO ₂	40 mg/NM ₃	Caustic scrubber	5.2	4.3	6.1	5.6	4.4	6.8
			Cl ₂	9.0 mg/Nm ₃		4.6	3.3	5.9	4.3	3.5	5.1
			HCl	20.0 mg/Nm ₃		5.1	4	6.2	5.3	4.4	6.2
33	Shed C5/20/15 Chlorinator	19	Cl ₂	9 mg/NM ₃	Alkali& water scrubber	6.4	4.6	8.2	6.5	5.2	7.8
			HCl	20 mg/NM ₃		7	5.1	8.9	7.1	5.5	8.7
34	Shed D Niro Spray dryer No.45	19	PM	150 mg/NM ₃	water scrubber	75	71.9	78	80	77	83
35	Shed D Niro Spray dryer No. 50	19	PM	150 mg/NM ₃	water scrubber	58	55.6	60	63	60	66
36	Shed E 7/12/49 Spray Dryer	19	PM	150 mg/NM ₃	water scrubber	13	11	15	Not running during visit		
37	Shed F 6/1/15 Reaction Vessel	19	Cl ₂	9 mg/NM ₃	Alkali& water scrubber	6.3	5.2	7.4	6.8	5.4	8.2
			HCl	20 mg/NM ₃		6.7	5.3	8.1	6.9	5.8	8
38	Shed G 10/8/1 (receiver)	19	Cl ₂	9 mg/NM ₃	Alkali& water scrubber	Not running during visit					
			HCl	20 mg/NM ₃		Not running during visit					
39	Shed H 11/6/17 Chlorinator	19	Cl ₂	9 mg/NM ₃	Alkali& water scrubber	6.5	5.6	7.4	6.6	5.5	7.7
			HCl	20 mg/NM ₃		6.8	6	7.6	7.1	5.9	8.3
40	Shed K K-13/3/4 Final of Sulfuric acid plant	19	SO ₂	2 kg/T	Alkali& water scrubber	1.7	0.9	2.5	1.8	1.7	1.9
			Acid Mist	50 mg/NM ₃		14	11.3	16	14	12	17
41	Shed J15/09/25	19	HBr	--	Alkali& water scrubber	N.D.			N.D.		
			SO ₂	40 mg/NM ₃		8.9	7.3	11	9.1	7.7	11
42	Shed J12/01/42	19	SO ₂	40 mg/NM ₃	Alkali& water scrubber	7.5	6.8	8.2	8.2	7.4	9
			Cl ₂	9.0 mg/Nm ₃		7.2	5.9	8.5	7.6	7.1	8.1
			HCl	20.0 mg/Nm ₃		6.3	5.6	7	6.5	6.1	6.9
43	Shed J12/03/36	19	SO ₂	40 mg/NM ₃	Caustic scrubber	9.1	7.5	11	9.3	8.4	10
			HCl	20.0 mg/Nm ₃		6.5	4.7	8.3	6.6	6	7.2
44	Shed N Scrubber Fan N20/08/24	19	Cl ₂	9 mg/NM ₃	Caustic scrubber	6.3	4.6	8	6.5	5.7	7.3
			HCl	20 mg/NM ₃		9.8	8.6	11	11	8.9	12
45	Shed N Scrubber Fan N20/02/41	19	SO ₂	40 mg/NM ₃	Alkali& water scrubber	8.3	6.9	9.7	8.5	7.7	9.3
Atul North Site											
46	N-FDH Plant Catalytic Incinerator	31.5	PM	150.0 mg/Nm ₃	bag filter	60	57.6	62	65	62	68
			SO ₂	40.0 mg/Nm ₃		14	11.8	15	15	13	17
			NO _x	25.0 mg/Nm ₃		12	10.9	13	13	12	14
			Formaldehyde	10.0 mg/Nm ₃		N.D.			N.D.		

COMPLIANCE OF ENVIRONMENTAL CLEARANCE MINISTRY'S LETTER

NO.:F. No. J-11011/108/2015-IA-II (I), DATED: 11/02/2019

Period – APRIL 2019 TO SEPTEMBER 2019

Expansion of Chemicals Manufacturing Unit By M/s. Atul Ltd, Valsad, Tehsil & Dist-Valsad,

47	PHIN Plant	15.5	Phosgene	0.1 ppm	Water scrubber followed by two stage caustic scrubber with Ammonia/steam injection at stack	N.D.			N.D.		
48	DDS (Pharma Plant)	20	NH3	175 Mg/Nm3	water followed by acid scrubber	16	14.3	17	16	15	18
49	SPIC II Plant (DCDPS)	30	SO3	---	Alkali & water scrubber	N.D.			N.D.		
50	SPIC I Plant	30	NH3	175 Mg/Nm3	Water scrubber followed by two stage caustic scrubber with Ammonia/steam injection at stack	16	13.4	18	17	14	19
51	SPIC IV Plant	2	NH3	175 Mg/Nm3	Alkali &	17	14.3	19	17	15	19
		2	SO3	---	water scrubber	8.5	6.9	10	8.9	7.6	10
52	PHIN II Plant	21	HCl	20 mg/Nm3	water scrubber followed by two stage caustic scrubber with Ammonia/steam	--			13	11	16
			phosgene	0.1 ppm		--			N.D.		

Sr. No	Stack Details	Stack Height mtr	Parameter	Permissible Limits	APCD	Jun			Jul		
						2019			2019		
Atul East Site						Avg.	Min	Max	Avg.	Min	Max
1	New Phosgene plant-Furnace	15	PM	150 mg/Nm3	Alkali & water scrubber	99	96	102	95	92.6	97.4
2	New Phosgene plant - Reactor	15	CO	--	Alkali & water scrubber	N.D.			N.D.		
			phosgene	0.1 ppm		N.D.			N.D.		
Caustic Chlorine Plant											
3	Dechlorination Plant (Hypo unit)	35	Cl 2	9.0 mg/Nm3	Alkali scrubber	8.1	7.6	8.6	8.4	8.1	8.7
			HCl	20.0 mg/Nm3		15	13	17.1	15	13	16.2
4	Common stack of HCl Sigri unit 1& 2	25	Cl 2	9.0 mg/Nm3	Alkali scrubber	8.1	7.7	8.5	7.5	7.1	7.9
			HCl	20.0 mg/Nm3		12	11	13.9	11	10.3	12.3
Sulfuric Acid (East Side)											
5	Sulfuric Acid plant	30	SO2	2.0 kg/T	water scrubber with DCDA system	1.2	0.9	1.5	0.9	0.7	1.1
			Acid Mist	50.0 mg/Nm3		8.5	8	9	9.6	8.4	10.8
6	Chloro Sulfonic Acid plant reactor	11	Cl 2	9.0 mg/Nm3	Caustic and water scrubber	8.5	8.2	8.8	7.6	7.2	8
			HCl	20.0 mg/Nm3		14	13	15.8	15	13.6	16.8
FCB plant											
7	Foul Gas Scrubber	26.5	SO2	40.0 mg/Nm3	Caustic scrubber	Not in Use					
			NOx	25.0 mg/Nm3							
Incinerator											

COMPLIANCE OF ENVIRONMENTAL CLEARANCE MINISTRY'S LETTER

NO.:F. No. J-11011/108/2015-IA-II (I), DATED: 11/02/2019

Period – APRIL 2019 TO SEPTEMBER 2019

Expansion of Chemicals Manufacturing Unit By M/s. Atul Ltd, Valsad, Tehsil & Dist-Valsad,

8	Incinerator	40	PM	150.0 mg/Nm3	Alkali&	92	88	95.8	97	93.5	101
			SO2	40.0 mg/Nm3	water scrubber	20	19	21.6	17	15.2	19.2
			NOx	25.0 mg/Nm3		16	15	17.7	18	15.1	20.1
NI Plant											
9	Foul Gas Scrubber	26.5	SO2	40.0 mg/Nm3	Caustic scrubber	Not running during visit					
			NOx	25.0 mg/Nm3							
NBD Plant											
10	Spray Dryer	21	PM	150.0 mg/Nm3	water scrubber	Not in Use					
			NOx	25.0 mg/Nm3							
2-4-D & related Products											
11	Common Scrubber; 2,4D Plant	5	Cl2	9.0 mg/Nm3	Caustic scrubber	8.2	7.6	8.8	8.1	7.6	8.6
			HCl	20.0 mg/Nm3		9.8	8.9	10.7	10	8.8	11.2
			Phenol	--		N.D.			N.D.		
12	Dryer-1	26.5	PM with Pesticide compound	20.0 mg/Nm3	bag filter, water scrubber	8.3	7.5	9.1	8.3	7.4	9.2
13	Dryer-2	26.5	PM with Pesticide compound	20.0 mg/Nm3	cyclone, bag filter, caustic scrubber	10	8.5	11.7	9.8	9.1	10.5
14	Dryer-3	26.5	PM with Pesticide compound	20.0 mg/Nm3	cyclone, bag filter, caustic scrubber	11	9.2	11.8	11	9.3	12.7
15	Dryer-4	26.5	PM with Pesticide compound	20.0 mg/Nm3	cyclone, bag filter, caustic scrubber	9.5	10	8.8	10	8.5	12.1
MPSL Plant											
16	Phosgene Scrubber at MPSL	7	Phosgene	0.1 ppm	Caustic scrubber	N.D.			N.D.		
17	Central Scrubber at MPSL	7	Phosgene	0.1 ppm	Caustic scrubber	N.D.			N.D.		
NICO Plant											
18	Central scrubber at Nico Plant	12	Acetonitrile	---	water scrubber	--			--		
Ester Plant											
19	Scrubber at Ester plant for Glyphosate	12	Formaldehyde	10 Mg/Nm3	water scrubber	Not running during visit					
Other											
20	MCPA	19	CL2	9 mg/NM3	Alkali& water scrubber	Not running during visit					
			HCL	20 mg/NM3							
			SO2	40 mg/NM3							
21	Fipronil	19	SO2	40 mg/NM3	Alkali& water scrubber	Not running during visit					
			HCL	20 Mg/Nm3							
22	Imidacloprid	20	NH3	175 Mg/Nm3	water followed by acid scrubber	Not running during visit					
23	Pyrethroids	19	SO2	40 Mg/Nm3	Alkali& water	Not running during visit					

COMPLIANCE OF ENVIRONMENTAL CLEARANCE MINISTRY'S LETTER

NO.:F. No. J-11011/108/2015-IA-II (I), DATED: 11/02/2019

Period – APRIL 2019 TO SEPTEMBER 2019

Expansion of Chemicals Manufacturing Unit By M/s. Atul Ltd, Valsad, Tehsil & Dist-Valsad,

			HCL	20 Mg/Nm3	scrubber						
24	Stack at Amine Plant	5	NH3	175 Mg/Nm3	Caustic scrubber	8.1	6.8	9.4	9.2	7.4	11
25	Central Scrubber MCPA Plant	19	HCl	20 Mg/Nm3	Caustic scrubber	Not running during visit					
26	MPP plant scrubber	21	HCl	20 Mg/Nm3	Water & Alkali Scrubber	Not running during visit					
			Phosgene	0.1 ppm							
27	Flavors &Fragrances Plant	21	HCl	20 mg/NM3	Water scrubber followed by caustic scrubber	16	14	18.1	Not running during visit		
28	Sulfur Black Plant	19	H2S	--	Alkali& water scrubber	N.D.			N.D.		
			NH3	175 mg/NM3		20	18	21.7	20	17.5	22.9
29	Sulfur Dyes plant	19	H2S	--	Alkali& water scrubber	N.D.			N.D.		
			NH3	175 mg/NM3		18	16	20	17	14.5	18.5
Atul West Site											
30	Shed A05/03/44	19	Cl2	9 mg/NM3	Caustic scrubber	4.5	3.3	5.7	5.2	3.9	6.5
			HCl	20 mg/NM3		7.5	6.1	8.9	7.3	5.2	9.4
31	Shed B2/12/24 Reaction Vessel	19	Cl2	9 mg/NM3	Caustic scrubber	7.8	6.9	8.7	7.1	5.8	8.4
			HCl	20 mg/NM3		6.5	4.8	8.2	5.9	4.9	6.9
32	Shed B18/02/24 Fan	19	SO2	40 mg/NM3	Caustic scrubber	6.2	5.4	7	7.1	5.6	8.6
			Cl2	9.0 mg/Nm3		4.6	4	5.2	3.9	3.4	4.4
			HCl	20.0 mg/Nm3		6.1	4.9	7.3	6.4	4.9	7.9
33	Shed C5/20/15 Chlorinator	19	Cl2	9 mg/NM3	Alkali& water scrubber	6.6	5.6	7.6	6.1	4.4	7.8
			HCl	20 mg/NM3		7.8	6.5	9.1	8	6.6	9.4
34	Shed D Niro Spray dryer No.45	19	PM	150 mg/NM3	water scrubber	86	82	89.7	75	72.2	77.8
35	Shed D Niro Spray dryer No. 50	19	PM	150 mg/NM3	water scrubber	66	64	68.5	69	65.7	72.3
36	Shed E 7/12/49 Spray Dryer	19	PM	150 mg/NM3	water scrubber	Not running during visit					
37	Shed F 6/1/15 Reaction Vessel	19	Cl2	9 mg/NM3	Alkali& water scrubber	7.1	5.4	8.8	8	7.7	8.3
			HCl	20 mg/NM3		7.5	6.6	8.4	9.1	7.8	10.4
38	Shed G 10/8/1 (receiver)	19	Cl2	9 mg/NM3	Alkali& water scrubber	Not running during visit					
			HCl	20 mg/NM3							
39	Shed H 11/6/17 Chlorinator	19	Cl2	9 mg/NM3	Alkali& water scrubber	7.1	6.3	7.9	6.8	5.8	7.8
			HCl	20 mg/NM3		7.3	5.9	8.7	8.1	6.9	9.3
40	Shed K K-13/3/4 Final of Sulfuric acid plant	19	SO2	2 kg/T	Alkali& water scrubber	1.5	1.2	1.8	1.1	0.7	1.5
			Acid Mist	50 mg/NM3		16	13	18.4	18	20.8	20.8
41	Shed J15/09/25	19	HBr	--	Alkali& water scrubber	N.D.			N.D.		
			SO2	40 mg/NM3		9.8	8.9	10.7	8.7	7.7	9.7
42	Shed J12/01/42	19	SO2	40 mg/NM3	Alkali& water scrubber	8.5	7.2	9.8	12	10.3	14.3
			Cl 2	9.0 mg/Nm3		8.2	7.6	8.8	5.5	5.1	5.9
			HCl	20.0 mg/Nm3		6.9	6.1	7.7	7.2	6	8.4
43	Shed J12/03/36	19	SO2	40 mg/NM3	Caustic scrubber	9.2	8.6	9.8	9.8	9.1	10.5

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			HCl	20.0 mg/Nm3		6.8	5.3	8.3	7.2	5.9	8.5
44	Shed N Scrubber Fan N20/08/24	19	Cl2	9 mg/NM3	Caustic scrubber	6.7	4.8	8.6	7.8	6.7	8.9
			HCl	20 mg/NM3		10	9.3	10.9	8.3	6.8	9.8
45	Shed N Scrubber Fan N20/02/41	19	SO2	40 mg/NM3	Alkali& water scrubber	8.8	7.8	9.8	8.2	7.5	8.9
Atul North Site											
46	N-FDH Plant Catalytic Incinerator	31.5	PM	150.0 mg/Nm3	bag filter	70	67	73.3	Not running during visit		
			SO2	40.0 mg/Nm3		14	13	16.1			
			NOx	25.0 mg/Nm3		13	12	14.5			
			Formaldehyde	10.0 mg/Nm3		N.D.					
47	PHIN Plant	15.5	Phosgene	0.1 ppm	Water scrubber followed by two stage caustic scrubber with Ammonia/steam injection at stack	N.D.			N.D.		
48	DDS (Pharma Plant)	20	NH3	175 Mg/Nm3	water followed by acid scrubber	16	15	16.8	17	14.7	19.9
49	SPIC II Plant (DCDPS)	30	SO3	---	Alkali & water scrubber	N.D.			N.D.		
50	SPIC I Plant	30	NH3	175 Mg/Nm3	Water scrubber followed by two stage caustic scrubber with Ammonia/steam injection at stack	17	15	19.1	18	16	20.6
51	SPIC IV Plant	2	NH3	175 Mg/Nm3	Alkali &	19	17	20.3	19	17.8	20.6
		2	SO3	---	water scrubber	9.2	8.2	10.2	9.2	8.3	10.1
52	PHIN II Plant	21	HCl	20 mg/Nm3	water scrubber followed by two stage caustic scrubber with Ammonia/steam	13	11	15	13	11.2	15.6
			phosgene	0.1 ppm		N.D.			N.D.		

Sr. No.	Stack Details	Stack Height mtr	Parameter	Permissible Limits	APCD	Aug			Sept		
						2019			2019		
Atul East Site						Avg.	Min	Max	Avg.	Min	Max
1	New Phosgene plant-Furnace	15	PM	150 mg/Nm3	Alkali & water scrubber	87	83.7	90	74	71.7	76.3
2	New Phosgene plant - Reactor	15	CO	--	Alkali & water scrubber	N.D.			N.D.		
			phosgene	0.1 ppm		N.D.			N.D.		
Caustic Chlorine Plant											
3	Dechlorination Plant (Hypo unit)	35	Cl 2	9.0 mg/Nm3	Alkali scrubber	6.3	5.7	6.9	7.1	6.9	7.3
			HCl	20.0 mg/Nm3		8.1	7.2	9	9.4	8.8	10

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Expansion of Chemicals Manufacturing Unit By M/s. Atul Ltd, Valsad, Tehsil & Dist-Valsad,

4	Common stack of HCl Sigr unit 1& 2	25	Cl 2	9.0 mg/Nm3	Alkali scrubber	5.6	5.1	6.1	5.2	4.4	6
			HCl	20.0 mg/Nm3		9.6	8.7	11	10	8.9	11.5
Sulfuric Acid (East Side)											
5	Sulfuric Acid plant	30	SO2	2.0 kg/T	water scrubber with DCDA system	0.5	0.4	0.6	0.7	0.3	1.1
			Acid Mist	50.0 mg/Nm3		7.3	6.7	7.9	12	10.7	14.1
6	Chloro Sulfonic Acid plant reactor	11	Cl 2	9.0 mg/Nm3	Caustic and water scrubber	6.7	6.1	7.3	5.4	4.6	6.2
			HCl	20.0 mg/Nm3		13	10.9	14	11	9.4	11.8
FCB plant											
7	Foul Gas Scrubber	26.5	SO2	40.0 mg/Nm3	Caustic scrubber	Not in Use					
			NOx	25.0 mg/Nm3							
Incinerator											
8	Incinerator	40	PM	150.0 mg/Nm3	Alkali&	83	80.1	86	65	61.8	68.2
			SO2	40.0 mg/Nm3	water scrubber	12	11.1	14	15	13.6	17.2
			NOx	25.0 mg/Nm3		9.4	8.6	10	7.3	6.9	7.7
NI Plant											
9	Foul Gas Scrubber	26.5	SO2	40.0 mg/Nm3	Caustic scrubber	Not running during visit					
			NOx	25.0 mg/Nm3							
NBD Plant											
10	Spray Dryer	21	PM	150.0 mg/Nm3	water scrubber	Not in Use					
			NOx	25.0 mg/Nm3							
2-4-D & related Products											
11	Common Scrubber; 2,4D Plant	5	Cl2	9.0 mg/Nm3	Caustic scrubber	7.2	6.4	8	7.4	6.6	8.2
			HCl	20.0 mg/Nm3		8.6	6.8	10	6.4	5	7.8
			Phenol	--		N.D.			N.D.		
12	Dryer-1	26.5	PM with Pesticide compound	20.0 mg/Nm3	bag filter, water scrubber	5.6	4.9	6.3	7.8	5.7	9.9
13	Dryer-2	26.5	PM with Pesticide compound	20.0 mg/Nm3	cyclone, bag filter, caustic scrubber	6.2	4.6	7.8	9.4	8.2	10.6
14	Dryer-3	26.5	PM with Pesticide compound	20.0 mg/Nm3	cyclone, bag filter, caustic scrubber	15	13	18	8.2	6.4	10
15	Dryer-4	26.5	PM with Pesticide compound	20.0 mg/Nm3	cyclone, bag filter, caustic scrubber	8.3	6.2	10	10	8.3	12.1
MPSL Plant											
16	Phosgene Scrubber at MPSL	7	Phosgene	0.1 ppm	Caustic scrubber	N.D.			N.D.		
17	Central Scrubber at MPSL	7	Phosgene	0.1 ppm	Caustic scrubber	N.D.			N.D.		
NICO Plant											

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18	Central scrubber at Nico Plant	12	Acetonitrile	---	water scrubber	--	--						
Ester Plant													
19	Scrubber at Ester plant for Glyphosate	12	Formaldehyde	10 Mg/Nm3	water scrubber	Not running during visit							
Other													
20	MCPA	19	Cl2	9 mg/NM3	Alkali& water scrubber	Not running during visit							
			HCL	20 mg/NM3									
			SO2	40 mg/NM3									
21	Fipronil	19	SO2	40 mg/NM3	Alkali& water scrubber	Not running during visit							
			HCL	20 Mg/Nm3									
22	Imidacloprid	20	NH3	175 Mg/Nm3	water followed by acid scrubber	Not running during visit							
23	Pyrethroids	19	SO2	40 Mg/Nm3	Alkali& water scrubber	Not running during visit							
			HCL	20 Mg/Nm3									
24	Stack at Amine Plant	5	NH3	175 Mg/Nm3	Caustic scrubber	16	13.6	19	24	21.7	26.7		
25	Central Scrubber MCPA Plant	19	HCl	20 Mg/Nm3	Caustic scrubber	Not running during visit							
26	MPP plant scrubber	21	HCl	20 Mg/Nm3	Water & Alkali Scrubber	Not running during visit							
			Phosgene	0.1 ppm									
27	Flavors &Fragrances Plant	21	HCl	20 mg/NM3	Water scrubber followed by caustic scrubber	Not running during visit							
28	Sulfer Black Plant	19	H2S	--	Alkali& water scrubber	N.D.			N.D.				
			NH3	175 mg/NM3		35	33.7	37	45	42.7	47.9		
29	Sulfer Dyes plant	19	H2S	--	Alkali& water scrubber	N.D.			N.D.				
			NH3	175 mg/NM3		26	22.8	29	33	30.2	35		
Atul West Site													
30	Shed A05/03/44	19	Cl2	9 mg/NM3	Caustic scrubber	6.3	4.3	8.3	7.2	5.5	8.9		
			HCl	20 mg/NM3		8.3	6.8	9.8	8.9	6.8	11		
31	Shed B2/12/24 Reaction Vessel	19	Cl2	9 mg/NM3	Caustic scrubber	5.4	3.9	6.9	6.3	5.1	7.5		
			HCl	20 mg/NM3		8.4	7.1	9.7	9.4	7.9	10.9		
32	Shed B18/02/24 Fan	19	SO2	40 mg/NM3	Caustic scrubber	16	14.1	18	18	15.9	20.7		
			Cl2	9.0 mg/Nm3		4.6	3.9	5.3	6.2	4.8	7.6		
			HCl	20.0 mg/Nm3		8.1	6.8	9.4	14	12.1	16.5		
33	Shed C5/20/15 Chlorinator	19	Cl2	9 mg/NM3	Alkali& water scrubber	6.1	5.2	7	7.6	6.3	8.9		
			HCl	20 mg/NM3		7.6	6.8	8.4	9.7	7.9	11.5		
34	Shed D Niro Spray dryer No.45	19	PM	150 mg/NM3	water scrubber	60	57.9	62	75	71.8	78.2		
35	Shed D Niro Spray dryer No. 50	19	PM	150 mg/NM3	water scrubber	68	64.5	72	68	65.4	70.6		
36	Shed E 7/12/49 Spray Dryer	19	PM	150 mg/NM3	water scrubber	Not running during visit							
37	Shed F 6/1/15 Reaction	19	Cl2	9 mg/NM3	Alkali& water	6.8	5.2	8.4	6.9	5.6	8.2		

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	Vessel		HCl	20 mg/NM3	scrubber	8.6	7.7	9.5	8.2	6.8	9.6
38	Shed G 10/8/1 (receiver)	19	Cl2	9 mg/NM3	Alkali& water scrubber	Not running during visit					
			HCl	20 mg/NM3							
39	Shed H 11/6/17 Chlorinator	19	Cl2	9 mg/NM3	Alkali& water scrubber	5.3	4.8	5.8	7.3	6	8.6
			HCl	20 mg/NM3		8.4	6.8	10	12	10.4	14.4
40	Shed K K-13/3/4 Final of Sulfuric acid plant	19	SO2	2 kg/T	Alkali& water scrubber	0.8	0.6	1	0.6	0.5	0.7
			Acid Mist	50 mg/NM3		12	10.8	14	16	13.9	17.5
41	Shed J15/09/25	19	HBr	--	Alkali& water scrubber	N.D.			N.D.		
			SO2	40 mg/NM3		14	11.8	16	15	12.9	17.5
42	Shed J12/01/42	19	SO2	40 mg/NM3	Alkali& water scrubber	11	9.2	11	15	12.2	17.4
			Cl 2	9.0 mg/Nm3		6.3	5.6	7	7.2	6.6	7.8
			HCl	20.0 mg/Nm3		5.7	5.4	6	6.7	6.3	7.1
43	Shed J12/03/36	19	SO2	40 mg/NM3	Caustic scrubber	14	11.9	16	16	14.1	18.7
			HCl	20.0 mg/Nm3		9.4	7.8	11	11	9.4	11.8
44	Shed N Scrubber Fan N20/08/24	19	Cl2	9 mg/NM3	Caustic scrubber	6.2	5.5	6.9	7.8	7.3	8.3
			HCl	20 mg/NM3		10	8.5	12	11	10	12.8
45	Shed N Scrubber Fan N20/02/41	19	SO2	40 mg/NM3	Alkali& water scrubber	15	13.4	17	14	12.3	16.1
Atul North Site											
46	N-FDH Plant Catalytic Incinerator	31.5	PM	150.0 mg/Nm3	bag filter	Not running during visit					
			SO2	40.0 mg/Nm3							
			NOx	25.0 mg/Nm3							
			Formaldehyde	10.0 mg/Nm3							
47	PHIN Plant	15.5	Phosgene	0.1 ppm	Water scrubber followed by two stage caustic scrubber with Ammonia/steam injection at stack	N.D.			N.D.		
48	DDS (Pharma Plant)	20	NH3	175 Mg/Nm3	water followed by acid scrubber	23	20.8	26	45	42.4	48
49	SPIC II Plant (DCDPS)	30	SO3	---	Alkali & water scrubber	N.D.			N.D.		
50	SPIC I Plant	30	NH3	175 Mg/Nm3	Water scrubber followed by two stage caustic scrubber with Ammonia/steam injection at stack	12	10.9	14	36	32.9	38.3
51	SPIC IV Plant	2	NH3	175 Mg/Nm3	Alkali &	18	16.2	19	26	23.2	28.2
		2	SO3	---	water scrubber	8.6	7.5	9.7	8.2	6.9	9.5
52	PHIN II Plant	21	HCl	20 mg/Nm3	water scrubber	9.6	8.3	11	14	11.8	16.8





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					followed by two stage caustic scrubber with Ammonia/steam	N.D.	N.D.
			phosgene	0.1 ppm			

vi	Solvent management shall be carried out as follows.
a) Reactor shall be connected to chilled brine condenser system.	<p>Complied.</p> <p>Condensers with chilling systems are provided at point of Solvent recovery to minimized vapor loss as shown below:-</p> <div style="display: flex; justify-content: space-around;"> <div style="text-align: center;">  <p>a) Condensers at Solvent Recovery</p> </div> <div style="text-align: center;">  <p>b) Solvent Recovery</p> </div> </div>
b) Reactor and solvent handling pump shall have mechanical seals to prevent leakages.	<p>Complied.</p> <p>M/s. Atul Limited has provided seals at all Reactors and pump's in order to prevent leakage as shown below:-</p> <div style="display: flex; justify-content: space-around;"> <div style="text-align: center;">  <p>a) Seal at Stirrer</p> </div> <div style="text-align: center;">  <p>b) Pump Seal</p> </div> </div>

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c) The condensers shall be provided with sufficient HTA and residence time so as to achieve more than 95% recovery.

Complied.

Spent solvents are recovered as far as possible as per details given below and all venting equipments are provided with condenser system & scrubber provided with Sufficient Heat Transfer Area (HTA) which helps to achieved more than 95% recovery. The detailed report are as below:-

S.N.	Solvent used	Qty. in MT			
		Qty. Used	Qty. Recover	Qty. Loss	% Recovery
1	Toluene	2577	2562	14.50	99.4
2	Xylene	46135	43825	2310	95.3
3	Butyl Acetate	41238	40454	784	98.1
4	EDC	57850	55536	2314	96.2

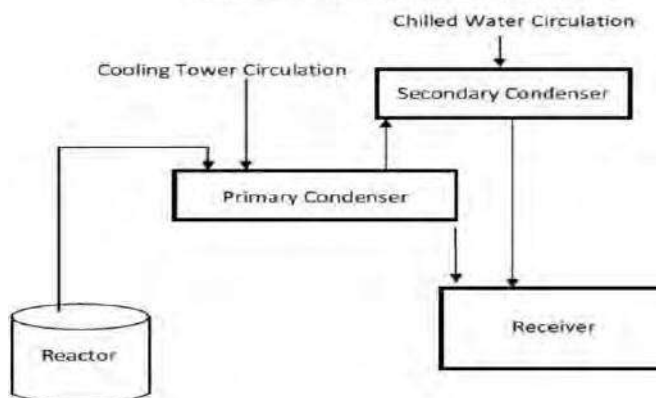
VOC MITIGATION MEASURES:

To prevent losses of these solvents in atmosphere, following infrastructure shall be used:

- Leak Free Pumps for transfer of solvents.
- MSW Gaskets in solvent pipelines to prevent leakage from flanges.
- Minimum number of flanges, joints and valves in pipelines.
- To eliminate chances of leakages from glands of pumps, mechanical seal will be provided at all solvent pumps.
- All the rotating equipments like pumps will be installed with Mechanical Seals to arrest any sort of emissions.
- Condenser and scrubber post Reactor with cooling arrangement.
- Enclosures to chemical storage area, collection of emission from loading of raw materials in particular solvents through hoods and ducts by induced draft, and control by scrubber / dust collector to be ensured.
- In case the small spillage or leakage observed, first pour the china clay (vermiculate) on material and collect the contaminated china clay (vermiculate) and send to ETP.
- If the spillage is of inflammable liquid, switch off all the power supply in the area to prevent Electric Spark.
- Two condensers are installed with cooling water and chilled water to recover the solvent.
- Primary Condenser -01: Cooling Tower water or Chilled water at 5 °C is used to condense the solvents depend on the vapor pressure at its operating conditions and the non condensed vapors will be condensed in a Secondary Condenser

VOC Trap Condenser -02: Chilled water at -15 °C is be used to trap any traces of Solvent which is slipped from Secondary condenser

Flow chart of Solvent Recovery System



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d) Solvents shall be stored in a separate space specified with all safety measures.

Complied.

M/s. Atul Limited has made separate provision for solvent storage & is installed as per PESO regulation wherever applicable with all details of Storage area, operating temperature and pressure, types of possible hazards and control measures.

Details For Solvent Storage Is As Follows:-

SN	Name of Hazardous substance	Quantity		Place of its Storage	State & Operating Pressure & Temp	Type of hazard	Control measures provided
		Max. Qty can be stored	Qty Stored				
1	Methanol (Group 5 - 2)	470 MT	350 MT	Methanol Storage Tank Farm	Liquid at RT atmos. pressure	Fire	Flame arrester, earthing dyke wall to over ground Tank fire water
2	Phenol	180+60MT	120+40 MT	PH-II Anisole tank farm	Temp-Ambient	Toxic spill	Dyke wall with valve, which do not allow liquid spill to go to normal drain. PVC suit, washing facility, SOP, etc.
3	Benzene	180 MT	100 MT	Resorcinol	Liquid at RT atmos. pressure	Fire	Isolated storage, FLP, Flam arrester, Breather valve, LI, Fire hydrant, sand etc.
4	Xylene	60	30	MPSL- NICO Plant	Atmospheric Normal Temp.	Fire	Dyke wall, Fire hydrant line, FLP, Spark arrester, Prohibited for vehicle movement & unauthorized person.
5	Phenol 98% solution	200 MT	170 MT	Near Bisphenol plant	Liquid at RT atmos. Pressure	Toxic spill	Dyke wall water spraying & washing facilities PEG 400 as antidote.
6	Methanol	650 M3	50 M3	Methanol Tank farm northsite.	Liquid at RT, atmos. Pressure	Fire & Toxic spill	Isolated storage, FLP, Flam arrester, Breather valve, LI, Fire hydrant, sand etc.
7	Toluene	40 m3	30 m3	Phin& PO plant	Liquid at RT, atmos. Pressure	Fire	Isolated storage, FLP, Flam arrester, Breather valve, LI, Fire hydrant, sand etc.
8	Toluene	120 KL	100 KL	Shed C	Atmo. Press and temp.	Fire & Chemical spillage	Underground tank, prohibited are, FLP, foam trolley etc.
9	Ethanol /Methanol	51 KL	40 KL	Shed N & A	Atmo. Press and temp.	Gas leakage, Spill	Respirators, Dry Sand, Dyke wall, spare tank
10	MCB	105 MT	100 KI	Shed C	Atmo. Press and temp.	Fire & Chemical spillage	Underground tank, prohibited are, FLP, foam trolley etc.

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11	Formaldehyde 37 to 43 %	1200 MT	600 MT	Storage Tank Opp. UF plant, FDH Plant & Nr. UF Plant	Liquid at RT, atm. press.	Toxic spill	Water spraying facilities L.I. Empty space for emergency transfer
----	----------------------------	------------	--------	--	------------------------------	-------------	--

Tank Farm:-



e) Proper earthing shall be provided in all the electrical equipment wherever solvent handling is done.

Complied.

Earthing pit is provided in all electrical equipment wherever solvent handling is done as below:-



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f) Entire plant shall be flame proof. The solvent storage tanks shall be provided with breather valve to prevent losses.

Complied.

Entire plant is flame proof installations, Storage tanks are provided with breather valve for all prevention of losses. M/s. Atul Limited has made separate provision for solvent storage & is installed as per PESO regulation wherever applicable with all details of Storage area, operating temperature and pressure, types of possible hazards and control measures.

Details For Solvent Storage Is As Follows:-

S N	Name of Hazardous substance	Quantity		Place of its Storage	State & Operating Pressure & Temp	Type of hazard	Control measures provided
		Max. at can be stored	Qty Stored				
1	Methanol (Group 5 - 2)	470 MT	350 MT	Methanol Storage Tank Farm	Liquid at RT atmos. pressure	Fire	Flame arrester, earthing dyke wall to over ground Tank fire water
2	Phenol	180+ 60MT	120+40 MT	PH-II Anisole tank farm	Temp- Ambient	Toxic spill	Dyke wall with valve, which do not allow liquid spill to go to normal drain. PVC suit, washing facility, SOP, etc.
3	Benzene	180 MT	100 MT	Resorcinol	Liquid at RT atmos. pressure	Fire	Isolated storage, FLP, Flam arrester, Breather valve, LI, Fire hydrant, sand etc.
4	Xylene	60	30	MPSL- NICO Plant	Atmospheric Normal Temp.	Fire	Dyke wall, Fire hydrant line, FLP, Spark arrester, Prohibited for vehicle movement & unauthorized person.
5	Phenol 98% solution	200 MT	170 MT	Near Bisphenol plant	Liquid at RT atmos. Pressure	Toxic spill	Dyke wall water spraying & washing facilities PEG 400as antidote.
6	Methanol	650 M3	50 M3	Methanol Tank farm north site.	Liquid at RT, atmos. Pressure	Fire & Toxic spill	Isolated storage, FLP, Flam arrester, Breather valve, LI, Fire hydrant, sand etc.

COMPLIANCE OF ENVIRONMENTAL CLEARANCE MINISTRY'S LETTER

NO.:F. No. J-11011/108/2015-IA-II (I), DATED: 11/02/2019

Period – APRIL 2019 TO SEPTEMBER 2019

Expansion of Chemicals Manufacturing Unit By M/s. Atul Ltd, Valsad, Tehsil & Dist-Valsad,

	7	Toluene	40 m3	30 m3	Phin & PO plant	Liquid at RT, atmos. Pressure	Fire	Isolated storage, FLP, Flam arrester, Breather valve, LI, Fire hydrant, sand etc.
	8	Toluene	120 KL	100 KL	Shed C	Atmo. Press and temp.	Fire & Chemical spillage	Underground tank, prohibited are, FLP, foam trolley etc.
	9	Ethanol /Methanol	51 KL	40 KL	Shed N & A	Atmo. Press and temp.	Gas leakage, Spill	Respirators, Dry Sand, Dyke wall, spare tank
	10	MCB	105 MT	100 KI	Shed C	Atmo. Press and temp.	Fire & Chemical spillage	Underground tank, prohibited are, FLP, foam trolley etc.
	11	Formaldehyde 37 to 43 %	1200 MT	600 MT	Storage Tank Opp. UF plant, FDH Plant & Nr. UF Plant	Liquid at RT, atm. press.	Toxic spill	Water spraying facilities L.I. Empty space for emergency transfer

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Expansion of Chemicals Manufacturing Unit By M/s. Atul Ltd, Valsad, Tehsil & Dist-Valsad,



SOLVENT STORAGE TANK

g) All the solvent storage tanks shall be connected with vent condensers with chilled brine circulation.

Complied.

All the solvent storage tanks are being connected with condensers & chilled water circulation, Spent solvents are recovered as far as possible and all venting equipments are provided with condenser system & scrubber.

VOC MITIGATION MEASURES:

To prevent losses of these solvents in atmosphere, following infrastructure shall be used:

- Leak Free Pumps for transfer of solvents.
- MSW Gaskets in solvent pipelines to prevent leakage from flanges.
- Minimum number of flanges, joints and valves in pipelines.
- To eliminate chances of leakages from glands of pumps, mechanical seal will be provided at all solvent pumps.
- All the rotating equipments like pumps will be installed with Mechanical Seals to arrest any sort of emissions.
- Condenser and scrubber post Reactor with cooling arrangement.
- Enclosures to chemical storage area, collection of emission from loading of raw materials in particular solvents through hoods and ducts by induced draft, and control by scrubber / dust collector to be ensured.
- In case the small spillage or leakage observed, first pour the china clay (vermiculate) on material and collect the contaminated china clay (vermiculate) and send to ETP.
- If the spillage is of inflammable liquid, switch off all the power supply in the area to prevent Electric Spark.
- Two condensers are installed with cooling water and chilled water to recover the solvent. Primary Condenser -01: Cooling Tower water or Chilled water at 5 °C is used to condense the solvents depend on the vapor pressure at its operating conditions and the non condensed vapors will be condensed in a Secondary Condenser.

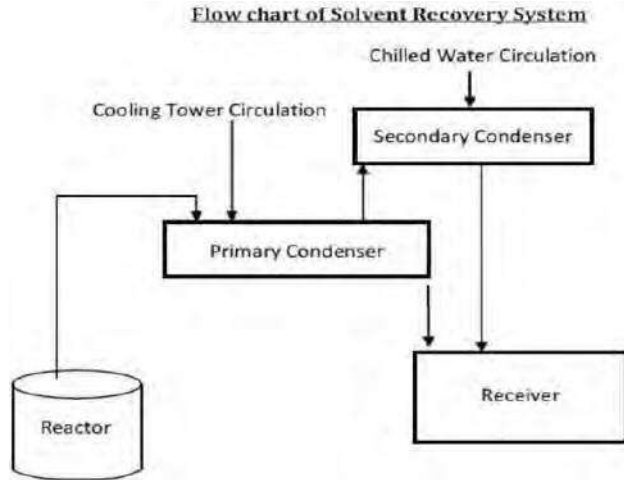
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Expansion of Chemicals Manufacturing Unit By M/s. Atul Ltd, Valsad, Tehsil & Dist-Valsad,

VOC Trap Condenser -02: Chilled water at -15 °C is be used to trap any traces of Solvent which is slipped from Secondary condenser



vii. Total fresh water requirement shall not exceed 21950 cum/day, proposed to be met from Par River. Prior permission in this regards shall be obtained from the concerned regulatory authority.

Complied.

The average water consumption for the referred expansion for the report period is Avg. **9800KL/day** only, which is well within the limit. Detail break up is given in below table:

SN	Month	Qty. F/W(KL/Month)	Min. (KL/Day)	Max. (KL/Day)	Avg. Qty. F/W (KL/Day)
1	April 2019	298434	8900	10994	9947
2	May 2019	299405	8900	11060	9980
3	June 2019	274670	8900	9410	9155
4	July 2019	299680	0	9989	9989
5	August 2019	295005	0	9833	9833
6	September 2019	296852	0	9895	9895


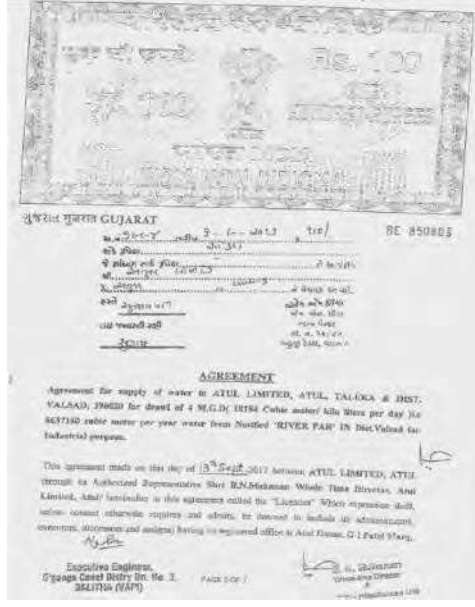
The maximum values during the compliance period confirm that at no time the wastewater generation went beyond the stipulated value. Fresh water requirement is met through the existing water supply system from river par. Please find attachments **Annexure-VI water permission** from concerned authority for additional water requirement.

COMPLIANCE OF ENVIRONMENTAL CLEARANCE MINISTRY'S LETTER

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Period – APRIL 2019 TO SEPTEMBER 2019

Expansion of Chemicals Manufacturing Unit By M/s. Atul Ltd, Valsad, Tehsil & Dist-Valsad,

		
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viii.	<p>Industrial/trade effluent shall be segregated into High COD/TDS and Low COD/TDS effluent streams. High TDS/COD shall be passed through stripper followed by MEE and ATFD (agitated thin film drier). Low TDS effluent stream shall Be treated in ETP/RO to meet the prescribed standards.</p>	Complied.	<p>Industrial/trade effluent is being segregated as shown below into High TDS/COD & Low TDS/COD. High COD/TDS stream is subjected to MEE and ATFD. Low TDS/COD stream is treated in in-house Effluent Treatment Plant and discharged as per stipulated norms. It's not exceeding then prescribed limit of EC & CCA. The average wastewater generation for the report period (last six month – April 2019 to September 2019) is 9237.6 KL/day.</p>																																																											
<table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th rowspan="2">Sr No</th> <th rowspan="2">Month</th> <th colspan="3">Break up of effluent KI/Day</th> <th rowspan="2">Min. (KL/Day)</th> <th rowspan="2">Max. (KL/Day)</th> <th rowspan="2">Avg. Qty. F/W (KL/Day)</th> </tr> <tr> <th>High TDS/CO TDS/COD</th> <th>Low TDS/COD</th> <th>Total Effluent generation</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>April-19</td> <td>3974</td> <td>270789</td> <td>279679</td> <td>9160</td> <td>9486</td> <td>9323</td> </tr> <tr> <td>2</td> <td>May-19</td> <td>4919</td> <td>274183</td> <td>284864</td> <td>9493</td> <td>9497</td> <td>9495</td> </tr> <tr> <td>3</td> <td>Jun-19</td> <td>4776</td> <td>253759</td> <td>263811</td> <td>8488</td> <td>9100</td> <td>8794</td> </tr> <tr> <td>4</td> <td>Jul-19</td> <td>4797</td> <td>277596</td> <td>283200</td> <td>9435</td> <td>9445</td> <td>9440</td> </tr> <tr> <td>5</td> <td>Aug-19</td> <td>4721</td> <td>274408</td> <td>284191</td> <td>9457</td> <td>9489</td> <td>9473</td> </tr> <tr> <td>6</td> <td>Sep-19</td> <td>4699</td> <td>278732</td> <td>267058</td> <td>8602</td> <td>9200</td> <td>8901</td> </tr> </tbody> </table>				Sr No	Month	Break up of effluent KI/Day			Min. (KL/Day)	Max. (KL/Day)	Avg. Qty. F/W (KL/Day)	High TDS/CO TDS/COD	Low TDS/COD	Total Effluent generation	1	April-19	3974	270789	279679	9160	9486	9323	2	May-19	4919	274183	284864	9493	9497	9495	3	Jun-19	4776	253759	263811	8488	9100	8794	4	Jul-19	4797	277596	283200	9435	9445	9440	5	Aug-19	4721	274408	284191	9457	9489	9473	6	Sep-19	4699	278732	267058	8602	9200	8901
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COMPLIANCE OF ENVIRONMENTAL CLEARANCE MINISTRY'S LETTER

NO.:F. No. J-11011/108/2015-IA-II (I), DATED: 11/02/2019

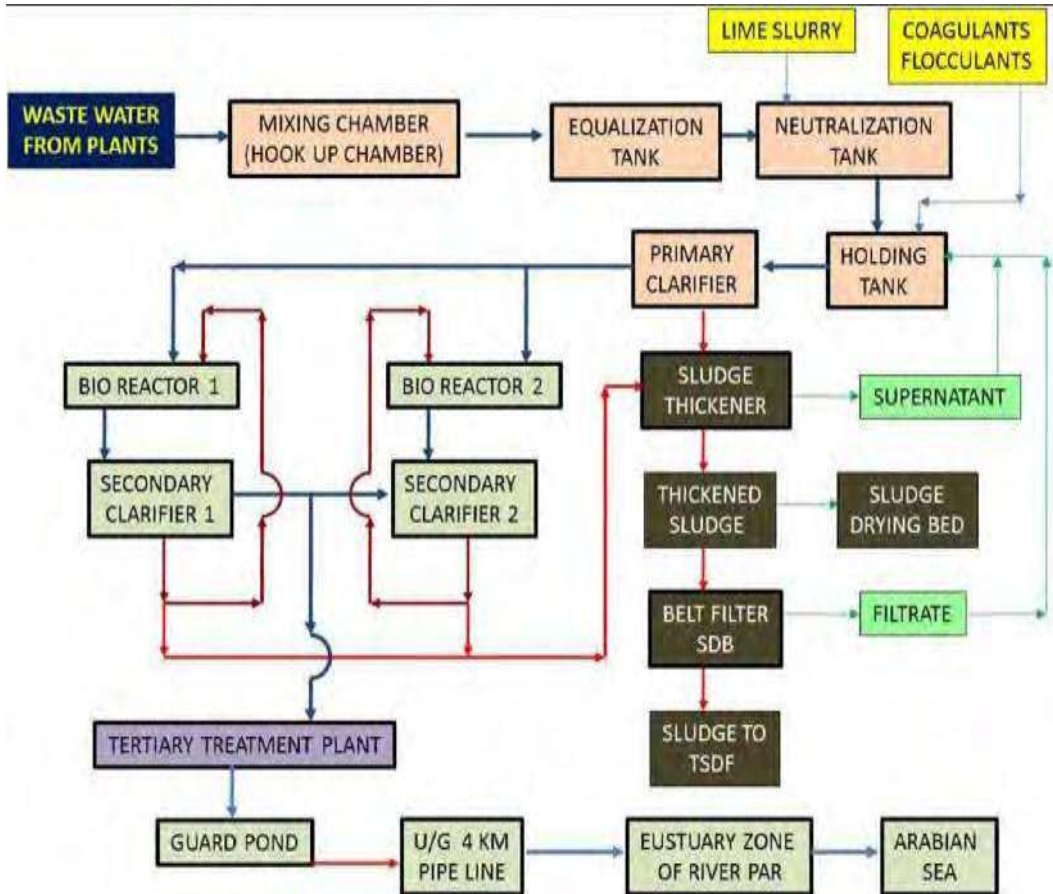
Period – APRIL 2019 TO SEPTEMBER 2019

Expansion of Chemicals Manufacturing Unit By M/s. Atul Ltd, Valsad, Tehsil & Dist-Valsad,

The maximum values during the compliance period confirm that at no time the wastewater generation went beyond the stipulated value.

Entire quantity of waste water is being utilized in ash quenching, coal storage yard to attend coal smoldering, dust suppression, fire hydrant make up, Gardening plants floor cleaning.

Effluent Treatment Plant, MEE:-



COMPLIANCE OF ENVIRONMENTAL CLEARANCE MINISTRY'S LETTER**NO.:F. No. J-11011/108/2015-IA-II (I), DATED: 11/02/2019****Period – APRIL 2019 TO SEPTEMBER 2019****Expansion of Chemicals Manufacturing Unit By M/s. Atul Ltd, Valsad, Tehsil & Dist-Valsad,****CONDITIONS.**

The Waste Water analysis at ETP outlet is monitored at regular interval for ensuring the compliance. The testing lab appointed is M/s. Pollucon Laboratories Pvt Ltd, Surat NABL Approved **TC – 5945**, issue date-**28/05/2019** and valid till **27/05/2021**.

The analysis reports were below the limits of quantization and within the permissible limit. A detail of analysis report of Monitoring report is attached in **Annexure- III**.

Monitoring details of final effluent discharged are as follows:-

S.N O	PARAMETER	UNIT	LIMIT	Apr-19			May-19		
				Min	Max	Avg	Min	Max	Avg
1	pH		5.5 to 9.0	6.7	7.9	7.45	7.83	8.67	8.25
2	Temperature	° C	40	20	39	31.9	30.4	34.4	32.4
3	Colour	Co-pt	0	45	110	77.5	95	115	105
4	Suspended Solids	mg/L	100	75	95	86	75	93	84
5	Oil & Grease	mg/L	10	2	7	3.6	3.5	5.3	4.4
6	Phenolic Compound	mg/L	5	0.1	2	0.45	0.1	0.6	0.35
7	Cyanides as CN	mg/L	0.2	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*
8	Flourides as F	mg/L	2	0	2	1.2	0.2	1.3	0.75
9	Sulphides as S	mg/L	2	0	1.9	0.95	1.45	1.95	1.7
10	Ammonical Nitrogen as NH3	mg/L	50	26	49	40	39	49	44
11	Arsenic as As	mg/L	0.2	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*
12	Total Chromium as Cr +3	mg/L	2	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*
13	Hexavalent Chromium as Cr+6	mg/L	1	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*
14	Copper as Cu	mg/L	3	0.15	2.7	0.41	0.16	0.42	0.29
15	Lead as Pb	mg/L	2	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*
16	Mercury as Hg	mg/L	0.01	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*
17	Nickel as Ni	mg/L	5	0.03	0.13	0.08	0.08	0.14	0.11
18	Zinc as Zn	mg/L	15	0.7	1.22	0.96	0.7	1.7	1.2
19	Cadmium as Cd	mg/L	2	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*
20	Phosphates as P	mg/L	5	1.11	1.85	1.48	1.41	1.89	1.65
21	BOD(5 Days@20°C)	mg/L	100	59	71	65	67	73	70
22	COD	mg/L	250	195	225	210	231	249	240
23	Sodium Adsorption Ratio		26	7.21	9.49	8.35	22.7	25.3	24
24	Manganese as Mn	mg/L	2	0.08	0.42	0.25	0.19	0.51	0.35
25	Tin as Sn	mg/L	0.1	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*
26	Bio Assay test	%	90% survival of fish after 96hr in	100% survival of fish after 96hr in 100% effluent			100% survival of fish after 96hr in 100% effluent		

COMPLIANCE OF ENVIRONMENTAL CLEARANCE MINISTRY'S LETTER

NO.:F. No. J-11011/108/2015-IA-II (I), DATED: 11/02/2019

Period – APRIL 2019 TO SEPTEMBER 2019

Expansion of Chemicals Manufacturing Unit By M/s. Atul Ltd, Valsad, Tehsil & Dist-Valsad,

S.NO	PARAMETER	UNIT	LIMIT	Jun-19			Jul-19		
				Min	Max	Result	Min	Max	Result
27	Pesticides/Insecticides	mg/L	Absent	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*
1	pH		5.5 to 9.0	7.9	8.41	8.2	7.64	8.2	7.95
2	Temperature	°C	40	22	38	30	23	41	31.6
3	Colour	Co-pt	0	39	103	84	95	155	125
4	Suspended Solids	mg/L	100	68	89	83	78	94	86
5	Oil & Grease	mg/L	10	1.6	5.6	3.6	5.3	9.1	7.2
6	Phenolic Compound	mg/L	5	0.2	0.36	0.28	0.44	0.66	0.55
7	Cyanides as CN	mg/L	0.2	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*
8	Flourides as F	mg/L	2	0.59	0.81	0.7	0.32	0.78	0.55
9	Sulphides as S	mg/L	2	0.1	1.88	1.06	1.7	1.8	1.8
10	Ammonical Nitrogen as NH3	mg/L	50	35	49	42	32	46	39
11	Arsenic as As	mg/L	0.2	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*
12	Total Chromium as Cr +3	mg/L	2	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*
13	Hexavalent Chromium as Cr+6	mg/L	1	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*
14	Copper as Cu	mg/L	3	0.17	0.31	0.24	0.04	0.28	0.16
15	Lead as Pb	mg/L	2	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*
16	Mercury as Hg	mg/L	0.01	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*
17	Nickel as Ni	mg/L	5	0.14	0.18	0.16	0.07	0.15	0.11
18	Zinc as Zn	mg/L	15	1.41	1.55	1.48	1.67	1.83	1.75
19	Cadmium as Cd	mg/L	2	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*
20	Phosphates as P	mg/L	5	1.53	1.87	1.7	1.8	2.4	2.1
21	BOD(5 Days@20°C)	mg/L	100	43	71	57	59	69	64
22	COD	mg/L	250	221	239	230	205	215	210
23	Sodium Adsorption Ratio		26	20.1	23.9	22	17	23	20
24	Manganese as Mn	mg/L	2	0.19	0.41	0.3	0.37	0.53	0.45

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25	Tin as Sn	mg/L	0.1	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*
26	Bio Assay test	%	90% survival of fish after 96hr in 100% effluent	100% survival of fish after 96hr in 100% effluent			100% survival of fish after 96hr in 100% effluent		
27	Pesticides/Insecticides	mg/L	Absent	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*

S.N O	PARAMETER	UNIT	LIMIT	Aug-19			Sep-19		
				Min	Max	Result	Min	Max	Result
1	pH		5.5 to 9.0	7.49	8.71	8.1	7.9	8.70	8.3
2	Temperature	° C	40	25.6	39.6	32.6	23.9	39.9	31.9
3	Colour	Co-pt	0	80	100	90	73	87	80
4	Suspended Solids	mg/L	100	85	99	92	72	84	78
5	Oil & Grease	mg/L	10	2.6	9	5.8	2.7	6.1	3.4
6	Phenolic Compound	mg/L	5	0.03	0.25	0.14	0.054	0.142	0.098
7	Cyanides as CN	mg/L	0.2	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*
8	Flourides as F	mg/L	2	0.4	0.8	0.6	0.42	1.08	0.75
9	Sulphides as S	mg/L	2	1.4	1.8	1.6	1.7	1.9	1.8
10	Ammonical Nitrogen as NH3	mg/L	50	43	49	46	39	49	44
11	Arsenic as As	mg/L	0.2	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*
12	Total Chromium as Cr +3	mg/L	2	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*
13	Hexavalent Chromium as Cr+6	mg/L	1	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*
14	Copper as Cu	mg/L	3	0.04	0.2	0.12	0.05	0.1	0.075
15	Lead as Pb	mg/L	2	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*
16	Mercury as Hg	mg/L	0.01	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*
17	Nickel as Ni	mg/L	5	0.066	0.084	0.075	0.068	0.082	0.075
18	Zinc as Zn	mg/L	15	1.9	2.3	2.1	2.9	3.9	3.4
19	Cadmium as Cd	mg/L	2	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*
20	Phosphates as P	mg/L	5	1.11	2.39	1.75	1.7	2.5	2.1
21	BOD(5 Days@20°C)	mg/L	100	70	80	75	79	85	82
22	COD	mg/L	250	234	246	240	241	247	244

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23	Sodium Adsorption Ratio		26	20.3	23.7	22	22.8	25.2	24
24	Manganese as Mn	mg/L	2	0.29	0.41	0.35	0.05	0.25	0.15
25	Tin as Sn	mg/L	0.1	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*
26	Bio Assay test	%	90% survival of fish after 96hr in 100% effluent	100% survival of fish after 96hr in 100% effluent			100% survival of fish after 96hr in 100% effluent		
27	Pesticides/Insecticides	mg/L	Absent	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*

Internal Monitoring Data:-

Date	pH			COD mg/l			BOD mg/l			Phenol mg/l		
	Min	Max	Avg	Min	Max	Avg	Min	Max	Avg	Min	Max	Avg
Apr-19	6.30	8.10	7.2	198.70	220.70	209.7	24.80	27.30	26	0.09	0.11	0.1
May-19	6.50	8.30	7.4	207.70	229.70	218.7	26.80	29.30	28	0.09	0.11	0.1
Jun-19	6.60	8.40	7.5	207.40	229.40	218.4	24.80	27.30	26	0.19	0.21	0.2
Jul-19	6.40	8.20	7.3	210.60	232.60	221.6	50.80	53.30	52	0.09	0.11	0.1
Aug-19	6.30	8.10	7.2	212.06	238.06	225	52.80	55.30	54	0.29	0.31	0.3
Sep-19	6.20	8.00	7.1	222.20	244.20	233.2	50.80	53.30	52	0.49	0.51	0.5
Oct-19	6.30	8.10	7.2	202.70	224.70	213.7	50.80	53.30	52	0.49	0.51	0.5
Nov-19	6.40	8.20	7.3	213.70	235.70	224.7	50.80	53.30	52	0.59	0.61	0.6

ix. Process effluent/any wastewater shall not be allowed to mix with storm water. The storm water from the premises shall be collected and discharged through a separate conveyance system.

Complied.
 Process effluent/any wastewater are being discharged to estuary of Par river through the existing pipeline at M/s. Atul Limited and are not mixed with storm water line.
 The generated wastewater is Segregated in Streams of High and Low TDS/COD. The high COD streams (COD >50000 ppm) is being taken for recovery to get economic benefit. Rest lean effluent of COD <2000 ppm is finally sent to ETP for treatment. All the high COD streams are being diverted to recovery system rather than incineration. The high TDS effluent is evaporated in MEE.
 Rooftop rain water from Coal sheds and New TG building is collected in well-constructed pond and used as make up water for cooling tower after giving necessary pre-treatment to remove suspended matter as we have pumped this rain water to clarifloculator units to remove suspended matter.
 M/s. Atul Limited already has three numbers of check dams in natural storm water drains to collect and harvest rain water in monsoon season.
 We are creating facility/ capacity to cater our consumption with rain harvested water with almost zero river draws of water during the rainy days. Besides this, there are three check dams and pumping facility to harvest rain water. We also construct temporary sand bag dam on top of dam towards the end of monsoon to store additional free flowing rain water in river Par. In addition to above, surface runoff water and roof top water is used to recharge bore wells.

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Expansion of Chemicals Manufacturing Unit By M/s. Atul Ltd, Valsad, Tehsil & Dist-Valsad,

x.	Hazardous chemicals shall be stored in tanks, tank farms, drums, carboys etc. Flame arresters shall be provided on tank farm, and solvent transfer through pumps.	Complied.																																																																																											
		All Hazardous materials other than solvent are stored as per below mentioned details with Control Measures;																																																																																											
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COMPLIANCE OF ENVIRONMENTAL CLEARANCE MINISTRY'S LETTER

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Expansion of Chemicals Manufacturing Unit By M/s. Atul Ltd, Valsad, Tehsil & Dist-Valsad,

xi.	<p>Process organic residue and spent carbon, if any, shall be sent to cement industries. ETP sludge, process inorganic & evaporation salt shall be disposed off to the TSDF.</p>	<p>Complied.</p> <p>We have obtained necessary authorization for Hazardous and other waste by obtaining Amendment in Existing CTO after receiving EC.</p> <p>CTO amendment has been granted by GPCB Vide Letter No. GPCB/CCA-VSD- 313(16)/ID: 23158/513897, Dated 17.7.2019 (CTO amendment No. AH 102080), Valid Till-03/11/2019. Renewal for the same has been received with Provisional consent order no. 105110 valid up to 30.09. 2025.</p> <p>. The following are amended for Hazardous and other waste:-</p> <table border="1" data-bbox="391 493 1432 1528"> <thead> <tr> <th colspan="10">HAZARDOUS WASTE DISPOSAL & MANAGEMENT</th> </tr> <tr> <th rowspan="2">Name of waste</th> <th rowspan="2">Waste Authorization as per CCA (In Kgs.)</th> <th colspan="7">Waste generated Kgs/Month</th> <th rowspan="2">Disposal</th> </tr> <tr> <th>Apr-19</th> <th>May-19</th> <th>Jun-19</th> <th>Jul-19</th> <th>Aug-19</th> <th>Sep-19</th> <th>Oct-19</th> </tr> </thead> <tbody> <tr> <td>Al. Hydroxide</td> <td>15417</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>Own TSDF</td> </tr> <tr> <td>Iron Sludge</td> <td>80000</td> <td>3500</td> <td>11230</td> <td>10000</td> <td>10500</td> <td>8500</td> <td>6000</td> <td>6000</td> <td>Own TSDF</td> </tr> <tr> <td>Iron Residue</td> <td>62500</td> <td>13940</td> <td>11060</td> <td>6920</td> <td>7360</td> <td>11540</td> <td>10990</td> <td>6660</td> <td>Own TSDF</td> </tr> <tr> <td>Brine Sludge</td> <td>242500</td> <td>21350</td> <td>22500</td> <td>0</td> <td>22360</td> <td>22450</td> <td>21950</td> <td>17710</td> <td>Own TSDF</td> </tr> <tr> <td>ETP/Gypsum Sludge</td> <td>(41667+ 4930000 +2000) =4973667</td> <td>709100</td> <td>717520</td> <td>711860</td> <td>717520</td> <td>734290</td> <td>701920</td> <td>723120</td> <td>Own TSDF</td> </tr> <tr> <td>Inci. Ash</td> <td>4620</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>Own TSDF</td> </tr> <tr> <td>Salt from MEE</td> <td>1678710</td> <td>67250</td> <td>70580</td> <td>65780</td> <td>19300</td> <td>42200</td> <td>49840</td> <td>37180</td> <td>Own TSDF</td> </tr> <tr> <td>Brass Residue</td> <td>667</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>Own TSDF</td> </tr> <tr> <td>Hyflo</td> <td>15750</td> <td>15750</td> <td>15740</td> <td>7200</td> <td>9000</td> <td>13400</td> <td>15600</td> <td>7100</td> <td>Own Incinerator.</td> </tr> <tr> <td>Waste / Salt Lime Dust</td> <td>5000</td> <td>2000</td> <td>0</td> <td>4500</td> <td>4600</td> <td>4800</td> <td>4700</td> <td>3200</td> <td>Own TSDF</td> </tr> <tr> <td>Total</td> <td></td> <td>832890</td> <td>848630</td> <td>806260</td> <td>790640</td> <td>837180</td> <td>81100</td> <td>800970</td> <td></td> </tr> <tr> <td>Epoxy Resin</td> <td>130000</td> <td>45800</td> <td>69890</td> <td>123090</td> <td>72090</td> <td>107310</td> <td>41230</td> <td>75310</td> <td>Co-Pro</td> </tr> <tr> <td>Spent Carbon</td> <td>40000</td> <td>8140</td> <td>31420</td> <td>35240</td> <td>23950</td> <td>31250</td> <td>36500</td> <td>14180</td> <td>Co-Pro</td> </tr> </tbody> </table>	HAZARDOUS WASTE DISPOSAL & MANAGEMENT										Name of waste	Waste Authorization as per CCA (In Kgs.)	Waste generated Kgs/Month							Disposal	Apr-19	May-19	Jun-19	Jul-19	Aug-19	Sep-19	Oct-19	Al. Hydroxide	15417	0	0	0	0	0	0	0	Own TSDF	Iron Sludge	80000	3500	11230	10000	10500	8500	6000	6000	Own TSDF	Iron Residue	62500	13940	11060	6920	7360	11540	10990	6660	Own TSDF	Brine Sludge	242500	21350	22500	0	22360	22450	21950	17710	Own TSDF	ETP/Gypsum Sludge	(41667+ 4930000 +2000) =4973667	709100	717520	711860	717520	734290	701920	723120	Own TSDF	Inci. Ash	4620	0	0	0	0	0	0	0	Own TSDF	Salt from MEE	1678710	67250	70580	65780	19300	42200	49840	37180	Own TSDF	Brass Residue	667	0	0	0	0	0	0	0	Own TSDF	Hyflo	15750	15750	15740	7200	9000	13400	15600	7100	Own Incinerator.	Waste / Salt Lime Dust	5000	2000	0	4500	4600	4800	4700	3200	Own TSDF	Total		832890	848630	806260	790640	837180	81100	800970		Epoxy Resin	130000	45800	69890	123090	72090	107310	41230	75310	Co-Pro	Spent Carbon	40000	8140	31420	35240	23950	31250	36500	14180	Co-Pro
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xii.	<p>The Company shall strictly comply with the rules and guidelines under Manufacture, Storage and Import of Hazardous Chemicals (MSIHC) Rules, 1989 as amended</p>	<p>Complied.</p> <p>We are complying all the rules and regulation led by MSIHC, 1989. We are complying with Hazardous and Other Wastes (Managements and transboundary Movement) Rules, 2016 towards ETP Sludge, Used Oil & Empty Drums- Handling, and Storage & Disposal to authorized Facility/TSDF. We have obtained necessary authorization for Hazardous and other waste by obtaining Amendment in Existing CTO after receiving EC. CTO amendment has been granted by GPCB Vide Letter No. GPCB/CCA-VSD-313(16)/ID: 23158/513897, Dated 17.7.2019 (CTO amendment No. AH 102080), Valid Till-03/11/2019. Renewals for the same has been received vide provisional consent order no. 105110 valid up to 30.09. 2025.</p> <p>Company has obtained TSDF memberships from his own TSDF & Incineration Facility. Company has also obtained membership from Co-Processing Facilities i.e. RSPL & Cement Industry (Ambuja Cement).</p>																																																																																																																																																													

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We are using advanced technology and processes to minimization of waste generation for prevention, reuse, recycling and safe disposal to the authorized actual user TSDF /CHWIF facility.</p><p>2)Complied. We are ensuring for safe and environmentally sound management of hazardous and other wastes.</p><p>3)Complied. We have our own captive TSDF and Incinerator facility.</p><p>4) Noted &Complied.</p><p>5)Complied. We are having separate hazardous waste storage facility with all safety measures to avoid accident. Also we are adopting safe disposal and storage practices.</p><p>6) Complied.</p></td></tr><tr><td data-bbox="404 1612 966 1915"><p>6. Grant of authorization for managing hazardous and other wastes.</p></td><td data-bbox="966 1612 1395 1915"><p>Complied. 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	7. Power to suspend or cancel an authorization.	Not Applicable
	8. Storage of hazardous and other wastes	Complied
	9. Utilization of hazardous and other wastes	Complied. Recovered Spent Solvent are being reused. Used Oil & Discarded drums are being sent to authorize recycler.
	10. Standard Operating Procedure or guidelines for actual users	Noted.
	11. Import and export (transboundary movement) of hazardous and other wastes.	Not Applicable
	12. Strategy for Import and export of hazardous and other wastes.	Not Applicable
	13. Procedure for import of hazardous and other wastes.	Not Applicable
	14. Procedure for Export of hazardous and other wastes from India	Not Applicable
	15. Illegal traffic.	Not Applicable
	16. Treatment, storage and disposal facility for hazardous and other wastes.	Complied. We have our own captive TSDF and Incinerator. We also send waste to Authorized facility as per the valid authorization.
	17. Packaging and Labeling – Form 8	Complied. All hazardous Waste transportation is being done through appropriate packing and labeling as per Form-8.
	18. Transportation of hazardous and other wastes	Complied. Waste is being transported through TREM Card as per Haz. Rules.
	19. Manifest system (Movement Document) for hazardous and other waste to be used within the country only	Complied. We are sending waste through Online Manifest system of GPCB XGN.
	20. Records and returns	Complied. We are maintaining & submitting all records like Form-III, Form-IV & Environment Statement Form-V periodically to GPCB.
	21. Responsibility of authorities The authority specified in column (2) of Schedule VII shall perform the duties as specified in column (3) of the said Schedule subject to the provisions of these rules.	Noted
	22. Accident reporting. Where an accident occurs at the facility of the occupier handling hazardous or other wastes and operator of the disposal facility or during transportation, the occupier or the operator or the transporter shall immediately intimate the State Pollution Control Board through telephone, e-mail about the accident and subsequently send a report in Form 1.	Noted. No accidents were reported during April 2019 to September 2019 period during handling and transportation of hazardous or other wastes.
	23. Liability of occupier, importer or exporter and operator of a disposal facility.	
	(1) The occupier, importer or exporter and operator of the disposal facility shall be liable for all damages caused to the environment or third party due to improper handling and management of the hazardous and other waste.	Noted.
	(2) The occupier and the operator of the disposal facility shall be liable to pay financial penalties as levied for any violation of the provisions under these rules by the State Pollution Control Board with the prior approval of the Central Pollution	Noted.

COMPLIANCE OF ENVIRONMENTAL CLEARANCE MINISTRY'S LETTER

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Expansion of Chemicals Manufacturing Unit By M/s. Atul Ltd, Valsad, Tehsil & Dist-Valsad,

		Control Board.	
		24. Appeal	
		<p>(1) Any person aggrieved by an order of suspension or cancellation or refusal of authorization or its renewal passed by the State Pollution Control Board may, within a period of thirty days from the date on which the order is communicated to him, prefer an appeal in Form 12 to the Appellate Authority, namely, the Environment Secretary of the State.</p> <p>(2) The Appellate Authority may entertain the appeal after expiry of the said period of thirty days, if it is satisfied that the appellant was prevented by sufficient cause from filing the appeal in time.</p> <p>(3) Every appeal filed under this rule shall be disposed of within a period of sixty days from the date of its filing.</p>	Noted & Complied

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xiii. Fly ash should be stored separately as per CPCB guidelines so that it should not adversely affect the air quality, becoming air borne by wind or water regime during rainy season by flowing along with the storm water. Direct exposure of workers to fly ash & dust should be avoided.

Complied.

We have not constructed ash pond for the CPP unit. We have closed three silo of 200 MT and Two silo of 300 MT capacity of each, total 1200 MT capacity, which is well enough for our average generation of approx. 300 TPD. We dispatch the fly ash daily from these silos so we have not prepare ash pond.

Fly ash	Total Quantity (kg)	
	Year 17-18	Year 18-19
Generation	74533859	68353710
Quantity recycled or re-utilized within the unit	912200	Nil
Sold	75446059	To Brick Manufacturer: 63092190 To Cement Industry: 5261520 Total: 68353710
% Utilization	100 %	100%

Fly ash / bottom ash generation data for period (April-2019 to September – 2019) as shown below table:

Fly Ash	Unit	April 19	May 19	June 19	July 19	Aug 19	Sept 19
Generation	MT	3677	4420	5432	5472	5170	4765
Disposal	MT	3677	4420	5432	5472	5170	4765

Photograph of Closed silos for Fly ash / Bottom ash storage:-



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xiv The company shall undertake waste minimization measures as below:-

a) Metering and control of quantities of active ingredients to minimize waste.

Complied.

Metering of water is done. Meter is provided at the inlet of the collection tank and reuse system of waste water and records are being maintained.

Photograph of water meter shown below:



Month wise water consumption, waste water generation and reuse data are shown below table:

SN	Month	Water consumption (KL/Month)	Waste water generation (KL/Month)	Recycle (KL/Month)
1	April 2019	298434	279679	7120
2	May 2019	299405	284864	7418
3	June 2019	274670	263811	10133
4	July 2019	299680	283200	11197
5	August 2019	295005	284191	11787
6	September 2019	296852	267058	11873

We are reusing 100% treated water in ash quenching , coal storage yard to attend coal smoldering, dust suppression, fire hydrant make up, Gardening plants & floor cleaning.

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b) Reuse of by-products from the process as raw materials or as raw material substitutes in other processes.	Sodium Sulfate, Sodium Thio Sulphate, Brine, MEE salt, Sodium hypochlorite, Copper Hydroxide, spent acid, etc. are few by-products from the process which are being sold for using the same either as raw material or as substitute to raw materials. Also, fly ash and Gypsum are being used as raw material for Brick Manufacturing. Sodium Hypochlorite, Sodium hydro sulfide, etc. are being used as raw material in other processes.
c) Use of automated filling to minimize spillage.	Filling/transfer system is being provided to minimized the spillage i.e. Chain conveyor system provided.
d) Use of Close Feed system in to batch reactors.	"Close feed system" is available to our plant.
e) Venting equipment through vapour recovery system.	At all venting equipment condenser recovery system & scrubbers are provided.
f) Use of high pressure hoses for equipment clearing to reduce wastewater generation.	We are using high pressure jet nozzle for equipment cleaning to minimize wastewater generation.

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xv. The green belt of at least 5-10 m width shall be developed in nearly 33% of the total project area, mainly along the plant periphery, in downward wind direction, and along road sides etc. Selection of plant species shall be as per the CPCB guidelines in consultation with the State Forest Department .

Complied.

Proper plantation is done all around the plant boundary and also the roads to mitigate fugitive & transport dust emission.

Total Plot area: **1126078.27 sq.mt**

Green belt area: **409030.00 sq.mt** (approx. 36% of total plot area) Layout

plan with green belt is as shown below:



We plant more than 50000 plants every year on road sides and other open areas in nearby villages or schools in consultation with the Gram panchayat.



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Sr. No.	Year	No. of plants planted
1	2010-11	59,200
2	2011-12	68,700
3	2012-13	63,300
4	2013-14	75,600
5	2014-15	81,500
6	2015-16	72,900
Total		4,21,200

xvi.	All the commitments made regarding issues raised during the public hearing/consultation meeting shall be satisfactorily implemented.	<p>Complied.</p> <p>All the issues raised during public hearing were replied satisfactorily. Towards commitment company has been satisfactorily implementing CER/CSR as per the action plan / schedule; details given in next point xvii. Of compliance report.</p> <p>Commitment towards coal transportation in Covered truck is complied. Now coal transportation is being done 100% in closed / covered mechanical trucks.</p> <p>Towards employment of local Atul Ltd. Is consistent in hiring local as per the eligibility / educational criteria. 80% of Total Employees are from local.</p>
xvii.	As committed, funds	<p>Complied.</p> <p>Company has embarked Budgetary provision of fund 375.0 lacs for period April 2019 to</p>

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allocation for the Corporate Environment Responsibility (CER) shall be 2% of the total project cost. Item-wise details along with time bound action plan shall be prepared and submitted to the Ministry's Regional Office.	September 2019 for CSR activities. Till date company has expenditure of 216.88 lacs for CSR activities as per conditions mentioned in the companies CSR (Corporate Social Responsibility Policy) Rules, 2014 and its amendments from time to time in a letter and spirit.					
	CSR projects (April 2019 to September 2019):					
	S.N	Description	Location	Final Implementing Agency	Budget from April '19 to September '19	Expenditure
	1	Enhancement of education practices in Kalyani Shala	Atul, Valsad (Gujarat)	AFT Atul Kelavani Mandal	37.50	26.92
	2	Imparting training to women to become skilled elementary school teachers (Adhyapika) to improve rural education	Valsad (Gujarat)	AFT ARDF	30.00	28.97
	3	Promoting socio cultural and extracurricular activities for school children	Atul, Valsad (Gujarat)	AFT ARDF	15.00	11.30
	4	Providing science and maths training to rural teachers	Ahmedabad (Gujarat)	AFT Vikram A Sarabhai Community Science centre	3.00	3.00
	5	Women empowerment initiatives	Atul, Valsad (Gujarat)	AFT ARDF	6.00	5.37
	6	Beekeeping training to farmers to earn livelihood	Dhrampur Kaparad, Valsad (Gujarat)	AFT Under the Mango Tree	5.50	1.40
	7	Providing health services through health camps	Villages of Valsad (Gujarat)	AFT ARDF	3.00	3.06
	8	Support to build city scan centre in a hospital	Atul, Valsad (Gujarat)	AFT Kasturba Hospital	10.00	10.00
	9	Contribution for advance treatment of Cancer patients	Karamsad (Gujarat)	AFT Charuatar Arogya Mandali	5.00	5.00
10	Assistance to Needy People	Villages of Valsad (Gujarat)	ARDF	3.00	2.53	
11	Up liftment of salt pan worker	Kharaghoda, Surendranagar (Gujarat)	AFT ARDF Gantar	5.00	3.60	

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Expansion of Chemicals Manufacturing Unit By M/s. Atul Ltd, Valsad, Tehsil & Dist-Valsad,

		<table border="1"> <tr> <td>12</td> <td>Promotion of Sports</td> <td>Villages of Valsad (Gujarat)</td> <td>ARDF</td> <td>12.00</td> <td>11.40</td> </tr> <tr> <td>13</td> <td>Enhancement of rural infrastructure</td> <td>Villages of Valsad (Gujarat)</td> <td>AFT ARDF</td> <td>10.00</td> <td>6.10</td> </tr> <tr> <td>14</td> <td>Tribal Home stay project</td> <td>Kevadiya (Gujarat)</td> <td>AFT</td> <td>100.00</td> <td>58.05</td> </tr> <tr> <td>15</td> <td>Initiative to celebrate 125th birth anniversary of Sri KasturbhaiLalbhai (Founder)</td> <td>Valsad (Gujarat)</td> <td>AFT</td> <td>120.00</td> <td>30.18</td> </tr> <tr> <td>16</td> <td>Administrative expense</td> <td>---</td> <td>---</td> <td>10.00</td> <td>10.00</td> </tr> <tr> <td></td> <td>Total</td> <td></td> <td></td> <td>375.00</td> <td>216.88</td> </tr> </table>	12	Promotion of Sports	Villages of Valsad (Gujarat)	ARDF	12.00	11.40	13	Enhancement of rural infrastructure	Villages of Valsad (Gujarat)	AFT ARDF	10.00	6.10	14	Tribal Home stay project	Kevadiya (Gujarat)	AFT	100.00	58.05	15	Initiative to celebrate 125 th birth anniversary of Sri KasturbhaiLalbhai (Founder)	Valsad (Gujarat)	AFT	120.00	30.18	16	Administrative expense	---	---	10.00	10.00		Total			375.00	216.88
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xviii.	For the DG sets, emission limits and the stack height shall be in conformity with the extant regulations and the CPCB guidelines. Acoustic enclosure shall be provided to DG set for controlling the noise pollution.	<p>Complied. We ensured that at no time the emission level will go beyond the stipulated standards and or prescribed limits. In such cases / Occurrences we will intimate to board & authority time to time. Acoustic enclosures are provided on DG sets. Silencers have been provided on main stream vent valves of Boilers.</p> <p>Stack details:-</p> <table border="1"> <thead> <tr> <th>SN</th> <th>Stack Details</th> <th>Capacity/Stack Ht mtr</th> <th>Para</th> <th>Permissible Limits</th> <th>APCD</th> <th>Fuel</th> </tr> </thead> <tbody> <tr> <td rowspan="3">1</td> <td rowspan="3">DG Set 1010 KVA(Standby)</td> <td rowspan="3">H: 10</td> <td>PM</td> <td>150 mg/Nm3</td> <td rowspan="3">Adequate Stack Ht & Acoustic Enclosure</td> <td rowspan="3">Diesel</td> </tr> <tr> <td>SO2</td> <td>100 ppm</td> </tr> <tr> <td>NOx</td> <td>50 ppm</td> </tr> <tr> <td rowspan="3">2</td> <td rowspan="3">DG Set 1500 KVA (Stand By)</td> <td rowspan="3">H: 11</td> <td>PM</td> <td>150 mg/Nm3</td> <td rowspan="3">Adequate Stack Ht & Acoustic Enclosure</td> <td rowspan="3">Diesel</td> </tr> <tr> <td>SO2</td> <td>100 ppm</td> </tr> <tr> <td>NOx</td> <td>50 ppm</td> </tr> </tbody> </table> <p>Photograph of Stack & Stack Attached to D.G Sets:-</p> <div style="display: flex; justify-content: space-around;">   </div>	SN	Stack Details	Capacity/Stack Ht mtr	Para	Permissible Limits	APCD	Fuel	1	DG Set 1010 KVA(Standby)	H: 10	PM	150 mg/Nm3	Adequate Stack Ht & Acoustic Enclosure	Diesel	SO2	100 ppm	NOx	50 ppm	2	DG Set 1500 KVA (Stand By)	H: 11	PM	150 mg/Nm3	Adequate Stack Ht & Acoustic Enclosure	Diesel	SO2	100 ppm	NOx	50 ppm							
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xix.	The unit shall make the arrangements for	<p>Complied. A well designed Fire hydrant system is adequate and as per standards.</p> <p>Fire hydrant Network details:</p> <ul style="list-style-type: none"> • Four full fledged fire hydrant system in the company • Water Storage Capacity - 50 million Liters 																																				

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protection of possible fire hazards during manufacturing process in material handling. Fire-fighting system shall be as per the norms.

- Total hydrant post/ monitors –780
- Total length of hydrant line – 15 km
- Fire Fighting Equipment
 - DCP 1350
 - CO₂ 776
 - Foam : 05Trolley
- Fire Tenders
 - One fire tender having 1800 Lit water capacity
 - Second multipurpose fire tenders having 5000 Lit water &500Foam
 - Third Multipurpose tender having facility of DCP- 500 Kg, Foam – 500 litand Water – 4500Lit.
- SCBA sets – 35nos.
- Emergency alarm system – 532 nos. points spread across the company
- Fire station manned round the clock with Siren and Annunciation System.
- Regular Testing on every Monday
- Smoke detectors in the office and labs
- Auto water deluging system at critical reactors
- Auto water sprinkler system at tank farms



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xx	Occupational health surveillance of the workers shall be done on a regular basis and records maintained as per the Factories Act.	<p>Complied.</p> <p>Being done on regular basis as per the Factories Act & rules.</p> <p>Occupational health surveillance of the workers is carried out on a regular basis as per section-41 C of the factories act and rule-68T of Gujarat Factories Rules and records are maintained. Regular Medical Checkup of all employees are done by in-house Dr.Vishal Mehta (M.B.B.S), Dr.Suman Patel (M.D. Physician) & Dr.Sandip Bhandare (M.B.B.S, AFIH) in following manner;</p> <p>The following medical checkup has been completed;</p> <p>Pre-Employment Check-Up (In-house): FY April-18 to March-19</p> <table border="1" data-bbox="396 485 1187 600"><thead><tr><th>SN</th><th>Employee</th><th>Qty</th><th>Check-Up</th></tr></thead><tbody><tr><td>1</td><td>Staff</td><td rowspan="3">530</td><td rowspan="3">Pre-Employment</td></tr><tr><td>2</td><td>Operators</td></tr><tr><td>3</td><td>Workers</td></tr></tbody></table> <p>Annual Medical Check-Up: FY April-18 to March-19</p> <table border="1" data-bbox="396 705 1187 821"><thead><tr><th>SN</th><th>Employee</th><th>Qty</th><th>Check-Up</th></tr></thead><tbody><tr><td>1</td><td>Staff</td><td rowspan="3">3391</td><td rowspan="3">Annual Checkup</td></tr><tr><td>2</td><td>Operators</td></tr><tr><td>3</td><td>Workers</td></tr></tbody></table> <p>Various types of tests being performed are as below;</p> <p>A. Pre- employment Checkup:</p> <ol style="list-style-type: none">1. Vision2. Colour blindness3.CBC4.Urine5.Height6.Weight7.B/P8.Pulse9.Habit10.Personal History11.Family History12.Identification Mark <p>B. Annual Checkup:</p> <ol style="list-style-type: none">1. Physical checkup2. Vision3. Blood4. Urine5. PFT6. ECG <p>Our occupational health centre & Pathology Lab is equipped with necessary facilities under supervision of factory medical officer with trained three EHS persons.</p> <p>Medical Facilities:</p> <ul style="list-style-type: none">• First Aid boxes in all plants• Central Ambulance Room in the middle of the factory• Two Ambulance Vans. Out of which one is equipped with ICU facilities.• Medical Center• Three full time AFIH certified doctors.• Equipped with 3Beds• Full equipped Pathological lab with advanced diagnostic equipment• ECG Equipment• Cardiac monitor• Defibrillator• Finger pulse Oxymeter• Pulmonary Function Test Apparatus• O2Administration• Antidotes with routine Important and Vital life saving Drugs• Tie-up with Kasturba Hospital, Valsad, and Pardi Hospital, Pardi, respectively 7 kms and 3 kms. away from Atul	SN	Employee	Qty	Check-Up	1	Staff	530	Pre-Employment	2	Operators	3	Workers	SN	Employee	Qty	Check-Up	1	Staff	3391	Annual Checkup	2	Operators	3	Workers
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We also have tie up with external two hospitals (Pardi Hospital and Kasturba Hospital). We have medical checkup schedule once in quarter for Insecticide plant's employees Other necessary items including First-aid medicines, antidotes and equipment as prescribed in the schedule the under Rule-68 U (b) of the Gujarat factories rules are also been provided. Attached sample medical checkup report sample as **Annexure-VII** in the main report.

Atul Ltd Department of Health			
Laboratory Report			
Name	Mr. Divyesh V. Desai	Report Date	06-12-2019
Age/Height	32 YRS	MR No.	448011434
Specimen ID	CRN02791	Lab ID No.	
Doctor	Vijaya Menka	Specimen	
Test Date	06-12-2019 08:30		
Sample Code	06-12-2019-08-30		
Haematology			
Test Description	Result	Units	Reference Range
CBC - RBC - Complete Hemogram			
WBC - White Blood Cell Count	7.03	mm ³	Normal 4.2 - 10.8
RBC - Red Blood Cell Count	4.78	mm ³	Normal 4.67 - 6.00
HGB - Hemoglobin	15.08	g/dL	Normal 13.7 - 17.5
HCT - Hematocrit (PCV)	44.90	%	Normal 38.3 - 51.0
MCV - Mean Cell Volume	88.80	fL	Normal 79.3 - 102.2
MCH - Mean Cell Hemoglobin	16.70	pg	Normal 26.7 - 34.2
MCHC - Mean Cell Hemoglobin Concentration	18.70	g/dL	Normal 32.5 - 36.5
PLT - Platelet Count	363.00	mm ³	Normal 150 - 450
RDW - RDW - Red Cell Distribution Width - Standard Deviation	11.07	%	Normal 11.6 - 14.4
RDW-CV - RDW - Red Cell Distribution Width - Coefficient of Variation	12.90	%	Normal 11.9 - 14.4
PDW - P-L - Platelet Distribution Width	9.20	fL	
MPV - Mean Platelet Volume	9.10	fL	
PCT - Platelet Crit	17.30	%	
NEUT - Neutrophil Count	63.00	%	Normal 54.0 - 82.0
LYMPH - Lymphocyte Count	26.00	%	Normal 21.0 - 50.0
MONO - Monocyte Count	4.00	%	Normal 2.0 - 12.2
EO - Eosinophil Count	2.00	%	Normal 0.8 - 5.0
Baso - Basophil Count	9.00	%	Normal 0.2 - 1.2

Atul Ltd Department of Health			
Laboratory Report			
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Age/Height	32 YRS	MR No.	448011434
Specimen ID	CRN02791	Lab ID No.	
Doctor	Vijaya Menka	Specimen	
Biochemistry			
Test Description	Result	Units	Reference Range
FBS - Fasting Blood Sugar			
Specimen Status			Sample Date: 02/01/19 08:16 AM
Test Date	02/01/19 09:05 AM		
Blood Sugar - Fasting	88	mg/dL	Normal 70-100 - 100(L)
Lipid Profile			
Specimen Status			Sample Date: 02/01/19 08:16 AM
Test Date	02/01/19 12:00 PM		
Total Cholesterol	179.81	mg/dL	Normal 120-200
HDL Cholesterol	41.54	mg/dL	Normal 30-60
Triglycerides	30.26	mg/dL	Normal 0-150
VLDL Cholesterol	18.95	mg/dL	Normal 7-35
LDL Cholesterol	139.2	mg/dL	Normal 50-150
LDL-ApoB Status	1.59		Normal 1.0-1.6
FTYRHC Ratio	4.00 *		Normal 1.0-1.6
Specimen Status			Sample Date: 02/01/19 08:16 AM
Test Date	02/01/19 12:00 PM		
SGPT - ALT	17.70	mmol/L	Normal 0-40
Specimen Status			Sample Date: 02/01/19 08:16 AM
Test Date	02/01/19 12:00 PM		
Total Bilirubin	0.10	mg/dL	Normal 0.1-1.0
Urea Nitrogen	6.30 *	mg/dL	Normal 1.0-5.0
Creatinine	0.26	mg/dL	Normal 0.6-1.2

Remark: All employ found medically fit to work, no non-contagious diseases were observed.

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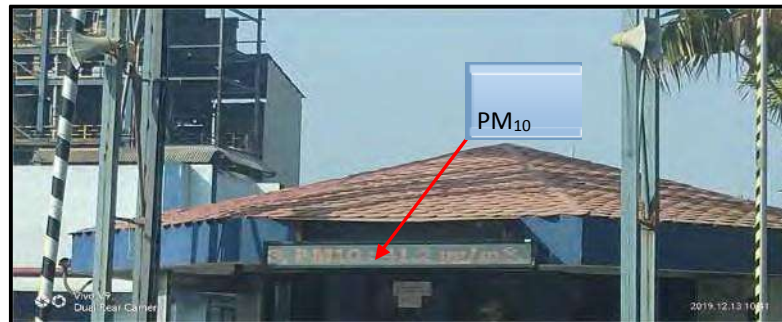
Expansion of Chemicals Manufacturing Unit By M/s. Atul Ltd, Valsad, Tehsil & Dist-Valsad,

xxi. Continuous online (24x7) monitoring system for stack emissions shall be installed for measurement of flue gas discharge and the pollutants concentration, and the data to be transmitted to the CPCB and SPCB server. For online continuous monitoring of effluent, the unit shall install web camera with night vision capability and flow meters in the channel/drain carrying effluent within the premises.

Complied.

Online monitoring system for SPM, SOx and NOx is already been made and connected to CPCB server.

Photograph of main gate digital display board for ambient air quality.



Photograph of online monitoring system (CEMS) connected to the CPCB server:



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Expansion of Chemicals Manufacturing Unit By M/s. Atul Ltd, Valsad, Tehsil & Dist-Valsad,

B. GENERAL CONDITIONS:

i. The project authorities shall adhere to the stipulations made by the State Pollution Control Board, Central Pollution Control Board, State Government and any other statutory authority. Compliance of CCA for Consent No. AWH-67717 dated 4/11/2014 is attached as below:-

Compliance of CCA		
Compliance of CCA AWH- 67717 issued on 4/11/2014 valid till 03/11/2019		
Sr.	Condition	Compliance
1	Consent No. AWH- 67717 dated 4/11/2014	
2	Validity up to 03/11/19	CC & A renewal application done and Provisional consent is received. Our new CCA is valid till 03/11/2023. Since consent order is yet to be issued by GPCB, compliance of reference CCA is given.
	Production capacities of different products (Total 32137.96 / 23137.96 MTPA, 69 products)	Matches with consent. All see production details for 18-19 as Annexure 1
3 Condition under Water Act:		
3.1	Quantity of industrial effluent shall not exceed 1728337/dm; excluding ABL	Complied. PI see water balance for year 18-19 as Annexure 2.
3.2	High COD effluents shall be concentrated (28 KLD) in situ incinerator within premises.	We have been separating high COD streams (COD >50000 ppm) and same is being taken for recovery to get economic benefit. First time volume of COD <2000 ppm is finally sent to ETP for treatment. All the high COD streams are being directed to recovery system rather than incineration. Streams containing Ammonia, Methanol, Copper, Selenate, Peroxide, etc. are taken for the recovery of the same and reused. Hence, there is no High COD Waste water stream remaining and therefore no incineration is needed.
	High TDS effluent shall be evaporate in MEE.	Complied. High TDS effluent is evaporated in MEE.
3.3	Quantity of domestic sewage shall not exceed 327.62/dm.	Complied. PI see water balance for year 18-19 as Annexure 2.
4 Trade Effluent		
	Treated effluent Norms to be achieved	Complied. PI refer latest GPCB result as annexure 3
	All efforts to be made for removal of odor and unpleasant odor.	Complied
3.5	The final treated effluent conforming the above standard shall be collected in sump pond and then discharged through closed pipe line to estuary canal of Fax river via channel.	Complied

3.0	Sewage shall be disposed off through septic tank/ soak pit system.	Sewage is being disposed off through septic tank followed by soak pit and overlines are designed to go to ETP
4 Condition under Air Act:		
4.1a	Fuel consumption, Boilers for boilers / Heaters	Complied
4.1b	List of boilers for captive power consumption	Noted
4.2	Install and operate air pollution control system to achieve norms.	Complied.
4.3	Flue gas Emission Norms	Complied. PI refer latest GPCB result as annexure 4
4.4	Process Emission Norms	Complied. PI refer latest GPCB result as annexure 5.
4.5	Ambient air monitoring Norms	Complied. PI refer third party result as annexure 6.
4.6	Operate industrial plant / air pollution control equipment very efficiently and continuously so that the gaseous emission always conforms to the standards specified.	Complied
4.7	The consent shall lapse if at any time the parameters of the gaseous emission are not within the tolerance limit specified.	Noted
4.8	The applicant shall provide perimeter ladder, platform etc at chimneys for monitoring the air emissions and same shall be open for inspection to and for use of district's staff. The chimney/vents attached to various sources of emission shall be designed by numbers such as R-1, S-2, etc. and these shall be painted /blasted to facilitate identification.	Complied.
4.9	Noise Levels in ambient (75 db(A) from 6 am to 10 pm, day time; and 70db(A) from 10 pm to 6 am-night time.	Complied
5 Authorization for the Management, Handling & Transboundary Movement of Hazardous Waste- Annex 2 (see rule 3 (4) for grant of Authorization for occupier or Operator handling Hazardous Waste Rules-2008)		
5.1	Authorization on AWH 67717 dated 4/11/2014	
	Haz. Waste disposal as stipulated	Complied. PI refer haz waste data for year 18-19 as Annexure 7.

5.2	The authorization is granted to operate a facility for collection, storage, within the factory premises and treatment, transportation and ultimate disposal of Hazardous wastes as mentioned in the above as per Hazardous Waste Management, Handling & Transboundary Movement Rules-2008.	Complied
5.3	The authorization is subject to the conditions stated below and such other conditions as may be specified in the rules from time to time under the Environment Protection Act-1986	Complied
5.4	Validity up to 3/11/19	CC & A renewal application done and Provisional consent is received. Our new CCA is valid till 03/11/2023. Since consent order is yet to be issued by GPCB, compliance of reference CCA is given.
5.5 Terms and conditions for authorization:		
5.5.1	The applicant shall comply with the provisions of the Environment Protection Act 1986 and the rules made there under.	Complied
5.5.2	The authorization shall be produced for inspection at the request of officer by the GPCB.	Complied
5.5.3	Any unauthorised Change personnel, equipment or working conditions as mentioned in the authorization order by the persons authorized shall constitute a breach of this authorization.	Noted
5.5.4	An application for the renewal of an authorization shall be made as laid down in rule 5 (7) (b)	Noted
5.5.5	Industry shall submit annual report within 15 days and sub subsequently by 31 January every year.	Complied.
6 General Conditions :		
6.1	Any change in personnel, equipment or working conditions as mentioned in the consent form/order should immediately be intimated to the Board.	Noted

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ii.	No further expansion or Modifications in the plant shall be carried out without prior approval of the Ministry of Environment, Forest and Climate Change. In case of deviations or alterations in the project proposal from those submitted to this Ministry for clearance, a fresh reference shall be made to the Ministry to assess the adequacy of conditions imposed and to add additional environmental protection measures required, if any.	Complied. We ensure that there is no further expansion or modifications related to EC in the plant. For any deviations or alteration in the plant we will opt prior permission from MoEF.
iii.	The locations of ambient air quality monitoring stations shall be decided in consultation with the State Pollution Control Board (SPCB) and it shall be ensured that at least one station each is installed in the upwind and downwind direction as well as where maximum ground level concentrations are anticipated.	Complied. The Location of ambient air quality monitoring stations had been decided in consultation with GPCB so that at least one station is installed in the up wind and downwind direction as well as where maximum ground level concentration are anticipated. This also covers the impact, if any, of the project plant. The same had been shown to authority like SPCB, CPCB & MoEF during their visit to our factory. The maximum values during the compliance period confirm that at no time the emission level went beyond the stipulated standards. Parameter wise summary is given below:

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Expansion of Chemicals Manufacturing Unit By M/s. Atul Ltd, Valsad, Tehsil & Dist-Valsad,

		SUMMARY OF AMBIENT AIR QUALITY RESULTS:					
		Station	Parameter	Limit microgram/NM 3	Values for the period May 19- Oct 19		
					Min.	Max.	Avg.
iv.	The National Ambient Air Quality Emission Standards issued by the Ministry vide G.S.R. No. 826(E) dated 16 th November, 2009 shall be followed.	66 KV	RSPM (PM2.5)	60	21.3	45	32.2
			PM10	100	37.6	58	45.7
			SO2	80	7.5	9.8	8.95
			NOx	80	7.9	16.4	10.4
			Ammonia	850	ND	ND	ND
			HCl	200	ND	ND	ND
		Opposite Shed D	RSPM (PM2.5)	60	27	56	41.7
			PM10	100	34	60	46.8
			SO2	80	7.9	13.5	10.4
			NOx	80	8.3	11.3	9.6
			Ammonia	850	ND	ND	ND
			HCl	200	ND	ND	ND
		Near West site ETP	RSPM (PM2.5)	60	24	42	34
			PM10	100	37	62	51.7
			SO2	80	8.3	11.2	9.9
			NOx	80	7.2	10.2	9.1
			Ammonia	850	ND	ND	ND
			HCl	200	ND	ND	ND
		Near North ETP	RSPM (PM2.5)	60	27	40	34.2
			PM10	100	38	68	50.5
			SO2	80	6.4	10.6	8.97
			NOx	80	5.8	9.8	8.6
			Ammonia	850	ND	ND	ND
			HCl	200	ND	ND	ND
		TSDF	RSPM (PM2.5)	60	26	58	43
			PM10	100	7.8	59	44.97
			SO2	80	7.4	10.8	9.2
			NOx	80	6.3	9.5	7.9
			Ammonia	850	ND	ND	ND
			HCl	200	ND	ND	ND
Main Guest House	RSPM (PM2.5)	60	12	38	23.2		
	PM10	100	25	53	39.8		
	SO2	80	4.5	10.5	7.5		
	NOx	80	5.1	17.5	10.6		
	Ammonia	850	ND	ND	ND		

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Expansion of Chemicals Manufacturing Unit By M/s. Atul Ltd, Valsad, Tehsil & Dist-Valsad,

		HCl	200	ND	ND	ND																																	
	Wyeth Colony	RSPM (PM2.5)	60	10	32	19.5																																	
		PM10	100	26	50	38																																	
		SO2	80	4.1	9.5	6.7																																	
		NOx	80	4.6	14.2	9.4																																	
		Ammonia	850	ND	ND	ND																																	
		HCl	200	ND	ND	ND																																	
		Gram panchayat hall	RSPM (PM2.5)	60	12	45	25																																
			PM10	100	29	47	38.8																																
			SO2	80	5.8	9.2	7.6																																
			NOx	80	5.7	14.2	10.0																																
			Ammonia	850	0	0	ND																																
			HCl	200	0	0	ND																																
		Main office, North site	RSPM (PM2.5)	60	18	35	27.3																																
			PM10	100	35	58	46.7																																
			SO2	80	7.2	9.5	8.5																																
			NOx	80	7.3	14.2	11.3																																
			Ammonia	850	ND	ND	ND																																
			HCl	200	ND	ND	ND																																
	Haria water tank	RSPM (PM2.5)	60	16.3	39	26.8																																	
		PM10	100	22.2	41.1	34.7																																	
		SO2	80	6.7	9.5	8.4																																	
		NOx	80	5.8	15.8	9.5																																	
		Ammonia	850	ND	ND	ND																																	
		HCl	200	ND	ND	ND																																	
v.	The overall noise levels in and around the plant area shall be kept well within the standards by providing noise control measures including acoustic hoods, silencers, enclosures etc. on all sources of noise generation. The ambient noise levels shall conform to the standards prescribed under Environment (Protection) Act, 1986 Rules, 1989	<p>Complied.</p> <p>The ambient and workplace noise level confirms to the standard prescribed under EPA. The same is being regularly monitored at regular interval for ensuring the compliance. The testing lab appointed is M/s. Royal Environment Auditing & Consultancy Service, Surat NABL Approved TC – 5948, issue date-01/06/2019 and valid till 31/05/2021.</p> <p>The analysis reports were below the limits of quantization and within the permissible limit. A detail of analysis report of Monitoring report is attached in Annexure- VIII.</p> <p>The maximum values during the compliance period confirm that at no time the emission level went beyond the stipulated standards. Parameter wise summary is given below:</p> <p>Noise level monitoring data (Day Time)</p> <table border="1"> <thead> <tr> <th rowspan="2">Sr. No.</th> <th rowspan="2">Location</th> <th rowspan="2">Permissible Limits, dBA</th> <th colspan="3">Values for the period April 19- Sept 19</th> </tr> <tr> <th>Min.</th> <th>Max.</th> <th>Avg.</th> </tr> </thead> <tbody> <tr> <td></td> <td></td> <td>75</td> <td></td> <td></td> <td></td> </tr> <tr> <td>1</td> <td>Near Main guest house</td> <td>75</td> <td>52.6</td> <td>65.3</td> <td>58.8</td> </tr> <tr> <td>2</td> <td>Near TSDF</td> <td>75</td> <td>58.2</td> <td>65.9</td> <td>62.7</td> </tr> <tr> <td>3</td> <td>At Wyeth Colony</td> <td>75</td> <td>40.2</td> <td>62.1</td> <td>55.6</td> </tr> </tbody> </table>					Sr. No.	Location	Permissible Limits, dBA	Values for the period April 19- Sept 19			Min.	Max.	Avg.			75				1	Near Main guest house	75	52.6	65.3	58.8	2	Near TSDF	75	58.2	65.9	62.7	3	At Wyeth Colony	75	40.2	62.1	55.6
Sr. No.	Location	Permissible Limits, dBA	Values for the period April 19- Sept 19																																				
			Min.	Max.	Avg.																																		
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1	Near Main guest house	75	52.6	65.3	58.8																																		
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viz. 75 dBA (day time) and 70 dBA (night time).		4	Gram Panchayat Hall	75	60.1	70.2	64.4	
		5	Near Main Office North site	75	60.2	69.2	64.7	
		6	ETP North site	75	59.3	70.6	65.4	
		7	Opposite shed D	75	57.6	68.9	63.0	
		8	ETP West site	75	64.3	69.3	67.5	
		9	Water tank Haria road	75	45.3	67.2	58.9	
		10	Near 66KVA substation	75	62.4	68.1	64.9	
		Noise level monitoring data (Night Time)						
			Sr. No.	Location	Permissible Limits, dBA	Values for the period April 19-Sept 19		
					70	Min.	Max.	Avg.
			1	Near Main guest house	70	49.2	55.5	51.5
		2	Near TSDF	70	52.8	61.3	58.3	
		3	At Wyeth Colony	70	35.4	53.2	46.9	
		4	Gram Panchayat Hall	70	52.7	58.6	55.7	
		5	Near Main Office North site	70	54.5	64.2	58.5	
		6	ETP North site	70	52.8	60.6	56.6	
		7	Opposite shed D	70	52.1	60.2	55.6	
		8	ETP West site	70	55.4	60.3	57.7	
		9	Water tank Haria road	70	38.4	57.1	52.4	
		10	Near 66KVA substation	70	54.8	58.3	56.9	
vi.	The Company shall harvest rainwater from the roof tops of the buildings and storm water drains to recharge the ground water and to utilize the same for process requirements.	Complied. Rooftop rain water from Coal sheds and New TG building is collected in well-constructed pond and used as make up water for cooling tower. We have already two numbers of check dams in natural storm water drains to collect and harvest rain water in monsoon season after giving necessary pre-treatment to remove suspended matter as we have pumped these rain water to clarifloculator units to remove suspended matter. We are creating facility/ capacity to cater our consumption with rain harvested water with zero river drawls of water during the rainy days. Besides this, there are three check dams and pumping facility to harvest rain water. We also construct temporary sand bag dam on top of dam towards the end of monsoon to store additional free flowing rain water in river Par. In addition to above, surface runoff water and roof top water is used to recharge bore wells. Total No. of Pond: 2 Nos. Capacity of Pond:(1 Nos. x 10000 KL) & (1 Nos. x 2000 KL) Company has harvest 9.63 lac KL rain water during 2019.						

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Photograph of rain water harvesting structure (Pond) as shown below:



Water Harvesting Project at Colony



Water Harvesting Project Near Coconut circle

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vii.	Training shall be imparted to all employees on safety and health aspects of chemicals handling. Pre-employment and routine periodical medical examinations for all employees shall be undertaken on regular basis. Training to all employees on handling of chemicals shall be imparted.	<p>Complied.</p> <p>Annual training plan are being carried out every calendar year from January to December for safety purpose.</p> <p>Company is providing Training which cover all relevant workplace policies, procedures and practices to ensure that staff have the appropriate skills and knowledge to perform their work safety and according to the legislative requirements and the departments and work place procedures.</p> <p>All Employees and others have a duty to comply with instructions given for workplace health and safety.</p> <p>Employee training which generally include:</p> <ul style="list-style-type: none">• First aid training• Fire fighting training – Use of Fire Hydrant /Extinguisher• Handling of Compressed Gas Cylinder• Work Permit System, Use of Spill Kit• Handling of Solvents• Operation of ETP &MEE• Handling of Hazardous waste• Handling of Biomedical waste• Scrap yard management• 111 – A training as per factory Act• General instruction training; e.g. workplace communication processes, incident reporting, lock down, evacuation and medical emergency procedures, mock drill.• Job-specific training e.g. safe work procedures for the use of equipments, SOP of manufacturing process & safety and health aspect of chemical handling.• Conducted OSHAS & EMS Programme.• Hygiene, Stress management & skill development. <p>Training records, sample certificates of training report are attached in Annexure- IX.</p> <table border="1" data-bbox="440 1251 1378 1533"><thead><tr><th>SN</th><th>Name of Training</th><th>No of Participants</th><th>Date</th></tr></thead><tbody><tr><td>1.</td><td>First aid training</td><td>30, 32</td><td>31.5.2019, 27.8.2018</td></tr><tr><td>2.</td><td>Fire fighting training – Use of Fire Hydrant / Extinguisher</td><td>34, 38, 15, 20, 25</td><td>12.01.2019, 12.03.2019, 15.03.2019, 11.07.2019, 23.09.2019</td></tr><tr><td>3.</td><td>Handling of Compressed Gas Cylinder</td><td>18</td><td>30.8.2019</td></tr></tbody></table>	SN	Name of Training	No of Participants	Date	1.	First aid training	30, 32	31.5.2019, 27.8.2018	2.	Fire fighting training – Use of Fire Hydrant / Extinguisher	34, 38, 15, 20, 25	12.01.2019, 12.03.2019, 15.03.2019, 11.07.2019, 23.09.2019	3.	Handling of Compressed Gas Cylinder	18	30.8.2019
SN	Name of Training	No of Participants	Date															
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2.	Fire fighting training – Use of Fire Hydrant / Extinguisher	34, 38, 15, 20, 25	12.01.2019, 12.03.2019, 15.03.2019, 11.07.2019, 23.09.2019															
3.	Handling of Compressed Gas Cylinder	18	30.8.2019															

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		4.	Work Permit System, Use of Spill Kit	25, 32, 38, 30, 41	14.02.2019, 26.04.2019 25.07.2019, 20.08.2019, 09.10.2019,		
		5.	Handling of Solvents	20, 22, 25, 30	26.02.2019, 30.04.2019, 29.06.2019, 15.10.2019.		
		6.	Operation of ETP & MEE	12	20.03.2019.		
		7.	Handling of Hazardous waste/chemical	18	23.01.2019.		
		8.	Use of PPE	20, 22, 28	19.03.2019, 24.05.2019, 19.07.2019.		
		9.	Near Miss & Accident Reporting	22, 25	30.04.2019, 24.06.2019.		
		10.	Safety in Welding & Cutting	18, 20	21.02.2019, 12.10.2019.		
		11.	Respiratory protective equipment programme	15, 31	19.03.2019, 19.06.2019.		
		12.	MSDS	30	27.09.2019.		
viii	The company shall also comply with all the environmental protection measures and safeguards proposed in the documents submitted to the Ministry. All the recommendations made in the EIA/EMP in respect of environmental management, and risk mitigation measures relating to the project shall be implemented.	Complied. Compliance to all environmental protection measures and safeguards proposed in the project report submitted to ministry is compiled as below:-					
		S.N	Potential Impact	Action to be followed	Parameters for monitoring	Frequency of monitoring	Status of Compliance
		1.	Air emission	Adequate stack height APCM-Multi Cyclone& Scrubber is provided as APCM AAQ within the project premises and nearby habitations to be monitored. All vehicles to be PUC certificate.	SPM, RSPM, SO2 and NOx, Vehicle logs to be maintained.	Monthly through external agency NABL Approved.	Stack and APCM Details are provided in EC Compliance Point No.4 of Conditions. Quality of gaseous emission and AAQ is as per Annexure-IV.
		2.	Noise	Noise generating from operation of boiler, cooling towers & plant & M/c area to be monitored.	Spot noise level Recording.	Monthly through external agency NABL Approved.	Carried out at the periphery of whole plant premises as Annexure-VIII.

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		3.	Waste water discharge	Compliance to the wastewater discharge standards complete effluent treatment Plant- Primary+ Secondary & MEE, ZLD is achieved.	pH, TSS,TDS,COD,BOD, oil & Grease	Monthly through external agency NABL Approved.	Discharge effluent is analyzed on daily basis.	
		4.	Solid/ Haz Waste	Check compliance of HWM rules.	Quantity and quality monitoring	Periodically	Details are provided in EC Compliance Point No.10 of specific Conditions.	
		5.	Non routine events and accidental release.	Plant drawn, considering likely emergencies and steps required to prevent/limit consequences.	Mock drills and records of the same.	Periodic during process activities.	Every year 4 nos. mock drills carried out in the premise on rotational basis covering all plants.	
		6.	Green Belts	Vegetation, green belt development	More than 50,000 Trees /Year	Once a year	Green belt area is about 36% land area. Total area: 1126078.27 sq.mt Green belt area: 409030.00 sq.mt	

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ix.	The company shall undertake all relevant measures for improving the socio-economic conditions of the surrounding area. CER activities shall be undertaken by involving local villages and administration.	Complied.																																																						
		Company has embarked Budgetary provision of fund 375.0 lacs for period April 2019 to September 2019 for CSR activities. Till date company has expenditure of 216.88 lacs for CSR activities as per conditions mentioned in the companies CSR (Corporate Social Responsibility Policy) Rules, 2014 and its amendments from time to time in a letter and spirit.																																																						
		CSR projects (April 2019 to September 2019):																																																						
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		9	Contribution for advance treatment of Cancer patients	Karamsad (Gujarat)	AFT Charuatar ArogyaMandal	5.00	5.00
		10	Assistance to Needy People	Villages of Valsad (Gujarat)	ARDF	3.00	2.53
		11	Up liftment of salt pan worker	Kharaghoda, Surendranagar (Gujarat)	AFT ARDF Gantar	5.00	3.60
		12	Promotion of Sports	Villages of Valsad (Gujarat)	ARDF	12.00	11.40
		13	Enhancement of rural infrastructure	Villages of Valsad (Gujarat)	AFT ARDF	10.00	6.10
		14	Tribal Home stay project	Kevadiya (Gujarat)	AFT	100.00	58.05
		15	Initiative to celebrate 125 th birth anniversary of Sri Kasturbhai Lalbhai (Founder)	Valsad (Gujarat)	AFT	120.00	30.18
		16	Administrative expense	---	---	10.00	10.00
			Total			375.00	216.88
x.	The company shall undertake eco-developmental measures including community welfare measures in the project area for the Overall improvement of the environment.	Complied. Company has embarked Budgetary provision of fund 375.0 lacs for period April 2019 to September 2019 for CSR activities. Till date company has expenditure of 216.88 lacs for CSR activities as per conditions mentioned in the companies CSR (Corporate Social Responsibility Policy) Rules, 2014 and its amendments from time to time in a letter and spirit. CSR projects (April 2019 to September 2019):					

COMPLIANCE OF ENVIRONMENTAL CLEARANCE MINISTRY'S LETTER**NO.:F. No. J-11011/108/2015-IA-II (I), DATED: 11/02/2019****Period – APRIL 2019 TO SEPTEMBER 2019****Expansion of Chemicals Manufacturing Unit By M/s. Atul Ltd, Valsad, Tehsil & Dist-Valsad,**

S.N	Description	Location	Final Implementing Agency	Budget from April '19 to September '19	Expenditure
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2	Imparting Training to Women to become skilled elementary school teachers (Adhyapika) to improve rural education	Valsad (Gujarat)	AFT ARDF	30.00	28.97
3	Promoting socio cultural and extracurricular activities for school children	Atul, Valsad (Gujarat)	AFT ARDF	15.00	11.30
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		13	Enhancement of rural infrastructure	Villages of Valsad (Gujarat)	AFT ARDF	10.00	6.10
		14	Tribal Home stay project	Kevadiya (Gujarat)	AFT	100.00	58.05
		15	Initiative to celebrate 125 th birth anniversary of Sri KasturbhaiLalbh ai (Founder)	Valsad (Gujarat)	AFT	120.00	30.18
		16	Administrative expense	---	---	10.00	10.00
			Total				375.00

xi. A separate Environmental Management Cell equipped with full-fledged laboratory facilities shall be set up to carry out the Environmental Management and Monitoring functions.

Complied.

A separate Environmental Management Cell is equipped along with internal lab such as COD Analyzer, TOC Analyzer, pH Meter, TDS Meter etc. For all External Environmental Monitoring we have appointed M/s. Pollucon Laboratories Pvt Ltd, Surat NABL Approved **TC – 5945**, issue date-**28/05/2019** and valid till **27/05/2021**.

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graph TD
    A[Chairman & Managing Director] --> B[Whole Time Director  
President - Utility & Services]
    B --> C[VP - Corporate SHE]
    B --> D[VP - Legal Assurance SHE]
    B --> E[VP - DOH]
    C --> C1[Manager ETP]
    C --> C2[Fire Officers]
    C --> C3[Manager Process Safety]
    C --> C4[Divisional SHE Managers]
    C1 --> C1a[Chemists]
    C1a --> C1b[Worker]
    C2 --> C2a[Firemen]
    D --> D1[Manager Safety]
    D --> D2[Manager Env.]
    E --> E1[Doctors]
    E1 --> E1a[Male Nurses]
    E1 --> E1b[Lab Tech.]
    
```

xii. The company shall earmark sufficient funds towards capital cost and recurring cost per annum to implement the

Complied.

EMP measures are implemented. A separate budget is being allocated every year to comply with the entire legal requirement stipulated by SPCB, CPCB & MoEF apart from upkeep of pollution control systems and facilities. Total expenditure is given in below table including EMS implementation:

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	conditions stipulated by the Ministry of Environment, Forest and Climate Change as well as the State Government along with the implementation schedule for all the conditions stipulated herein. The funds so earmarked for environment management/ pollution control measures shall not be diverted for any other purpose.	Adequate fund embarked for EMP, Fy.2016-2017:																																		
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Total		182.58	3955.91																																	
xiii	A copy of the clearance letter shall be sent by the project proponent to concerned Panchayat Zilla Parishad/Municip	Complied. We have informed the public that the project has been accorded environmental clearance by the EAC, MoEF&CC Delhi and that the copies of the clearance letter are available with the GPCB and also be seen at website of EAC/GPCB.																																		

COMPLIANCE OF ENVIRONMENTAL CLEARANCE MINISTRY'S LETTER

NO.:F. No. J-11011/108/2015-IA-II (I), DATED: 11/02/2019

Period – APRIL 2019 TO SEPTEMBER 2019

Expansion of Chemicals Manufacturing Unit By M/s. Atul Ltd, Valsad, Tehsil & Dist-Valsad,

	<p>al Corporation, Urban local Body and the local NGO, if any, from whom suggestions/ representations, if any, were received while processing the proposal.</p>							
<p>xiv .</p>	<p>The project proponent shall also submit six monthly reports on the status of compliance of the stipulated Environmental Clearance conditions including results of monitored data (both in hard copies as well as by e-mail) to the respective Regional Office of MoEF&CC, the respective Zonal Office of CPCB and SPCB. A copy of Environmental Clearance and six monthly compliance status report shall be posted on the website of the company.</p>	<p>Complied.</p> <p>We regularly submit the half-yearly compliance report. The implementation of the project along with environmental actions plans are monitored by the authority time to time. We have already submitted the 6 monthly compliance reports to the authority for all six monthly periods between 2016 to 2019 & same is being updated on website.</p> <table border="1" data-bbox="560 1071 1339 1197"> <thead> <tr> <th>SN</th> <th>EC Compliance Report Period</th> <th>Submission Date</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>April 2019- September 2019</td> <td>27.11.2019</td> </tr> </tbody> </table>	SN	EC Compliance Report Period	Submission Date	1	April 2019- September 2019	27.11.2019
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xv. The environmental statement for each financial year ending 31st March in Form-V as is mandated shall be submitted to the concerned State Pollution Control Board as prescribed under the Environment (Protection) Rules, 1986, as amended. Subsequently, shall also be put on the website of the company along with the status of compliance of environmental clearance conditions and shall also be sent to the respective Regional Offices of MoEF&CC by e-mail.

Complied.

The Env. Statement (Form-V) for each financial year ending 31st March is being submitted to State Pollution Control Board (GPCB) every year time to time on XGN portal as well as hard copy submission. We have also submitted six monthly EC Compliance report periodically in which said information were updated time to time.

[Form V]

(See Rule 14)

Environmental Statement for the financial year ending the 31st March 2019

Part - A

(i) Name and address of the owner/occupier of the industry operation or process.

Mr. B. N. Mohanan
Occupier, Atul Limited,
Atul – 396 020, Dist.: Valsad

(ii) Industry category Primary (STC code) Secondary (STC code)
Large scale Chemical Manufacturing Industry

(iii) Production Capacity – Please refer Annexure - 1

(iv) Year of establishment : 1952

(v) Date of last environmental Statement submitted: Sept. 2018.

Part - B

Water and Raw Material Consumption

(1) Water consumption m³/day

Process : 7427 kl/day

Cooling : 1751 kl/day

Domestic : 474 kl/day

Sr. No.	Name of products	Process water consumption per unit of product output	
		During the previous financial year	During the current financial year
		(1)	(2)
1.	Agro products and Inorganic chemical	5.08 kl/mt	4.7 kl/mt
2.	Colours	83.2 kl/mt	70.7 kl/mt
3.	Pharma & Polymer	5.04 kl/mt	4.3 kl/mt

(2) Raw material consumption

*Name of raw materials	Name of products	Consumption of raw material per unit of output	
		During the previous financial year	During the current financial year

Please refer Annexure - 2

* Industry may use codes if disclosing details of raw material would violate contractual obligations, otherwise all industries have to name the raw materials used.

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Part - C

Pollution discharged to environment/unit of output

(Parameter as specified in the consent issued)

Pollutants	Quantity of pollutants discharged (mass/day)	Concentrations of pollutants in discharges (mass/volume)	Percentage of variation from prescribed standards with reasons
(a)Water	COD : 2092 kg/day (235 mg/lit)		NIL
(b)Air	SOx : 18 Mg/M ³ NOx : 16 Mg/M ³		

Part - D

Hazardous Wastes

(as specified under Hazardous Wastes (Management & Handling) Rules, 1989)

Hazardous Wastes	Total Quantity (kg)	
	During the previous financial year	During the current Financial year
From process	2237219	1705663
From pollution control facilities	8571245	9481204 (including MEE salt)

Part - E

Solid Waste

Solid Wastes	Total Quantity (kg)	
	During the previous financial year	During the current financial year
(a)From process (Fly Ash)	74533859	68353710
(b)From pollution control facility		
(c) (1) Quantity recycled or re-utilised within the unit	912200	Nil
(2) Sold	75446059	68353710
(3) Disposed		

Part - F

Please specify the characterisation (in terms of composition and quantum) of hazardous well as solid wastes and indicate disposal practice adopted for both these categories wastes.

Please Refer Annexure - 3

Part - G

Impact of the pollution abatement measures taken on conservation of natural resources and on the cost of production.

Please Refer Annexure - 4

Part - H

Additional measures/investment proposal for environmental protection abatement of pollution, prevention of pollution.

Please Refer Annexure - 5

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Part - I

Any other particulars for improving the quality of the environment.

- a. Company has updated its EMS system as per ISO 14001:2015.
- b. Above ground pipe line network installation job for transferring effluent from production plants to ETP has been initiated.
- c. In plant complete treatment for effluent has been initiated in one of our plants.
- d. We have installed ATFD and DEE in downstream of MEE to make it zero liquid discharge plant.
- e. Started recovery of various recoverable materials like Copper hydroxide, methanol, salt, mix dyes, PTSA, ammonia, etc. from the effluent streams.
- f. Company has segregated various streams like highly acidic, highly coloured and high TDS streams and started recovery from the same.
- g. We have started sending almost all our hazardous waste to cement industry as an alternative fuel from them to reduce the carbon footprint.
- h. Most of the stacks and ETP outlet are being continuously monitored through online monitoring system and connected to GPCB and CPCB office.
- i. Scrubbing facility has been updated in Chloro sulfonic acid plant stack. Secondary caustic scrubber is installed in addition to water scrubber for further reducing emissions of HCl from CSA vent.
- j. Tank farm of Sulphuric acid, 25% oleum, 65% oleum, liq. SO3, CSA has been upgraded to recover losses, in case of emergency.
- k. Scrubber system upgraded at Epoxy Plant.
- l. Project for caustic transfer through pipe line from East to North is completed. It results into road safety, operational safety, health safety.
- m. Underground Benzene storage facility has been upgraded with RCC secondary containment.

Annexure : 1: list of Products

Product	Consented capacity MT/M
Azo dyes	550
Sulfur Black	250
Sulfur Dyes range	25
Naphthol range	75
Fast Color Bases	40
Disperse dyes	118.5
Optical Brighteners	10
Reactive Dyes	127.3
Vat dyes	105
Caustic soda/potash & sodium sulfide	1800
Liquid Chlorine /HCl	1600
Carbamate group of Agrochemicals	33.3
Diuron	20
Trichlo Carbon	8.3
Cartap HCl	50
Carbendazim	20.9
Herbicides (2,4-D & related products)	2170
MCPA	
Pyridine based Insecticides & herbicides chemical Imidacloprid	25
Triazole based Fungicide	1.67
Pyrethroids	10
Sulphonyl Urea	25
Glyphosate	50
Isoprotiholane	8.3
Fipronil	5
Formulations	200
Buprofesin	4
Imazethpyr	1.83
Kresoxim Methyl	2.08
Fenoxaprop	0.83
Cyhalofop	0.83
Mabendazole	2
Tolbutamide	2.5
Quinodochlor	15
Bulk Drugs & Intermediates	9.6
Dechlorfenac sodium / potassium	2.5
Atenolol	1.7
Fresamide	1.3
Trimethoprim	0.9
Pero hydroxy acetophenone	1.7

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Para hydroxy phenyl acetamide	3
Acyclovir	5.2
Bathenechol	5.2
Pharma Intermediates & Chemicals	300
Epoxy Resin	2500
Vinyl Ester Resins	37.5
Ketone Formaldehyde Resins & Sulphonamide.	20.8
Formaldehyde Resins	
UF/MF/FF/DiCyan diamide Resins	270.9
Polyamide resins	161.7
Anthraquinone, Naphthalene, Benzene Intermediates. (Including Beta – Naphthol & BON Acid)	740
Meta hydroxy phenol	460
Carbamite	30
Chlorzaxazone & other related products	5
Agro. Pharma intermediates, Isocyanats & Carbonat Esters, etc.	100
4 Ethyl 2,3 – Diacropiperazino carbonyl Chloride	3.3
Imino Dibenzyl 5 carbonyl Chloride	0.8
Formaldehyde and base products.	3200
Sulfuric Acid / Oleum / Chlorosulphonic Acid & Salts	11550
Sulfuric Acid / Oleum / Chlorosulphonic Acid & Salts	
Sulpha Drug Intermediate	193.8
Acetyl Sulphanilyl Chloride and its dervatives.	1500
Acetanilide	500
Sulpha Methyl Phenazole Sodium	1.1
Pyrazole Base	10.5
Sulphanilic acid	25
Bis Phenol A	416.7
Hexamine	150
Epoxy Intermediates	23.8
Hardener & Auxiliaries	500
Hardener Intermediates	700
Bisphenol S & Intermediate Chemicals	16.6
Sodium Thio sulphate (dry basis)	900
Phosgene	416.667
Total Production	32122.607

Annexure : 2 : List of raw material

Name	Amount in Tonnes* per month
Aluminium ingots	18
Iron Fillings	50
Alum	40
Aluminium Chloride	66
Anhydrous Ammonia	9
Ammonia gas liquor 25 % (In tanker)	317
Caustic Potash Flakes	75
Caustic Soda Flakes	2623
Caustic soda lye	1218
Caustic Soda Solution	1325
Chlorine	3822
Chlorosulphonic Acid	250
Hydrochloric Acid (gas)	1000
Hydrochloric Acid 33%	3679
Hydrated Lime	2000
Lime stone powder	1257
Manganese Dioxide	220
Nitric Acid 98%	95
Nitric Acid 60%	50
Oleum 65%	1221
Oleum 25%	140
Phosphoric Acid	50
Potassium Chloride	360
Sodium Chloride	6000
Sodium Thiosulphate	195
Soda Ash	182
Sulphuric Acid 98%	2497
Sulphur Powder	1900
Sodium Carbonate	60
Copper chloride	4
Activated carbon	1
Sulfinate	1
SOCl ₂	2

COMPLIANCE OF ENVIRONMENTAL CLEARANCE MINISTRY'S LETTER

NO.:F. No. J-11011/108/2015-IA-II (I), DATED:

11/02/2019 Period – APRIL 2019 TO SEPTEMBER 2019

Expansion of Chemicals Manufacturing Unit By M/s. Atul Ltd, Valsad, Tehsil & Dist-Valsad,

15% sodium bicarbonate	3
15% H2O2	24
10% FeSO4	10
Guanidine Nitrate	15
KOH	117
Acetanilide	52
Acetic acid	23
Acetic Anhydride	6.5
Acetonitrile	67
Acetone	33
Aniline oil	43
Anthraquinone	6
Benzene(KL)	660
Bis Phenol A	1582
Castor oil (Comm.)	35
Cyanuric Chloride	18
Di Chloro Diphenyl sulphone	107
Dibutyl phthalate	7
Dimethyl Sulphate	148
Dimethyl Formamide (DMF)	34
Dimethyl Amino Dichloro Propane Hydrochloride	40
Epichlorohydrine	4911
Formaldehyde	28
Glycerin	24
H-Acid	12
Hexa Hydro Phthalic anhydride	9
Methanol (KL)	1100
Mono Chloro Acetic Acid	2170
Napthalene crude	60
Phenol	1200
Phthalic anhydride	55
Synthetic cresol	5
Tamol MNO	50
Tri ethylene tetramine	13
Toluene	80
Urea	183
IPA	230
Cresol	133

MCB	86
Ethyl acetate	8
DMA Tosylate	9
Cyano Pyrazole	5
Ethyl acetate	46
PMIDA	69
EDA	31
2, Chloro 5-methyl chloro pyridine	17
Sodium Methoxide	9
Di isopropyl malonate	8
CS2	4
Ethylene Dibromide	7
n-Hexane	17
O-cresol	503
SO2Cl2	376
DPS	1
PCF	13
2 Amino 4-6-Dimethoxy pyridine	13
Dioxane	45
N-N Dimethyl aniline	15
SNA	15
DBU	9
TFE	2
Thionyl Chloride	1
m-phenoxy benzaldehyde	2
Fuel:	
Coal / Lignite	46925
Diesel Oil (KL)	640
Furnace oil (KL)	1100
Natural gas (m3)	200000
* Indicating approx. average consumption. Major RM considered.	

COMPLIANCE OF ENVIRONMENTAL CLEARANCE MINISTRY'S LETTER

NO.:F. No. J-11011/108/2015-IA-II (I), DATED:

11/02/2019 Period – APRIL 2019 TO SEPTEMBER 2019

Expansion of Chemicals Manufacturing Unit By M/s. Atul Ltd, Valsad, Tehsil & Dist-Valsad,

Annexure: 3: Description of Solid Waste at Atul

Description of waste	Physical form	Calorific Value Cal / gms	Authorized Quantity MT/M	Nature of waste
Graphite granules from decomposer	Solid	Similar to Carbon	0.0417	Inorganic
Sludge from recycle unit, ground floor & sock filter	Solid	No Calorific Value	0.014	Inorganic
Sludge from Demercuration Plant	Semi Solid	Nil	1	Inorganic
Membranes	Solid	-	6	Polyfluoropolymer
Waste Resin,	Solid	-	0.05	Polymer
Sulfurised Carbon,	Solid	6000	0.003	Carbon product
Activated Carbon,	Solid	6000	0.0104	Carbon product
Brine purification sludge,	Sludge	No Calorific Value	242.5	Inorganic e.g. Cl ⁻
Sulphur sludge,		5000	5.83	Inorganic and S
Hot Gas filter Ash,	Solid	No calorific Value	0.02	Inorganic
Bottom Sludge after recovery of Sulphur Sludge,	Solid	5000	0.5	Inorganic
Waste Catalyst,	Solid	No calorific Value	0.083	Inorganic Non Flammable
Spent Solvents,	Liq	-	5	Solvent
OCBC / OCT distillation residue,	Visc. Liq.	8000	154.042	Polymer compound
waste residue Bulk Intermediate (meta hydroxy phenol) (Tar),	Solid	-	15	10-12 benzene
Waste residue (from resorcinol plant)	Solid	-	15	-
Urea Formaldehyde Polymer product,	Solid	3500	0.25	Organic compound
Sludge containing higher amino compound,	Tar	5200	0.417	Polymer amine
Filter cake of Epoxy resins with resin contamination	Semi Solid	3200	0.833	Polymer compound
Epoxy Resin (Filter Cake with resin contamination),	Solid	3200	130.29	Polymer compound
Aluminium Hydroxide,	Solid	No calorific Value	15.417	Metallic

Iron sludge,	Solid	No calorific Value	80	Mostly iron, oxide
Brass residue,	Solid	No calorific Value	0.667	Mostly Copper & Iron.
Still / Other residue,	Tar	6500	8.67	Polymeric aromatic Organics.
Darco / filter aid sludge,	Solid	2500	2.083	Mainly Carbon.
Dust (Agro plant)	Solid	-	3	Mixture of Dust, Rust & Spillage chemicals
Iron Residue,	Wet cake	-	62.5	Water, iron
PER crystal residue,	Semi Solid		0.4	Specific gravity 1.1557, Organic
Hyflo sludge,	Wet cake	-	0.5	0.87 % Specific gravity, 80% solid, Inorganic & organic content
Filter aid sludge for Hg recovery,	-	-	1	Containing Hg
Sludge from waste water treatment,	Solid	-	5	Organic, Inorganic.
Dust from Air Filtration System,	Solid	-	0.001	Residual product particles.
Spent carbon,	Solid	6000	40	Carbon cake contains aq. Methanol Aqueous Carbon Cake
Date expired, discarded and off- specification product,	Solid	-	0.008	-
Spent Mother liquor, K/Month	Liquid	-	19.75	Mainly contains Spent Organic solvent
Spent solvent,	Liquid	-	19.75	Methanol
Still / Other residue,	Solid	-	63.66	Mainly carbon.
Pyridine based Insecticides & herbicides (Darco / Filter aid Sludge),	Solid	2500	3.62	Mainly carbon.
Sulfonyl Urea (Residue),	Solid	6500	14.27	Polymeric Organic
Triazole based Fungicides (Residue),	Solid	6500	1.28	Polymeric Organic
Pyrethroids	Solid	6500	0.6	Polymeric Organic
Hyflo,	Semi Solid	No Calorific Value	15.75	Non flammable, non reactive, partly organic - Inorganic
Dust from Air Filtration System,	Solid	-	0.008	Residual product particles.
Chemical containing residue from decontamination and disposal,	solid	-	0.0008	-

COMPLIANCE OF ENVIRONMENTAL CLEARANCE MINISTRY'S LETTER

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Expansion of Chemicals Manufacturing Unit By M/s. Atul Ltd, Valsad, Tehsil & Dist-Valsad,

Liners/Bags, NOs.	Solid	NA	9500	Without any Chemical contamination after decontamination
Drums/HDPE Carboys, Nos.	Solid	NA	250	Without any Chemical contamination after decontamination
Flue gas cleaning residue.	Solid	-	0.0008	-
Toxic metal containing residue from used-ion exchange material in water purification.	Solid	-	0.001	--
Sludge from ETP.	Solid	No Caloric Value	41.667	Mostly gypsum
Gypsum from ETP	Semi solid	No Caloric Value	2	Mostly gypsum
MEA distillation residue.	Visc. Liq.	9500	1.667	Polymeric aromatic compound
Spent Catalyst.	Solid	-	0.002	--
Sludge from wet scrubber.	Solid	-	0.02	-
Incineration ash.	Solid	No Caloric Value	4.62	Inorganic compounds e.g. Silica, NaCl.
Sludge & filters contaminated with oil.	Semi solid	-	0.005	-
Used oil, Kl/Month	Wet cake	-	2	Lubricant oil with minor contamination
Wastes / residues containing oil.	Semi solid	-	0.001	-
Aluminium Ash.	Solid	-	2.6	Water, oxides of Aluminium & Aluminium Metal
Gypsum (From meta hydroxy phenol Plant).	Solid	Not Applicable	840	Inorganic Compound Mostly Calcium Sulphate 75 - 77%, Moisture 23-25%
Sodium Sulphite.	Solid	Not Applicable	550	Inorganic Compound, Mostly Sodium Sulphite 70-75%, Moisture 25-30%
Salt from MEE	Solid	Not applicable	1678.71	99% Sodium salt
Spent Acid	Liquid	Not applicable	4400	Sulphuric acid
Chemical Gypsum	Semi solid	No Caloric Value	4930	Mostly gypsum
Copper Hydroxide Wet cake	Solid	Not applicable	40	Copper Hydroxide
Spent Organic solvent	Liquid	-	24.75	Mainly contains Spent Organic solvent
2,6 Dichloro phenol	Solid	-	94.355	Phenolic compound
2,4,6 Trichloro phenol	Solid	-	45.925	Phenolic compound
p-CBSA/Na-Salt	Solid	-	127	pCBSA.

Spent Carbon catalyst	Solid	--	0.25	--
Waste Residue (Phin)	Solid	--	2	--
DCDPS waste	Solid	--	30	--
N.B.Tar / ODCB Tar	Semi Solid	--	5	--
ONT Tar	Solid / Tary	--	15	--
Various type of Residue	Solid	--	10	--
Waste/Salt Lime Dust	Powder	--	5	Inorganic Compound
Waste from Pharma intermediate	Solid	--	28.97	--

Annexure : 4

Water Conservation

Following actions were taken for water conservation during 18-19:

- Utilized Steam condensate from Process plants of East site in Boilers.
- Boiler cooling tower blow down water is reused in water mist system of coal storage area for dust suppression.
- MEE condensate recovery water is being utilised as raw water in our Epoxy plant various purpose.
- Recycling of treated waste water: We have started using primary treated effluent for making lime slurry in our ETP. By doing so, we are able to save approximately 200 KL/day of fresh water.
- Fresh water consumption reduced by increasing COC of cooling tower by providing chemical water treatment and providing side stream filter.
- Reduction in fresh water requirement: In one of our Agro product, earlier second wash water was discharged to ETP, now it is being recycled in first wash. This has completely eliminate the water requirement for second wash as well as process effluent has been reduced to 50%. In other product, 3 streams have been identified for recycling and its implementation has caused 1.4KL/day reduction in effluent. In Formulation, DM water used for Hexa SC vessel cleaning now carry forward to next batch in place of draining it to ETP. In Ester plant, recycling of ejector condensate water is done in place of first wash.

Rain water harvesting: In few plants, rain water is being recharged from the terrace and has been used as a makeup of cooling tower during the monsoon season. We already have two numbers of check dams in natural stream water drains to collect and harvest rain water in Monsoon. A big pond having approximate storing capacity of 5000 KL to store surface runoff coming from Pannera full area has been developed and in use. Company has harvest 5.3 lac KL rain water during 18-19.

Energy Conservation

Electricity forms one of the important components of energy used at Atul Limited. Major part of electricity used at Atul, is produced in the coal based captive power plant.

Energy Conservation Measures:




- Company has replaced almost all our street lights with LED light fitting to reduce energy consumption.
- Heat recovery of SAP and utilizing for preheating of Boiler feed water.
- Replacement of induced draft CF (cooling tower) by Venturi type CF.
- Replacement of Burners by energy efficient burners in Gas/ FO fired Boilers.
- Replacing reciprocating compressors by screw compressors for Air & Cylinders.

COMPLIANCE OF ENVIRONMENTAL CLEARANCE MINISTRY'S LETTER

NO.:F. No. J-11011/108/2015-IA-II (I), DATED: 11/02/2019

Period – APRIL 2019 TO SEPTEMBER 2019

Expansion of Chemicals Manufacturing Unit By M/s. Atul Ltd, Valsad, Tehsil & Dist-Valsad,

<p>xvi.</p>	<p>The project proponent shall inform the public that the project has been accorded environmental clearance by the Ministry and copies of the clearance letter are available with the SPCB/Committee and may also be seen at Website of the Ministry at http://moef.nic.in. This shall be advertised within seven days from 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 a copy of the same shall be forwarded to the concerned Regional Office of the Ministry.</p>	<p>Complied.</p> <p>We have granted EC Dated: 11th Feb, 2019 Online, and inform the public that the project has been accorded environmental clearance and advertised in local newspapers that are widely circulated in the region with vernacular language Gujarati and another in English as per below details: New Paper Add Dated: 17th Feb, 2019</p> <ol style="list-style-type: none"> 1. Gujarati news paper: "Gujarat Samachar" 2. Gujarati news paper: "Sandesh" 3. English news paper: Times of India "Surat Edition" <p>Photographs of newspaper ADD:</p>	
		<p>Gujarat Samachar Dt.17.2.19</p> 	<p>Sandesh dt.17.2.19</p> 
		<p align="center">Time of India dt.17.2.19</p> 	
<p>xvii.</p>	<p>The project authorities shall inform the Regional Office as well as the</p>	<p>Complied.</p> <p>We have communicated with the regional officer & MoEF&CC towards the status of work and financial closure time to time. We have also submitted six monthly EC Compliance</p>	

COMPLIANCE OF ENVIRONMENTAL CLEARANCE MINISTRY'S LETTER

NO.:F. No. J-11011/108/2015-IA-II (I), DATED: 11/02/2019

Period – APRIL 2019 TO SEPTEMBER 2019

Expansion of Chemicals Manufacturing Unit By M/s. Atul Ltd, Valsad, Tehsil & Dist-Valsad,

<p>Ministry, the Date of financial closure and final approval of the project by the concerned authorities and the date of start of the project.</p>	<p>report periodically in which said information were updated time to time.</p> <p>We have obtained CTE after receiving ToR. CTE was granted by GPCB Vide No. GPCB/CCA-VSD-313(12)/ID: 23158/363958 on 25.7.2016 (CTE no. 80394) Valid Till- 17/7/2023.</p> <p>We had applied for amendment in existing CTO after receiving EC. CTO amendment has been granted by GPCB Vide Letter No. GPCB/CCA-VSD-313(16)/ID:23158/513897, Dated 17.7.2019 (CTO amendment No. AH 102080), Valid Till-03/11/2019. Renewal for the same has been received with Provisional consent order no. 105110 valid up to 30.09. 2025.</p>
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COMPLIANCE OF ENVIRONMENTAL CLEARANCE MINISTRY'S LETTER

NO.:F. No. SEIAA/GUJ/EC/1(d)/340/2016, DATED: 20/05/2016

Period – APRIL 2019 TO SEPTEMBER 2019

By M/s. Atul Ltd, Valsad

Atul Limited

Project: Setting up an addition captive power plant of 22 MW at post Atul, Dist. Valsad

EC Compliance Report for the period April 2019-September 2019as per EC No. SEIAA/GUJ/EC/1(d)/340/2016

No.	Condition	Compliance Status																																																																	
Specific Conditions :																																																																			
1.	Unit shall comply the emission standards mentioned in the Notification by MOEF&CC vide S.O. 3305(E) dated 07/12/2015.	<p>Project Proponent vide letter dated 10.12.2019 received in MoEF&CC, RO Bhopal on 10.12.2019 submitted following: Complied.</p> <p>We ensured that at no time the emission level will go beyond the stipulated standards and or prescribed limits. In such cases / Occurrences we will intimate to board & authority time to time. In event of failure of APCM, the unit shall not restarted until the control measures are rectified to achieve efficiency. Stack details are as follow:</p> <table border="1"><thead><tr><th>Stack No.</th><th>Stack Attached to</th><th>Stack Ht. (in Mtr)</th><th>APCM</th></tr></thead><tbody><tr><td>1</td><td>FBC Boiler E1 (34 TPH)</td><td>56</td><td rowspan="5">Electro Static Precipitator(Four Field)</td></tr><tr><td>2</td><td>FBC Boiler E2 (34 TPH)</td><td>56</td></tr><tr><td>3</td><td>FBC Boiler E3 (50 TPH)</td><td>80</td></tr><tr><td>4</td><td>FBC Boiler W1(45 TPH)</td><td>70</td></tr><tr><td>5</td><td>Boiler (50 TPH x 2 Nos.)</td><td>106</td></tr><tr><td>6</td><td>D.G.set(1010KVA)–stand by only</td><td>10</td><td>Adequate stack height</td></tr><tr><td>7</td><td>D.G.Set (1500 KVA) – Stand by only</td><td>11</td><td>Adequate stack height</td></tr></tbody></table> <p>Flue gas stack analysis is monitored at regular interval (Monthly) for ensuring the compliance. The testing Lab appointed for Flue gas analysis is being done by GPCB approved (schedule-II) M/s. Pollucon Laboratories Pvt.Ltd, surat NABL approved TC-5945, issue date-28/05/2019 and validity till 27/05/2021. Flue gas stack Analysis report shows that maximum concentration of SPM is found 87 mg/nm³ during month of June and minimum concentration of SPM is found 34 mg/nm³ during month of August which is below permissible emission standards mentioned in the Notification by MOEF&CC vide S.O. 3305(E) dated 07/12/2015 during last six month monitoring period (April-2019 to September- 2019). Flue gas stack Analysis report shows that maximum concentration of SO₂ is found 142 mg/nm³ during month of August and minimum concentration of SPM is found 84 mg/nm³ during month of August which is below permissible limit standards mentioned in the Notification by MOEF&CC vide S.O. 3305(E) dated 07/12/2015 during last six month monitoring period (April-2019 to September-2019). Flue gas stack Analysis report shows that maximum concentration of NO_x is found 148 mg/nm³ during month of June and minimum concentration of SPM is found 95 mg/nm³ during month of April which is below permissible limit standards mentioned in the Notification by MOEF&CC vide S.O. 3305(E) dated 07/12/2015 during last six month monitoring period (April-2019 to September-2019).</p> <p>The maximum value (SPM, SO₂ & NO_x) during the compliance period confirms that at no time the emission level went beyond the stipulated standards. Parameter wise summary is given below: Stack results of last six month period (April-2019 to september-2019):</p> <table border="1"><thead><tr><th rowspan="2">S N</th><th rowspan="2">Stack Attached To</th><th rowspan="2">Stack Ht</th><th rowspan="2">APCM</th><th rowspan="2">Permissible Limit</th><th colspan="3">Results</th></tr><tr><th>April-2019</th><th>May-2019</th><th>June-2019</th></tr></thead><tbody><tr><td rowspan="2">1</td><td rowspan="2">FBC boiler E1 (34 TPD)</td><td rowspan="2">56 Mt</td><td rowspan="2"></td><td rowspan="2">SPM- 100 mg/Nm³</td><td>75.0</td><td rowspan="2">(During sampling) Not in operation</td><td rowspan="2">(During sampling) Not in operation</td></tr><tr><td>98.0</td></tr><tr><td rowspan="2">2.</td><td rowspan="2">FBC Boiler E2 (34 TPH)</td><td rowspan="2">56 Mt</td><td rowspan="2"></td><td rowspan="2">SO₂- 600</td><td>120.0</td><td rowspan="2">(During sampling) Not in operation</td><td rowspan="2">84</td></tr><tr><td>(During sampling) Not in operation</td><td>132</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td>150</td></tr></tbody></table>	Stack No.	Stack Attached to	Stack Ht. (in Mtr)	APCM	1	FBC Boiler E1 (34 TPH)	56	Electro Static Precipitator(Four Field)	2	FBC Boiler E2 (34 TPH)	56	3	FBC Boiler E3 (50 TPH)	80	4	FBC Boiler W1(45 TPH)	70	5	Boiler (50 TPH x 2 Nos.)	106	6	D.G.set(1010KVA)–stand by only	10	Adequate stack height	7	D.G.Set (1500 KVA) – Stand by only	11	Adequate stack height	S N	Stack Attached To	Stack Ht	APCM	Permissible Limit	Results			April-2019	May-2019	June-2019	1	FBC boiler E1 (34 TPD)	56 Mt		SPM- 100 mg/Nm ³	75.0	(During sampling) Not in operation	(During sampling) Not in operation	98.0	2.	FBC Boiler E2 (34 TPH)	56 Mt		SO ₂ - 600	120.0	(During sampling) Not in operation	84	(During sampling) Not in operation	132							150
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COMPLIANCE OF ENVIRONMENTAL CLEARANCE MINISTRY'S LETTER

NO.:F. No. SEIAA/GUJ/EC/1(d)/340/2016, DATED: 20/05/2016

Period – APRIL 2019 TO SEPTEMBER 2019

By M/s. Atul Ltd, Valsad

		3.	FBC Boiler E3 (50 TPH)	80 Mt	E S P (4 Field)	mg/Nm ³	80.0	85	81	
						3	128.0	135	133	
						NOx-600 mg/Nm ³	145.0	152	148	
		4.	FBC Boiler W1(45 TPH)	70 Mt				65.0	70	68
								95.0	98	96
								135.0	145	142
5.	Boiler (50 TPH x 2Nos.)	106 Mt		**SPM-50 mg/Nm ³						
				SO ₂ - 600 mg/Nm ³	45.0	48	47			
				NOx-300 mg/Nm ³	105.0	112	109			
				Hg-0.03 mg/Nm ³	95.0	99	95			
					ND	ND	ND			
6	D.G set (1010 KVA) – stand by only	10 Mt	Adequate Stack Ht	SPM-150 mg/Nm ³	39.8	30.2	19.8			
				SO ₂ -100 ppm	4.4	4.9	4.6			
				NOx-50 ppm	24.1	33.1	29.5			
7	D.G.Set(1500 KVA) – Stand by only	11 Mt			27.6	29.6	29.8			
					4.1	3.9	4.0			
					21.7	24.8	27.9			
**Permissible limits are as per MoEF Notification Dated: 7/12/2015.S.O.3305(E)										

COMPLIANCE OF ENVIRONMENTAL CLEARANCE MINISTRY'S LETTER

NO.:F. No. SEIAA/GUJ/EC/1(d)/340/2016, DATED: 20/05/2016

Period – APRIL 2019 TO SEPTEMBER 2019

By M/s. Atul Ltd, Valsad

S N	Stack Attached To	Stack Ht	APCM	Permissible Limit	Results		
					July-2019	Aug-2019	Sept- 2019
1	FBC boiler E1 (34 TPD)	56 Mt	ESP(4 Field)	SPM-100 mg/Nm ³ SO ₂ -600 mg/Nm ³ NO _x -600 mg/Nm ³	87 120 135	65 103 123	60 114 142
2.	FBC Boiler E2 (34 TPH)	56 Mt			82 127 147	83 108 138	80 107 138
3.	FBC Boiler E3 (50 TPH)	80 Mt			82 126 138	73 142 147	68 135 132
4.	FBC Boiler W1(45 TPH)	70 Mt			68 94 132	53 105 120	64 110 127
5.	Boiler (50 TPH x 2Nos.)	106 Mt		**SPM-50 mg/Nm ³ SO ₂ -600 mg/Nm ³ NO _x -300 mg/Nm ³ Hg-0.03 mg/Nm ³	47 109 95 ND	34 120 84 ND	29 138 98 ND
6	D.G set (1010 KVA) – stand by only	11 Mt	Adequat e Stack Ht	SPM-150 mg/Nm ³ SO ₂ -100 ppm NO _x -50 ppm	42.8 4.9 34.8	27.6 4.8 29.7	30.8 6.4 32.6
7	D.G.Set(1 500 KVA) – Stand by only	11 Mt			30.2 4.6 33.5	27.2 3.84 24.8	34.9 4.4 37.8
<p align="center">**Permissible limits are as per MoEF Notification Dated:7/12/2015.S.O.3305(E) Summary of Stack results:</p>							
No.	Stack Attached to	Parameter	Standard values as per CCA	Unit	Values for the period April 19- September 19		
					Min.	Max.	Avg.
1.	FBC boiler E1 (34 TPD)	SPM	100	mg/Nm ³	65	87	76
		SO ₂	600	mg/Nm ³	98	120	109
		NO _x	600	mg/Nm ³	120	142	131
2.	FBC boiler E2 (34 TPD)	SPM	100	mg/Nm ³	80	84	82
		SO ₂	600	mg/Nm ³	103	132	118
		NO _x	600	mg/Nm ³	138	150	144
3.	FBC Boiler E3 (50 TPH)	SPM	100	mg/Nm ³	68	85	77
		SO ₂	600	mg/Nm ³	126	142	134

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		NOx	600	mg/Nm ³	132	152	142
4.	FBC Boiler W1(45 TPH)	SPM	100	mg/Nm ³	53	70	62
		SO ₂	600	mg/Nm ³	94	110	102
		NOx	600	mg/Nm ³	120	145	133
5	D.G set (1010 KVA) – stand by only	SPM	150	mg/Nm ³	19.8	42.8	31.3
		SO ₂	100	mg/Nm ³	4.4	6.4	5.4
		NOx	50	mg/Nm ³	24.1	34.8	29.4
6.	D.G.Set(1500 KVA)– Stand by only	SPM	150	mg/Nm ³	27.6	30.2	28.9
		SO ₂	100	PPM	3.9	4.6	4.3
		NOx	50	PPM	21.7	37.8	29.8

No.	Stack Attached to	Parameter	Standard values as per CCA	Unit	Values for the period April 19- September 19		
					Min.	Max.	Avg.
7.	Boiler (50 TPH x 2 Nos.)	SPM	50.0	mg/Nm ³	29	48	39
		SO ₂	600	mg/Nm ³	105	138	122
		NOx	300	mg/Nm ³	84	99	92
		Mercury	0.03	mg/Nm ³	ND	ND	ND

Photographs of ESP & Stack attached to Boiler and D.G.Set:



ESP



STACK

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D.G.SET STACK (D.G.SET)

The Ambient Air Quality is being monitored at regular interval for ensuring the compliance. The testing lab appointed is M/s. Royal Environment Auditing & Consultancy Service, Surat NABL Approved **TC – 5948**, issue date-**1/06/2019** and valid till **31/05/2021**.

Ambient Air quality analysis report shows that maximum concentration of PM2.5 is found 58.0 mg/Nm3 at TSDF site and minimum concentration is found 10.0 mg/Nm3 at Wyenth Colony during last six month monitoring period (April-2019 to September-2019). These result are below permissible emission standards mentioned in the Notification by MOEF&CC vide S.O. 3305(E) dated 07/12/2015 during last six month monitoring period (April-2019 to September-2019).

Ambient Air quality analysis report shows that maximum concentration of PM10 is found 62.0 mg/Nm3 at Nr.West site of ETP and minimum concentration is found 7.8 mg/Nm3 at TSDF site during last six month monitoring period (April-2019 to September-2019). These results are below permissible emission standards mentioned in the Notification by MOEF&CC vide S.O. 3305(E) dated 07/12/2015 during last six month monitoring period (April-2019 to September-2019).

Ambient Air quality analysis report shows that maximum concentration of SO₂ is found 13.5 mg/Nm3 at opposite shed D site and minimum concentration is found 4.1 mg/Nm3 at Wyenth colony site during last six month monitoring period (April-2019 to September-2019). These results are below permissible emission standards mentioned in the Notification by MOEF&CC vide S.O. 3305(E) dated 07/12/2015 during last six month monitoring period (April-2019 to September-2019).

Ambient Air quality analysis report shows that maximum concentration of SO₂ is found 17.5 mg/Nm3 at Main Guest \house and minimum concentration is found 4.6 mg/Nm3 at Wyenth Colony during last six month monitoring period (April-2019 to September-2019). These results are below permissible emission standards mentioned in the Notification by MOEF&CC vide S.O. 3305(E) dated 07/12/2015 during last six month monitoring period (April-2019 to September-2019).

Ambient air monitoring Reports:

Station	Parameter	Limit microgram/NM ³	Values for the period April 19- Sept 19		
			Min.	Max.	Avg.
66 KV	RSPM (PM2.5)	60	21.3	45	32.2
	PM10	100	37.6	58	45.7
	SO ₂	80	7.5	9.8	8.95
	NO _x	80	7.9	16.4	10.4
	Ammonia	850	ND	ND	ND
	HCl	200	ND	ND	ND

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		Opposite Shed D	RSPM (PM2.5)	60	27	56	41.7
			PM10	100	34	60	46.8
			SO2	80	7.9	13.5	10.4
			NOx	80	8.3	11.3	9.6
			Ammonia	850	ND	ND	ND
			HCl	200	ND	ND	ND
		Near West site ETP	RSPM (PM2.5)	60	24	42	34
			PM10	100	37	62	51.7
			SO2	80	8.3	11.2	9.9
			NOx	80	7.2	10.2	9.1
			Ammonia	850	ND	ND	ND
			HCl	200	ND	ND	ND
		Near North ETP	RSPM (PM2.5)	60	27	40	34.2
			PM10	100	38	68	50.5
			SO2	80	6.4	10.6	8.97
			NOx	80	5.8	9.8	8.6
			Ammonia	850	ND	ND	ND
			HCl	200	ND	ND	ND
		TSDF	RSPM (PM2.5)	60	26	58	43
			PM10	100	7.8	59	44.97
			SO2	80	7.4	10.8	9.2
NOx	80		6.3	9.5	7.9		
Ammonia	850		ND	ND	ND		
HCl	200		ND	ND	ND		

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Main Guest House	RSPM (PM2.5)	60	12	38	23.2
	PM10	100	25	53	39.8
	SO2	80	4.5	10.5	7.5
	NOx	80	5.1	17.5	10.6
	Ammonia	850	ND	ND	ND
	HCl	200	ND	ND	ND
Wyeth Colony	RSPM (PM2.5)	60	10	32	19.5
	PM10	100	26	50	38
	SO2	80	4.1	9.5	6.7
	NOx	80	4.6	14.2	9.4
	Ammonia	850	ND	ND	ND
	HCl	200	ND	ND	ND
Gram panchayat hall	RSPM (PM2.5)	60	12	45	25
	PM10	100	29	47	38.8
	SO2	80	5.8	9.2	7.6
	NOx	80	5.7	14.2	10.0
	Ammonia	850	ND	ND	ND
	HCl	200	ND	ND	ND
Main office, North site	RSPM (PM2.5)	60	18	35	27.3
	PM10	100	35	58	46.7
	SO2	80	7.2	9.5	8.5
	NOx	80	7.3	14.2	11.3
	Ammonia	850	ND	ND	ND
	HCl	200	ND	ND	ND
Haria water tank	RSPM (PM2.5)	60	16.3	39	26.8
	PM10	100	22.2	41.1	34.7
	SO2	80	6.7	9.5	8.4
	NOx	80	5.8	15.8	9.5
	Ammonia	850	ND	ND	ND
	HCl	200	ND	ND	ND

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By M/s. Atul Ltd, Valsad

2.	All measures shall be taken to prevent soil and ground water contamination.	<p>Complied.</p> <p>To monitor the soil and ground water Quantity, online flow meter is installed at the inlet and outlet line of ETP. We are not extracting ground water as a source of water. We are using River (Par) as a source of fresh water. We have adequate control measured for any leakages from the plant. We have developed RCC pipeline for collecting our effluent. We have maintained and regularly check ground and soil quality once in year through M/s. Pollucon Laboratories Pvt.Ltd. NABL approved TC-5945, issue date-28/05/2019 and validity till 27/05/2021.</p> <p>We are regularly monitor (once in year) through reputed institute (M/s. Pollucon Laboratories Pvt.Ltd, surat) to access the impacts on soil and ground water quality. As per details study report shows that there is no soil and ground water contamination found. No ground water is tapped for meeting the project requirements. Neutralization pit has been put in service for waste water generated from D.M. Plant. RO plant is commissioned to recycle the cooling tower make up water. Entire quantity of waste water is being utilized in ash quenching and coal storage yard to attend coal smoldering. Hence, our CPP unit is achieved ZLD.</p>
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We are ensuring that solid waste is stored in identified solid hazardous waste storage area, provided with covered shed, impervious flooring and leachate collection facility to prevent soil contamination.
 Detailed study report on Groundwater and soil quality in and around Atul was done during the year 2018-19 by reputed and NABL approved agency M/s. Pollucon Laboratories Pvt. Ltd, Surat. NABL approved **TC-5945**, issue date- **28/05/2019** and validity till **27/05/2021**.

POLLUCON LABORATORIES PVT. LTD.
TEST REPORT
 Client Name: ATUL LIMITED
 Test Report No.: PPL/18122019
 Issue Date: 04/01/2019
 Customer Ref: Valsad

Sl. No.	PARAMETERS	UNIT	RESULT	TEST METHOD
1	pH		7.87	IS:3729-2015/97
2	Chloride	mg/l	26.31	IS:3729-2015/97
3	Sulphate	mg/l	161	IS:3729-2015/97
4	Organic Matter	%	0.86	IS:3729-2015/97
5	Color	meq/l	242	IS:3729-2015/97
6	Iron	mg/l	0.02	IS:3729-2015/97
7	Manganese	mg/l	0.02	IS:3729-2015/97
8	Cadmium	mg/kg	0.02	IS:3729-2015/97
9	Lead	mg/kg	0.02	IS:3729-2015/97
10	Copper	mg/kg	0.02	IS:3729-2015/97
11	Zinc	mg/kg	0.02	IS:3729-2015/97
12	Chromium	mg/kg	0.02	IS:3729-2015/97
13	Barium	mg/kg	0.02	IS:3729-2015/97
14	Strontium	mg/kg	0.02	IS:3729-2015/97
15	Vanadium	mg/kg	0.02	IS:3729-2015/97
16	Antimony	mg/kg	0.02	IS:3729-2015/97
17	Mercury	mg/kg	0.02	IS:3729-2015/97
18	Fluoride	mg/l	0.02	IS:3729-2015/97
19	Ammonium	mg/l	0.02	IS:3729-2015/97
20	Nitrate	mg/l	0.02	IS:3729-2015/97

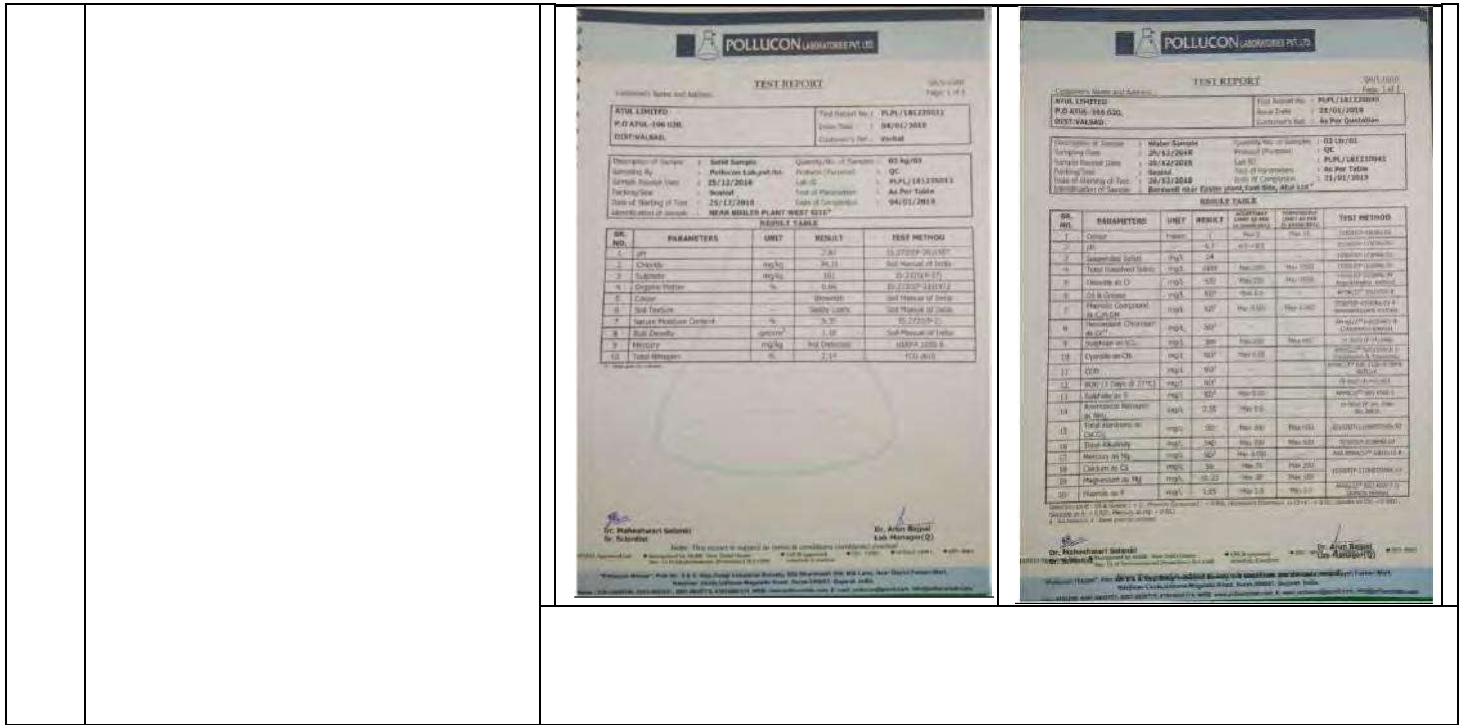
POLLUCON LABORATORIES PVT. LTD.
TEST REPORT
 Client Name: ATUL LIMITED
 Test Report No.: PPL/18122019
 Issue Date: 21/01/2019
 Customer Ref: Valsad

Sl. No.	PARAMETERS	UNIT	RESULT	TEST METHOD
1	pH		7.87	IS:3729-2015/97
2	Chloride	mg/l	26.31	IS:3729-2015/97
3	Sulphate	mg/l	161	IS:3729-2015/97
4	Organic Matter	%	0.86	IS:3729-2015/97
5	Color	meq/l	242	IS:3729-2015/97
6	Iron	mg/l	0.02	IS:3729-2015/97
7	Manganese	mg/l	0.02	IS:3729-2015/97
8	Cadmium	mg/kg	0.02	IS:3729-2015/97
9	Lead	mg/kg	0.02	IS:3729-2015/97
10	Copper	mg/kg	0.02	IS:3729-2015/97
11	Zinc	mg/kg	0.02	IS:3729-2015/97
12	Chromium	mg/kg	0.02	IS:3729-2015/97
13	Barium	mg/kg	0.02	IS:3729-2015/97
14	Strontium	mg/kg	0.02	IS:3729-2015/97
15	Vanadium	mg/kg	0.02	IS:3729-2015/97
16	Antimony	mg/kg	0.02	IS:3729-2015/97
17	Mercury	mg/kg	0.02	IS:3729-2015/97
18	Fluoride	mg/l	0.02	IS:3729-2015/97
19	Ammonium	mg/l	0.02	IS:3729-2015/97
20	Nitrate	mg/l	0.02	IS:3729-2015/97

3. The project proponent shall submit the detailed study report to Gujarat Pollution Control Board (GPCB) at least once in a year, through the reputed institute or university to assess the impacts on soil and ground water quality, if any due to application of waste water generation from the CPP and shall adopt the additional mitigation measures as may be suggested through such studies.

Complied.
We are regularly submitting (once in year) the detailed study report to GPCB & MoEF&CC, through reputed institute (NABL accredited Laboratory M/s. Pollucon Laboratory Pvt. Ltd.) to assess the impacts on soil and ground water quality. Refer Annexure-X.
 No ground water is tapped for meeting the project requirements. We are using river water as a source of fresh water. However Neutralization pit has been put in service for waste water generated from D.M. Plant. RO plant is commissioned to recycle the cooling tower make up water. Entire quantity of waste water is being utilized in ash quenching and coal storage yard to attend coal smoldering. **Hence, our CPP unit is achieved ZLD.**
 We are ensured that solid waste is stored in identified solid hazardous waste storage area, provided with covered shed, impervious flooring and leachate collection facility to prevent soil contamination.
 Detailed study report on Groundwater and soil quality in and around Atul was done during the year 18-19 by reputed and NABL approved agency M/s. **Pollucon Laboratories Pvt. Ltd, Surat.**

**COMPLIANCE OF ENVIRONMENTAL CLEARANCE MINISTRY'S LETTER
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By M/s. Atul Ltd, Valsad**



A.2:WATER:

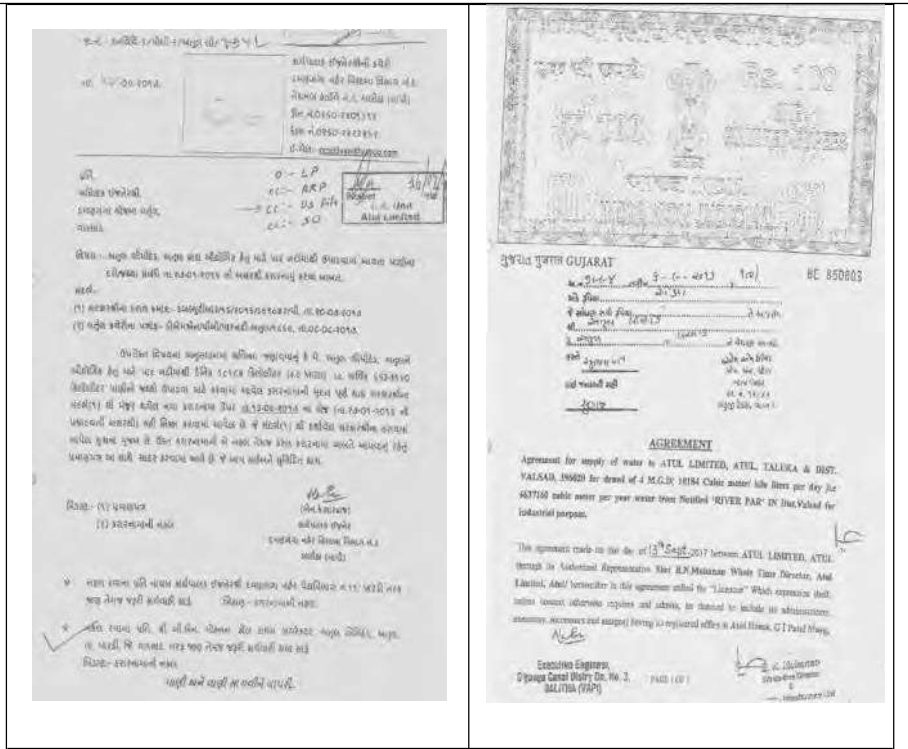
4. The fresh water requirement for the proposed expansion shall not exceed 2095 KL/day and it shall be met through the existing water supply system from River par.

Complied.
The average water consumption for the last six month compliance period (April-2019 to September-2019) is **1187 KL/day** only which is well within the permissible limit of 2095 KL/Day. The Minimum water consumption identified 910 KL/Day in the month of May-2019 and Maximum water consumption identified 1498 KL/Day in the month of September-2019. Which shows that our fresh water requirement for the proposed expansion is not exceed 2095 KL/day. It is already met through the existing water supply system from Par river. Detail break up is given in below table:

SN	Month	Qty. F/W (KL/Month)	Min. (KL/Day)	Max. (KL/Day)	Avg. Qty. F/W (KL/Day)
1	April 2019	35321	1100	1178	1139
2	May 2019	31095	910	1113	1003
3	June 2019	31991	1005	1120	1066
4	July 2019	39040	1198	1310	1259
5	August 2019	38793	1210	1408	1293
6	September 2019	33986	1321	1498	1359

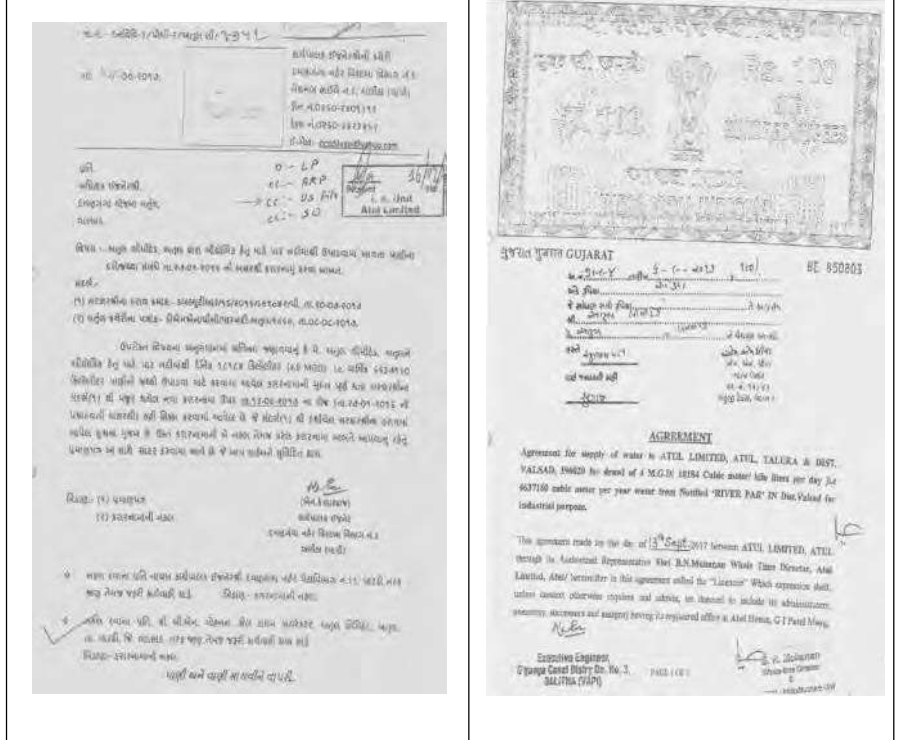
The maximum value during the compliance period confirms that at no time the wastewater generation went beyond the stipulated value. Fresh water requirement is met through the existing water supply system from river par. Please find attached herewith **Annexure-VI for water permission** from concerned authority for additional water requirement.

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Permission from the Concern authority for additional water requirement shall be obtained.

Complied.
 We already have permission for withdrawal of water for industrial purpose from Par River @ Village Atul from Government of Gujarat for this additional requirement. Please find attached herewith **Annexure-VI for water permission** from concerned authority for additional water requirement.



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<p>5</p>	<p>Metering of water shall be done and its records shall be maintained. No ground water shall be tapped in any case for meeting the project requirements.</p>	<p>Complied. Magnetic water flow meter is attached at inlet line of ETP and reuse line (outlet) at RO permeate line. Its records are regularly maintained. We are not using ground water tapped in any case for meeting the project requirements. Because our source of water is river (Par) water with permission letter of water for industrial purpose from Par River.</p> <div style="display: flex; justify-content: space-around;">   </div> <p align="center"> Water meter @ Inlet line Water Meter @ Reuse line </p>																																										
<p>6.</p>	<p>The industrial effluent generation from the proposed expansion shall not exceed 270 KL/day and entire quantity of effluent shall be utilized for ash quenching, dust suppression, fire hydrant make up, Gardening plants floorcleaning.</p>	<p>Complied. Waste water generation in not exceeding then prescribed limit of 270 KL/Day during last six compliance month. Minimum waste water generation is 46 KL/Day in the month of April-2019. Maximum waste water generation is 229 KL/Day in the month of July-2019. The average wastewater generation for the report period (last six month – April 2019 to September 2019) is 169.7 KL/day. Only which is well within the prescribed limit of 270 KL/Day and entire waste water quantity is utilized / reused after giving neutralization & RO treatment.</p> <p>Entire quantity of waste water is being utilized in ash quenching, coal storage yard to attend coal smoldering, dust suppression, fire hydrant make up, Gardening plants floor cleaning and no waste water discharge to ETP. Detail break up is given in below table:</p>																																										
		<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 5%;">SN</th> <th style="width: 15%;">Month</th> <th style="width: 15%;">Waste water Generation (KL/Month)</th> <th style="width: 10%;">Min. (KL/Day)</th> <th style="width: 10%;">Max. (KL/Day)</th> <th style="width: 45%;">Avg. Waste water Generation/ Reused Qty (KL/Day)</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>April 2019</td> <td>1659</td> <td>46</td> <td>61</td> <td>55</td> </tr> <tr> <td>2</td> <td>May 2019</td> <td>4857</td> <td>138</td> <td>174</td> <td>156</td> </tr> <tr> <td>3</td> <td>June 2019</td> <td>5692</td> <td>181</td> <td>199</td> <td>190</td> </tr> <tr> <td>4</td> <td>July 2019</td> <td>6725</td> <td>208</td> <td>229</td> <td>218</td> </tr> <tr> <td>5</td> <td>August 2019</td> <td>6346</td> <td>191</td> <td>222</td> <td>206</td> </tr> <tr> <td>6</td> <td>September 2019</td> <td>4874</td> <td>175</td> <td>202</td> <td>192</td> </tr> </tbody> </table> <p>The maximum values (229 KL/Day) during the compliance period (April-2019 to September-2019) confirms that at no time the wastewater generation went beyond the stipulated value.</p>	SN	Month	Waste water Generation (KL/Month)	Min. (KL/Day)	Max. (KL/Day)	Avg. Waste water Generation/ Reused Qty (KL/Day)	1	April 2019	1659	46	61	55	2	May 2019	4857	138	174	156	3	June 2019	5692	181	199	190	4	July 2019	6725	208	229	218	5	August 2019	6346	191	222	206	6	September 2019	4874	175	202	192
SN	Month	Waste water Generation (KL/Month)	Min. (KL/Day)	Max. (KL/Day)	Avg. Waste water Generation/ Reused Qty (KL/Day)																																							
1	April 2019	1659	46	61	55																																							
2	May 2019	4857	138	174	156																																							
3	June 2019	5692	181	199	190																																							
4	July 2019	6725	208	229	218																																							
5	August 2019	6346	191	222	206																																							
6	September 2019	4874	175	202	192																																							
<p>7.</p>	<p>There shall be no discharge of industrial effluent from the proposed project in any case.</p>	<p>Complied. Industrial Waste water generation is not exceeding then prescribed limit of 270 KL/Day during last six compliance months (April-19 to September-19). Neutralization pit has been put in service for waste water generated from D.M. Plant. Entire Avg. Quantity of 169.7 KL/Day waste water is being utilized in ash quenching and coal storage yard to attend coal smoldering, dust suppression, fire hydrant make up, Gardening plants floor cleaning. Please refer table of Avg. waste water generation (KLD) in point no.6. Hence, Our CPP unit is achieved ZLD. No Discharge of industrial effluent from the proposed project in any case.</p>																																										

COMPLIANCE OF ENVIRONMENTAL CLEARANCE MINISTRY'S LETTER

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By M/s. Atul Ltd, Valsad

8.	Domestic waste water generation shall not exceed 1 KL/day Which shall be disposed of into soak system.	<p>Complied.</p> <p>Domestic water generation in not exceeding then prescribed limit of EC during last six compliance months (April-2019 to September-19). The minimum domestic waste water generation is 0.75 KL/Day in August month. The Maximum domestic waste water generation is 0.98 KL/Day in September month. The average wastewater generation for the report period (last six month – April 2019 to September 2019) is 0.85 KL/day only which is well within the limit. Domestic waste water disposed through soak pit / septic tank system.</p> <table border="1" data-bbox="623 457 1511 709"><thead><tr><th>S N</th><th>Month</th><th>Domestic waste water Generation (KL/Month)</th><th>Min. (KL/Day)</th><th>Max. (KL/Day)</th><th>Waste water Generation (KL/Day)</th></tr></thead><tbody><tr><td>1</td><td>April 2019</td><td>29</td><td>0.9</td><td>0.95</td><td>0.9</td></tr><tr><td>2</td><td>May 2019</td><td>30</td><td>0.9</td><td>0.96</td><td>0.9</td></tr><tr><td>3</td><td>June 2019</td><td>25</td><td>0.75</td><td>0.8</td><td>0.8</td></tr><tr><td>4</td><td>July 2019</td><td>27</td><td>0.88</td><td>0.96</td><td>0.9</td></tr><tr><td>5</td><td>August 2019</td><td>26</td><td>0.75</td><td>0.88</td><td>0.8</td></tr><tr><td>6</td><td>September 2019</td><td>29</td><td>0.85</td><td>0.98</td><td>0.9</td></tr></tbody></table> <p>The maximum values (0.98 KL/Day, September-19) during the compliance period confirms that at no time the wastewater generation went beyond the stipulated value (1.0 KL/Day).</p>	S N	Month	Domestic waste water Generation (KL/Month)	Min. (KL/Day)	Max. (KL/Day)	Waste water Generation (KL/Day)	1	April 2019	29	0.9	0.95	0.9	2	May 2019	30	0.9	0.96	0.9	3	June 2019	25	0.75	0.8	0.8	4	July 2019	27	0.88	0.96	0.9	5	August 2019	26	0.75	0.88	0.8	6	September 2019	29	0.85	0.98	0.9
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9.	The unit shall provide metering facility at the inlets and outlets of the collection cum reuse system of waste water and maintain records of thesame.	<p>Complied.</p> <p>Magnetic Flow Meter is provided at the inlet of the collection tank and reuse system of waste water and records are being maintained. Photograph of water meter shown below:</p>																																										
																																												
		<p align="center">Water meter @ Inlet line Water meter @ Reuse line</p>																																										

COMPLIANCE OF ENVIRONMENTAL CLEARANCE MINISTRY'S LETTER

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Month wise water consumption, waste water generation on the basis of I/L and O/L flow meter readings are shown below table:

SN	Month	Water consumption (Inlet) (KL/Month)	Wastewater Generation (Outlet) (KL/Month)
1	April 2019	35321	1659
2	May 2019	31095	4857
3	June 2019	31991	5692
4	July 2019	39040	6725
5	August 2019	38793	6346
6	September 2019	33986	4874

We are reusing 100% treated water in ash quenching , coal storage yard to attend coal smoldering, dust suppression, fire hydrant make up, Gardening plants & floor cleaning. **Hence, we are achieving ZLD. No waste water discharge to ETP from our Captive power plant.**

10. Proper logbooks of waste water reuse system showing quantity and quality of effluent reused shall be maintained and furnished the GPCB from time to time.

Complied.

We are properly maintaining logbook of water consumption, waste water generation & reuse data showing quantity and quality of effluent by means of Magnetic flow meter for quantity and TOC meter for quality of Reused effluent. Furnished these data communicate regularly to GPCB from time to time.

Month wise water consumption, waste water generation and reuse data are shown below Table:

S N	Month	Water consumption (KL/Month)	Waste water generation (KL/Month)	Reuse (KL/Month)	Reuse (KL/Day)
1	April 2019	35321	1659	1659	55
2	May 2019	31095	4857	4857	156
3	June 2019	31991	5692	5692	190
4	July 2019	39040	6725	6725	218
5	August 2019	38793	6346	6346	206
6	September 2019	33986	4874	4874	192

The Waste Water analysis at RO outlet is monitored in in-house Laboratory at regular interval for ensuring the quality of waste water maintained as per reuse quality standards .In-house last six monthly monitoring report of reuse treated effluent quality (RO outlet) is as below:

	RO Outlet (mg/l)								
	pH			Hardness			TDS		
	Min	Max	Avg	Min	Max	Avg	Min	Max	Avg
April-19	6.5	7.2	6.8	28	35	32	115	123	119
May-19	6.8	7.1	7.0	40	49	45	110	119	115
June-19	6.7	7.5	7.2	23	31	28	95	103	100
July-19	6.2	6.9	6.7	29	37	33	145	152	148
Aug-19	7.3	7.8	7.5	48	53	51	132	142	137
Sept-19	6.6	7.1	6.9	20	24	22	115	122	119

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11. Rain water harvesting of rooftop rain water shall be undertaken as proposed in the EIA report of the project and the same water shall be used for the various activities of the project to conserve fresh water as well as to recharge ground water through percolation wells. Before recharging the rain water, pre-treatment must be done to remove suspended matter.

Complied.

Rooftop rain water from Coal sheds and New TG building is collected in well-constructed pond and used as make up water for cooling tower. We have already two numbers of check dams in natural storm water drains to collect and harvest rain water in monsoon season after giving necessary pre- treatment to remove suspended matter as we have pumped these rain water to clarifloculator units to remove suspended matter. We are creating facility/ capacity to cater our consumption with rain harvested water with zero river drawls of water during the rainy days. Besides this, there are three check dams and pumping facility to harvest rain water. We also construct temporary sand bag dam on top of dam towards the end of monsoon to store additional free flowing rain water in river Par. In addition to above, surface runoff water and roof top water is used to recharge bore wells. Total No. of Pond: 2 Nos.

Capacity of Pond: (1 Nos. x 10000 KL) & (1 Nos. x 2000 KL)

Company has harvest 9.63 lac KL rain water during 2019.

Photograph of rain water harvesting structure (Pond) as shown below:

Water Harvesting Project at Colony



Water Harvesting Project Near Coconut circle

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A.3AIR:						
12.	Existing two coal fired steam boilers shall be replaced with two AFBC Boilers having capacity 50 TPH each.	Complied. In the existing unit, two numbers of Stoker Fired Boilers (SFB) are provided with Scrubbers for dust collection. As, it is old technology and not feasible to provide ESP with these boilers, the SFBs are replaced with higher efficiency boilers with adequate APC facility (4 field ESP).				
13.	Fuel (Indian coal/and or Imported coal and or Lignite) to the tune of 16725 MT/M shall be used for proposed boilers.	Complied. The average fuel consumption for the report period (last six month – April 2019 to September 2019) is 13952 MT/M only which is well within the limit. Detail break up is given in below table:				
		SN	Month	Min. (MT/Month)	Max. (MT/Month)	Avg. Fuel consumption (MT/Month)
		1	April 2019	10988	12004	11496
		2	May 2019	12890	13338	13114
		3	June 2019	14834	15432	15133
		4	July 2019	15320	15994	15657
		5	August 2019	14855	15229	15042
		6	September 2019	13058	13488	13269
		The maximum values during the compliance period confirm that at no time the fuel consumption went beyond the stipulated value.				

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14.	Sulfur and ash content of the fuel to be used shall be analyzed and its record shall be maintained.	Complied. We are using Indian Coal or Imported coal and lignite in different proposition as per availability. We are regularly monitored (monthly) and analyzed the proximate & ultimate analysis of coal / Lignite which show % Ash content, GCV, Sulphur content and heavy metal present in coal /lignite. Please find attached herewith one month coal and lignite analysis report of November-2019. We have seen that Minimum Ash content identified 20.82 % in India coal Lot-2 sample and Maximum Ash content identified 45.42% in Indian coal Lot-3 sample. Minimum Ash Content identified 23.20% in lignite coal-2 and Maximum ash content identified 24.32 in Lignite coal-1 sample. We have seen that Minimum sulphur content identified 0.49 % in Indian Coal lot-4 sample and Maximum Sulphur content identified 0.82% Indian coal-2 sample. Minimum sulphur content identified 0.26% in lignite coal-2 sample and Maximum sulphur content identified 0.49% ins lignite coal-1 sample. Mercury is not identified in any sample of coal and lignite. Please find attached herewith fuel analysis report which shows Sulphur and ash content present in Indian coal and lignite. Description of sample: Indian Coal Lot-1# Analysis by : Pollucon Laboratory Pvt.Ltd. (NABL Approved)																								
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Description of sample: Lignite Coal Lot-2# Analysis by : Pollucon Laboratory Pvt.Ltd. (NABL Approved)																										
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		Description of sample: Lignite Coal Lot-1# Analysis by : Pollucon Laboratory Pvt.Ltd. (NABL Approved)				
		S.N.	Parameters	Unit	Result	Date of Sampling
		1.	Ash Content	%	24.34	08/11/2019
		2.	GCV	Kcal/kg	4318	
		3.	Sulphur	%	0.52	
		4.	Mercury	Mg/Kg	ND	

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15	<p>A Long term study of radio activity and heavy metal contents in coal/ lignite to be used shall be carried out through a reputed institute and results thereof analyzed regularly and reported along with monitoring reports.</p> <p>Thereafter mechanism for an in-built continuous monitoring for radio activity and heavy metals in coal/lignite and Fly ash (Including bottom ash) shall be put in place.</p>	Complied. The heavy metal contents in coal/ lignite used has been carried out by reputed institute M/s. Pollucon Laboratory Pvt. Ltd. (NABL Accredited). Please find attached here with fuel analysis report which shows Heavy Metal content present in Imported or Indian coal and lignite. Description of sample: Indian Coal Lot-4# Analysis by : Pollucon Laboratory Pvt.Ltd. (NABL Approved)																																	
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16.	Height of flue gas stacks attached to boilers shall be minimum 74.58 meters.	<p>Complied. Height of the stack is 108 meters. The emission is dispersed through adequate height of stacks as per CPCB standard as given below:</p> <table border="1"> <thead> <tr> <th>Stack No.</th> <th>Stack attached to</th> <th>Stack height In Meter</th> <th>APCM</th> <th>Parameter</th> <th>Permissible limit</th> <th>Applicable permissible limit after 2 years of Notification S.O.3305(E) dated. 07/12/2017 i.e. from 06/12/2017</th> </tr> </thead> <tbody> <tr> <td>1.</td> <td>Boiler (50 TPH x 2Nos.)</td> <td>106</td> <td>ESP with 4 field</td> <td>PM SO₂ NO_x Mercury (Hg)</td> <td>50 mg/NM³ 100 ppm 50 ppm -----</td> <td>50 mg/NM³ 600ppm 300ppm 0.03 mg/NM³</td> </tr> </tbody> </table> <p>For Boilers : Stack Height $H=14(Q)^{0.3}$ Height of the stack is 106 meters, which is actually higher than norms.</p>	Stack No.	Stack attached to	Stack height In Meter	APCM	Parameter	Permissible limit	Applicable permissible limit after 2 years of Notification S.O.3305(E) dated. 07/12/2017 i.e. from 06/12/2017	1.	Boiler (50 TPH x 2Nos.)	106	ESP with 4 field	PM SO ₂ NO _x Mercury (Hg)	50 mg/NM ³ 100 ppm 50 ppm -----	50 mg/NM ³ 600ppm 300ppm 0.03 mg/NM ³																																																																																														
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17.	A flue gas stack of 74.58m height shall be provided with online monitoring system to proposed steam Boiler.	<p>Complied. Height of the stack is 106 meters attached to Boiler (50 TPH x 2 Nos.). We have installed Online monitoring system to steam boiler for SPM, SO_x and NO_x is already been made and connected to CPCB server.</p>																																																																																																												

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	Mercury gas emission from stacks shall also be monitored on periodic basis.	<table border="1"> <thead> <tr> <th>Stack No.</th> <th>Stack attached to</th> <th>Stack height In Meter</th> <th>APCM</th> <th>Parameter</th> <th>Permissible limit</th> <th>Applicable permissible limit after 2 years of Notification S.O.3305(E) dated. 07/12/2017 i.e. from 06/12/2017</th> </tr> </thead> <tbody> <tr> <td>1.</td> <td>Boiler (50 TPH x 2 Nos.)</td> <td>106</td> <td>ESP with 4 field</td> <td>PM SO₂ NO_x Mercury (Hg)</td> <td>50 mg/NM³ 100 ppm 50 ppm -----</td> <td>50 mg/NM³ 600ppm 300ppm 0.03 mg/NM³</td> </tr> </tbody> </table> <p>Mercury emission is also monitored on monthly basis by GPCB approved M/s. Royal Environment Auditing & Consultancy Service, Rajkot, an NABL approved agency. For Mercury stack emission data please refer specific condition No.1. No Mercury is Detected in Flue gas stack as well as in Ambient air in last six month monitoring results.</p>	Stack No.	Stack attached to	Stack height In Meter	APCM	Parameter	Permissible limit	Applicable permissible limit after 2 years of Notification S.O.3305(E) dated. 07/12/2017 i.e. from 06/12/2017	1.	Boiler (50 TPH x 2 Nos.)	106	ESP with 4 field	PM SO ₂ NO _x Mercury (Hg)	50 mg/NM ³ 100 ppm 50 ppm -----	50 mg/NM ³ 600ppm 300ppm 0.03 mg/NM ³																										
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18.	High efficiency Electro static precipitators (ESP) with efficiency not less than 99.9% shall be installed for control of flue gas emission from the proposed Boilers.	<p>Complied.</p> <p>We have installed high efficiency electro static precipitator (4 field) with 99.9% efficiency to control of flue gas emission within the permissible limit from the proposed boilers. Last six month (April-2019 to September-2019) monitoring reports shows that Avg. SPM emission is identify 39 mg/Nm³ which is below permissible limit of 50 mg/Nm³. Details ESP specification is attached as Annexure-XI. Photograph of ESP as shown below:</p>  <p align="center">ESP</p>																																								
	The ESP shall be operated efficiently to ensure that particulate matter emission does not exceed the GPCB norms.	<p>Complied.</p> <p>GPCB Permissible limit for PM is 50 mg/NM³. Particulate matter emission did not exceed the GPCB norms during report period (April 2019 to September 2019) Which shows that ESP is working efficiently (99.9%). Stack PM emission data from April-2019 to September-2019 is mention below table:</p> <table border="1"> <thead> <tr> <th rowspan="2">No.</th> <th rowspan="2">Stack Attached to</th> <th rowspan="2">Parameter</th> <th rowspan="2">Standard values as per CCA</th> <th rowspan="2">Unit</th> <th colspan="3">Values for the period April 19- September 19</th> </tr> <tr> <th>Min.</th> <th>Max.</th> <th>Avg.</th> </tr> </thead> <tbody> <tr> <td>1</td> <td rowspan="4">Boiler (50 TPH x 2 Nos.)</td> <td>SPM</td> <td>50.0</td> <td>mg/Nm³</td> <td>29</td> <td>48</td> <td>39</td> </tr> <tr> <td>2</td> <td>SO₂</td> <td>600</td> <td>mg/Nm³</td> <td>105</td> <td>138</td> <td>122</td> </tr> <tr> <td>3</td> <td>NO_x</td> <td>300</td> <td>mg/Nm³</td> <td>84</td> <td>99</td> <td>92</td> </tr> <tr> <td>4</td> <td>Mercury</td> <td>0.03</td> <td>mg/Nm³</td> <td>ND</td> <td>ND</td> <td>ND</td> </tr> </tbody> </table>	No.	Stack Attached to	Parameter	Standard values as per CCA	Unit	Values for the period April 19- September 19			Min.	Max.	Avg.	1	Boiler (50 TPH x 2 Nos.)	SPM	50.0	mg/Nm ³	29	48	39	2	SO ₂	600	mg/Nm ³	105	138	122	3	NO _x	300	mg/Nm ³	84	99	92	4	Mercury	0.03	mg/Nm ³	ND	ND	ND
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The control system shall be designed and integrated in plant DCS in such a way that amended from ESP exceeds the specified standard prescribed in the Environment (protection) Rules 1986 as amended from time to time, utilization of boiler capacity shall so that flue gas emission from the stack meets with the specified standards or boiler shall shut down totally.

Complied.

We have designed and integrated in Plant DCS in such a way that in event of ESP in working not efficiently or something found fault or operation issue due to which flue gas emission go beyond the specified standard prescribed in the Environment (protection) Rules 1986 as amended from time to time than in such cases / occurrence we will intimate to board & authority to stop the operation plant or decrease the load of power plant. **We will not restart or increase the load until the control measures are rectified to achieve the 100 percent efficiency.**

Flue gas stack analysis is monitored at regular interval (Monthly) for ensuring the compliance. The testing Lab appointed for Flue gas analysis is being done by GPCB approved (schedule-II) **M/s. Pollucon Laboratories Pvt.Ltd, surat** NABL approved **TC-5945**, issue date-**28/05/2019** and validity till **27/05/2021**.

Flue gas emission from the stack meets with the specified standards prescribed in the Environment (protection) Rules1986 as amended from time to time for the report period (April – 2019 to September –2019).

Stack results of last six month period (April-2019 to september-2019):

S N	Stack Attached To	Stack Ht	APCM	Permissibl e Limit	Results		
					April- 2019	May- 2019	June- 2019
1	FBC boiler E1 (34 TPD)	56 Mt	ESP(4 Field)	SPM-100 mg/Nm3 SO2-600 mg/Nm3 NOx-600 mg/Nm3	75.0 98.0 120.0	Not Running	Not Running
2.	FBC Boiler E2 (34 TPH)	56 Mt			Not Running	Not Running	84 132 150
3.	FBC Boiler E3 (50 TPH)	80 Mt			80.0 128.0 145.0	85 135 152	81 133 148
4.	FBC Boiler W1(45 TPH)	70 Mt			65.0 95.0 135.0	70 98 145	68 96 142
5.	Boiler (50 TPH x 2Nos.)	106 Mt			**SPM-50 mg/Nm3 SO2-600 mg/Nm3 NOx-300 mg/Nm3 Hg-0.03 mg/Nm3	45.0 105.0 95.0 ND	48 112 99 ND
6	D.G set (1010 KVA) – stand by only	11 Mt	Adequat e Stack Ht	SPM-150 mg/Nm3 SO2-100 ppm NOx-50 ppm	39.8 4.4 24.1	30.2 4.9 33.1	19.8 4.6 29.5
7	D.G.Set(1 500 KVA) – Stand by only	11 Mt			27.6 4.1 21.7	29.6 3.9 24.8	29.8 4.0 27.9

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		** Permissible limits are as per MoEF Notification Dated: 7/ 12/ 2015. S.O.3305 (E)						
S N	Stack Attached To	Stack Ht	APCM	Permissible Limit	Results			
					July-2019	Aug-2019	Sept- 2019	
1	FBC boiler E1 (34 TPD)	56 Mt	ESP(4 Field)	SPM-100 mg/Nm3 SO2-600 mg/Nm3 NOx-600 mg/Nm3	87	65	60	
					120	103	114	
					135	123	142	
	2.	FBC Boiler E2 (34 TPH)			56 Mt	82	83	80
						127	108	107
3.	FBC Boiler E3 (50 TPH)	80 Mt	82	73	68			
			126	142	135			
			138	147	132			
4.	FBC Boiler W1(45 TPH)	70 Mt		68	53	64		
				94	105	110		
				132	120	127		
5.	Boiler (50 TPH x 2 Nos.)	106 Mt		**SPM-50 mg/Nm3	47	34	29	
				SO2-600 mg/Nm ³	109	120	138	
				NOx-300 mg/Nm ³	95	84	98	
				Hg-0.03 mg/Nm ³	ND	ND	ND	
6	D.G set (1010 KVA) – stand by only	11 Mt	Adequat e Stack Ht	SPM-150 mg/Nm3	42.8	27.6	30.8	
				SO2-100 ppm	4.9	4.8	6.4	
				NOx-50 ppm	34.8	29.7	32.6	
7	D.G.Set(1 500 KVA) – Stand by only	11 Mt			30.2	27.2	34.9	
					4.6	3.84	4.4	
					33.5	24.8	37.8	
		** Permissible limits are as per MoEF Notification Dated: 7/ 12/ 2015. S.O.3305 (E)						

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19.	Third party monitoring of the functioning of ESP along with efficiency shall be carried out once in a year through a reputed institute / organization.	<p>Complied.</p> <p>We have regularly monitoring the functioning of ESP along with efficiency by third party once in year through a reputed institute. The monitoring has been carried out and reports of ESP efficacy found satisfactory (i.e. 99.9% efficiency). We have attached herewith ESP efficiency report through reputed Institute GPCB approved (schedule-II) M/s. Pollucon Laboratories Pvt.Ltd, surat NABL approved TC-5945, issue date-28/05/2019 and validity till 27/05/2021. as shown below:</p> <p>Location of sample: WBC-2 Boiler West</p> <table border="1" data-bbox="625 499 1523 632"><thead><tr><th rowspan="2">S. N</th><th rowspan="2">Parameter</th><th rowspan="2">Unit</th><th colspan="2">Result</th><th rowspan="2">Efficiency (%)</th><th rowspan="2">Date of Sampling</th></tr><tr><th>ESP Inlet</th><th>ESP Outlet</th></tr></thead><tbody><tr><td>1.</td><td>Particulate Matter</td><td>Mg/Nm³</td><td>39985</td><td>34.86</td><td>99.9</td><td>17/12/18</td></tr></tbody></table> <table border="1" data-bbox="625 674 1523 806"><thead><tr><th rowspan="2">S. N</th><th rowspan="2">Parameter</th><th rowspan="2">Unit</th><th colspan="2">Result</th><th rowspan="2">Efficiency (%)</th><th rowspan="2">Date of Sampling</th></tr><tr><th>ESP Inlet</th><th>ESP Outlet</th></tr></thead><tbody><tr><td>1.</td><td>Particulate Matter</td><td>Mg/Nm³</td><td>39798</td><td>33.6</td><td>99.9</td><td>16/04/19</td></tr></tbody></table>	S. N	Parameter	Unit	Result		Efficiency (%)	Date of Sampling	ESP Inlet	ESP Outlet	1.	Particulate Matter	Mg/Nm ³	39985	34.86	99.9	17/12/18	S. N	Parameter	Unit	Result		Efficiency (%)	Date of Sampling	ESP Inlet	ESP Outlet	1.	Particulate Matter	Mg/Nm ³	39798	33.6	99.9	16/04/19
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20.	Lime stone injection technology shall be adopted to control SO2 and it shall be ensured that SO2 levels in the ambient air do not exceed the prescribed standards.	<p>Complied.</p> <p>We have adopt lime stone injection technology to control SO2 emission in atmosphere as standard prescribed in the Environment (protection) Rules 1986 as amended from time to time and interconnected with the online emission monitoring system.</p> <p>Ambient Air quality analysis report shows that maximum concentration of SO₂ is found 13.5 mg/Nm³ at opposite shed D site and minimum concentration is found 4.1 mg/Nm³ at Wyenth colony site during last six month monitoring period (April-2019 to September-2019). These results are below permissible emission standards mentioned in the Notification by MOEF&CC vide S.O. 3305(E) dated 07/12/2015 during last six month monitoring period (April-2019 to September-2019).</p>																																
21.	The company shall prepare schedule and carry out regular preventive maintenance of mechanical and electrical parts of ESPS and assign responsibility of preventive maintenance to the senior officer of the company.	<p>Complied.</p> <p>Our company is ISO 14001 certified company and regular preventive maintenance of all the critical equipment is a part of our system. We have standard preventive maintenance schedule / activities (monthly, By monthly, yearly) of mechanical and electrical parts or equipment's of ESPS. We have recorded the percentage completion of preventive maintenance assigned work as per schedule. These scheduled has been prepared and reviewed / approved by senior officer of the company Please find attached herewith preventive maintenance schedule as shown below:</p>																																

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BUSINESS		VALSAD COMPLEX										Page of		
TITLE		PREVENTIVE MAINTENANCE SCHEDULE												
DOCUMENT NO.		EF/U&S/PH-W/25/00		REVISION NO.		0		COPY NO.		1				
EFFECTIVE DATE		01/04/2018		UTILITY & SERVICES, POWER PLANT (WEST)		REVIEW DATE		31/03/2019						
Sr. No.	Description of equipment / activity	Frequency	FY 2018-19											
			Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar
1.1 - Annual overhauling of Boilers														
1.1.1	Annual / Semi annual overhauling of FBC boiler no. 1 (GT - 3266)	2 per year										√		
1.1.2	Annual / Semi annual overhauling of FBC boiler no. 2 (GT - 8885)	2 per year		√										
1.1.3	Annual / Semi annual overhauling of FBC boiler no. 3 (GT - 9047)	2 per year				√								
1.2 - Activities carried out for Boilers as per schedule 1.1.1, 1.1.2 and 1.1.3														
1.2.1	Replacement of all the bed tubes.	This activity is to be checked / carried out as per frequency mentioned against Sr. no. 1.1.1, 1.1.2 & 1.1.3.												
1.2.2	Checking of hole diameter For fluidizing air nozzles, cleaning / replacement of the same if necessary.	This activity is to be checked / carried out as per frequency mentioned against Sr. no. 1.1.1, 1.1.2 & 1.1.3.												
1.2.3	Check condition of air preheater tubes & Economizer tubes and replacement of the same if necessary.	This activity is to be checked / carried out as per frequency mentioned against Sr. no. 1.1.1, 1.1.2 & 1.1.3.												
1.2.4	Cleaning of gas path for air preheaters & Economizer	This activity is to be checked / carried out as per frequency mentioned against Sr. no. 1.1.1, 1.1.2 & 1.1.3.												
1.2.5	Checking of bearings / drive couplings for BFP, ID, PA, FD & SA fans and motors.	This activity is to be checked / carried out as per frequency mentioned against Sr. no. 1.1.1, 1.1.2 & 1.1.3.												

ATUL LIMITED ENVIRONMENT MANAGEMENT SYSTEM														
BUSINESS		VALSAD COMPLEX										Page of		
TITLE		PREVENTIVE MAINTENANCE SCHEDULE												
DOCUMENT NO.		EF/U&S/PH-W/25/00		REVISION NO.		0		COPY NO.		1				
EFFECTIVE DATE		01/04/2018		UTILITY & SERVICES, POWER PLANT (WEST)		REVIEW DATE		31/03/2019						
Sr. No.	Description of equipment / activity	Frequency	FY 2018-19											
			Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar
1.2.6	Checking condition of Spreader Rotors / Pocket Feeders and Replacement of the same if necessary.	This activity is to be checked / carried out as per frequency mentioned against Sr. no. 1.1.1, 1.1.2 & 1.1.3.												
1.2.7	Check of condition of drag chains / PA lines and repair / replacement of the same if necessary.	This activity is to be checked / carried out as per frequency mentioned against Sr. no. 1.1.1, 1.1.2 & 1.1.3.												
1.2.8	Cleaning and checking of all ESPs fields (including internal parts & hoppers).	This activity is to be checked / carried out as per frequency mentioned against Sr. no. 1.1.1, 1.1.2 & 1.1.3.												
1.2.9	Checking of thickness of all duct plates and replacement of the same if necessary.	This activity is to be checked / carried out as per frequency mentioned against Sr. no. 1.1.1, 1.1.2 & 1.1.3.												
1.2.10	Checking / Testing of all the interlocks	This activity is to be checked / carried out as per frequency mentioned against Sr. no. 1.1.1, 1.1.2 & 1.1.3.												
1.2.11	Overhauling, calibration and testing of all the safety valves, water level gauges, Valves & motorized actuators.	This activity is to be checked / carried out as per frequency mentioned against Sr. no. 1.1.1, 1.1.2 & 1.1.3.												
1.2.12	Cleaning and checking of all the MCCs / PCC, starters, feeders and cable terminations. Repair / replacement of spares wherever required.	This activity is to be checked / carried out as per frequency mentioned against Sr. no. 1.1.1, 1.1.2 & 1.1.3.												

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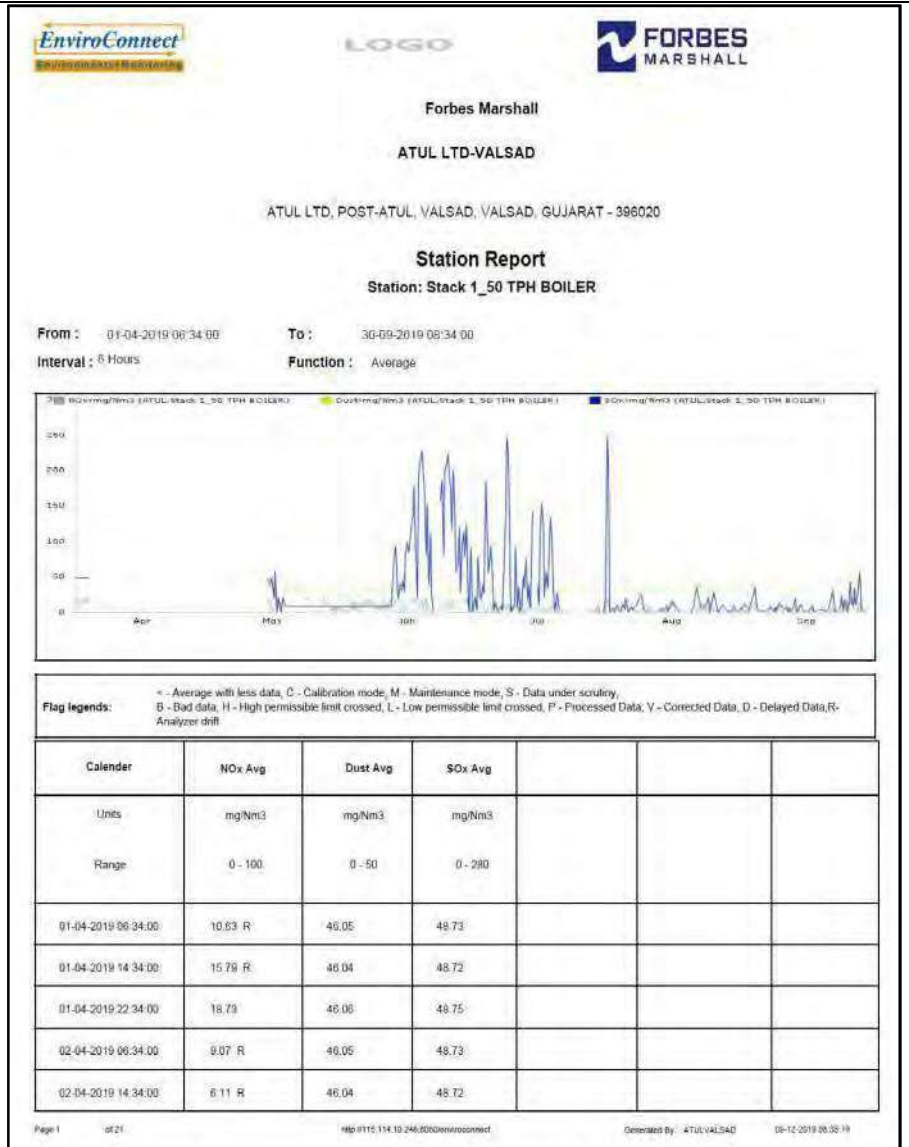
22.	Diesel to the tune of 300 Lit/hr shall be used as a fuel in stand –by D. G. Set (1500 KVA)	Complied. We have D.G. set of 1010 & 1500 KVA on standby only. Both D.G sets are not started in last six month compliance period (April-19 to Sep-19). So that the diesel consumption for the report period is zero.
23.	The flue gas emission from DG set shall be dispersed through adequate stack height as per CPCB standards. At no time the emissions levels shall go beyond the stipulated standards.	Complied. Adequate stack height of 11 mt of DG set (1500 KVA) and 10 mt of D.G. set (1010 KVA) as per CPCB standards. Both D.G sets are not started in last six month compliance period (April-19 to Sep-19).
	Acoustic enclosure be provided to DG set to mitigate the noise pollution.	Complied. We have provided Acoustic enclosure to both DG sets to mitigate the noise pollution in day time and night time.
24.	Online monitoring system shall be installed to monitor the SOx, NOx and SPM in the flue gas stack.	Complied. Online monitoring system for SPM, SOx and NOx is already been made and connected to CPCB server. Photograph of main gate digital display board for ambient air quality.

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Photograph of online monitoring system (CEMS) connected to the CPCB server:

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An arrangement shall also be done for reflecting the online monitoring result on the company's server, which can be assessable by the constructed.

Complied.
 We have arrangement of reflecting the online monitoring result on the company's server, which can be assessable by the constructed.

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25. Adequate storage facility for the fly ash in terms of closed silos shall be provided at site. No pond shall be constructed.

Complied.

We have not constructed ash pond for the CPP unit. We have closed three silo of 200 MT and Two silo of 300 MT capacity of each, total 1200 MT capacity, which is well enough for our average generation of last six compliance report (April-19 to Sep-19) approx. 250 TPD. We dispatch the fly ash daily from these silos so we have not prepare ash pond.

Fly ash	Total Quantity (kg)	
	Year 17-18	Year 18-19
Generation	74533859	68353710
Quantity recycled or re-utilized within the unit	912200	Nil
Sold	75446059	To Brick Manufacturer: 63092190 To Cement Industry: 5261520 Total: 68353710
% Utilization	100 %	100%

Fly ash / bottom ash generation data for period (April-2019 to September – 2019) as shown below table:

Fly Ash	Unit	April19	May 19	June19	July 19	Aug 19	Sept 19
Generation	MT	3677	4420	5432	5472	5170	4765
Disposal	MT	3677	4420	5432	5472	5170	4765

Photograph of Closed silos for Fly ash / Bottom ash storage:



26. Handling of the fly ash shall be through a closed pneumatic system.

Complied.

We are handling of fly ash through a closed pneumatic system which is shown below:

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Dense phase pneumatic ash handling system

27. Ash shall be handled only in dry state. **Complied.**
 We are handling ash only in dry state. Sold to cement and brick manufacturer.

28. The unit shall strictly comply with the fly ash Notification under the EPA and it shall ensure that there is 100% utilization of fly ash to be generated from the unit. **Complied.**
 We are strictly complying fly ash notification under EPA and we are doing 100 % utilization of fly ash to be generated from the unit during last six month compliance period.

Fly ash	Total Quantity (kg)	
	Year 17-18	Year 18-19
Generation	74533859	68353710
Quantity recycled or re-utilized within the unit	912200	Nil
Sold	75446059	To Brick Manufacturer: 63092190 To Cement Industry: 5261520 Total: 68353710
% Utilization	100 %	100%

Fly ash / bottom ash generation data for period (April-2019 to September – 2019) as shown below table:

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Generation	MT	3677	4420	5432	5472	5170	4765
Disposal	MT	3677	4420	5432	5472	5170	4765

We have done Agreement between Ambuja cement Ltd. And Atul Ltd. For supply of dry ash from Atul Limited, Atul, Valsad, Gujarat. Dated.21.09.2019. Attached as Annexure-XII.

29 The fugitive emission in the work zone environment shall be monitored. The emission shall confirm to the standards prescribed by the concerned authorities from time to time (e.g. Directors of Industrial Safety & Health) Following Indicative guidelines shall be also be followed to reduce the fugitive emission. **Complied.**
 We are regularly (once in month) monitoring fugitive emission in work zone environment to confirm the standard prescribed by the concerned authorities from time to time. And indicative guidelines are strictly followed to reduce the fugitive emission.
 Measures adopted to control fugitive emission:

- All process pumps shall be provided trays to collect probable leakage.
- More weight age on selection of MoC of piping shall be given to avoid leakage/spillage.
- Overflow system with return line to day tank/storage tank from batch tank will

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be provided to prevent hazardous material overflow.

- De-dusting system is provided at coal storage area, closed silo system is available to collect fly ash. Covered conveyer belt system is available for transfer of coal. water sprinkle system is available to control dust fugitive emission.
- Proper system is provided for decontamination and effective cleaning of drums.
- All transfer points are fully enclosed.
- All roads are RCC & paved on which movement of raw materials or products are take place.
- Maintenance of air pollution control equipments are to be done regularly.
- All the workers are working with proper PPE's. i.e boiler shuit, dust mask, safety goggles, face shield, safety shoes etc.
- Adequate Green belt is developed around the plant to arrest the fugitive emissions.

Analysis reports of work zone area is shown below table:

Location of Sampling: Boiler Plant

Sampling by: M/s. Pollucon Laboratory Pvt.Ltd (NABL approved)

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S.N	Test Parameter	Unit	Sampling Location	Date of Monitoring	Result	Permissible limit
1.	SPM	mg/Nm ³	FBC Boiler 1	closed	Closed	100
	SO ₂				Closed	600
	NO _x				Closed	600
2.	SPM	mg/Nm ³	FBC Boiler 2		75.6	100
	SO ₂				510	600
	NO _x				306	600
3.	SPM	mg/Nm ³	FBC Boiler 3		94	100
	SO ₂				532	600
	NO _x			298	600	
4.	Noise	Db(A)	Control room		51.8	90
5.	Dust	mg/Nm ³	south / west corner of FBC/3 control room		3.10	10
6.	Dust	mg/Nm ³	East site DM plant (on road)	16/07/2019	3.85	10
7.	Dust	mg/Nm ³	North /west corner of DG set room		2.40	10
8.	Dust	mg/Nm ³	Near crusher area		9.00	10

S.N	Test Parameter	Unit	Sampling Location	Date of Monitoring	Result	Permissible limit
1.	SPM	mg / Nm ³	FBC Boiler 1	16/09/2019	66.1	100
	SO ₂				540	600
	NO _x				391	600
2.	SPM	mg / Nm ³	FBC Boiler 2		75.1	100
	SO ₂				560	600
	NO _x				410	600
3.	SPM	mg / Nm ³	FBC Boiler 3		52	100
	SO ₂				510	600
	NO _x			471	600	
4.	Noise	Db(A)	Control room		56.1	90
5.	Dust	mg / Nm ³	south / west corner of FBC / 3 control room		3.4	10
6.	Dust	mg / Nm ³	East site DM plant (on road)		2.9	10
7.	Dust	mg / Nm ³	North /west corner of DG set room		2.1	10
8.	Dust	mg/Nm ³	Near crusher area		8.00	10



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By M/s. Atul Ltd, Valsad

<p>All handing & transport of coal & Lignite shall be exercised through covered coal conveyors only.</p>	<p>Complied. All handing & transport of coal & Lignite is done through covered coal conveyors only.</p>
<p>Enclosure shall be provided at coal / Lignite loading and unloading operations.</p>	<p>Noted and Complied. Enclosure is provided at coal / Lignite loading and unloading operations.</p>

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<p>Water shall be sprinkled on coal / Lignite stock piles periodically to retain some moisture in top layer and also while compacting to reduce the fugitive emission.</p>	<p>Complied. We are regularly sprinkled water on coal / Lignite stock piles to retain some moisture in top layer and also while compacting to reduce the fugitive emission.</p>  <p align="center">Shed for coal storage</p>
<p>All transfer points shall be fully enclosed.</p>	<p>Noted and Complied. We have on road coal conveying system through covered coal trucks and in plant coal transferring system through closed conveying system. All transfer points are fully enclosed. Fly ash in terms of closed silos shall be provided at site. Handling of the fly ash shall be through a closed pneumatic system.</p>
<p>Adequate dust suppression / extraction system at crusher house as well as for the coal/ Lignite stock yard and other vulnerable areas shall be provided to abate dust nuisance.</p>	<p>Complied. We have provided Adequate dust extraction system (Dust collector) at crusher house is provided While dust suppression system (water sprinkler system) the coal/ Lignite unloading areas to abate dust nuisance.</p>
<p>Accumulated coal dust / fly ash on the ground and surfaces shall be removed / swept regularly and water the area after sweeping.</p>	<p>Complied. We have adopt practice for Coal dust / Fly ash is being cleaned regular basis as per schedule that we have set. We are also ensuring that Coal dust and fine particles are being loaded to coal handling plant after spraying water on it.</p>
<p>Internal roads shall be either concreted or asphalted or paved properly to reduce the fugitive emission during vehicular movement.</p>	<p>Complied. Paver blocks have been provided in the ESP and some internal area of power plant. Concrete Road have been built in the surrounding area of Power Plant to reduce fugitive emissions during vehicle movement.</p>  <p align="center">Concrete road at Captive Power Plant</p>
<p>Air borne dust shall be controlled with water sprinkles at suitable locations in</p>	<p>Complied. Waste water of neutralization pit is being used for dust suppression in Coal plant</p>

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<p>the plant. Coal / Lignite shall be transported through covered trucks only whereas fly ash shall be transported through closed trucks only.</p>	<p>and Fly ash handling units. Covered trucks / closed bulkers are being utilized for handling coal and fly ash.</p> <div style="display: flex; justify-content: space-around;">   </div> <p align="center">Closed truck water sprinkler system</p>
<p>A green belt shall be developed all around the plant boundary and also the roads to mitigate fugitive & transport dust emission.</p>	<p>Complied. Proper plantation is done all around the plant boundary and also the roads to mitigate fugitive & transport dust emission. Total Plot area: 1126078.27 sq.mt Green belt area: 409030.00 sq.mt (approx. 36% of total plot area) Layout plan with green belt is as shown below:</p> 
<p>30. Regular Monitoring of ground level concentration of PM2.5, PM10, NOx, SO2 and Hg shall in the impact zone and its records shall be maintained.</p>	<p>Complied. We are regularly monitoring ground level concentration of PM2.5, PM10, NOx, SO2 in ambient air of impact zone and its records are maintained as per schedule.</p>

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Ambient air quality levels shall not exceed the standards stipulated by GPCB.

Complied.

The Location of ambient air quality monitoring stations had been decided in consultation with GPCB so that at least one station is installed in the upwind and downwind direction as well as where maximum ground level concentration are anticipated. This also covers the impact, if any, of the project plant. The same had been shown to authority like SPCB, CPCB & MoEF during their visit to our factory.

The maximum values during the compliance period confirms that at no time the emission level went beyond the stipulated standards. Parameter wise summary is given below:

Summary of Ambient Air Quality results:

Station	Parameter	Limit micro gm/NM ³	Values for the period May 19- Oct 19		
			Min.	Max.	Avg.
66 KV (Up wind)	RSPM (PM2.5)	60	21.3	45	32.2
	PM10	100	37.6	58	45.7
	SO2	80	7.5	9.8	8.95
	NOx	80	7.9	16.4	10.4
	Ammonia	850	ND	ND	ND
	HCl	200	ND	ND	ND
Opposite Shed D (Up wind)	RSPM (PM2.5)	60	27	56	41.7
	PM10	100	34	60	46.8
	SO2	80	7.9	13.5	10.4
	NOx	80	8.3	11.3	9.6
	Ammonia	850	ND	ND	ND
	HCl	200	ND	ND	ND
Near West site ETP (Up Wind)	RSPM (PM2.5)	60	24	42	34
	PM10	100	37	62	51.7
	SO2	80	8.3	11.2	9.9
	NOx	80	7.2	10.2	9.1
	Ammonia	850	ND	ND	ND
	HCl	200	ND	ND	ND
Near North ETP (Up wind)	RSPM (PM2.5)	60	27	40	34.2
	PM10	100	38	68	50.5
	SO2	80	6.4	10.6	8.97
	NOx	80	5.8	9.8	8.6
	Ammonia	850	ND	ND	ND
	HCl	200	ND	ND	ND
TSDF (Down wind)	RSPM (PM2.5)	60	26	58	43
	PM10	100	7.8	59	44.97
	SO2	80	7.4	10.8	9.2
	NOx	80	6.3	9.5	7.9
	Ammonia	850	ND	ND	ND
	HCl	200	ND	ND	ND
Main Guest	RSPM (PM2.5)	60	12	38	23.2

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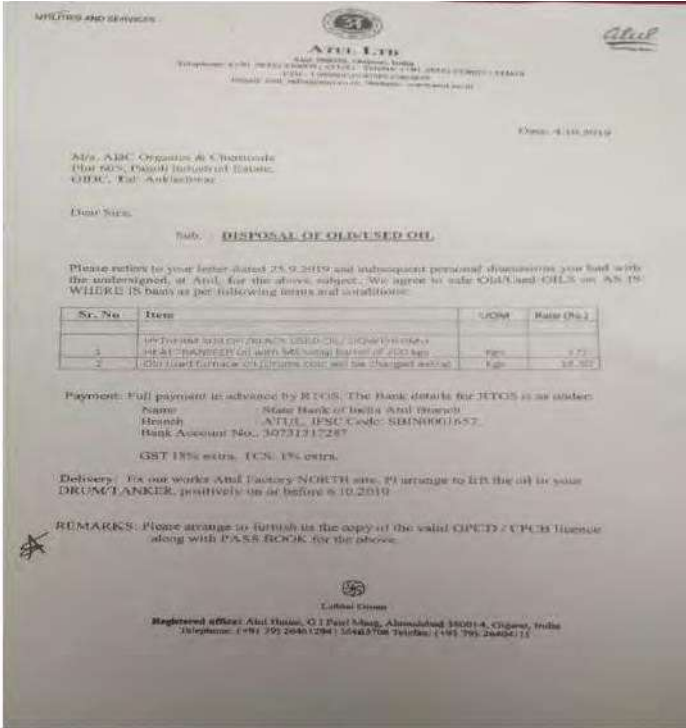
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		House (Down wind)	PM10	100	25	53	39.8		
			SO2	80	4.5	10.5	7.5		
			NOx	80	5.1	17.5	10.6		
			Ammonia	850	ND	ND	ND		
			HCl	200	ND	ND	ND		
		Wyeth Colony (Down wind)	RSPM (PM2.5)	60	10	32	19.5		
			PM10	100	26	50	38		
			SO2	80	4.1	9.5	6.7		
			NOx	80	4.6	14.2	9.4		
			Ammonia	850	ND	ND	ND		
		Gram panchayat hall (Cross wind)	RSPM (PM2.5)	60	12	45	25		
			PM10	100	29	47	38.8		
			SO2	80	5.8	9.2	7.6		
			NOx	80	5.7	14.2	10.0		
			Ammonia	850	0	0	ND		
		Main office, North site (Cross wind)	RSPM (PM2.5)	60	18	35	27.3		
			PM10	100	35	58	46.7		
			SO2	80	7.2	9.5	8.5		
			NOx	80	7.3	14.2	11.3		
			Ammonia	850	ND	ND	ND		
		Haria water tank (Cross wind)	RSPM (PM2.5)	60	16.3	39	26.8		
			PM10	100	22.2	41.1	34.7		
			SO2	80	6.7	9.5	8.4		
			NOx	80	5.8	15.8	9.5		
			Ammonia	850	ND	ND	ND		
					HCl	200	ND	ND	ND
			If at any stage these levels are found to exceed the prescribed limits necessary additional control measures shall be taken be decided in consultation with the GPCB.	Complied. No such case found till date. Still if these type of situation is come than We have designed and integrated in Plant DCS in such a way that in event of ESP in working not efficiently or something found fault or operation issue due to which flue gas emission go beyond the specified standard prescribed in the Environment (protection) Rules 1986 as amended from time to time than in such cases / occurrence we will intimate to board & authority to stop the operation plant or decrease the load of power plant. We will not restart or increase the load until the control measures are rectified to achieve the 100 percent efficiency.					
			A.4 SOLID/ HAZARDOUS WASTE :						
31.	The company shall strictly comply with the rules and regulations with regards to handling and disposal of Hazardous waste in accordance from time to time.	Not Applicable There is no Hazardous waste generation in Captive Power Plant.							
	Authorization from the GPCB shall be obtained for collection / treatment/storage disposal of hazardous	Complied. We have CCA Amendment No. AWH – 82241 dated. 20/09/2016. No hazardous waste is generated. This EC condition is not applicable to us.							

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<p>32.</p>	<p>waste. Hazardous waste sludge shall be packed stored in separate designated hazardous waste storage facility with impervious bottom and leachate collection facility, before its disposal.</p>	<p>Not Applicable. There is no Haz. waste generation in this project.</p>																	
<p>33.</p>	<p>The used oil shall be sold to only to the registered recyclers / refiners.</p>	<p>Complied. Used oil is being sold to GPCB authorized vendor namely ABC Organics & Chemicals.</p> 																	
<p>34.</p>	<p>The discarded containers / barrels /bags/ liners shall be sold only to the registered recycler.</p>	<p>Complied. No bags / liners are being utilized for Power Plant.</p>																	
<p>35.</p>	<p>For storage of fly ash closed silos of adequate capacity shall be provided.</p>	<p>Complied. We are not constructed ash pond to the CPP unit. We have closed three silo of 200 MT and Two silo of 300 MT capacity of each, total 1200 MT capacity, which is well enough for our average generation of approx. 250 TPD. We dispatch the fly ash daily from these silo so we have not prepare ash pond.</p> <table border="1" data-bbox="659 1453 1435 1766"> <thead> <tr> <th rowspan="2">Fly ash</th> <th colspan="2">Total Quantity (kg)</th> </tr> <tr> <th>Year 17-18</th> <th>Year 18-19</th> </tr> </thead> <tbody> <tr> <td>Generation</td> <td>74533859</td> <td>68353710</td> </tr> <tr> <td>Quantity recycled or re-utilized within the unit</td> <td>912200</td> <td>Nil</td> </tr> <tr> <td>Sold</td> <td>75446059</td> <td>To Brick Manufacturer: 63092190 To Cement Industry: 5261520 Total: 68353710</td> </tr> <tr> <td>% Utilization</td> <td>100 %</td> <td>100%</td> </tr> </tbody> </table> <p>Fly ash / bottom ash generation data for period (April-2019 to September – 2019) as shown below table:</p>	Fly ash	Total Quantity (kg)		Year 17-18	Year 18-19	Generation	74533859	68353710	Quantity recycled or re-utilized within the unit	912200	Nil	Sold	75446059	To Brick Manufacturer: 63092190 To Cement Industry: 5261520 Total: 68353710	% Utilization	100 %	100%
Fly ash	Total Quantity (kg)																		
	Year 17-18	Year 18-19																	
Generation	74533859	68353710																	
Quantity recycled or re-utilized within the unit	912200	Nil																	
Sold	75446059	To Brick Manufacturer: 63092190 To Cement Industry: 5261520 Total: 68353710																	
% Utilization	100 %	100%																	

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		Fly Ash	Unit	April19	May 19	June19	July 19	Aug 19	Sept 19																																										
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		Disposal	MT	3677	4420	5432	5472	5170	4765																																										
	No ash pond shall be construed in the project.	Complied. No ash pond is construed in the project.																																																	
36.	The fly ash shall be supplied to the manufacturers of fly ash based products such as cement, concrete blocks, bricks, panels, etc.	Complied. Fly ash is being given to Cement and Bricks manufacturers and also being used for our own Bricks Manufacturing unit.																																																	
		<table border="1"> <thead> <tr> <th>Fly ash</th> <th colspan="2">Total Quantity (kg)</th> </tr> <tr> <td></td> <th>Year 17-18</th> <th>Year 18-19</th> </tr> </thead> <tbody> <tr> <td>Generation</td> <td>74533859</td> <td>68353710</td> </tr> <tr> <td>Quantity recycled or re-utilized within the unit</td> <td>912200</td> <td>Nil</td> </tr> <tr> <td>Sold</td> <td>75446059</td> <td>To Brick Manufacturer: 63092190 To Cement Industry: 5261520 Total: 68353710</td> </tr> <tr> <td>% Utilization</td> <td>100 %</td> <td>100%</td> </tr> </tbody> </table> <p>We have done Agreement between Ambuja cement Ltd. And Atul Ltd. For supply of dry ash from Atul Limited,Valsad,Gujarat.Dated.21.09.2019.</p>								Fly ash	Total Quantity (kg)			Year 17-18	Year 18-19	Generation	74533859	68353710	Quantity recycled or re-utilized within the unit	912200	Nil	Sold	75446059	To Brick Manufacturer: 63092190 To Cement Industry: 5261520 Total: 68353710	% Utilization	100 %	100%																								
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	The unit shall strictly comply with the Fly Ash Notification under EPA and it shall be ensured that there is 100% utilization of fly ash to be generated from the unit.	Complied. We are strictly complying fly ash notification under EPA and we are ensuring that that is 100 % utilization of fly ash to be generated from the unit.																																																	
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37.	All possible efforts shall be made for co-processing of the Hazardous waste prior to disposal into TSDF/CHWIF.	Not Applicable. Since there is no Hazardous waste generated in this unit.																																																	
	A.5 SAFETY:																																																		
38.	The project management shall strictly comply with the provisions made in the Factories Act, 1948 as well as manufacturer, storage and Impact of Hazardous chemicals Rules 1989	Complied. We are complying all the rules and regulation led by MSIHC,1989.We are complying with Hazardous and Other Wastes (Managements and transboundary Movement) Rules,2016 towards ETP Sludge, Used Oil & Empty Drums-Handling, and Storage																																																	

COMPLIANCE OF ENVIRONMENTAL CLEARANCE MINISTRY'S LETTER
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	as amended in 2000 for handling of hazardous chemicals.	& Disposal to authorized Facility/TSDF. We have obtained valid authorization from GPCB towards handling of above mention waste vide CC&A Amendment No. AWH – 82241dated.20/09/2016. Since there is no hazardous waste generated in Captive Power Plant.
39.	Necessary precautions like continuous monitoring of hot spot (ignite lignite) using temperature detection systems water sprinklers, avoiding stacking of lignite near stream pipeline etc shall be made for storing lignite to prevent fire hazard.	Complied. Lignite is usually used on the same day of its receiving at site as far as possible. Lignite is not being stored for not more than 3-4 Days. However, Water spray and fire hydrant system is available for the fuel storage sheds.
40.	All the risk mitigation measures, general & specific recommendations mentioned in risk Assessments Report shall be implemented.	Complied. We will implement All the risk mitigation measures, general & specific recommendations mentioned in risk assessments report.
41.	A well designed fire hydrants system shall be installed as per the prevailing standards.	<p>Complied. A well designed Fire hydrant system is adequate and as per standards.</p> <p>Fire hydrant Network details: Single Hydrant point: 192Nos. Double hydrant point: 07 Nos. Fixed monitor: 11Nos. Hose boxes: 30 Nos. Central hose station: 10 Nos. Hose pipe: 15 mts. 250 Nos. Branch pipes (jet type): 50 Nos. Foam making branch pipe: 03 Nos. Foam compound: 200 litre Foam generator with high expansion foam: 2 Nos.</p>
		  
42.	Personal protective Equipment shall be provided to worker and its usage shall be ensured and supervised.	Complied. PPEs like nose masks, safety goggles, chemical resistive aprons, fire proof apron, Hand gloves, safety helmet, welding goggles, ear mugs, safety shoes etc are providedtotheworkersandutilizationofthePPEisfollowedstrictlyinPowerPlant.

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PHOTOGRAPHS OF ONSITE MOCK DRILL



ATUL Stores/Accounts/Indentor	ATUL LIMITED INFRA PC OU STORES REQUISITION SLIP	13-DEC-19 15:10:08 Page 1 of 1 STR/PM/05/00			

Req. Number : 15192745	Date : 24-JUL-19				
Org Code : 813	Chargeable CC : S1P01				
Org Name : Infra Engineering (PC	Chargeable : STEAM PLANT				
Withdrawing CC. : 01P43	CC Name :				
Withdrawing cc name : Mechanical Power House Ca					
Purpose : safety goggle					

Sr. No.	Item Code	Description	UOM	Item Default Locator	Qty Require
1	2902904104	HONEYWELL SAFETY GOGGLE (ANTI-FOG), MODEL- A700	NO		20

NISHITH_GANDHI					
RAISED BY		AUTHORISED BY		ISSUED BY	

ATUL Stores/Accounts/Indentor	ATUL LIMITED INFRA PC OU STORES REQUISITION SLIP	13-DEC-19 15:12:39 Page 1 of 1 STR/PM/05/00			

Req. Number : 15043812	Date : 26-MAR-19				
Org Code : 813	Chargeable CC : S1P01				
Org Name : Infra Engineering (PC	Chargeable : STEAM PLANT				
Withdrawing CC. : 01P43	CC Name :				
Withdrawing cc name : Mechanical Power House Ca					
Purpose : Hand Gloves for Power House					

Sr. No.	Item Code	Description	UOM	Item Default Locator	Qty Require
1	2902901029	14 IN RUBBER HAND GLOVES	PR	EGEN40.039.04	30
2	2902905014	DUST MASK, GRAY, WITH ADJUSTABLE NOSE PIECE	NO	COENG05.X.203	100
3	2902905014	DUST MASK, GRAY, WITH ADJUSTABLE NOSE PIECE	NO	EGEN40.010.19	100
4	2902905014	DUST MASK, GRAY, WITH ADJUSTABLE NOSE PIECE	NO	EGEN40.006.49	100

NISHITH_GANDHI					
RAISED BY		AUTHORISED BY		ISSUED BY	

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43. First Aid Box and required antidotes for the chemical used in the unit shall be readily available in adequate quantity at all the times.

Complied.
 First aid box are kept in each plant and at strategic locations whereas antidotes are kept in the medical Centre.



44. Occupational health surveillance of the workers shall be done its records shall be maintained. Pre - employment and periodical medical examination for all the worker shall be undertaken as per the Factories Act &rules.

Complied.
 Being done on regular basis as per the Factories Act & rules.
 Occupational health surveillance of the workers is carried out on a regular basis as per section-41 C of the factories act and ruke-68T of Gujarat Factories Rules and records are maintained. Regular Medical Checkup of all employees are done by in-house Dr. Vishal Mehta (M.B.B.S), Dr. Suman Patel (M.D. Physician) & Dr. Sandip Bhandare (M.B.B.S, AFIH) in following manner;
 The following medical checkup has been completed;

Pre-Employment Check-Up (In-house): FY April-18 to March-19

SN	Employee	Qty	Check-Up
1	Staff	530	Pre-Employment
2	Operators		
3	Workers		

Annual Medical Check-Up: FY April-18 to March-19

SN	Employee	Qty	Check-Up
1	Staff	3391	Annual Checkup
2	Operators		
3	Workers		

Various types of tests being performed are as below; A.Pre- employment Check up:
 1. Vision
 2. Colour blindness
 3. 3.CBC
 4. Urine
 5.Height

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- 6.Weight
- 7.B/P
- 8.Pulse
- 9.Habit
- 10.Personal History
- 11.Family History
- 12.Identification Mark
- B. Annual Checkup:
 - 1. Physical checkup
 - 2. Vision
 - 3. Blood
 - 4. Urine
 - 5. PFT
 - 6. ECG

Our occupational health centre & Pathology Lab is equipped with necessary facilities under supervision of factory medical officer with trained three EHS persons.

Medical Facilities:

- First Aid boxes in all plants
- Central Ambulance Room in the middle of the factory
- Two Ambulance Vans. Out of which one is equipped with ICU facilities.
- Medical Center
- Three full time AFIH certified doctors.
- Equipped with 3Beds
- Full equipped Pathological lab with advanced diagnostic equipment
- ECG Equipment
- Cardiac monitor
- Defibrillator
- Finger pulse Oxy meter
- Pulmonary Function Test Apparatus
- O2Administration
- Antidotes with routine Important and Vital life saving Drugs
- Tie-up with Kasturba Hospital, Valsad, and Pardi Hospital, Pardi, respectively 7 kms and 3 kms. away from Atul



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we also have tie up with external two hospitals (Pardi Hospital and Kasturba Hospital). We have medical checkup schedule once in quarter for Insecticide plant's employees. Other necessary items including First-aid medicines, antidotes and equipment as prescribed in the schedule the under Rule-68 U (b) of the Gujarat factories rules are also been provided. Attached sample medical checkup report sample as **Annexure- VII** in the main report.

Atul Ltd
Department of Health

Laboratory Report

Name: Mr. Darshit V. Desai Report Date: 16-12-2019
 Age/Gender: 32 / M Ref No: MR01/164
 Visit ID: 0902701
 Doctor: Valsad Medical Lab ID No: LAD000055
 Test Date: 08-12-2019 09:30 Specimen: (Blood)
 Sample Code:

Haematology

Test Description	Result	Units	Reference Range
CBC - WBC - Complete Hemogram			
WBC - White Blood Cell Count	7.07	10 ⁹ /L	Normal 4.21 - 10.67
RBC - Red Blood Cell Count	5.02	10 ¹² /L	Normal 4.62 - 6.10
HGB - Hemoglobin	17.50	g/dL	Normal 12.7 - 15.5
HCT - Hematocrit (PCV)	44.90	%	Normal 40.1 - 51.9
MCV - Mean Cell Volume	89.40	fL	Normal 79.2 - 92.2
MCH - Mean Cell Hemoglobin	30.70	pg	Normal 26.7 - 32.2
MCHC - Mean Cell Hemoglobin Concentration	34.70	g/dL	Normal 32.3 - 36.5
PLT - Platelet Count	209,000	10 ⁹ /L	Normal 153 - 371
RDW-CV - RBC Distribution Width Coefficient of Variation	11.00	%	Normal 11.4 - 13.9
RDW-CV - RBC Distribution Width Coefficient of Variation	12.30	%	Normal 11.6 - 14.4
PDW - PCT Distribution Width	9.20	fL	
MPV - Mean Platelet Volume	9.16	fL	
PCT - Packed Cell Volume	17.20	%	
PCT - Plateletcrit	0.24	%	
RDW - Red Cell Distribution Width	56.50	%	Normal 34.8 - 47.9
LYMPH - Lymphocyte Count	26.70	%	Normal 21.6 - 33.1
MONO - Monocyte Count	4.80	%	Normal 0.4 - 5.2
NEU - Neutrophil Count	2.40	%	Normal 0.8 - 7.0
EOS - Eosinophil Count	0.00	%	Normal 0.2 - 7.0

Key: ** Abnormal Item, * Critical value, ** Hypocritical Item, # Increased High, ## Critical High, ### Insignificant High
 Hematology Analyser: Sysmex KX-20N (Fully Automated) (part blood not included) (Continuous Biochemistry Analyser - Cobas C111 (Bio, automatic) (Hemo)

Lab. Technician
 Mr. Pratik Desai

Page 1 of 1

Atul Ltd
Department of Health

Laboratory Report

Name: Mr. Darshit V. Desai Report Date: 16-12-2019
 Age/Gender: 32 / M Ref No: MR01/164
 Visit ID: 0902701
 Doctor: Valsad Medical

Biochemistry

Test Description	Result	Units	Reference Range
FBS - Fasting Blood Sugar			
Specimen Status			Sample Date: 12/08/19 10:16 AM
Lab ID No: LAD000055			Test Date: 12/08/19 07:45 AM
Blood Sugar - Fasting	94	mg/dL	Normal 70.0 - 100.0
Lipid Profile			
Specimen Status			Sample Date: 12/08/19 10:16 AM
Lab ID No: LAD000055			Test Date: 12/08/19 12:04 PM
Total Cholesterol	170.00	mg/dL	Normal 120-200
HDL Cholesterol	41.50	mg/dL	Normal 35.0 - 70.0
Triglycerides	90.20	mg/dL	Normal 0.0 - 150
VLDL Cholesterol	18.00	mg/dL	Normal 0.0 - 20.0
LDL Cholesterol	102.2	mg/dL	Normal 0.0 - 160.0
LDL-HDL Ratio	0.88		Normal 1.00-1.5
Total Cholesterol	133.0		Normal 120-200
Urea/Creatinine, Serum			
Lab ID No: LAD000055			Sample Date: 12/08/19 10:16 AM
Urea (BUN)	30.70	(mg/dL)	Normal 8.0 - 20.0
Creatinine (Serum)			Reference Range: 0.6-1.2 mg/dL (0.05-0.10 mmol/L) (Creatinine) (Serum)
Biochemical Screen			
Lab ID No: LAD000055			Sample Date: 12/08/19 10:16 AM
BUN (B) (Urea)	30.70	(mg/dL)	Normal 8.0 - 20.0
Creatinine (Serum)			Reference Range: 0.6-1.2 mg/dL (0.05-0.10 mmol/L) (Creatinine) (Serum)
Urea (BUN)	30.70	(mg/dL)	Normal 8.0 - 20.0
Creatinine (Serum)	0.50	(mg/dL)	Normal 0.5 - 1.0
Direct Bilirubin	0.30	(mg/dL)	Normal 0.0-0.2
Indirect Bilirubin	0.26	(mg/dL)	Normal 0.0-0.5

Remark: All employ found medically fit to work, no contiguous diseases were observed.

45. Flameproof fittings shall be provided at the proposed power plant.

Complied.
Flame proof fittings are provided.

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46. Adequate firefighting facilities shall be provided at the proposed power plant.

Complied.



Firefighting facilities are adequate.

The risk to people after a fire has started shall largely depends on the adequacy and maintenance of means to escape, the alarm system, training of the workforce in fire routine and evacuation procedures at Atul Ltd. management has proposed to employ well-resourced and adequate fire fighting network. Details regarding the firefighting capacity of the unit are given below:

- Four full fledged fire hydrant system in the company
- Water Storage Capacity - 50 million Liters
- Total hydrant post/ monitors -780
- Total length of hydrant line - 15km
- Fire Fighting Equipment
 - DCP 1350
 - CO₂ 776
 - Foam : 05Trolley
- Fire Tenders
 - One fire tender having 1800 Lit water capacity
 - Second multipurpose fire tenders having 5000 Lit water & 500 Foam
 - Third Multipurpose tender having facility of DCP- 500 Kg, Foam - 500 lit and Water - 4500Lit.
- SCBA sets - 35nos.
- Emergency alarm system - 532 nos. points spread across the company
- Fire station manned round the clock with Siren and Annunciation System.
- Regular Testing on every Monday
- Smoke detectors in the office and labs
- Auto water deluging system at critical reactors
- Auto water sprinkler system at tank farms Onsite mock drill and fire fighting Training:



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		<p align="center">Emergency Preparedness:</p> 
47.	Proper ventilation shall be provide in the work area.	<p>Complied. Proper ventilation provided in work area.</p>
48.	All transporting routes within the factory premise shall have paved roads to minimize splashes and spillages.	<p>Complied. The roads inside factory are either of cement concrete or Bitumen concrete.</p> 

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49.	The project management shall prepare a details Disaster management plan (DMP) for the project as the guidelines from Directors of Industrial safety and Health.	<p>Complied. Detailed disaster management plan is already prepared. Please find attached herewith detail disaster management plan as Annexure-XIII for the project as the guidelines from Directors of Industrial safety and health.</p> 
A.6 NOISE:		
50.	To minimize the noise pollution the following noise control measures shall be implemented.	<p>Complied. We are regularly implemented noise control measures to minimize the noise pollution.</p>
	Selection of any new plant equipment shall be made with specifications of low levels.	<p>Complied. All steam vents have attached with Silencers. Low noise level is considered as one of the prime specifications while selecting new machines in Power plant. For Example, Replacement of reciprocating type noisy air compressors by low noise emitting screw air compressors.</p>
	Manufacturer / supplier of major noise generating machines / equipment like air compressor. Feeder pumps, turbine generators, etc shall be instructed to make required design modifications wherever possible regulatory norms with respect to noise generation for individual units.	<p>Complied. We are always acknowledge or take care when purchasing of major noise generating machines / equipment like air compressor, feeder pumps, turbine generators, etc, strictly instructed or emphasized to supplier to give less noise generating equipment's as much as possible to regulatory norms with respect to noise generation for individual units.</p>
	Regular maintenance of machinery and vehicles shall be undertaken to reduce the noise impact.	<p>Complied. We have routine and preventive maintenance schedule of machinery / equipment's and vehicles to be undertaken to reduce the noise impact.</p>
	Noise suppression measures such as enclosures, buffers and / or protective measures shall be provided.	<p>Complied. Acoustic enclosures are provided on DG sets. Silencers have been provided on main steam vent valves of Boilers.</p>
	Employees shall be provided with ear protection measures like earplugs or earmuffs.	<p>Complied. We have provided ear protection measures like earplugs or ear muffs to all employees on regular basis.</p>
	Proper oiling lubrication and preventive maintenance shall be carried out of the machineries and equipment to reduce noise generation.	<p>Complied. Proper oiling lubrication and preventive maintenance is carried out of the machineries and equipment to reduce noise generation.</p>
	Construction equipment generating minimum noise vibration shall be chosen.	<p>Noted & Complied. We are always use minimum noise vibration generation construction equipment.</p>
	Ear plugs and / muffs shall be made compulsory for the construction workers working near the noise generating activities / machines / equipment.	<p>Complied. Our company has well laid down OHS policy to use Proper PPE's by all employees in plant area. Ear plugs and / muffs are compulsory for the construction workers working near the noise generating activities / machines / equipment.</p>
	Vehicles and construction equipment with internal combustion engines without proper silencer shall not be	<p>Noted & Complied. We are permitted those vehicles and construction equipment with internal combustion engines with proper silencer and spark arrestor.</p>

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	allowed to operate.																																																																												
	Construction equipment meeting the norms specified by EP Act, 1986 shall only be used.	Noted & Complied. We are only using construction equipment meeting the norms specified by EP Act, 1986.																																																																											
	Noise control equipment and baffling shall be employed on generators especially when they are operated near the residential and sensitive areas.	Noted & Complied. We are taken care of Noise control equipment and baffling will be employed on generators especially when they are operated near the residential and sensitive areas.																																																																											
	Noise levels shall be reduced by the use of adequate mufflers on all motorized equipment	Noted & Complied. We are using mufflers on all motorized equipment to reduce noise levels.																																																																											
51.	The overall noise level in and around the plant area shall be kept well within the prescribed standard by providing noise control measures including acoustic insulation, hoods, silencers, enclosures, vibration, dampers etc. on all sources of noise generation.	Complied. The overall noise level in and around the plant area to be kept well within the prescribed standard by providing noise control measures including acoustic insulation, hoods, silencers, enclosures, vibration, dampers etc. on all sources of noise generation provided.																																																																											
	The ambient noise levels shall confirm to the standards prescribed under the Environment (protection) Act and Rules. Workplace noise levels for workers shall be as per the factories Act and Rules.	Complied. The ambient and workplace noise level confirms to the standard prescribed under EPA. The same is being regularly monitored. The maximum values during the compliance period confirms that at no time the noise emission level went beyond the stipulated standards. Summary is given below: Noise level monitoring data (Day Time)																																																																											
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		9	Water tank Haria road	70	38.4	57.1	52.4
		10	Near 66KVA substation	70	54.8	58.3	56.9

A.7 GREEN BELT AND OTHER PLANTATION.

52. The unit shall develop green belt in at least 68000 sq.m area within the premises. Green belt shall comprises of rows of varying height tall native trees with thick foliage in the periphery of the factory premises.

Complied.
Green belt is developed and we planted more than 50000 plants every year. Green belt is comprised of at least minimum 3 to 4 raw plantation with minimum height of native trees is 5 to 6 mtr with thick foliage in the periphery of the factory premises. Proper plantation is done all around the plant boundary and also the roads to mitigate fugitive & transport dust emission.
Total Plot area: 1126078.27 sq.mt
Total Green belt area: 409030.00 sq.mt (approx. 36% of total plot area)
Green belt area for Captive power plant: 17920.0 sq.mt

Layout plan with green belt is as shown below:



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<p>53.</p>	<p>The unit shall also take up adequate plantation at suitable open Land on road sides and other open areas in nearby villages or schools in consultation with the Gram panchayat / GPCB and submit an action plan for the same for next three years to the GPCB.</p>	<p>Complied. We plant more than 50000 plants every year on road sides and other open areas in nearby villages or schools in consultation with the Gram panchayat.</p> <table border="1" data-bbox="623 373 1471 646"> <thead> <tr> <th>Sr. No.</th> <th>Year</th> <th>No. of plants planted</th> </tr> </thead> <tbody> <tr> <td>1.</td> <td>2010-11</td> <td>59,200</td> </tr> <tr> <td>2.</td> <td>2011-12</td> <td>68,700</td> </tr> <tr> <td>3.</td> <td>2012-13</td> <td>63,300</td> </tr> <tr> <td>4.</td> <td>2013-14</td> <td>75,600</td> </tr> <tr> <td>5.</td> <td>2014-15</td> <td>81,500</td> </tr> <tr> <td>6.</td> <td>2015-16</td> <td>72,900</td> </tr> <tr> <td>Total</td> <td></td> <td>4,21,200</td> </tr> </tbody> </table>	Sr. No.	Year	No. of plants planted	1.	2010-11	59,200	2.	2011-12	68,700	3.	2012-13	63,300	4.	2013-14	75,600	5.	2014-15	81,500	6.	2015-16	72,900	Total		4,21,200
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<p>B.OTHER CONDITIONS:</p>																										
<p>54.</p>	<p>In the event of failure of any pollution control system adopted by the unit, the unit shall be safely closed down and shall not be restarted until the desired efficiency of the control equipment has been achieved.</p>	<p>Complied. No such case during the repot period. However, if such case happens we ensure to close down the unit.</p>																								
<p>55.</p>	<p>All the recommendation , mitigation measures ,environments protection measures and safeguard proposed in the EIA report of the project prepared by M/s ; Eco chem Sales &Service ,surat& submitted vide letter no NIL dated 03/11/2015 and commitments made during presentation before SEAC, proposed in the EIA report shall be strictly adhered to in letter and spirit.</p>	<p>Complied. Compliance to all environmental protection measures and safeguards proposed in the project report submitted to ministry is complied as below:-</p> <table border="1" data-bbox="623 936 1487 1862"> <thead> <tr> <th>S.No</th> <th>Potential Impact</th> <th>Action to be followed</th> <th>Parameters for monitoring</th> <th>Frequency of monitoring</th> <th>Status of Compliance</th> </tr> </thead> <tbody> <tr> <td>1.</td> <td>Air emission</td> <td>Adequate stack height APCM-Multi Cyclone& Scrubber is provided as APCM AAQ within the project premises and nearby habitations to be monitored. All vehicles to be PUC certificate.</td> <td>SPM, RSPM, SO2 and NOx, Vehicle logs to be maintained.</td> <td>Monthly through external agency NABL Approved.</td> <td>Stack and APCM Details are provided in EC Compliance Point No.2 of specific Conditions. Quality of gaseous emission and AAQ is as per Annexure-IV.</td> </tr> <tr> <td>2.</td> <td>Noise</td> <td>Noise generating from operation of boiler, cooling towers & plant & M/c area to be</td> <td>Spot noise level Recording.</td> <td>Monthly through external agency NABL Approved.</td> <td>Carried out at the periphery of whole plant premises as Annexure-VIII.</td> </tr> </tbody> </table>	S.No	Potential Impact	Action to be followed	Parameters for monitoring	Frequency of monitoring	Status of Compliance	1.	Air emission	Adequate stack height APCM-Multi Cyclone& Scrubber is provided as APCM AAQ within the project premises and nearby habitations to be monitored. All vehicles to be PUC certificate.	SPM, RSPM, SO2 and NOx, Vehicle logs to be maintained.	Monthly through external agency NABL Approved.	Stack and APCM Details are provided in EC Compliance Point No.2 of specific Conditions. Quality of gaseous emission and AAQ is as per Annexure-IV.	2.	Noise	Noise generating from operation of boiler, cooling towers & plant & M/c area to be	Spot noise level Recording.	Monthly through external agency NABL Approved.	Carried out at the periphery of whole plant premises as Annexure-VIII.						
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			monitored.				
		3.	Waste water discharge	Compliance to the wastewater discharge standards complete effluent treatment Plant- Primary+ Secondary & MEE, ZLD is achieved.	pH,TSS,TDS,CO D,BOD, oil & Grease	Monthly through external agency NABL Approved.	Discharge effluent is analyzed on daily basis.
		4.	Solid/ Haz Waste	Check compliance of HWM rules.	Quantity and quality monitoring	Periodically	Details are provided in EC Compliance Point No.10 of specific Conditions.
		5.	Non routine events and accidental release.	Plant drawn, considering likely emergencies and steps required to prevent/limit consequences.	Mock drills and records of the same.	Periodic during process activities.	Every year 4 nos. mock drills carried out in the premise on rotational basis covering all plants.
		6.	Green Belts	Vegetation, green belt development	More than 50000 no. of plants & species.	Once a year	Green belt area is about 33% land area. Total area: 1126078.27 sq.mt Green belt area: 409030.00 sq.mt

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56.	All the recommendation of CREP guidelines as may be applicable from time to time shall be following vigorously.	Complied. CREP guidelines is being followed. Company is following strictly recommendations mentioned in CREP guidelines as follows:-			
		Activity code No.	Action point (Brief)	Compliance Status as on today	Remarks
		1	Implementation of Environmental Standards	Complied	APCM are already in place and maintained. We ensured that at no time the emission level will go beyond the stipulated standards and or prescribed limits by MOEF&CC vide S.O. 3305(E) dated 07/12/2015.
		2	Particulate matter emission reduction	Complied	We have installed high efficiency electro static precipitator (4 field) with 99.9% efficiency to control of flue gas emission (particulate matter emission) within the permissible limit from the proposed boilers. Last six month (April-2019 to September-2019) monitoring reports shows that Avg. SPM emission is identify 39 mg/Nm3 which is below permissible limit of 50 mg/Nm3.
		3	New / expansion power projects to be accorded Environment Clearance	Complied	EC awarded for setting up an additional power plant of 22 MW, Dated20/05/2016 EC No. SEIAA/GUJ/EC/1(d)/340/2016
		4	Development of SO2 & NOx emission standards.	NA	Action by CPCB
			Development standards for of guide mercury lines / & other	NA	Action by CPCB
			Review of stack height requirement	NA	Action by CPCB
		5	Install / activate meters / continuous monitoring systems with calibration system.	Complied	All the stacks are equipped with online opacity meter for continuous monitoring and also kept in CC TV camera surveillance. Also Online results are displayed on company main gate.
			Use of beneficiated coal	As soon as it is viable option with respect to its limited availability and proximity of source, will be used.	Currently not available.
6	Use of abandoned coal mines for Ash disposal	NA	Not Applicable		

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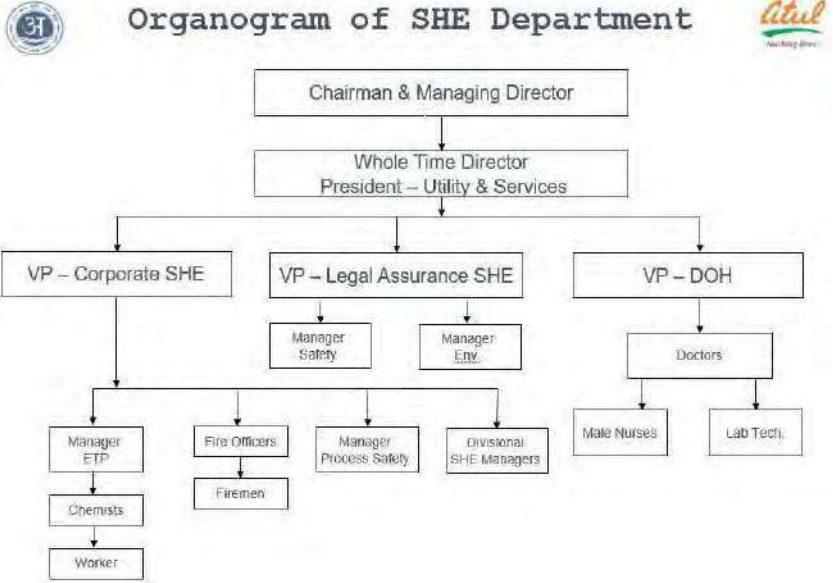
			Provide dry ash to the users	Complied. Ongoing process	Being given to local brick manufacturers and Cement industries. We have done Agreement between Ambuja cement Ltd. And Atul Ltd. For supply of dry ash from Atul Limited, Atul, Valsad, Gujarat. Dated.21.09.2019.
			Provide dry ash free of cost	Complied	-
			Adhere to schedule by State Dept.	NA	Action by State Dept.
			Environment Clearance Existing plants shall adopt any of systems mentioned in 13(1)	Complied	-
			Fly ash Mission shall prepare guideline	NA	Action by GOI
			New plants shall promote adoption of clean coal & clean power	NA	-
		7	CC&A status	Complied	Provisional consent no. AWH no. 105110 valid up to 30/9/2025 .
		8	Compliance with respect to norms prescribed in CC&A for last one year	Complied	Being checked & verified by Regional Office of GPCB time to time.
		9	Overall compliance with respect to charter (Yes/No)	Yes	Fully complied with all the condition stipulated in EC as well as CC&A.

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<p>57.</p>	<p>A separate environment management cell with qualified staff shall be set up for implementation of stipulated environmental safeguards.</p>	<p>Complied. Implementation of stipulated environmental safeguards were ensured by the Company's SHE department.</p> <div style="text-align: center;">  <p>Organogram of SHE Department</p> <pre> graph TD A[Chairman & Managing Director] --> B[Whole Time Director President – Utility & Services] B --> C[VP – Corporate SHE] B --> D[VP – Legal Assurance SHE] B --> E[VP – DOH] C --> F[Manager ETP] C --> G[Fire Officers] C --> H[Manager Process Safety] C --> I[Divisional SHE Managers] F --> J[Chemists] J --> K[Worker] G --> L[Firemen] D --> M[Manager Safety] D --> N[Manager Env.] E --> O[Doctors] O --> P[Male Nurses] O --> Q[Lab Techn.] </pre> </div>																								
<p>58.</p>	<p>The project authorities must strictly adhere to stipulations made by the Gujarat Pollution Control Board (GPCB), state government and statutory authority.</p>	<p>Noted & Complied We are strictly adhere to stipulations made by the Gujarat Pollution Control Board (GPCB), state government and statutory authority.</p>																								
<p>59.</p>	<p>No further expansion or modification in the plant likely to cause environmental impacts shall be carried out without obtaining prior Environment Clearance from the concerned authority.</p>	<p>Complied. No further expansion or modification in the plant likely to cause environmental impacts shall be carried out without obtaining prior Environment Clearance from the concerned authority.</p>																								
<p>60.</p>	<p>The above conditions will be enforced, inter-alla under the provisions of water (prevention & Control or pollution) Act, 1974, Air (prevention & Control of pollution) Act, 1981, the Environment (Protection) Act, 1986, Hazardous & other wastes (Management and Trans boundary Movements) Rules 2016 and the public liability insurance Act, 1991 along with their amendments and rules.</p>	<p>Noted.</p> <table border="1" style="width: 100%;"> <tr> <td>1</td> <td>CTE</td> <td>No.77793 dated: 17/05/2016</td> </tr> <tr> <td>2.</td> <td>CC&A Amendment</td> <td>No.AWH-82241 dated: 08/11/2016</td> </tr> <tr> <td>3.</td> <td>Public Liability Insurance</td> <td>Policy No. 12040036193300000002 Validity: 01/04/19 to 31/03/20 Sum assured: 15.0 Cr</td> </tr> <tr> <td>4.</td> <td>Factory License</td> <td>No. 11192 dated: 31/12/2021</td> </tr> <tr> <td>5.</td> <td>License under Petroleum act,1934 1. Furnace oil 2. Ethanol 3. Kerosene 4. Benzene 5. Methanol</td> <td>License No. P/HQ/GJ/15/136(P9747) P/HQ/GH/15/92(9704) P/HQ/GJ/15/2348(P167317) P/HQ/GJ/15/138(P9749) P/HQ/GJ/15/1473(P11115)</td> </tr> <tr> <td>6.</td> <td>PRESSURE VESSEL/GAS CYLINDER STORAGEES 1. Cylinder storage room for Oxygen, Nitrogen, Acetylene. 2. Cylinder storagefor chlorine</td> <td>G/WC/GJ/06/826 (G13953) G/WC/GJ/06/811 (G13932)</td> </tr> <tr> <td>7.</td> <td>License under Arms and Explosive Act 1959 1. Sodium chlorate/Potassium 2. Sulphur yard (storageof sulphur)</td> <td>No:12 / 90 No: 8 / 90</td> </tr> <tr> <td>8.</td> <td>License under Prohibition and Excise Act</td> <td></td> </tr> </table>	1	CTE	No.77793 dated: 17/05/2016	2.	CC&A Amendment	No.AWH-82241 dated: 08/11/2016	3.	Public Liability Insurance	Policy No. 12040036193300000002 Validity: 01/04/19 to 31/03/20 Sum assured: 15.0 Cr	4.	Factory License	No. 11192 dated: 31/12/2021	5.	License under Petroleum act,1934 1. Furnace oil 2. Ethanol 3. Kerosene 4. Benzene 5. Methanol	License No. P/HQ/GJ/15/136(P9747) P/HQ/GH/15/92(9704) P/HQ/GJ/15/2348(P167317) P/HQ/GJ/15/138(P9749) P/HQ/GJ/15/1473(P11115)	6.	PRESSURE VESSEL/GAS CYLINDER STORAGEES 1. Cylinder storage room for Oxygen, Nitrogen, Acetylene. 2. Cylinder storagefor chlorine	G/WC/GJ/06/826 (G13953) G/WC/GJ/06/811 (G13932)	7.	License under Arms and Explosive Act 1959 1. Sodium chlorate/Potassium 2. Sulphur yard (storageof sulphur)	No:12 / 90 No: 8 / 90	8.	License under Prohibition and Excise Act	
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		1. Special Denatured Spirit 2. Methyl Alcohol	21/89/90 DS-V 45/89/90 MA-1																																																												
61.	The project proponent shall comply all the conditions mentioned in ' The Companies (Corporate Social Responsibility Policy) Rules, 2014 and its amendments from time to time in a letter and spirit.	Complied. Company has embarked Budgetary provision of fund 375.0 lacs for period April 2019 to September 2019 for CSR activities. Till date company has expenditure of 216.88 lacs for CSR activities as per conditions mentioned in the companies CSR (Corporate Social Responsibility Policy) Rules, 2014 and its amendments from time to time in a letter and spirit. CSR projects (April 2019 to September 2019):																																																													
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COMPLIANCE OF ENVIRONMENTAL CLEARANCE MINISTRY'S LETTER

NO.:F. No. SEIAA/GUJ/EC/1(d)/340/2016, DATED: 20/05/2016

Period – APRIL 2019 TO SEPTEMBER 2019

By M/s. Atul Ltd, Valsad

			10	Assistance to Needy People	Villages of Valsad (Gujarat)	ARDF	3.00	2.53																										
			11	Up liftment of salt pan worker	Kharaghoda, Surendranagar (Gujarat)	AFT [ARDF] Gantar	5.00	3.60																										
			12	Promotion of Sports	Villages of Valsad (Gujarat)	ARDF	12.00	11.40																										
			13	Enhancement of rural infrastructure	Villages of Valsad (Gujarat)	AFT ARDF	10.00	6.10																										
			14	Tribal Home stay project	Kevadiya (Gujarat)	AFT	100.00	58.05																										
			15	Initiative to celebrate 125 th birth anniversary of Sri Kasturbhai Lalbhai (Founder)	Valsad (Gujarat)	AFT	120.00	30.18																										
			16	Administrative expense	---	---	10.00	10.00																										
				Total			375.00	216.88																										
62.	The project proponent shall ensure that unit complies with all the environment protection measures, risk mitigation measures and safeguards recommended in the EMP report and Risk Assessments study report as well as proposed by project proponent.	Complied. All the recommendations suggested in the EMP report and Risk assessments study report as well as proposed by us have been implemented.																																
63.	The project authorities shall earmark adequate funds to implement the conditions stipulated by SEIAA as GPCB along with the implementation scheduled for all the conditions stipulated herein. The funds so provided shall not be diverted for any other purpose.	Complied. EMP measures are implemented. A separate budget is being allocated every year to comply with all the legal requirement stipulated by SPCB, CPCB & MoEF apart from upkeep of pollution control systems and facilities. Total expenditure is given in below table including EMS implementation: Adequate fund embarked for EMP, Fy.2016-2017: <table border="1"><thead><tr><th>S.N</th><th>Parameter</th><th>Capital Cost per annum (Rs. in lacs) 2016-17</th><th>Recurring Cost per annum(Rs. in lacs)2016-17</th></tr></thead><tbody><tr><td>1</td><td>Air Pollution Control</td><td>199.01</td><td>-</td></tr><tr><td>2</td><td>Liquid Pollution Control</td><td>389.70</td><td>2573</td></tr><tr><td>3</td><td>Environmental Monitoring and Management</td><td>-</td><td>37</td></tr><tr><td>4</td><td>Solid waste Disposal</td><td>-</td><td>283</td></tr><tr><td>5</td><td>Occupational health</td><td>-</td><td>15</td></tr><tr><td>6</td><td>Green belt</td><td>-</td><td>9</td></tr><tr><td>Total</td><td></td><td>588.71</td><td>2917</td></tr></tbody></table> Adequate fund embarked for EMP, Fy.2017-2018:	S.N	Parameter	Capital Cost per annum (Rs. in lacs) 2016-17	Recurring Cost per annum(Rs. in lacs)2016-17	1	Air Pollution Control	199.01	-	2	Liquid Pollution Control	389.70	2573	3	Environmental Monitoring and Management	-	37	4	Solid waste Disposal	-	283	5	Occupational health	-	15	6	Green belt	-	9	Total		588.71	2917
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COMPLIANCE OF ENVIRONMENTAL CLEARANCE MINISTRY'S LETTER

NO.:F. No. SEIAA/GUJ/EC/1(d)/340/2016, DATED: 20/05/2016

Period – APRIL 2019 TO SEPTEMBER 2019


By M/s. Atul Ltd, Valsad

		S.N	Parameter	Capital Cost per annum (Rs. in lacs) 2017-18	Recurring Cost per annum (Rs. in lacs) 2017-18
		1	Air Pollution Control	12.15	-
		2	Liquid Pollution Control	203.98	1802
		3	Environmental Monitoring and Management	-	93
		4	Solid waste Disposal	-	485
		5	Occupational health	-	20
		6	Green belt	-	10
		Total		216.13	2410

		S.N.	Parameter	Capital Cost per annum (Rs. in lacs) 2018-19	Recurring Cost per annum (Rs. in lacs) 2018-19
		1	Air Pollution Control	42.93	-
		2	Liquid Pollution Control	134.21	3439.35
		3	Environmental Monitoring and Management	-	60.9
		4	Solid waste Disposal	-	426.1
		5	Occupational health	-	25
		6	Green belt	5.44	4.56
		Total		182.58	3955.91

64.	<p>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 website of SEIAA / SEAC/ GPCB.</p>	<p>Complied. We have informed 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 also be seen at website of SEIAA/SEAC/GPCB.</p>
	<p>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 Gujarat</p>	<p>Complied. We have given advertisement dated 29.05.2016 in local newspapers that are widely circulated in the region, one of which is given in the Gujarati language and the other in English.</p>

COMPLIANCE OF ENVIRONMENTAL CLEARANCE MINISTRY'S LETTER
NO.:F. No. SEIAA/GUJ/EC/1(d)/340/2016, DATED: 20/05/2016
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By M/s. Atul Ltd, Valsad

	language and the other in English.																									
	A copy each of the same shall be forwarded to the concerned Regional office of the Ministry.	Complied. A copy each of the same forwarded to the concerned Regional office of the ministry.																								
65.	The project proponent shall also comply with additional conditions that may be imposed by the SEAC or the SEIAA or any other competent authority for the purpose of the environmental protection and management.	Complied. No additional conditions so far imposed by the SEAC or the SEIAA or any other competent authority for the purpose of the environmental protection and management.																								
66.	It shall be mandatory for the project management to submit half-yearly compliance report in respect of the stipulated prior environmental clearance terms and condition in hard and soft copies to the regulatory authority concerned on 1st June and 1st December of each calendar year.	Complied. We regularly submit the half-yearly compliance report. The implementation of the project along with environmental actions plans are monitored by the authority time to time. We have already submitted the 6 monthly compliance reports to the authority for all six monthly periods between 2016 to 2019 & same is being updated on website. <table border="1" data-bbox="652 1281 1481 1570" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>SN</th> <th>EC Compliance Report Period</th> <th>Submission Date</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>June-16 to November-16</td> <td>27/01/2017</td> </tr> <tr> <td>2</td> <td>Dec-16 to May-17</td> <td>17/07/2017</td> </tr> <tr> <td>3</td> <td>May-17 to October-18</td> <td>30/11/2017</td> </tr> <tr> <td>4</td> <td>Nov-17 to April-18</td> <td>30/07/2018</td> </tr> <tr> <td>5</td> <td>May -18 to October-18</td> <td>31/12/2018</td> </tr> <tr> <td>6</td> <td>Nov -18 to April -19</td> <td>23/07/2019</td> </tr> <tr> <td>7</td> <td>April - 19 to September</td> <td>19/12/2019</td> </tr> </tbody> </table>	SN	EC Compliance Report Period	Submission Date	1	June-16 to November-16	27/01/2017	2	Dec-16 to May-17	17/07/2017	3	May-17 to October-18	30/11/2017	4	Nov-17 to April-18	30/07/2018	5	May -18 to October-18	31/12/2018	6	Nov -18 to April -19	23/07/2019	7	April - 19 to September	19/12/2019
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67.	Concealing factual data or submission of false / fabricated data and failure to comply with any of conditions mentioned above may result in withdrawal of this clearance and attract action under the provisions of Environment (Protection) Act, 1986.	Noted.																								
68.	The project authorities shall also adhere to the stipulations made by the Gujarat Pollution Control Board.	Complied.																								

COMPLIANCE OF ENVIRONMENTAL CLEARANCE MINISTRY'S LETTER

NO.:F. No. SEIAA/GUJ/EC/1(d)/340/2016, DATED: 20/05/2016

Period – APRIL 2019 TO SEPTEMBER 2019

By M/s. Atul Ltd, Valsad

69.	The SEIAA may revoke or suspend the clearance. If implementation of any of the above conditions is not found satisfactory.	Noted.
70.	The company in a time bound manner shall implement these conditions. The SEIAA reserves the stipulate additional conditions, if the same is found necessary.	Noted.
71.	The project authorities shall inform the GPCB, Regional Office 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.	Complied. We have communicated with the regional officer of MoEF&CC towards the status of work and financial closure time to time. We have also submitted six monthly EC Compliance report periodically in which said information were updated time to time. Consent to Establish obtained from GPCB vide letter no. GPCB/CCA-VSD-313(12)/ID:23158/306616 Dated: 17/05/2016.
72.	This environmental clearance is valid for seven years from the date of issue.	Noted.
73.	Any appeal against this environmental clearance shall lie with the National Green Tribunal, if preferred, within a period of 30 day as prescribed under section 16 of the National Green Tribunal Act, 2010.	Noted.

COMPLIANCE OF ENVIRONMENTAL CLEARANCE MINISTRY'S LETTER

NO.:F. No. SEIAA/GUJ/EC/1(d)/340/2016, DATED: 20/05/2016

Period – APRIL 2019 TO SEPTEMBER 2019

By M/s. Atul Ltd, Valsad

LIST OF ANNEXURE

ANNEXURES	PARTICULARS
ANNEXURES-I	COPY OF CTE/NOC
ANNEXURES-II	COPY OF CC&A/CTO
ANNEXURES-III	FINAL EFFLUENT DISCHARGED REPORT
ANNEXURES-IV	AMBIENT AIR MONITORING REPORT
ANNEXURES-V	STACK MONITORING REPORT
ANNEXURES-VI	WATER PERMISSION LETTER
ANNEXURES-VII	MEDICAL CHECKUP REPORT
ANNEXURES-VIII	NOISE MONITORING REPORT
ANNEXURES-IX	TRAINING REPORT
ANNEXURES-X	GROUND WATER & SOIL QUALITY REPORT
ANNEXURES-XI	ESP SPECIFICATION
ANNEXURES-XII	AGREEMENT COPY BETWEEN AMBUJA CEMENT LTD. & ATUL LTD FOR SUPPLY OF DRY ASH FROM ATUL LIMITED.
ANNEXURES-XIII	DISASTER MANAGEMENT PLAN
ANNEXURES-XIV	PREVENTIVE MAINTENANCE SCHEDULE & RECORDS



GUJARAT POLLUTION CONTROL BOARD

PARYAVARAN BHAVAN

Sector-10-A, Gandhinagar-382 010

Phone : (079) 23226295

Fax : (079) 23232156

Website : www.gpcb.gov.in

BY.RPAD

"Consent to Establish" (NOC)
CTE-60394

NO: GPCB/CCA-VSD-313(12)/ID:23158/

TO,
Mrs. ATUL LIMITED,
PLOT NO.5,6,29,30,33,34,35,37,38,80,81,84,85,91
AT & P.O-ATUL, PIN-396020,
DIST: VALSAD.

Sub: Consent to Establish (amendment) under Section 25 of Water Act 1974 and Section 21 of Air Act 1981.

Ref: Your application inward no: 106516 dated 27/04/2016 and subsequently correspondences,

Sir,

Without prejudice to the powers of this Board under the Water (Prevention and Control of Pollution) Act-1974, the Air Act-1981 and the Environment (Protection) Act-1986 and without reducing your responsibilities under the said Acts in any way, this is to inform you that this Board grants **Consent to Establish (amendment)** for expansion of production quantity at an existing industrial plant/activities located at Plot No.5,6,29,30,33,34,35,37,38,80,81,84,85,91, At & P.O--Atul, Pin-396020 Dist. Valsad for manufacturing of the following products:

Sr. No.	Product	Existing Capacity (TPM)	Proposed Capacity (TPM)	Total Capacity (TPM)
1.	Dyes	1,300.80	583.33	1,884.13
2.	Chloro - Alkali Industry	3,400.00	4,100.00	7,500.00
3.	Pesticide Technical	2,644.07	261.64	2,905.71
4.	Bulk Drugs & Pharmaceuticals	350.60	0.00	350.60
5.	Resin	2,990.90	441.67	3,432.57
6.	Other Chemicals	20,551.60	651.00	21,202.60
7.	Flavors & Fragrances	0.00	733.32	733.32
	Total	31,237.96	6,770.95	38,008.91
8.	Phosgene	2844 MT/Year	2156 MT/Year	5000 MT/Year

The Validity period of the order will be seven years from date of issue. i.e. up to 17/07/2023

SUBJECT TO THE FOLLOWING CONDITIONS:-

- The unit shall not install plant and machinery and shall not start any activities without obtaining Environment Clearance from the MOEFCC, New Delhi, Government of India.

Clean Gujarat Green Gujarat

ISO - 9001 - 2008 & ISO - 14001 - 2004 Certified Organisation

SPCCIFIC CONDITIONS:-

- (i) The unit shall manufacture the Phosgene gas in fully automated plant having multi levels of safety provisions.
- (ii) Unit will utilize the Phosgene gas immediately after its generation for their captive purpose only.
- (iii) Unit shall provide all sensor for detection of a leakage of Phosgene gas.
- (iv) Unit shall establish and maintain onsite emergency plan and carry out mock drill as per period decided.
- (v) Unit shall liable to obtain all other necessary permission from concerned agencies/organization prior commencement of Production.
- (vi) Unit shall dismantle old Phosgene Plant after commencement of new Plant.
- (vii) Unit shall submit production data of Phosgene every month to this office.
- (viii) Unit shall install online monitoring system on process stack for PM and CO.
- (ix) Unit shall install continuous Ambient Air Quality monitoring Station in their premises.
- (x) Unit shall install new 4 Kms length HDPE pipeline parallel to existing pipeline for disposal of treated waste water in the estuary of Par River at the identified point by NIO.
- (xi) Unit shall use pipeline in case of emergency like breakdown, preventive maintenance only when old pipeline is under maintenance and unit shall get prior permission from Regional Office, Vapi before use of new pipeline.
- (xii) Unit shall comply undertaking dated: 08/07/2016 given to the board.

CONDITIONS UNDER WATER ACT 1974:

1. There shall be 23392.84 KLD waste water generation after proposed expansion. Out of this 23,021.51 KLD treated in ETP and 17812.84 KLD evaporated in MEE.
2. The quantity of the domestic waste water (sewage) shall not exceed 939 KLD.
3. Unit shall explore possibility of Sewage Treatment Plant (STP) for domestic waste water and its reuse after due treatment.

CONDITIONS UNDER AIR ACT 1981:

4. There shall be no use of fuel hence there shall be no flue gas emission, from proposed production.
5. The process emission through various proposed stacks, in addition to existing stacks shall confirm to the following standards:

Stack No.	Stack attached to	Stack height in Meter	Air Pollution Control system	Parameter	Permissible Limit
1.	MPP Plant	21	Water & Alkali Scrubber	HCl	20 mg/NM ³
2.	PHIN - I & II	21	Water scrubber followed by two stage caustic scrubber with ammonia/steam injection at stack	HCl COCl ₂	20 mg/NM ³ 0.1 ppm



GUJARAT POLLUTION CONTROL BOARD

PARYAVARAN BHAVAN

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3.	Flavors Fragrances Plant	21	Water scrubber followed by caustic scrubber	HCl	20 mg/NM ³
4.	Phosgene Plant	15	Alkali & water scrubber	COCl ₂	0.1 ppm

6. The concentration of the following substances in the ambient air within the premises of the industry and at a distance of 10 meters from the source (other than the stack / vent with height of more than 9 meters from the ground level) shall not exceed the following levels:

Sr. No.	Pollutant	Time Weighted Average	Concentration in Ambient air in ug/M ³
1.	Sulphur Dioxide (SO ₂)	Annual 24 Hours	50 80
2.	Nitrogen Dioxide (NO ₂)	Annual 24 Hours	40 80
3.	Particulate Matter (Size less than 10 µm) OR PM ₁₀	Annual 24 Hours	60 100
4.	Particulate Matter (Size less than 2.5 µm) OR PM _{2.5}	Annual 24 Hours	40 60

7. All measures for the control of environmental pollution shall be provided before commencing proposed production activities.

CONDITIONS UNDER HAZ. WASTE:

8. Applicant shall have to comply with provisions of H.W. (M.H. & T.M) rules 2008 and amendment thereof.
- Industry shall provide adequate collection, storage, treatment & transportation system in accordance with the nature, quantity & compatibility of hazardous waste and shall offer their hazardous waste only to authorized operator of the ultimate disposal facility.
 - Applicant shall comply all the directives issued by Honorable Courts, notifications issued by Ministry of Environment & Forest, Department of Environment & Forest, Central Pollution Control Board and other competent authorities time to time.
 - Applicant shall comply all the guidelines published by Ministry of Environment & Forest, Department of Environment & Forest, Central Pollution Control Board and other competent authorities time to time.
 - Industry shall also comply following directives issued by the Supreme Court of India dated 14.10.2003.
 - Industry shall have to display the relevant information with regard to hazardous waste as indicated in the Court's order in W.P. No.857 of 1995 dated 14th October 2003
 - Industry shall have to display on-line data outside the main factory gate with regard to quantity and nature of hazardous chemicals being handled in the plant, including wastewater and air emissions and solid hazardous wastes generated within the factory premises

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ISO - 9001 - 2008 & ISO - 14001 - 2004 Certified Organisation

GENERAL CONDITION:

9. Adequate plantation shall be carried out all along the periphery of the industrial premises in such a way that the density of plantation is at least 1000 trees per acre of land and a green belt of 05 meters width is developed
10. The applicant shall have to submit the returns in prescribed form regarding water consumption and shall have to make payment of water cess to the Board under the Water Cess Act- 1977.
11. In case of change of ownership/management the name and address of the new owners/partners/directors/proprietor should immediately be intimated to the Board.
12. The applicant shall however, not without the prior consent of the Board bring into use any new or altered outlet for the discharge of effluent or gaseous emission or sewage waste from the proposed industrial plant. The applicant is required to make applications to this Board for this purpose in the prescribed forms under the provisions of the Water Act-1974, the Air Act-1981 and the Environment (Protection) Act-1986.
13. The concentration of Noise in ambient air within the premises of industrial unit shall not exceed following levels:
Between 6 A.M. and 10 P.M.: 75 dB (A)
Between 10 P.M. and 6 A.M.: 70 dB (A)
14. Applicant is required to comply with the manufacturing, Storage and Import of Hazardous Chemicals Rules-1989 framed under the Environment (Protection) Act-1986.
15. If it is established by any competent authority that the damage is caused due to their industrial activities to any person or his property, in that case they are obliged to pay the compensation as determined by the competent authority

For and on behalf of
Gujarat Pollution Control Board

D.P. Shah
(Smt.D. P. SHAH)
Environmental Engineer

Outwa
rd
No:363958,25/07/2016



GUJARAT POLLUTION CONTROL BOARD

PARYAVARAN BHAVAN

Sector-10-A, Gandhinagar 382 010

Phone : (079) 23222425

(079) 23232152

Fax : (079) 23232156

Website : www.gpcb.gov.in



R.P.A.D.

NO: GPCB/CCA-VSD-313(16) /ID: 23158/ 513897

Date: 17/07/2014

TO,

M/s. ATUL LIMITED,

PLOT NO.5,6,29,30,33,34,35,37,38,80,81,84,85,91

AT & P.O ATUL-396020,

TAL: VALSAD, DIST: VALSAD.

SUB: Amendment (AH- 102080) to Consolidated Consent & Authorization (CC & A) under various Environmental Acts/ Rules.

REF: 1) Your Application inward No.156104 dated: 26/04/2019.

2) CTE issued vide this office letter dated: 25/07/2016.

Sir,

The Gujarat Pollution Control Board had granted Consolidated Consents & Authorization Order No. AWH- 67717 dated 04/11/2014, Which is valid up to 03/11/2019. This order was served vide letter No. GPCB/CCA-VSD-313/ID-23158/306616 dated: 10/03/2015 is further amended with respect of following conditions.

Sr. No.	Product	Existing Capacity (TPM)	Proposed Capacity (TPM)	Total Capacity (TPM)
1.	Dyes	1,300.80	583.33	1,884.13
2.	Chloro - Alkali Industry	3,400.00	4,100.00	7,500.00
3.	Pesticide Technical	2,644.07	261.64	2,905.71
4.	Bulk Drugs & Pharmaceuticals	350.60	0.00	350.60
5.	Resin	2,990.90	441.67	3,432.57
6.	Other Chemicals	20,551.60	651.00	21,202.60
7.	Flavors & Fragrances	0.00	733.32	733.32
	Total	31,237.96	6,770.95	38,008.91
8.	Phosgene	2844 MT/Year	2156 MT/Year	5000 MT/Year

SPCCIFIC CONDITIONS:-

- The unit shall manufacture the Phosgene gas in fully automated plant having multi levels of safety provisions.
- Unit will utilize the Phosgene gas immediately after its generation for their captive purpose only.
- Unit shall submit production data of Phosgene every month to this office.
- Unit shall use pipeline in case of emergency like breakdown, preventive maintenance only when old pipeline is under maintenance and unit shall get prior permission from Regional Office, Vapi before use of new pipeline.
- Unit shall comply undertaking dated: 08/07/2016 given to the board.

M/s. Atul Limited (PCB ID-23158)

1. **CONDITIONS UNDER THE WATER (PREVENTION AND CONTROL OF POLLUTION) ACT 1974:**

1.1 The quantity of total fresh water consumption shall not exceed 28358 KLD (21950 KLD Fresh + 3073 KLD Rain water + 3335 KLD recycled water) as per break up mentioned in form D submitted for consent application under the Water (Prevention and Control of Pollution) Act-1974. Source of fresh water shall only from local body.

- a) Industrial: 27419 KLD
- b) Domestic: 402 KLD
- c) Gardening: 537 KLD

1.2 Total quantity of effluent generated from manufacturing process and other ancillary operation shall not exceed 24096 KLD.

1.3 20514 KLD waste water shall be treated in ETP and then discharged into Par river through 4 km pipeline.

1.4 1000 KLD waste water shall be sent to RO/MEE.

1.5 800 KLD RO permeates shall be recycled into cooling tower.

1.6 200 KLD RO reject shall be sent to MEE.

1.7 190 KLD recovered MEE water shall be recycled into cooling tower.

1.8 10 MT MEE salt shall be sent to TSDF.

1.9 2500 KLD waste water shall be sent to RO/MEE.

1.10 2000 KLD RO permeates shall be recycled into cooling tower.

1.11 150 KLD RO reject water shall be utilized for Quenching/Ash cooling.

1.12 350 KLD RO reject shall be sent to MEE.

1.13 345 KLD recovered MEE water shall be recycled into Boiler.

1.14 5 MT MEE salt shall be sent to TSDF.

1.15 82 KLD high COD waste water shall be sent to incinerator.

1.16 The quantity of the domestic waste water (sewage) shall not exceed 322 KLD.

3.17 **TRADE EFFLUENT**

3.17.1 The treated effluent from the industrial unit shall conform to the GPCB norms mentioned in below table:

PARAMETERS	GPCB NORMS
pH	5.5 TO 9
Temperature	40 ^o C



GUJARAT POLLUTION CONTROL BOARD

PARYAVARAN BHAVAN

Sector-10-A, Gandhinagar 382 010

Phone : (079) 23222425

(079) 23232152

Fax : (079) 23232156

Website : www.gpcb.gov.in

Suspended Solids	100 mg/l
Oil and Grease	10 mg/l
Phenolic Compounds	5 mg/l
Cyanides	0.2 mg/l
Fluorides	2 mg/l
Sulphides	2 mg/l
Ammonical Nitrogen	50 mg/l
Arsenic	0.2 mg/l
Total Chromium	2 mg/l
Hexavalent Chromium	1 mg/l
Copper	3 mg/l
Lead	2 mg/l
Mercury	0.01 mg/l
Nickel	5 mg/l
Zinc	15 mg/l
Cadmium	2 mg/l
Phosphates as P	5 mg/l
BOD (3 days at 27°C)	100 mg/l
COD	250 mg/l
Insecticides/Pesticides	Absent
Sodium Absorption ratio	26
Phosphate	5 mg/l
Manganese	2 mg/l
Tin	0.1 mg/l
Bio-assay test	90% Survival of fish after 96 hour in 100% effluent.

All efforts shall be made to remove colour & unpleasant odor as far as practicable.

3.17.2 The final treated effluent from central ETP conforming to the above standards shall be collected in the guard pond and then discharged through closed pipeline to estuary zone of river Par via diffuser.

3.17.3 Domestic effluent shall be disposed off through septic tank/soak pit system, in case of overflow shall be sent to ETP.

2. CONDITIONS UNDER THE AIR (PREVENTION AND CONTROL OF POLLUTION) ACT 1981:

2.1 There shall be no use of fuel hence there shall be no flue gas emission, from proposed production.

2.2 The process emission through various proposed stacks, in addition to existing stacks shall confirm to the following standards:

Stack No.	Stack attached to	Stack height in Meter	Air Pollution Control system	Parameter	Permissible Limit
1.	MPP Plant	21	Water & Alkali Scrubber	HCl	20 mg/NM3

2.	PHIN – I & II	21	Water scrubber followed by two stage caustic scrubber with ammonia/steam injection at stack	HCl COCl ₂	20 mg/NM3 0.1 ppm
3.	Flavors Fragrances Plant	21	Water scrubber followed by caustic scrubber	HCl	20 mg/NM3
4.	Phosgene Plant	15	Alkali & water scrubber	COCl ₂	0.1 ppm

2.3 The concentration of the following substances in the ambient air within the premises of the industry and at a distance of 10 meters from the source (other than the stack / vent with height of more than 9 meters from the ground level) shall not exceed the following levels:

Sr. No.	Pollutant	Time Weighted Average	Concentration in Ambient air in µg/M ³
1.	Sulphur Dioxide (SO ₂)	Annual 24 Hours	50 80
2.	Nitrogen Dioxide (NO ₂)	Annual 24 Hours	40 80
3.	Particulate Matter (Size less than 10 µm) OR PM ₁₀	Annual 24 Hours	60 100
4.	Particulate Matter (Size less than 2.5 µm) OR PM _{2.5}	Annual 24 Hours	40 60
5.	Carbon Monoxide (CO) mg/m ³	8 Hours 1 Hour	02 04

3. **M/S. ATUL LIMITED**, is hereby granted an authorization based on the enclosed signed inspection report for generation, collection, reception, storage, transport, reuse, recycling, recovery, pre-processing, co-processing, utilization, treatment, disposal or any other use of hazardous or other wastes or both on the premises situated **PLOT NO: 5,6,29,30,33,34,35,37,38,80,81,84,85,91, AT & P.O-ATUL, PIN-396020, DIST: VALSAD.**

Details of Authorization:

Sr. No.	Category of Hazardous Waste as per the Schedules I, II and III of these rules	Authorized mode of disposal or recycling or utilization, or co-processing, etc.	Quantity MT/Month
1.	Brine purification sludge 16.3	Collection, storage, Transportation, disposal at OWN TSDF OR disposal at common TSDF at SEPPL OR disposal at common TSDF at BEIL	242.50
2.	Still / Other residue 29.1	Collection, Storage, Transportation, Disposal by Incineration at own Incinerator OR co-processing at RSPL, Panoli OR co-processing at cement industry OR co-processing at SEPPL OR co-processing at GGEPIIL OR disposal at common facility at BEIL	63.66



GUJARAT POLLUTION CONTROL BOARD

PARYAVARAN BHAVAN

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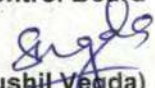
Fax : (079) 23232156

Website : www.gpcb.gov.in

3	Salt from MEE	37.1	Collection, storage, Transportation, disposal at OWN TSDF OR selling to actual reuser OR disposal at common TSDF at SEPPL OR disposal at common TSDF at BEIL	1,678.71
4.	OCBC/OCT	20.3	Collection, Storage, Transportation, Disposal by Incineration at own Incinerator OR co-processing at RSPL, Panoli OR co-processing at cement industry OR co-processing at SEPPL OR co-processing at GGEPIIL OR disposal at common facility at BEIL	154.042
5.	Waste from Pharma intermediates	28.1	Collection, Storage, Transportation, Disposal by Incineration at own Incinerator OR co-processing at RSPL, Panoli OR co-processing at cement industry OR co-processing at SEPPL OR co-processing at GGEPIIL OR disposal at common facility at BEIL	28.97
6.	HCl (30%)	B15	Collection, Storage, In house treatment within premises.	417

- All measures for the control of environmental pollution shall be provided before commencing production.
- All other conditions of CCA order **AWH- 67717** dated **04/11/2014** issued vide No. **GPCB/CCA-VSD-313/ID-23158/306616** dated: **10/03/2015** shall remain unchanged.

For and on behalf of
Gujarat Pollution Control Board


(Sushil Vagda)
Senior Environmental Engineer


TEST CERTIFICATE

QR/5.10/14

Customer's Name and Address :

Page: 1 of 2

M/S. ATUL LIMITED
P.O ATUL-396 020,
DIST: VALSAD.
Test Report No. : PL/AT 0210
Issue Date : 04/05/2019
Customer's Ref. : Email

Description of Sample : Final Discharge	Quantity/No. of Samples : 10 Lit/One
Date of Sampling : 27/04/2019	Sampling Procedure : IS:3025
Sampling by : Pollucon Laboratories Pvt. Ltd.	Protocol (purpose) : Env. Monitoring
Sample Receipt Date : 28/04/2019	Lab ID. : AT/1904/02
Packing/ Seal : Sealed	Test Parameters : As per table
Date of Starting of Test : 28/04/2019	Date of Completion of Test : 04/05/2019

RESULT TABLE

SR. NO.	TEST PARAMETERS	UNIT	RESULT	PERMISSIBLE LIMIT**	TEST METHOD
			Final Discharge		
1	pH	--	7.45	5.5 to 9.0	IS: 3025 (Part - 11) (Electrometric Method)
2	Temperature	°C	31.9	40	IS: 3025 (Part - 9)
3	Colour	Co-pt	130	--	IS: 3025 (Part - 4)
4	Suspended Solids	mg/L	86	100	IS:3025 (Part - 17)
5	Oil & Grease	mg/L	3.6	10	APHA(22 nd Edition) 5520 B
6	Phenolic Compound	mg/L	0.45	5.0	IS3025(P43)
7	Cyanides as CN	mg/L	BDL*	0.2	APHA (22 nd Edition) 4500-CN- EColorimetric Method
8	Fluorides as F	mg/L	1.2	2.0	APHA (22 nd Edition) 4500 F D SPANDS
9	Sulphide as S	mg/L	1.6	2.0	APHA (22 nd Edition) 4500-S
10	Ammonical Nitrogen as NH ₃	mg/L	40	50	IS3025(P34)88Cla.2.3
11	Arsenic as AS	mg/L	BDL*	0.2	AAS-APHA (22 nd Edition) 3114 B
12	Total Chromium as Cr ⁺³	mg/L	BDL*	2.0	AAS- APHA (22 nd Edition) 3111 B
13	Hexavalent Chromium as Cr ⁺⁶	mg/L	BDL*	1.0	APHA (22 nd Edition) - 3500 - Cr B : Colorimetric method
14	Copper as Cu	mg/L	0.41	3.0	AAS- APHA (22 nd Edition) 3111 B
15	Lead as Pb	mg/L	BDL*	2.0	AAS- APHA (22 nd Edition)3111 B
16	Mercury as Hg	mg/L	BDL*	0.01	AAS-APHA (22 nd Edition) 3112 B

Continue...

Macky Suraliwala
Sr. Scientist
Dr. Arun Bajpai
Lab Manager (Q)

● FSSAI Approved Lab ● Recognised by MoEF, New Delhi Under Sec. 12 ● GPCB approved ● ISO 14001 ● OHSAS 18001 ● ISO 9001

Note: This report is subject to terms & conditions mentioned overleaf.

"Pollucon House", Plot No. 5 & 6, Opp. Balaji Industrial Society, Old Shantinath Silk Mill Lane, Near Gaytri Farsan Mart,
 Navjivan Circle, Udhana Magdalla Road, Surat-395007, Gujarat, India.

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TEST CERTIFICATE

QR/5.10/14

Customer's Name and Address :

Page: 2 of 2

M/S. ATUL LIMITED
P.O ATUL-396 020,
DIST: VALSAD.

Test Report No. : **PL/AT 0210**
Issue Date : **04/05/2019**
Customer's Ref. : **Email**

RESULT TABLE

SR. NO.	TEST PARAMETERS	UNIT	RESULT	PERMISSIBLE LIMIT**	TEST METHOD
			Final Discharge		
17	Nickel as Ni	mg/L	0.075	5.0	AAS- APHA (22 nd Edition) 3111 B
18	Zinc as Zn	mg/L	0.96	15	AAS- APHA (22 nd Edition) 3111 B
19	Cadmium as Cd	mg/L	BDL*	2.0	APHA (22 nd Edition) 3500 Cd Dithizone Method
20	Phosphates as P	mg/L	1.48	5.0	APHA (22 nd Edition) 4500 C
21	BOD (5 Days @ 20 °C)	mg/L	65	100	IS 3025 (P44)
22	COD	mg/L	210	250	APHA (22 nd Edition) 5520-B Open Reflux
23	Sodium Absorption Ratio	--	8.35	26	By Calculation
24	Manganese as Mn	mg/L	0.25	2.0	AAS- APHA (22 nd Edition) 3111B
25	Tin as Sn	mg/L	BDL*	0.1	AAS- APHA (22 nd Edition) 3111B
26	Bio Assay test	%	100 % survival of fish after 96 hour in 100% effluent	90 % survival of fish after 96 hour in 100% effluent	OECD 203 B/IS: 6582-1971
27	Pesticides/Insecticides**	mg/L	BDL*	Absent	SOP/INS/WW/01 on EPA 525.2 and 8141 A SOP/INS/WW/05 based on EPA 508 SOP/INS/WW/04 Based on EPA 8141 A

**Details provided by customer. **attached pesticides list.

BDL*: Below Detection Limit, Minimum Detection Limit, Oil & Grease: 2.0 mg/L, Phenolic Compound : 0.005 mg/L ,Cyanides : 0.0001 mg/L, Sulphides:0.025 mg/L, Arsenic: 0.001 mg/L, Mercury : 0.005 mg/L, Cadmium: 0.002 mg/L, Insecticides/Pesticides: 0.1 mg/L, Tin: 0.005 mg/L, Hexavalent Chromium:0.05 mg/L, Nickel :0.02 mg/L, Manganese: 0.01 mg/L, Lead: 0.005 mg/L.

Macky Suraliwala
Sr. Scientist

Dr. Arun Bajpai
Lab Manager (Q)

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TEST CERTIFICATE

QF/7.8/24-WT
Page: 1 of 2

Customer's Name and Address :

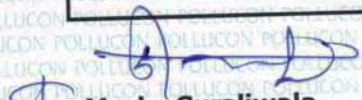
M/S. ATUL LIMITED P.O ATUL-396 020, DIST: VALSAD.	Test Report No. : PL/AT 0261 Issue Date : 01/06/2019 Customer's Ref. : Email
--	---

Description of Sample : Final Discharge Date of Sampling : 24/05/2019 Sampling by : Pollucon Laboratories Pvt. Ltd. Sample Receipt Date : 25/05/2019 Packing/ Seal : Sealed Date of Starting of Test : 25/05/2019	Quantity/No. of Samples : 10 Lit/One Sampling Procedure : IS:3025 Protocol (purpose) : Env. Monitoring Lab ID. : AT/1905/02 Test Parameters : As per table Date of Completion of Test : 01/06/2019
--	---

RESULT TABLE

SR. NO.	TEST PARAMETERS	UNIT	RESULT	PERMISSIBLE LIMIT**	TEST METHOD
			Final Discharge		
1	pH	--	8.25	5.5 to 9.0	IS: 3025 (Part - 11) (Electrometric Method)
2	Temperature	°C	32.4	40	IS: 3025 (Part - 9)
3	Colour	Co-pt	150	--	IS: 3025 (Part - 4)
4	Suspended Solids	mg/L	84	100	IS:3025 (Part - 17)
5	Oil & Grease	mg/L	4.4	10	APHA(22 nd Edition) 5520 B
6	Phenolic Compound	mg/L	0.35	5.0	IS3025(P43)
7	Cyanides as CN	mg/L	BDL*	0.2	APHA (22 nd Edition) 4500-CN- EColorimetric Method
8	Fluorides as F	mg/L	0.75	2.0	APHA (22 nd Edition) 4500 F D SPANDS
9	Sulphide as S	mg/L	1.7	2.0	APHA (22 nd Edition) 4500-S
10	Ammonical Nitrogen as NH ₃	mg/L	44	50	IS3025(P34)88Cla.2.3
11	Arsenic as AS	mg/L	BDL*	0.2	AAS-APHA (22 nd Edition) 3114 B
12	Total Chromium as Cr ⁺³	mg/L	BDL*	2.0	AAS- APHA (22 nd Edition) 3111 B
13	Hexavalent Chromium as Cr ⁺⁶	mg/L	BDL*	1.0	APHA (22 nd Edition) - 3500 - Cr B : Colorimetric method
14	Copper as Cu	mg/L	0.29	3.0	AAS- APHA (22 nd Edition) 3111 B
15	Lead as Pb	mg/L	BDL*	2.0	AAS- APHA (22 nd Edition)3111 B
16	Mercury as Hg	mg/L	BDL*	0.01	AAS-APHA (22 nd Edition) 3112 B

Continue...


Macky Suraliwala
Sr. Scientist


Dr. Arun Bajpai
Lab Manager (Q)

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"Pollucon House", Plot No. 5 & 6, Opp.Balaji Industrial Society, Old Shantinath Silk Mill Lane, Near Gaytri Farsan Mart,
 Navjivan Circle,Udhana Magdalla Road, Surat-395007, Gujarat, India.

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TEST CERTIFICATE

QF/7.8/24-WT

Page: 2 of 2

Customer's Name and Address :

M/S. ATUL LIMITED
P.O ATUL-396 020,
DIST: VALSAD.

Test Report No. : **PL/AT 0261**

Issue Date : **01/06/2019**

Customer's Ref. : **Email**

RESULT TABLE

SR. NO.	TEST PARAMETERS	UNIT	RESULT	PERMISSIBLE LIMIT**	TEST METHOD
			Final Discharge		
17	Nickel as Ni	mg/L	0.11	5.0	AAS- APHA (22 nd Edition) 3111 B
18	Zinc as Zn	mg/L	1.2	15	AAS- APHA (22 nd Edition) 3111 B
19	Cadmium as Cd	mg/L	BDL*	2.0	APHA (22 nd Edition) 3500 Cd Dithizone Method
20	Phosphates as P	mg/L	1.65	5.0	APHA (22 nd Edition) 4500 C
21	BOD (5 Days @ 20 °C)	mg/L	70	100	IS 3025 (P44)
22	COD	mg/L	240	250	APHA (22 nd Edition) 5520-B Open Reflux
23	Sodium Absorption Ratio	--	24	26	By Calculation
24	Manganese as Mn	mg/L	0.35	2.0	AAS- APHA (22 nd Edition) 3111B
25	Tin as Sn	mg/L	BDL*	0.1	AAS- APHA (22 nd Edition) 3111B
26	Bio Assay test	%	100 % survival of fish after 96 hour in 100% effluent	90 % survival of fish after 96 hour in 100% effluent	OECD 203 B/IS: 6582-1971
27	Pesticides/Insecticides**	mg/L	BDL*	Absent	SOP/INS/WW/01 on EPA 525.2 and 8141 A
					SOP/INS/WW/05 based on EPA 508
					SOP/INS/WW/04 Based on EPA 8141 A

**Details provided by customer. **attached pesticides list.

BDL*: Below Detection Limit, Minimum Detection Limit, Oil & Grease: 2.0 mg/L, Phenolic Compound : 0.005 mg/L, Cyanides : 0.0001 mg/L, Sulphides:0.025 mg/L, Arsenic: 0.001 mg/L, Mercury : 0.005 mg/L, Cadmium: 0.002 mg/L, Insecticides/Pesticides: 0.1 mg/L, Tin: 0.005 mg/L, Hexavalent Chromium:0.05 mg/L, Nickel :0.02 mg/L, Manganese: 0.01 mg/L, Lead: 0.005 mg/L.

Macky Suraliwala
Sr. Scientist

Dr. Arun Bajpai
Lab Manager (Q)

● FSSAI Approved Lab ● Recognised by MoEF, New Delhi Under Sec. 12 of Environmental Protection Act 1986 ● GPCB approved ● ISO 14001 ● OHSAS 18001 ● ISO 9001

Note: This report is subject to terms & conditions mentioned overleaf.

"Pollucon House", Plot No. 5 & 6, Opp.Balaji Industrial Society, Old Shantinath Silk Mill Lane, Near Gaytri Farsan Mart, Navjivan Circle,Udhana Magdalla Road, Surat-395007, Gujarat, India.

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TEST CERTIFICATE

QF/7.8/24-WT

Page: 1 of 2

Customer's Name and Address :

M/S. ATUL LIMITED P.O ATUL-396 020, DIST: VALSAD.	Test Report No. :	PL/AT 0312A	
	Issue Date :	04/07/2019	
Customer's Ref. :		Email	
Description of Sample :	Final Discharge	Quantity/No. of Samples :	10 Lit/One
Date of Sampling :	26/06/2019	Sampling Procedure :	IS:3025
Sampling by :	Pollucon Laboratories Pvt. Ltd.	Protocol (purpose) :	Env. Monitoring
Sample Receipt Date :	27/06/2019	Lab ID. :	AT/1906/02
Packing/ Seal :	Sealed	Test Parameters :	As per table
Date of Starting of Test :	27/06/2019	Date of Completion of Test :	04/07/2019

RESULT TABLE

SR. NO.	TEST PARAMETERS	UNIT	RESULT	PERMISSIBLE LIMIT**	TEST METHOD
			Final Discharge		
1	pH	--	8.20	5.5 to 9.0	IS 3025 (Part-11) 2017 Electrometric Method
2	Temperature	°C	30	40	IS 3025 (Part-9) 2017
3	Colour	Co-pt	110	--	IS 3025 (Part-4) 2017
4	Suspended Solids	mg/L	92	100	IS 3025 (Part - 17) 2017
5	Oil & Grease	mg/L	3.6	10	APHA (23 rd Edition 2017) 5520 B
6	Phenolic Compound	mg/L	0.28	5.0	IS 3025 (PART-43) 2019 Aminoantipyrene Method
7	Cyanides as CN	mg/L	BDL*	0.2	APHA (23 rd Edition 2017) 4500 CN E Colorimetric Method
8	Fluorides as F	mg/L	0.70	2.0	APHA (23 rd Edition 2017) 4500 F D SPANDS Method
9	Sulphide as S	mg/L	1.2	2.0	APHA (23 rd Edition 2017) 4500 S2 F Iodometric method
10	Ammonical Nitrogen as NH ₃	mg/L	42	50	IS 3025 (Part-34) 2019 Nesslerization Method
11	Arsenic as AS	mg/L	BDL*	0.2	APHA (23 rd Edition 2017) 3114 B
12	Total Chromium as Cr ⁺³	mg/L	BDL*	2.0	APHA (23 rd Edition 2017) 3111 B
13	Hexavalent Chromium as Cr ⁺⁶	mg/L	BDL*	1.0	APHA (23 rd Edition 2017) 3500 Cr B Colorimetric method
14	Copper as Cu	mg/L	0.24	3.0	APHA (23 rd Edition 2017) 3111 B
15	Lead as Pb	mg/L	BDL*	2.0	APHA (23 rd Edition 2017) 3111 B
16	Mercury as Hg	mg/L	BDL*	0.01	IS 3025 (Part-48) 2019

Continue...

Mack
Macky Suraliwala
Sr. Scientist

Arun
Dr. Arun Bajpai
Lab Manager (Q)

Note: This report is subject to terms & conditions mentioned overleaf.

- FSSAI Approved Lab
- Recognised by MoEF, New Delhi Under Sec. 12 of Environmental (Protection) Act-1986
- GPCB approved schedule II auditor
- ISO 14001 : 2004
- OHSAS 18001 : 2007
- ISO 9001 : 2008

"Pollucon House", Plot No.5/6, Opp.Balaji Industrial Society, Old Shantinath Silk Mill Lane, Near Gaytri Farsan Mart, Navjivan Circle, Udhana Magdalla Road, Surat-395007, Gujarat, India.

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TEST CERTIFICATE

QF/7.8/24-WT

Page: 2 of 2

Customer's Name and Address :

M/S. ATUL LIMITED P.O ATUL-396 020, DIST: VALSAD.	Test Report No. : PL/AT 0312A
	Issue Date : 04/07/2019
	Customer's Ref. : Email

RESULT TABLE

SR. NO.	TEST PARAMETERS	UNIT	RESULT	PERMISSIBLE LIMIT**	TEST METHOD
			Final Discharge		
17	Nickel as Ni	mg/L	0.16	5.0	APHA (23 rd Edition 2017) 3111 B
18	Zinc as Zn	mg/L	1.48	15	APHA (23 rd Edition 2017) 3111 B
19	Cadmium as Cd	mg/L	BDL*	2.0	APHA (23 rd Edition 2017) 3111 B
20	Phosphates as P	mg/L	1.70	5.0	APHA (23 rd Edition 2017) 4500 C
21	BOD (5 Days @ 20 °C)	mg/L	57	100	IS 3025 (PART-44) 2019
22	COD	mg/L	230	250	APHA (23 rd Edition 2017) 5220 B Open Reflux Method
23	Sodium Absorption Ratio	--	22	26	By Calculation
24	Manganese as Mn	mg/L	0.30	2.0	APHA (23 rd Edition 2017) 3111 B
25	Tin as Sn	mg/L	BDL*	0.1	APHA (23 rd Edition 2017) 3111 B
26	Bio Assay test	%	100 % survival of fish after 96 hour in 100% effluent	90 % survival of fish after 96 hour in 100% effluent	OECD 203 B/IS: 6582-2001
27	Pesticides/Insecticides**	mg/L	BDL*	Absent	USEPA 508 1995
					USEPA 525.2 1995

**Details provided by customer. **attached pesticides list.

BDL*: Below Detection Limit, Minimum Detection Limit, Cyanides : 0.01 mg/L, Sulphides:0.1 mg/, Arsenic: 0.001 mg/L, Chromium : 0.05 mg/L, Hexavalent Chromium:0.5 mg/L, Copper as Cu:0.04 mg/L, Lead: 0.02 mg/L. Mercury : 0.001 mg/L, Cadmium: 0.004 mg/L, Insecticides/Pesticides: 0.1 mg/L, Tin: 0.005 mg/L, Manganese: 0.03 mg/L

Mack
Macky Suraliwala
Sr. Scientist

Arun
Dr. Arun Bajpai
Lab Manager (Q)

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TEST CERTIFICATE

QF/7.8/24-WT

Page: 1 of 2

Customer's Name and Address :

M/S. ATUL LIMITED P.O ATUL-396 020, DIST: VALSAD.	Test Report No. : PL/AT 0263A
	Issue Date : 07/08/2019
	Customer's Ref. : Email
Description of Sample : Final Discharge	Quantity/No. of Samples : 10 Lit/One
Date of Sampling : 27/07/2019	Sampling Procedure : IS:3025
Sampling by : Pollucon Laboratories Pvt. Ltd.	Protocol (purpose) : Env. Monitoring
Sample Receipt Date : 28/07/2019	Lab ID. : AT/1907/02
Packing/ Seal : Sealed	Test Parameters : As per table
Date of Starting of Test : 28/07/2019	Date of Completion of Test : 06/08/2019

RESULT TABLE

SR. NO.	TEST PARAMETERS	UNIT	RESULT	PERMISSIBLE LIMIT**	TEST METHOD
			Final Discharge		
1	pH	--	7.95	5.5 to 9.0	IS 3025 (Part-11) 2017 Electrometric Method
2	Temperature	°C	31.6	40	IS 3025 (Part-9) 2017
3	Colour	Co-pt	125	--	IS 3025 (Part-4) 2017
4	Suspended Solids	mg/L	86	100	IS 3025 (Part - 17) 2017
5	Oil & Grease	mg/L	7.2	10	APHA (23 rd Edition 2017) 5520 B
6	Phenolic Compound	mg/L	0.55	5.0	IS 3025 (PART-43) 2019 Aminoantipyrene Method
7	Cyanides as CN	mg/L	BDL*	0.2	APHA (23 rd Edition 2017) 4500 CN E Colorimetric Method
8	Fluorides as F	mg/L	0.55	2.0	APHA (23 rd Edition 2017) 4500 F D SPANDS Method
9	Sulphide as S	mg/L	1.8	2.0	APHA (23 rd Edition 2017) 4500 S2 F Iodometric method
10	Ammonical Nitrogen as NH ₃	mg/L	39	50	IS 3025 (Part-34) 2019 Nesslerization Method
11	Arsenic as AS	mg/L	BDL*	0.2	APHA (23 rd Edition 2017) 3114 B
12	Total Chromium as Cr ⁺³	mg/L	BDL*	2.0	APHA (23 rd Edition 2017) 3111 B
13	Hexavalent Chromium as Cr ⁺⁶	mg/L	BDL*	1.0	APHA (23 rd Edition 2017) 3500 Cr B Colorimetric method
14	Copper as Cu	mg/L	0.16	3.0	APHA (23 rd Edition 2017) 3111 B
15	Lead as Pb	mg/L	BDL*	2.0	APHA (23 rd Edition 2017) 3111 B
16	Mercury as Hg	mg/L	BDL*	0.01	IS 3025 (Part-48) 2019

Continue...

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TEST CERTIFICATE

QF/7.8/24-WT

Page: 2 of 2

Customer's Name and Address :

M/S. ATUL LIMITED P.O ATUL-396 020, DIST: VALSAD.	Test Report No. : PL/AT 0263A
	Issue Date : 07/08/2019
	Customer's Ref. : Email

RESULT TABLE

SR. NO.	TEST PARAMETERS	UNIT	RESULT	PERMISSIBLE	TEST METHOD
			Final Discharge	LIMIT**	
17	Nickel as Ni	mg/L	0.11	5.0	APHA (23 rd Edition 2017) 3111 B
18	Zinc as Zn	mg/L	1.75	15	APHA (23 rd Edition 2017) 3111 B
19	Cadmium as Cd	mg/L	BDL*	2.0	APHA (23 rd Edition 2017) 3111 B
20	Phosphates as P	mg/L	2.10	5.0	APHA (23 rd Edition 2017) 4500 C
21	BOD (5 Days @ 20 °C)	mg/L	64	100	IS 3025 (PART-44) 2019
22	COD	mg/L	210	250	APHA (23 rd Edition 2017) 5220 B Open Reflux Method
23	Sodium Absorption Ratio	--	20	26	By Calculation
24	Manganese as Mn	mg/L	0.45	2.0	APHA (23 rd Edition 2017) 3111 B
25	Tin as Sn	mg/L	BDL*	0.1	APHA (23 rd Edition 2017) 3111 B
26	Bio Assay test	%	100 % survival of fish after 96 hour in 100% effluent	90 % survival of fish after 96 hour in 100% effluent	OECD 203 B/IS: 6582-2001
27	Pesticides/Insecticides**	mg/L	BDL*	Absent	USEPA 508 1995
					USEPA 525.2 1995

**Details provided by customer. **attached pesticides list.

BDL*: Below Detection Limit, Minimum Detection Limit, Cyanides : 0.01 mg/L, Sulphides:0.1 mg/, Arsenic: 0.001 mg/L, Chromium : 0.05 mg/L, Hexavalent Chromium:0.5 mg/L, Copper as Cu:0.04 mg/L, Lead: 0.02 mg/L. Mercury : 0.001 mg/L, Cadmium: 0.004 mg/L, Insecticides/Pesticides: 0.1 mg/L, Tin: 0.005 mg/L, Manganese: 0.03 mg/L

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Page: 1 of 2

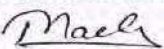
Customer's Name and Address :

M/S. ATUL LIMITED P.O ATUL-396 020, DIST: VALSAD.	Test Report No. : PL/AT 0314A Issue Date : 06/09/2019 Customer's Ref. : Email
Description of Sample : Final Discharge Date of Sampling : 29/08/2019 Sampling by : Pollucon Laboratories Pvt. Ltd. Sample Receipt Date : 30/08/2019 Packing/ Seal : Sealed Date of Starting of Test : 30/08/2019	Quantity/No. of Samples : 10 Lit/One Sampling Procedure : IS:3025 Protocol (purpose) : Env. Monitoring Lab ID. : AT/1908/02 Test Parameters : As per table Date of Completion of Test : 06/09/2019

RESULT TABLE

SR. NO.	TEST PARAMETERS	UNIT	RESULT	PERMISSIBLE LIMIT**	TEST METHOD
			Final Discharge		
1	pH	--	8.10	5.5 to 9.0	IS 3025 (Part-11) 2017 Electrometric Method
2	Temperature	°C	32.6	40	IS 3025 (Part-9) 2017
3	Colour	Co-pt	90	--	IS 3025 (Part-4) 2017
4	Suspended Solids	mg/L	92	100	IS 3025 (Part - 17) 2017
5	Oil & Grease	mg/L	5.8	10	APHA (23 rd Edition 2017) 5520 B
6	Phenolic Compound	mg/L	0.14	5.0	IS 3025 (Part-43) 2019 Aminoantipyrene Method
7	Cyanides as CN	mg/L	BDL*	0.2	APHA (23 rd Edition 2017) 4500 CN E Colorimetric Method
8	Fluorides as F	mg/L	0.60	2.0	APHA (23 rd Edition 2017) 4500 F D SPANDS Method
9	Sulphide as S	mg/L	1.6	2.0	APHA (23 rd Edition 2017) 4500 S2 F Iodometric method
10	Ammonical Nitrogen as NH ₃	mg/L	46	50	IS 3025 (Part-34) 2019 Nesslerization Method
11	Arsenic as AS	mg/L	BDL*	0.2	APHA (23 rd Edition 2017) 3114 B
12	Total Chromium as Cr ⁺³	mg/L	BDL*	2.0	APHA (23 rd Edition 2017) 3111 B
13	Hexavalent Chromium as Cr ⁺⁶	mg/L	BDL*	1.0	APHA (23 rd Edition 2017) 3500 Cr B Colorimetric method
14	Copper as Cu	mg/L	0.12	3.0	APHA (23 rd Edition 2017) 3111 B
15	Lead as Pb	mg/L	BDL*	2.0	APHA (23 rd Edition 2017) 3111 B
16	Mercury as Hg	mg/L	BDL*	0.01	IS 3025 (Part-48) 2019

Continue...


Macky Suraliwalla
Sr. Scientist


Dr. Arun Bajpai
Lab Manager (Q)

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TEST CERTIFICATE

QF/7.8/24-WT

Page: 2 of 2

Customer's Name and Address :

M/S. ATUL LIMITED P.O ATUL-396 020, DIST: VALSAD.	Test Report No. : PL/AT 0314A
	Issue Date : 06/09/2019
	Customer's Ref. : Email

RESULT TABLE

SR. NO.	TEST PARAMETERS	UNIT	RESULT	PERMISSIBLE	TEST METHOD
			Final Discharge	LIMIT**	
17	Nickel as Ni	mg/L	0.075	5.0	APHA (23 rd Edition 2017) 3111 B
18	Zinc as Zn	mg/L	2.10	15	APHA (23 rd Edition 2017) 3111 B
19	Cadmium as Cd	mg/L	BDL*	2.0	APHA (23 rd Edition 2017) 3111 B
20	Phosphates as P	mg/L	1.75	5.0	APHA (23 rd Edition 2017) 4500 C
21	BOD (5 Days @ 20 °C)	mg/L	75	100	IS 3025 (Part-44) 2019
22	COD	mg/L	240	250	APHA (23 rd Edition 2017) 5220 B Open Reflux Method
23	Sodium Absorption Ratio	--	22	26	By Calculation
24	Manganese as Mn	mg/L	0.35	2.0	APHA (23 rd Edition 2017) 3111 B
25	Tin as Sn	mg/L	BDL*	0.1	APHA (23 rd Edition 2017) 3111 B
26	Bio Assay test	%	100 % survival of fish after 96 hour in 100% effluent	90 % survival of fish after 96 hour in 100% effluent	OECD 203 B/IS: 6582-2001
27	Pesticides/Insecticides**	mg/L	BDL*	Absent	USEPA 508 1995
					USEPA 525.2 1995

**Details provided by customer. **attached pesticides list.

BDL*: Below Detection Limit, Minimum Detection Limit, Cyanides : 0.01 mg/L, Sulphides:0.1 mg/, Arsenic: 0.001 mg/L, Chromium : 0.05 mg/L, Hexavalent Chromium:0.5 mg/L, Copper as Cu:0.04 mg/L, Lead: 0.02 mg/L, Mercury : 0.001 mg/L, Cadmium: 0.004 mg/L, Insecticides/Pesticides: 0.1 mg/L, Tin: 0.005 mg/L, Manganese: 0.03 mg/L

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Page: 1 of 2

Customer's Name and Address :

M/S. ATUL LIMITED P.O ATUL-396 020, DIST: VALSAD.	Test Report No. : PL/AT 0363A
	Issue Date : 07/10/2019
	Customer's Ref. : Email
Description of Sample : Final Discharge	Quantity/No. of Samples : 10 Lit/One
Date of Sampling : 28/09/2019	Sampling Procedure : IS:3025
Sampling by : Pollucon Laboratories Pvt. Ltd.	Protocol (purpose) : Env. Monitoring
Sample Receipt Date : 30/09/2019	Lab ID. : AT/1909/02
Packing/ Seal : Sealed	Test Parameters : As per table
Date of Starting of Test : 30/09/2019	Date of Completion of Test : 07/10/2019

RESULT TABLE

SR. NO.	TEST PARAMETERS	UNIT	RESULT	PERMISSIBLE LIMIT**	TEST METHOD
			Final Discharge		
1	pH	--	8.30	5.5 to 9.0	IS 3025 (Part-11) 2017 Electrometric Method
2	Temperature	°C	31.9	40	IS 3025 (Part-9) 2017
3	Colour	Co-pt	80	--	IS 3025 (Part-4) 2017
4	Suspended Solids	mg/L	78	100	IS 3025 (Part - 17) 2017
5	Oil & Grease	mg/L	3.4	10	APHA (23 rd Edition 2017) 5520 B
6	Phenolic Compound	mg/L	0.098	5.0	IS 3025 (Part-43) 2019 Aminoantipyrene Method
7	Cyanides as CN	mg/L	BDL*	0.2	APHA (23 rd Edition 2017) 4500 CN E Colorimetric Method
8	Fluorides as F	mg/L	0.75	2.0	APHA (23 rd Edition 2017) 4500 F D SPANDS Method
9	Sulphide as S	mg/L	1.8	2.0	APHA (23 rd Edition 2017) 4500 S2 F Iodometric method
10	Ammonical Nitrogen as NH ₃	mg/L	44	50	IS 3025 (Part-34) 2019 Nesslerization Method
11	Arsenic as AS	mg/L	BDL*	0.2	APHA (23 rd Edition 2017) 3114 B
12	Total Chromium as Cr ⁺³	mg/L	BDL*	2.0	APHA (23 rd Edition 2017) 3111 B
13	Hexavalent Chromium as Cr ⁺⁶	mg/L	BDL*	1.0	APHA (23 rd Edition 2017) 3500 Cr B Colorimetric method
14	Copper as Cu	mg/L	0.075	3.0	APHA (23 rd Edition 2017) 3111 B
15	Lead as Pb	mg/L	BDL*	2.0	APHA (23 rd Edition 2017) 3111 B
16	Mercury as Hg	mg/L	BDL*	0.01	IS 3025 (Part-48) 2019

Continue...

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Page: 2 of 2

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M/S. ATUL LIMITED P.O ATUL-396 020, DIST: VALSAD.	Test Report No. : PL/AT 0363A
	Issue Date : 07/10/2019
	Customer's Ref. : Email

RESULT TABLE

SR. NO.	TEST PARAMETERS	UNIT	RESULT	PERMISSIBLE LIMIT**	TEST METHOD
			Final Discharge		
17	Nickel as Ni	mg/L	0.075	5.0	APHA (23 rd Edition 2017) 3111 B
18	Zinc as Zn	mg/L	3.40	15	APHA (23 rd Edition 2017) 3111 B
19	Cadmium as Cd	mg/L	BDL*	2.0	APHA (23 rd Edition 2017) 3111 B
20	Phosphates as P	mg/L	2.10	5.0	APHA (23 rd Edition 2017) 4500 C
21	BOD (5 Days @ 20 °C)	mg/L	82	100	IS 3025 (Part-44) 2019
22	COD	mg/L	244	250	APHA (23 rd Edition 2017) 5220 B Open Reflux Method
23	Sodium Absorption Ratio	--	24	26	By Calculation
24	Manganese as Mn	mg/L	0.15	2.0	APHA (23 rd Edition 2017) 3111 B
25	Tin as Sn	mg/L	BDL*	0.1	APHA (23 rd Edition 2017) 3111 B
26	Bio Assay test	%	100 % survival of fish after 96 hour in 100% effluent	90 % survival of fish after 96 hour in 100% effluent	OECD 203 B/IS: 6582-2001
27	Pesticides/Insecticides**	mg/L	BDL*	Absent	USEPA 508 1995
					USEPA 525.2 1995

**Details provided by customer. **attached pesticides list.

BDL*: Below Detection Limit, Minimum Detection Limit, Cyanides : 0.01 mg/L, Sulphides:0.1 mg/, Arsenic: 0.001 mg/L, Chromium : 0.05 mg/L, Hexavalent Chromium:0.5 mg/L, Copper as Cu:0.04 mg/L, Lead: 0.02 mg/L. Mercury : 0.001 mg/L, Cadmium: 0.004 mg/L, Insecticides/Pesticides: 0.1 mg/L, Tin: 0.005 mg/L, Manganese: 0.03 mg/L

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Ph. +91 281 2360695 Email : royaleenvironment@live.com admin@royalconsultancy.com

Ref. No.: 2314/04/2019-20

Date: 30/04/2019

REPORT OF AMBIENT AIR QUALITY MONITORING

Name of company : Atul Limited,
Address : District : Valsad - 396 020.

Sr. No.	Particulars	Unit	Results			
			Nr.Main Guest house	Nr. Main Office North Site	At Wyeth Colony	Gram Panchayat Hall
01.	Date of sampling	—	12/04/2019	18/04/2019	12/04/2019	12/04/2019
02.	Time of sampling	—	8.10	9.40	8.50	8.25
03.	Duration of sampling	Minutes	1440	1440	1440	1440
04.	Average flow rate during sampling	m ³ /Hr	1.0	1.0	1.0	1.0
05.	Average flow rate for Gas sampling	LPM	0.2	0.2	0.2	0.2
06.	Permissible Limits of PM2.5	µg/m ³	60	60	60	60
07.	Measured Concentration of PM2.5	µg/m ³	35	30	30	40
08.	Permissible Limits of PM10	µg/m ³	100	100	100	100
09.	Measured Concentration of PM10	µg/m ³	50	55	45	45
10.	Permissible Limits of SO2	µg/m ³	80	80	80	80
11.	Measured Concentration of SO2	µg/m ³	9.8	9.1	9.3	9.0
12.	Permissible Limits of NOx	µg/m ³	80	80	80	80
13.	Measured Concentration of NOx	µg/m ³	16.5	13.1	13.5	12.8
14.	Prescribed Limits of Ammonia	µg/m ³	850	850	850	850
15.	Concentration of Ammonia	µg/m ³	ND	ND	ND	ND
16.	Prescribed Limits of HCl	µg/m ³	200	200	200	200
17.	Concentration of HCl	µg/m ³	ND	ND	ND	ND

Instrument used : Ecotech make 2 Nos. of (RDS), Model No. AAS - 217 BL, Gaseous Sampling Kit & Ecotech make 2 Nos. of PM 2.5 sampler AAS 127
Calibration due on. 1) 05/05/2019, 2)06/05/2019

Royal Environment Auditing & Consultancy Service



Pradip
Analyst



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Ph. +91 281 2360695 Email : royalservice@live.com admin@royalconsultancy.com

Ref. No.: 2315/04/2019-20

Date:30/04/2019

REPORT OF AMBIENT AIR QUALITY MONITORING

Name of company : Atul Limited,
Address : District : Valsad - 396 020.

Sr. No.	Particulars	Unit	Results			
			Opposite Shed D	Near ETP (West Site)	ETP Plant (North Site)	Near TSDF
01.	Date of sampling	---	19/04/2019	18/04/2019	19/04/2019	19/04/2019
02.	Time of sampling	---	9.40	10.00	9.20	9.20
03.	Duration of sampling	Minutes	1440	1440	1440	1440
04.	Average flow rate during sampling	m ³ /Hr	1.0	1.0	1.0	1.0
05.	Average flow rate for Gas sampling	LPM	0.2	0.2	0.2	0.2
06.	Permissible Limits of PM2.5	µg/m ³	60	60	60	60
07.	Measured Concentration of PM2.5	µg/m ³	45	35	38	55
08.	Permissible Limits of PM10	µg/m ³	100	100	100	100
09.	Measured Concentration of PM10	µg/m ³	50	50	60	55
10.	Permissible Limits of SO2	µg/m ³	80	80	80	80
11.	Measured Concentration of SO2	µg/m ³	12.1	10.1	10.3	9.9
12.	Permissible Limits of NOx	µg/m ³	80	80	80	80
13.	Measured Concentration of NOx	µg/m ³	10.1	9.5	9.8	9.1
14.	Prescribed Limits of Ammonia	µg/m ³	850	850	850	850
15.	Concentration of Ammonia	µg/m ³	ND	ND	ND	ND
16.	Prescribed Limits of HCl	µg/m ³	200	200	200	200
17.	Concentration of HCl	µg/m ³	ND	ND	ND	ND

Instrument used : Ecotech make 2 Nos. of (RDS), Model No. AAS - 217 BL, Gaseous Sampling Kit & Ecotech make 2 Nos. of PM 2.5 sampler AAS 127
Calibration due on: 1) 05/05/2019, 2) 06/05/2019

Royal Environment Auditing & Consultancy Service



Pradip
Analyst



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Ph. +91 281 2360695 Email : royalenvironment@live.com admin@royalconsultancy.com

Ref. No.: 2514/06/2019-20

Date:29/06/2019

REPORT OF AMBIENT AIR QUALITY MONITORING

Name of company : Atul Limited,

Address : District : Valsad - 396 020.

Sr. No.	Particulars	Unit	Results			
			Nr.Main Guest house	Nr. Main Office North Site	At Wyeth Colony	Gram Panchayat Hall
01.	Date of sampling	---	08/06/2019	28/06/2019	08/06/2019	26/06/2019
02.	Time of sampling	---	8.30	10.05	8.50	8.40
03.	Duration of sampling	Minutes	1440	1440	1440	1440
04.	Average flow rate during sampling	m ³ /Hr	1.0	1.0	1.0	1.0
05.	Average flow rate for Gas sampling	LPM	0.2	0.2	0.2	0.2
06.	Permissible Limits of PM2.5	µg/m ³	60	60	60	60
07.	Measured Concentration of PM2.5	µg/m ³	36	34	30	41
08.	Permissible Limits of PM10	µg/m ³	100	100	100	100
09.	Measured Concentration of PM10	µg/m ³	52	56	50	47
10.	Permissible Limits of SO2	µg/m ³	80	80	80	80
11.	Measured Concentration of SO2	µg/m ³	10.5	9.5	9.2	9.1
12.	Permissible Limits of NOx	µg/m ³	80	80	80	80
13.	Measured Concentration of NOx	µg/m ³	17.5	12.8	14.2	14.2
14.	Prescribed Limits of Ammonia	µg/m ³	850	850	850	850
15.	Concentration of Ammonia	µg/m ³	ND	ND	ND	ND
16.	Prescribed Limits of HCl	µg/m ³	200	200	200	200
17.	Concentration of HCl	µg/m ³	ND	ND	ND	ND

Instrument used : Ecotech make 2 Nos. of (RDS), Model No. AAS - 217 BL, Gaseous Sampling Kit & Ecotech make 2 Nos. of PM 2.5 sampler AAS 127
Calibration due on.1) 05/05/2020, 2)06/05/2020

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Ref. No.: 2515/06/2019-20

Date: 29/06/2019

REPORT OF AMBIENT AIR QUALITY MONITORING

Name of company : Atul Limited,
Address : District : Valsad - 396 020.

Sr. No.	Particulars	Unit	Results			
			Opposite Shed D	Near ETP (West Site)	ETP Plant (North Site)	Near TSDF
01.	Date of sampling	---	13/06/2019	13/06/2019	28/06/2019	26/06/2019
02.	Time of sampling	---	9.15	9.30	10.15	9.05
03.	Duration of sampling	Minutes	1440	1440	1440	1440
04.	Average flow rate during sampling	m ³ /Hr	1.0	1.0	1.0	1.0
05.	Average flow rate for Gas sampling	LPM	0.2	0.2	0.2	0.2
06.	Permissible Limits of PM2.5	µg/m ³	60	60	60	60
07.	Measured Concentration of PM2.5	µg/m ³	56	41	38	56
08.	Permissible Limits of PM10	µg/m ³	100	100	100	100
09.	Measured Concentration of PM10	µg/m ³	58	60	64	57
10.	Permissible Limits of SO2	µg/m ³	80	80	80	80
11.	Measured Concentration of SO2	µg/m ³	12.8	11.0	10.2	10.3
12.	Permissible Limits of NOx	µg/m ³	80	80	80	80
13.	Measured Concentration of NOx	µg/m ³	10.9	9.7	9.6	9.2
14.	Prescribed Limits of Ammonia	µg/m ³	850	850	850	850
15.	Concentration of Ammonia	µg/m ³	ND	ND	ND	ND
16.	Prescribed Limits of HCl	µg/m ³	200	200	200	200
17.	Concentration of HCl	µg/m ³	ND	ND	ND	ND

Instrument used : Ecotech make 2 Nos. of (RDS), Model No. AAS - 217 BL, Gaseous Sampling Kit & Ecotech make 2 Nos. of PM 2.5 sampler AAS 127
Calibration due on: 1) 05/05/2020, 2) 06/05/2020

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Ref. No.: 2614/07/2019-20

Date:31/07/2019

REPORT OF AMBIENT AIR QUALITY MONITORING

Name of company : Atul Limited,

Address : District : Valsad - 396 020.

Sr. No.	Particulars	Unit	Results			
			Nr.Main Guest house	Nr. Main Office North Site	At Wyeth Colony	Gram Panchayat Hall
01.	Date of sampling	---	04/07/2019	11/07/2019	04/07/2019	19/07/2019
02.	Time of sampling	---	8.45	9.55	9.05	8.45
03.	Duration of sampling	Minutes	1440	1440	1440	1440
04.	Average flow rate during sampling	m ³ /Hr	1.0	1.0	1.0	1.0
05.	Average flow rate for Gas sampling	LPM	0.2	0.2	0.2	0.2
06.	Permissible Limits of PM2.5	µg/m ³	60	60	60	60
07.	Measured Concentration of PM2.5	µg/m ³	25	35	24	22
08.	Permissible Limits of PM10	µg/m ³	100	100	100	100
09.	Measured Concentration of PM10	µg/m ³	48	51	42	40
10.	Permissible Limits of SO2	µg/m ³	80	80	80	80
11.	Measured Concentration of SO2	µg/m ³	8.1	9.1	7.9	8.6
12.	Permissible Limits of NOx	µg/m ³	80	80	80	80
13.	Measured Concentration of NOx	µg/m ³	12.5	14.2	11.3	10.5
14.	Prescribed Limits of Ammonia	µg/m ³	850	850	850	850
15.	Concentration of Ammonia	µg/m ³	ND	ND	ND	ND
16.	Prescribed Limits of HCl	µg/m ³	200	200	200	200
17.	Concentration of HCl	µg/m ³	ND	ND	ND	ND

Instrument used : Ecotech make (RDS), Model No. AAS - 217 BL, Gaseous Sampling Kit & Ecotech PM 2.5 sampler AAS 127

Calibration done on.: 05/05/2019

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Ref. No.: 2615/07/2019-20

Date:31/07/2019

REPORT OF AMBIENT AIR QUALITY MONITORING

Name of company : Atul Limited,
Address : District : Valsad - 396 020.

Sr. No.	Particulars	Unit	Results			
			Opposite Shed D	Near ETP (West Site)	ETP Plant (North Site)	Near TSDf
01.	Date of sampling	----	11/07/2019	18/07/2019	26/07/2019	19/07/2019
02.	Time of sampling	----	8.40	8.55	8.45	8.50
03.	Duration of sampling	Minutes	1440	1440	1440	1440
04.	Average flow rate during sampling	m ³ /Hr	1.0	1.0	1.0	1.0
05.	Average flow rate for Gas sampling	LPM	0.2	0.2	0.2	0.2
06.	Permissible Limits of PM2.5	µg/m ³	60	60	60	60
07.	Measured Concentration of PM2.5	µg/m ³	46	37	39	40
08.	Permissible Limits of PM10	µg/m ³	100	100	100	100
09.	Measured Concentration of PM10	µg/m ³	48	52	45	49
10.	Permissible Limits of SO2	µg/m ³	80	80	80	80
11.	Measured Concentration of SO2	µg/m ³	10.3	11.2	9.8	10.8
12.	Permissible Limits of NOx	µg/m ³	80	80	80	80
13.	Measured Concentration of NOx	µg/m ³	9.1	8.4	8.5	8.2
14.	Prescribed Limits of Ammonia	µg/m ³	850	850	850	850
15.	Concentration of Ammonia	µg/m ³	ND	ND	ND	ND
16.	Prescribed Limits of HCl	µg/m ³	200	200	200	200
17.	Concentration of HCl	µg/m ³	ND	ND	ND	ND

Instrument used : Ecotech make (RDS), Model No. AAS - 217 BL, Gaseous Sampling Kit & Ecotech PM 2.5 sampler AAS 127
Calibration done on.: 05/05/2019

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Ref. No.: 2714/08/2019-20

Date:31/08/2019

REPORT OF AMBIENT AIR QUALITY MONITORING

Name of company : Atul Limited,
Address : District : Valsad - 396 020.

Sr. No.	Particulars	Unit	Results			
			Nr.Main Guest house	Nr. Main Office North Site	At Wyeth Colony	Gram Panchayat Hall
01.	Date of sampling	----	01/08/2019	08/08/2019	22/08/2019	03/08/2019
02.	Time of sampling	----	9.05	8.50	8.45	9.35
03.	Duration of sampling	Minutes	1440	1440	1440	1440
04.	Average flow rate during sampling	m ³ /Hr	1.0	1.0	1.0	1.0
05.	Average flow rate for Gas sampling	LPM	0.2	0.2	0.2	0.2
06.	Permissible Limits of PM2.5	µg/m ³	60	60	60	60
07.	Measured Concentration of PM2.5	µg/m ³	12	23	10	15
08.	Permissible Limits of PM10	µg/m ³	100	100	100	100
09.	Measured Concentration of PM10	µg/m ³	32	42	30	38
10.	Permissible Limits of SO2	µg/m ³	80	80	80	80
11.	Measured Concentration of SO2	µg/m ³	6.4	8.4	5.2	6.4
12.	Permissible Limits of NOx	µg/m ³	80	80	80	80
13.	Measured Concentration of NOx	µg/m ³	5.1	11.2	6.2	9.4
14.	Prescribed Limits of Ammonia	µg/m ³	850	850	850	850
15.	Concentration of Ammonia	µg/m ³	ND	ND	ND	ND
16.	Prescribed Limits of HCl	µg/m ³	200	200	200	200
17.	Concentration of HCl	µg/m ³	ND	ND	ND	ND

Instrument used : Ecotech make (RDS), Model No. AAS - 217 BL, Gaseous Sampling Kit & Ecotech PM 2.5 sampler AAS 127
Calibration done on.: 05/05/2019

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Ref. No.: 2715/08/2019-20

Date:31/08/2019

REPORT OF AMBIENT AIR QUALITY MONITORING

Name of company : Atul Limited,
Address : District : Valsad - 396 020.

Sr. No.	Particulars	Unit	Results			
			Opposite Shed D	Near ETP (West Site)	ETP Plant (North Site)	Near TSDF
01.	Date of sampling	---	22/08/2019	28/08/2019	30/08/2019	10/08/2019
02.	Time of sampling	---	9.55	8.55	8.45	9.35
03.	Duration of sampling	Minutes	1440	1440	1440	1440
04.	Average flow rate during sampling	m ³ /Hr	1.0	1.0	1.0	1.0
05.	Average flow rate for Gas sampling	LPM	0.2	0.2	0.2	0.2
06.	Permissible Limits of PM2.5	µg/m ³	60	60	60	60
07.	Measured Concentration of PM2.5	µg/m ³	38	35	32	36
08.	Permissible Limits of PM10	µg/m ³	100	100	100	100
09.	Measured Concentration of PM10	µg/m ³	46	60	48	51
10.	Permissible Limits of SO2	µg/m ³	80	80	80	80
11.	Measured Concentration of SO2	µg/m ³	9.4	8.3	6.4	8.2
12.	Permissible Limits of NOx	µg/m ³	80	80	80	80
13.	Measured Concentration of NOx	µg/m ³	8.5	7.2	5.8	6.3
14.	Prescribed Limits of Ammonia	µg/m ³	850	850	850	850
15.	Concentration of Ammonia	µg/m ³	ND	ND	ND	ND
16.	Prescribed Limits of HCl	µg/m ³	200	200	200	200
17.	Concentration of HCl	µg/m ³	ND	ND	ND	ND

Instrument used : Ecotech make (RDS), Model No. AAS - 217 BL, Gaseous Sampling Kit & Ecotech PM 2.5 sampler AAS 127

Calibration done on.: 05/05/2019

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Ref. No.: 2814/09/2019-20

Date : 30/09/2019

REPORT OF AMBIENT AIR QUALITY MONITORING

Name of company : Atul Limited,
Address : District : Valsad - 396 020.

Sr. No.	Particulars	Unit	Results			
			Nr.Main Guest house	Nr. Main Office North Site	At Wyeth Colony	Gram Panchayat Hall
01.	Date of sampling	---	05/09/2019	25/09/2019	26/09/2019	18/09/2019
02.	Time of sampling	---	8.50	9.05	9.25	9.15
03.	Duration of sampling	Minutes	1440	1440	1440	1440
04.	Average flow rate during sampling	m ³ /Hr	1.0	1.0	1.0	1.0
05.	Average flow rate for Gas sampling	LPM	0.2	0.2	0.2	0.2
06.	Permissible Limits of PM2.5	µg/m ³	60	60	60	60
07.	Measured Concentration of PM2.5	µg/m ³	13	18	11	15
08.	Permissible Limits of PM10	µg/m ³	100	100	100	100
09.	Measured Concentration of PM10	µg/m ³	29	38	31	34
10.	Permissible Limits of SO2	µg/m ³	80	80	80	80
11.	Measured Concentration of SO2	µg/m ³	5.2	7.6	4.3	5.8
12.	Permissible Limits of NOx	µg/m ³	80	80	80	80
13.	Measured Concentration of NOx	µg/m ³	6.2	8.6	5.7	7.1
14.	Prescribed Limits of Ammonia	µg/m ³	850	850	850	850
15.	Concentration of Ammonia	µg/m ³	ND	ND	ND	ND
16.	Prescribed Limits of HCl	µg/m ³	200	200	200	200
17.	Concentration of HCl	µg/m ³	ND	ND	ND	ND

Instrument used : Ecotech make (RDS), Model No. AAS - 217 BL, Gaseous Sampling Kit & Ecotech PM 2.5 sampler AAS 127
Calibration done on.: 05/05/2019

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Ref. No.: 2815/09/2019-20

Date : 30/09/2019

REPORT OF AMBIENT AIR QUALITY MONITORING

Name of company : Atul Limited,

Address : District : Valsad - 396 020.

Sr. No.	Particulars	Unit	Results			
			Opposite Shed D	Near ETP (West Site)	ETP Plant (North Site)	Near TSDF
01.	Date of sampling	----	11/09/2019	19/09/2019	12/09/2019	06/09/2019
02.	Time of sampling	----	9.45	9.55	9.10	9.35
03.	Duration of sampling	Minutes	1440	1440	1440	1440
04.	Average flow rate during sampling	m ³ /Hr	1.0	1.0	1.0	1.0
05.	Average flow rate for Gas sampling	LPM	0.2	0.2	0.2	0.2
06.	Permissible Limits of PM2.5	µg/m ³	60	60	60	60
07.	Measured Concentration of PM2.5	µg/m ³	27	25	29	28
08.	Permissible Limits of PM10	µg/m ³	100	100	100	100
09.	Measured Concentration of PM10	µg/m ³	34	37	38	42
10.	Permissible Limits of SO2	µg/m ³	80	80	80	80
11.	Measured Concentration of SO2	µg/m ³	8.7	9.1	8.5	7.8
12.	Permissible Limits of NOx	µg/m ³	80	80	80	80
13.	Measured Concentration of NOx	µg/m ³	9.6	10.2	9.2	8.6
14.	Prescribed Limits of Ammonia	µg/m ³	850	850	850	850
15.	Concentration of Ammonia	µg/m ³	ND	ND	ND	ND
16.	Prescribed Limits of HCl	µg/m ³	200	200	200	200
17.	Concentration of HCl	µg/m ³	ND	ND	ND	ND

Instrument used : Ecotech make (RDS), Model No. AAS - 217 BL, Gaseous Sampling Kit & Ecotech PM 2.5 sampler AAS 127

Calibration done on.: 05/05/2019

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Ref. No.: 2318/04/2019-20

Date:30/04/2019

DETAILED RESULTS OF AMBIENT AIR QUALITY MONITORING FOR THE MONTH : APRIL' 2019

Name of company : Atul Limited,

Address : District : Valsad - 396 020.

Contact Person: Mr. Hriday Desai, General Manager (HSE)

S. No.	Particulars	Unit	Location No.- 1: 66 KVA GEB Sub Station							
			01		02		03		04	
01.	No. of Week	---	01		02		03		04	
02.	Date & Time Starting of Monitoring	—	03/04/2019 8.20	04/04/2019 8.25	10/04/2019 8.30	11/04/2019 8.35	17/04/2019 8.10	18/04/2019 8.15	24/04/2019 8.35	25/04/2019 8.40
03.	Date & Time - Ending of Monitoring	—	04/04/2019 8.20	05/04/2019 8.25	11/04/2019 8.30	12/04/2019 8.35	18/04/2019 8.10	19/04/2019 8.15	25/04/2019 8.35	26/04/2019 8.40
04.	Duration of Sampling	Min.	1440	1440	1440	1440	1440	1440	1441	1442
05.	Dominant Wind Direction (From)	—	SE	SE	SE	SE	SE	SE	SE	SE
06.	Wind Speed Velocity	Km/Hr.	2 to 8	2 to 6	4 to 8	2 to 6	2 to 8	2 to 6	4 to 8	4 to 8
07.	Average Flow Rate For Dust Monitoring PM _{2.5}	m ³ /Hr.	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
08.	Average Flow Rate For Dust Monitoring PM ₁₀	m ³ /Min.	1.12	1.14	1.16	1.15	1.11	1.20	1.22	1.15
09.	Average Flow Rate for Gas Monitoring	LPM	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
10.	Permissible Limits of PM _{2.5} *	µg/m ³	60	60	60	60	60	60	60	60
11.	Measured Concentration of PM _{2.5}	µg/m ³	48.0	39.0	45.0	42.0	38.0	47.0	35.0	40.0
12.	Permissible Limits of PM ₁₀ *	µg/m ³	100	100	100	100	100	100	100	100
13.	Measured Concentration of PM ₁₀	µg/m ³	55.0	50.0	40.5	39.7	44.8	45.9	40.0	50.0
14.	Permissible Limits of SO ₂ *	µg/m ³	80	80	80	80	80	80	80	80
15.	Measured Concentration of SO ₂	µg/m ³	9.8	9.9	9.5	10.2	10.5	9.8	9.4	9.2
16.	Permissible Limits of NO ₂ *	µg/m ³	80	80	80	80	80	80	80	80
17.	Measured Concentration of NO ₂	µg/m ³	9.9	10.5	9.7	10.3	9.9	11.1	9.1	8.8
18.	Permissible Limits of NH ₃ **	µg/m ³	850	850	850	850	850	850	850	850
19.	Measured Concentration of NH ₃	µg/m ³	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D
20.	Permissible Limits of HCL **	µg/m ³	200	200	200	200	200	200	200	200
21.	Measured Concentration of HCL **	µg/m ³	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D

Instrument Used: Ecotech make 2 Nos. of (1) RDS, Model No.: APM - 217BL, (2) Gaseous Pollutants Sampler Model No. AAS-109, (3) Ecotech PM2.5 Sampler Model No.: AAS 127

All Calibration due on : 06/05/2019

*Permissible Limits are as per NAAQ Standard dated 16th November 2009., **Permissible Limits are as per GPCB CC&A

Royal Environment Auditing & Consultancy Service, Rajkot



Hriday
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Ref. No.: 2319/04/2019-20

Date:30/04/2019

DETAILED RESULTS OF AMBIENT AIR QUALITY MONITORING FOR THE MONTH : APRIL' 2019

Name of company : Atul Limited,
Address : District : Valsad - 396 020.

Contact Person: Mr. Hriday Desai, General Manager (HSE)

S. No.	Particulars	Unit	Location No.- 2: Hariya Water Tank							
			01		02		03		04	
01.	No. of Week	—								
02.	Date & Time Starting of Monitoring	—	03/04/2019 8.35	04/04/2019 8.40	10/04/2019 8.45	11/04/2019 8.50	17/04/2019 8.25	18/04/2019 8.30	24/04/2019 8.50	25/04/2019 8.55
03.	Date & Time - Ending of Monitoring	—	04/04/2019 8.35	05/04/2019 8.40	11/04/2019 8.45	12/04/2019 8.50	18/04/2019 8.25	19/04/2019 8.30	25/04/2019 8.50	26/04/2019 8.55
04.	Duration of Sampling	Min.	1440	1440	1440	1440	1440	1440	1441	1442
05.	Dominant Wind Direction (From)	—	SE	SE	SE	SE	SE	SE	SE	SE
06.	Wind Speed Velocity	Km/Hr.	4 to 8	2 to 8	4 to 6	4 to 8	3 to 9	2 to 6	2 to 5	4 to 8
07.	Average Flow Rate For Dust Monitoring PM _{2.5}	m ³ /Hr.	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
08.	Average Flow Rate For Dust Monitoring PM ₁₀	m ³ /Min.	1.12	1.14	1.22	1.22	1.25	1.35	1.26	1.20
09.	Average Flow Rate for Gas Monitoring	LPM	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
10.	Permissible Limits of PM _{2.5} *	µg/m ³	60	60	60	60	60	60	60	60
11.	Measured Concentration of PM _{2.5}	µg/m ³	55.0	45.0	50.0	45.0	40.0	45.0	40.0	35.0
12.	Permissible Limits of PM ₁₀ **	µg/m ³	100	100	100	100	100	100	100	100
13.	Measured Concentration of PM ₁₀	µg/m ³	46.0	50.0	45.0	45.8	46.8	50.2	39.5	40.5
14.	Permissible Limits of SO ₂ *	µg/m ³	80	80	80	80	80	80	80	80
15.	Measured Concentration of SO ₂	µg/m ³	10.2	9.9	9.5	9.9	8.9	8.5	8.2	8.5
16.	Permissible Limits of NO ₂ *	µg/m ³	80	80	80	80	80	80	80	80
17.	Measured Concentration of NO ₂	µg/m ³	10.3	9.9	10.2	10.1	11.8	11.2	8.8	9.5
18.	Permissible Limits of NH ₃ **	µg/m ³	850	850	850	850	850	850	850	850
19.	Measured Concentration of NH ₃	µg/m ³	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
20.	Permissible Limits of HCL **	µg/m ³	200	200	200	200	200	200	200	200
21.	Measured Concentration of HCL	µg/m ³	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.

Instrument Used: Ecotech make 2 Nos. of (1) RDS, Model No.: APM - 217BL, (2) Gaseous Pollutants Sampler Model No. AAS-109, (3) Ecotech PM_{2.5} Sampler Model No.: AAS 127

All Calibration due on. : 06/05/2019

*Permissible Limits are as per NAAQ Standard dated 16th November 2009., **Permissible Limits are as per GPCB CC&A

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Date: 30/04/2019

Ref. No.: 2320/04/2019-20

REPORT OF AMBIENT AIR QUALITY MONITORING (NAAQM - APRIL - 2019)

Name of company : Atul Limited,

Dist. : Valsad - 396 020.

Test Method : As per IS Standards - 5182_23/4/6

Location of Sampling : 66 KVA GEB Sub Station

Sr. No.	Particulars	Unit	Permissible Limits*	1 st Time	2 nd Time
01.	Date of sampling	---	---	04/04/2019	18/04/2019
02.	Time of sampling	Hr	---	8.25	8.15
03.	Duration of sampling	Min.	---	1440.00	1440.00
04.	Dominant Wind Direction (From)	---	---	SE	SE
05.	Wind Speed	Km/Hr	---	2 to 6	2 to 6
06.	Avg. flow rate during sampling PM 10	m ³ /min	---	1.1	1.2
07.	Avg. flow rate during sampling PM 2.5	m ³ /Hr	---	1.0	1.0
08.	Avg. flow rate for Gas sampling	LPM	---	0.2	0.2
09.	Measured Concentration of PM 10	µg/m ³	100	50	45.9
10.	Measured Concentration of PM 2.5	µg/m ³	60	39	47
11.	Measured Concentration of SO ₂	µg/m ³	80	9.9	9.8
12.	Measured Concentration of NO ₂	µg/m ³	80	10.5	11.1
13.	Measured Concentration of O ₃	µg/m ³	100	7.5**	8.9**
14.	Measured Concentration of NH ₃	µg/m ³	400	N.D	N.D
15.	Measured Concentration of CO	mg/m ³	2.00	0.90**	0.90**
16.	Measured Concentration of C ₆ H ₆	µg/m ³	5	1.22**	1.18**
17.	Measured Concentration of Pb	µg/m ³	1	0.80	0.79
18.	Measured Concentration of Ni	ng/m ³	20	0.9	1.5
19.	Measured Concentration of As	ng/m ³	6	ND	ND
20.	Measured Concentration of B(a)P	ng/m ³	1	ND	ND

Instrument used : Ecotech make - RDS, Gaseous Sampler & PM 2.5 Sampler

All Calibration due on : 05/05/2019

*Permissible Limits are as per NAAQM Standard 2009.,

** 8:00 Hours monitoring value

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Date: 30/04/2019

Ref. No.: 2321/04/2019-20

REPORT OF AMBIENT AIR QUALITY MONITORING (NAAQM - APRIL - 2019)

Name of company : Atul Limited,
Dist. : Valsad - 396 020.

Test Method : As per IS Standards - 5182_23/4/6

Location of Sampling : Hariya Water Tank

Sr. No.	Particulars	Unit	Permissible Limits*	1 st Time	2 nd Time
01.	Date of sampling	---	---	04/04/2019	18/04/2019
02.	Time of sampling	Hr	---	8.40	8.30
03.	Duration of sampling	Min.	---	1440.00	1440.00
04.	Dominant Wind Direction (From)	---	---	SE	SE
05.	Wind Speed	Km/Hr	---	2 to 8	2 to 6
06.	Avg. flow rate during sampling PM 10	m ³ /min	---	1.1	1.4
07.	Avg. flow rate during sampling PM 2.5	m ³ /Hr	---	1.0	1.0
08.	Avg. flow rate for Gas sampling	LPM	---	0.2	0.2
09.	Measured Concentration of PM 10	µg/m ³	100	50	50.2
10.	Measured Concentration of PM 2.5	µg/m ³	60	45	45
11.	Measured Concentration of SO ₂	µg/m ³	80	9.9	8.5
12.	Measured Concentration of NO ₂	µg/m ³	80	9.9	11.2
13.	Measured Concentration of O ₃	µg/m ³	100	8.5**	8.8**
14.	Measured Concentration of NH ₃	µg/m ³	400	N.D.	N.D.
15.	Measured Concentration of CO	mg/m ³	2.00	0.75**	0.88**
16.	Measured Concentration of C ₆ H ₆	µg/m ³	5	1.35**	1.30**
17.	Measured Concentration of Pb	µg/m ³	1	0.09	0.10
18.	Measured Concentration of Ni	ng/m ³	20	1.8	1.7
19.	Measured Concentration of As	ng/m ³	6	ND	ND
20.	Measured Concentration of B(a)P	ng/m ³	1	ND	ND

Instrument used : Ecotech make - RDS, Gaseous Sampler & PM 2.5 Sampler

All Calibration due on : 05/05/2019

*Permissible Limits are as per NAAQM Standard 2009.,

** 8:00 Hours monitoring value

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Ref. No.: 2518/06/2019-20

Date:29/06/2019

DETAILED RESULTS OF AMBIENT AIR QUALITY MONITORING FOR THE MONTH : JUNE' 2019

Name of company : Atul Limited,

Address : District : Valsad - 396 020.

Contact Person: Mr. Hriday Desai, General Manager (HSE)

S. No.	Particulars	Unit	Location No.- 1: 66 KVA GEB Sub Station							
			01		02		03		04	
01.	No. of Week	---								
02.	Date & Time Starting of Monitoring	---	06/06/2019 8.25	07/06/2019 8.30	13/06/2019 8.20	14/06/2019 8.25	20/06/2019 8.35	21/06/2019 8.40	27/06/2019 8.45	28/06/2019 8.50
03.	Date & Time - Ending of Monitoring	---	07/06/2019 8.25	08/06/2019 8.30	14/06/2019 8.20	15/06/2019 8.25	21/06/2019 8.35	22/06/2019 8.40	28/06/2019 8.45	29/06/2019 8.50
04.	Duration of Sampling	Min.	1440	1440	1440	1440	1440	1440	1441	1442
05.	Dominant Wind Direction (From)	---	SE	SE	SE	SE	SE	SE	SE	SE
06.	Wind Speed Velocity	Km/Hr.	3 to 8	4 to 8	4 to 6	2 to 6	2 to 6	4 to 8	2 to 6	4 to 8
07.	Average Flow Rate For Dust Monitoring PM _{2.5}	m ³ /Hr.	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
08.	Average Flow Rate For Dust Monitoring PM ₁₀	m ³ /Min.	1.14	1.12	1.18	1.15	1.14	1.12	1.26	1.28
09.	Average Flow Rate for Gas Monitoring	LPM	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
10.	Permissible Limits of PM _{2.5} *	µg/m ³	60	60	60	60	60	60	60	60
11.	Measured Concentration of PM _{2.5}	µg/m ³	45.0	41.0	46.0	41.0	36.0	12.0	36.0	41.0
12.	Permissible Limits of PM ₁₀ *	µg/m ³	100	100	100	100	100	100	100	100
13.	Measured Concentration of PM ₁₀	µg/m ³	56.0	52.0	42.0	40.0	41.5	44.8	42.6	50.7
14.	Permissible Limits of SO ₂ *	µg/m ³	80	80	80	80	80	80	80	80
15.	Measured Concentration of SO ₂	µg/m ³	9.8	9.6	9.6	10.1	10.3	9.8	9.4	9.2
16.	Permissible Limits of NO ₂ *	µg/m ³	80	80	80	80	80	80	80	80
17.	Measured Concentration of NO ₂	µg/m ³	9.8	10.1	9.8	10.2	8.6	11.5	9.4	9.1
18.	Permissible Limits of NH ₃ **	µg/m ³	850	850	850	850	850	850	850	850
19.	Measured Concentration of NH ₃	µg/m ³	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D
20.	Permissible Limits of HCL **	µg/m ³	200	200	200	200	200	200	200	200
21.	Measured Concentration of HCL **	µg/m ³	N.D	N.D	N.D	N.D.	N.D.	N.D.	N.D.	N.D.

Instrument Used: Ecotech make 2 Nos. of (1) RDS, Model No.: APM - 217BL, (2) Gaseous Pollutants Sampler Model No. AAS-109, (3) Ecotech PM2.5 Sampler Model No.: AAS 127

All Calibration due on. : 06/05/2020

*Permissible Limits are as per NAAQ Standard dated 16th November 2009., **Permissible Limits are as per GPCB CC&A

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Ref. No.: 2519/06/2019-20

Date:29/06/2019

DETAILED RESULTS OF AMBIENT AIR QUALITY MONITORING FOR THE MONTH : JUNE' 2019

Name of company : Atul Limited,

Address : District : Valsad - 396 020.

Contact Person: Mr. Hriday Desai, General Manager (HSE)

S. No.	Particulars	Unit	Location No.- 2: Hariya Water Tank							
			01		02		03		04	
01.	No. of Week	---								
02.	Date & Time Starting of Monitoring	---	06/06/2019 8.40	07/06/2019 8.45	13/06/2019 8.35	14/06/2019 8.40	20/06/2019 8.50	21/06/2019 8.55	27/06/2019 9.00	28/06/2019 9.05
03.	Date & Time - Ending of Monitoring	---	07/06/2019 8.40	08/06/2019 8.45	14/06/2019 8.35	15/06/2019 8.40	21/06/2019 8.50	22/06/2019 8.55	28/06/2019 9.00	29/06/2019 9.05
04.	Duration of Sampling	Min.	1440	1440	1440	1440	1440	1440	1440	1440
05.	Dominant Wind Direction (From)	---	SE	SE	SE	SE	SE	SE	SE	SE
06.	Wind Speed Velocity	Km/Hr.	2 to 6	4 to 8	2 to 8	4 to 8	3 to 8	4 to 8	2 to 6	4 to 8
07.	Average Flow Rate For Dust Monitoring PM _{2.5}	m ³ /Hr.	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
08.	Average Flow Rate For Dust Monitoring PM ₁₀	m ³ /Min.	1.17	1.15	1.12	1.28	1.18	1.23	1.22	1.20
09.	Average Flow Rate for Gas Monitoring	LPM	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
10.	Permissible Limits of PM _{2.5} *	µg/m ³	60	60	60	60	60	60	60	60
11.	Measured Concentration of PM _{2.5}	µg/m ³	56.0	42.0	48.0	46.0	40.0	45.0	40.0	35.0
12.	Permissible Limits of PM ₁₀ *	µg/m ³	100	100	100	100	100	100	100	100
13.	Measured Concentration of PM ₁₀	µg/m ³	45.0	50.0	47.6	46.8	44.0	49.2	38.6	40.0
14.	Permissible Limits of SO ₂ *	µg/m ³	80	80	80	80	80	80	80	80
15.	Measured Concentration of SO ₂	µg/m ³	9.9	9.8	9.4	9.2	8.9	8.1	7.9	8.2
16.	Permissible Limits of NO ₂ *	µg/m ³	80	80	80	80	80	80	80	80
17.	Measured Concentration of NO ₂	µg/m ³	10.1	10.3	9.6	9.7	10.8	10.7	9	9.6
18.	Permissible Limits of NH ₃ **	µg/m ³	850	850	850	850	850	850	850	850
19.	Measured Concentration of NH ₃	µg/m ³	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
20.	Permissible Limits of HCL **	µg/m ³	200	200	200	200	200	200	200	200
21.	Measured Concentration of HCL	µg/m ³	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.

Instrument Used: Ecotech make 2 Nos. of (1) RDS, Model No.: APM - 217BL, (2) Gaseous Pollutants Sampler Model No. AAS-109, (3) Ecotech PM_{2.5} Sampler Model No.: AAS 127

All Calibration due on : 06/05/2019

*Permissible Limits are as per NAAQ Standard dated 16th November 2009., **Permissible Limits are as per GPCB CC&A

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Ref. No.: 2520/06/2019-20

Date: 29/06/2019

REPORT OF AMBIENT AIR QUALITY MONITORING (NAAQM - JUNE - 2019)

Name of company : Atul Limited,

Dist. : Valsad - 396 020.

Test Method : As per IS Standards - 5182_23/4/6

Location of Sampling : 66 KVA GEB Sub Station

Sr. No.	Particulars	Unit	Permissible Limits*	1 st Time	2 nd Time
01.	Date of sampling	---	---	07/06/2019	21/06/2019
02.	Time of sampling	Hr	---	8.30	8.40
03.	Duration of sampling	Min.	---	1440.00	1440.00
04.	Dominant Wind Direction (From)	---	---	SE	SE
05.	Wind Speed	Km/Hr	---	4 to 8	4 to 8
06.	Avg. flow rate during sampling PM 10	m ³ /min	---	1.1	1.1
07.	Avg. flow rate during sampling PM 2.5	m ³ /Hr	---	1.0	1.0
08.	Avg. flow rate for Gas sampling	LPM	---	0.2	0.2
09.	Measured Concentration of PM 10	µg/m ³	100	52	44.8
10.	Measured Concentration of PM 2.5	µg/m ³	60	41	12
11.	Measured Concentration of SO ₂	µg/m ³	80	9.6	9.8
12.	Measured Concentration of NO ₂	µg/m ³	80	10.1	11.5
13.	Measured Concentration of O ₃	µg/m ³	100	7.2**	8.6**
14.	Measured Concentration of NH ₃	µg/m ³	400	N.D	N.D
15.	Measured Concentration of CO	mg/m ³	2.00	0.91**	0.92**
16.	Measured Concentration of C ₆ H ₆	µg/m ³	5	1.10**	1.20**
17.	Measured Concentration of Pb	µg/m ³	1	0.81	0.83
18.	Measured Concentration of Ni	ng/m ³	20	0.4	1.6
19.	Measured Concentration of As	ng/m ³	6	ND	ND
20.	Measured Concentration of B(a)P	ng/m ³	1	ND	ND

Instrument used : Ecotech make - RDS, Gaseous Sampler & PM 2.5 Sampler

All Calibration due on : 05/05/2020

*Permissible Limits are as per NAAQM Standard 2009.,

** 8:00 Hours monitoring value



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Ref. No.: 2521/06/2019-20

Date: 29/06/2019

REPORT OF AMBIENT AIR QUALITY MONITORING (NAAQM - JUNE - 2019)

Name of company : Atul Limited,
Dist. : Valsad - 396 020.

Test Method : As per IS Standards - 5182_23/4/6

Location of Sampling : Hariya Water Tank

Sr. No.	Particulars	Unit	Permissible Limits*	1 st Time	2 nd Time
01.	Date of sampling	---	---	07/06/2019	21/06/2019
02.	Time of sampling	Hr	---	8.45	8.55
03.	Duration of sampling	Min.	---	1440.00	1440.00
04.	Dominant Wind Direction (From)	---	---	SE	SE
05.	Wind Speed	Km/Hr	---	4 to 8	4 to 8
06.	Avg. flow rate during sampling PM 10	m ³ /min	---	1.2	1.2
07.	Avg. flow rate during sampling PM 2.5	m ³ /Hr	---	1.0	1.0
08.	Avg. flow rate for Gas sampling	LPM	---	0.2	0.2
09.	Measured Concentration of PM 10	µg/m ³	100	50	49.2
10.	Measured Concentration of PM 2.5	µg/m ³	60	42	45
11.	Measured Concentration of SO ₂	µg/m ³	80	9.8	8.1
12.	Measured Concentration of NO ₂	µg/m ³	80	10.3	10.7
13.	Measured Concentration of O ₃	µg/m ³	100	8.9**	8.4**
14.	Measured Concentration of NH ₃	µg/m ³	400	N.D.	N.D.
15.	Measured Concentration of CO	mg/m ³	2.00	0.82**	0.85**
16.	Measured Concentration of C ₆ H ₆	µg/m ³	5	1.31**	1.36**
17.	Measured Concentration of Pb	µg/m ³	1	0.10	0.09
18.	Measured Concentration of Ni	ng/m ³	20	1.8	1.5
19.	Measured Concentration of As	ng/m ³	6	ND	ND
20.	Measured Concentration of B(a)P	ng/m ³	1	ND	ND

Instrument used : Ecotech make - RDS, Gaseous Sampler & PM 2.5 Sampler

All Calibration due on : 05/05/2020

*Permissible Limits are as per NAAQM Standard 2009.,

** 8:00 Hours monitoring value

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Ref. No.: 2618/07/2019-20

Date:31/07/2019

DETAILED RESULTS OF AMBIENT AIR QUALITY MONITORING FOR THE MONTH : JULY' 2019

Name of company : Atul Limited,

Address : District : Valsad - 396 020.

Contact Person: Mr. Hriday Desai, General Manager (HSE)

S. No.	Particulars	Unit	Location No.- 1: 66 KVA GEB Sub Station							
			01		02		03		04	
01.	No. of Week	---								
02.	Date & Time Starting of Monitoring	---	04/07/2019 8.20	05/07/2019 8.25	11/07/2019 8.25	12/07/2019 8.30	18/07/2019 8.15	19/07/2019 8.25	25/07/2019 8.35	26/07/2019 8.40
03.	Date & Time - Ending of Monitoring	---	05/07/2019 8.20	06/07/2019 8.25	12/07/2019 8.25	13/07/2019 8.30	19/07/2019 8.15	20/06/2019 8.25	26/07/2019 8.35	27/07/2019 8.40
04.	Duration of Sampling	Min.	1440	1440	1440	1440	1440	1440	1441	1442
05.	Dominant Wind Direction (From)	---	SE	SE	SE	SE	SE	SE	SE	SE
06.	Wind Speed Velocity	Km/Hr.	3 to 8	4 to 8	4 to 6	2 to 6	2 to 6	4 to 8	2 to 6	4 to 8
07.	Average Flow Rate For Dust Monitoring PM _{2.5}	m ³ /Hr.	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
08.	Average Flow Rate For Dust Monitoring PM ₁₀	m ³ /Min.	1.14	1.12	1.18	1.15	1.14	1.12	1.26	1.28
09.	Average Flow Rate for Gas Monitoring	LPM	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
10.	Permissible Limits of PM _{2.5} *	µg/m ³	60	60	60	60	60	60	60	60
11.	Measured Concentration of PM _{2.5}	µg/m ³	28.5	29.3	25.5	30.3	36.2	37.3	39.2	34.5
12.	Permissible Limits of PM ₁₀ *	µg/m ³	100	100	100	100	100	100	100	100
13.	Measured Concentration of PM ₁₀	µg/m ³	41.2	39.2	44.0	40.2	45.5	42.3	45.5	43.3
14.	Permissible Limits of SO ₂ *	µg/m ³	80	80	80	80	80	80	80	80
15.	Measured Concentration of SO ₂	µg/m ³	9.2	9.8	10.2	9.3	9.8	9.7	8.8	9.2
16.	Permissible Limits of NO ₂ *	µg/m ³	80	80	80	80	80	80	80	80
17.	Measured Concentration of NO ₂	µg/m ³	10.2	10.1	9.3	10.7	11.2	9.8	10.5	11.5
18.	Permissible Limits of NH ₃ **	µg/m ³	850	850	850	850	850	850	850	850
19.	Measured Concentration of NH ₃	µg/m ³	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D
20.	Permissible Limits of HCL **	µg/m ³	200	200	200	200	200	200	200	200
21.	Measured Concentration of HCL **	µg/m ³	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D

Instrument Used: Ecotech make 2 Nos. of (1) RDS, Model No.: APM - 217BL, (2) Gaseous Pollutants Sampler Model No. AAS-109, (3) Ecotech, PM_{2.5} Sampler - Model No.: AAS 127

All Calibration done on. : 06/05/2019

*Permissible Limits are as per NAAQ Standard dated 16th November 2009., **Permissible Limits are as per GPCB CC&A

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Ref. No.: 2620/07/2019-20

Date: 31/07/2019

REPORT OF AMBIENT AIR QUALITY MONITORING (NAAQM - JULY - 2019)

Name of company : Atul Limited,

Dist. : Valsad - 396 020.

Test Method : As per IS Standards - 5182_23/4/6

Location of Sampling : 66 KVA GEB Sub Station

Sr. No.	Particulars	Unit	Permissible Limits*	1 st Time	2 nd Time
01.	Date of sampling	---	---	05/07/2019	19/07/2019
02.	Time of sampling	Hr	---	8.25	8.25
03.	Duration of sampling	Min.	---	1440.00	1440.00
04.	Dominant Wind Direction (From)	---	---	SE	SE
05.	Wind Speed	Km/Hr	---	4 to 8	4 to 8
06.	Avg. flow rate during sampling PM 10	m ³ /min	---	1.1	1.1
07.	Avg. flow rate during sampling PM 2.5	m ³ /Hr	---	1.0	1.0
08.	Avg. flow rate for Gas sampling	LPM	---	0.2	0.2
09.	Measured Concentration of PM 10	µg/m ³	100	39.2	42.3
10.	Measured Concentration of PM 2.5	µg/m ³	60	29.3	37.3
11.	Measured Concentration of SO ₂	µg/m ³	80	9.8	9.7
12.	Measured Concentration of NO ₂	µg/m ³	80	10.1	9.8
13.	Measured Concentration of O ₃	µg/m ³	100	6.9**	7.9**
14.	Measured Concentration of NH ₃	µg/m ³	400	N.D	N.D
15.	Measured Concentration of CO	mg/m ³	2.00	0.89**	0.94**
16.	Measured Concentration of C ₆ H ₆	µg/m ³	5	1.15**	1.25**
17.	Measured Concentration of Pb	µg/m ³	1	0.72	0.80
18.	Measured Concentration of Ni	ng/m ³	20	1.8	1.2
19.	Measured Concentration of As	ng/m ³	6	ND	ND
20.	Measured Concentration of B(a)P	ng/m ³	1	ND	ND

Instrument used : Ecotech make - RDS, Gaseous Sampler & PM 2.5 Sampler

All Calibration done on : 05/05/2019

*Permissible Limits are as per NAAQM Standard 2009.,

** 8:00 Hours monitoring value

Royal Environment Auditing & Consultancy Service



[Signature]
Analyst



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Ref. No.: 2619/07/2019-20

Date:31/07/2019

DETAILED RESULTS OF AMBIENT AIR QUALITY MONITORING FOR THE MONTH : JULY' 2019

Name of company : Atul Limited,
Address : District : Valsad - 396 020.

Contact Person: Mr. Hriday Desai, General Manager (HSE)

S. No.	Particulars	Unit	Location No.- 2: Hariya Water Tank							
			01		02		03		04	
01.	No. of Week	---	01		02		03		04	
02.	Date & Time Starting of Monitoring	---	04/07/2019 8.35	05/07/2019 8.40	11/07/2019 8.40	12/07/2019 8.45	18/07/2019 8.30	19/07/2019 8.35	25/07/2019 8.50	26/07/2019 9.00
03.	Date & Time - Ending of Monitoring	---	05/07/2019 8.35	06/07/2019 8.40	12/07/2019 8.40	13/07/2019 8.45	19/07/2019 8.30	20/06/2019 8.35	26/07/2019 8.50	27/07/2019 9.00
04.	Duration of Sampling	Min.	1440	1440	1440	1440	1440	1440	1440	1440
05.	Dominant Wind Direction (From)	---	SE	SE	SE	SE	SE	SE	SE	SE
06.	Wind Speed Velocity	Km/Hr.	6 to 8	3 to 6	6 to 8	4 to 6	4 to 8	2 to 6	6 to 8	4 to 8
07.	Average Flow Rate For Dust Monitoring PM _{2.5}	m ³ /Hr.	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
08.	Average Flow Rate For Dust Monitoring PM ₁₀	m ³ /Min.	1.22	1.18	1.20	1.28	1.26	1.25	1.26	1.22
09.	Average Flow Rate for Gas Monitoring	LPM	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
10.	Permissible Limits of PM _{2.5} *	µg/m ³	60	60	60	60	60	60	60	60
11.	Measured Concentration of PM _{2.5}	µg/m ³	30.2	32.6	27.8	28.6	35.7	39.1	40.0	35.0
12.	Permissible Limits of PM ₁₀ *	µg/m ³	100	100	100	100	100	100	100	100
13.	Measured Concentration of PM ₁₀	µg/m ³	42.1	40.4	45.2	41.6	46.5	43.2	39.3	40.0
14.	Permissible Limits of SO ₂ *	µg/m ³	80	80	80	80	80	80	80	80
15.	Measured Concentration of SO ₂	µg/m ³	8.6	9.1	8.4	8.3	8.9	8.7	8	9.1
16.	Permissible Limits of NO ₂ *	µg/m ³	80	80	80	80	80	80	80	80
17.	Measured Concentration of NO ₂	µg/m ³	9.8	9.1	8.4	8.6	10.4	10.2	8.6	8.6
18.	Permissible Limits of NH ₃ **	µg/m ³	850	850	850	850	850	850	850	850
19.	Measured Concentration of NH ₃	µg/m ³	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
20.	Permissible Limits of HCL **	µg/m ³	200	200	200	200	200	200	200	200
21.	Measured Concentration of HCL	µg/m ³	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.

Instrument Used: Ecotech make 2 Nos. of (1) RDS, Model No.: APM - 217BL, (2) Gaseous Pollutants Sampler Model No. AAS-109, (3) Ecotech PM_{2.5} Sampler Model No.: AAS 127

All Calibration done on : 06/05/2019

*Permissible Limits are as per NAAQ Standard dated 16th November 2009., **Permissible Limits are as per GPCB CC&A

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Hriday Desai
Analyst



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Ref. No.: 2621/07/2019-20

Date: 31/07/2019

REPORT OF AMBIENT AIR QUALITY MONITORING (NAAQM - JULY - 2019)

Name of company : Atul Limited,
Dist. : Valsad - 396 020.

Test Method : As per IS Standards - 5182_23/4/6

Location of Sampling : Hariya Water Tank

Sr. No.	Particulars	Unit	Permissible Limits*	1 st Time	2 nd Time
01.	Date of sampling	---	---	05/07/2019	19/07/2019
02.	Time of sampling	Hr	---	8.40	8.35
03.	Duration of sampling	Min.	---	1440.00	1440.00
04.	Dominant Wind Direction (From)	---	---	SE	SE
05.	Wind Speed	Km/Hr	---	3 to 6	2 to 6
06.	Avg. flow rate during sampling PM 10	m ³ /min	---	1.2	1.3
07.	Avg. flow rate during sampling PM 2.5	m ³ /Hr	---	1.0	1.0
08.	Avg. flow rate for Gas sampling	LPM	---	0.2	0.2
09.	Measured Concentration of PM 10	µg/m ³	100	40.4	43.2
10.	Measured Concentration of PM 2.5	µg/m ³	60	33	39
11.	Measured Concentration of SO ₂	µg/m ³	80	9.1	8.7
12.	Measured Concentration of NO ₂	µg/m ³	80	9.1	10.2
13.	Measured Concentration of O ₃	µg/m ³	100	8.1**	8.0**
14.	Measured Concentration of NH ₃	µg/m ³	400	N.D.	N.D.
15.	Measured Concentration of CO	mg/m ³	2.00	0.86**	0.95**
16.	Measured Concentration of C ₆ H ₆	µg/m ³	5	1.38**	1.40**
17.	Measured Concentration of Pb	µg/m ³	1	0.14	0.09
18.	Measured Concentration of Ni	ng/m ³	20	1.9	1.3
19.	Measured Concentration of As	ng/m ³	6	ND	ND
20.	Measured Concentration of B(a)P	ng/m ³	1	ND	ND

Instrument used : Ecotech make - RDS, Gaseous Sampler & PM 2.5 Sampler

All Calibration done on : 05/05/2019

*Permissible Limits are as per NAAQM Standard 2009.,

** 8:00 Hours monitoring value



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Ref. No.: 2718/08/2019-20

Date:31/08/2019

DETAILED RESULTS OF AMBIENT AIR QUALITY MONITORING FOR THE MONTH : AUGUST' 2019

Name of company : Atul Limited,
Address : District : Valsad - 396 020.

Contact Person: Mr. Hriday Desai, General Manager (HSE)

S. No.	Particulars	Unit	Location No.- 1: 66 KVA GEB Sub Station									
			01		02		03		04		05	
01.	No. of Week	---										
02.	Date & Time Starting of Monitoring	---	01/08/2019 8.25	02/08/2019 8.35	07/08/2019 8.20	08/08/2019 8.30	12/08/2019 8.25	16/08/2019 8.30	21/08/2019 8.15	22/08/2019 8.25	28/08/2019 8.45	29/08/2019 8.55
03.	Date & Time - Ending of Monitoring	---	02/08/2019 8.25	03/08/2019 8.35	08/08/2019 8.20	09/08/2019 8.30	13/08/2019 8.25	17/08/2019 8.30	22/08/2019 8.15	23/08/2019 8.25	29/08/2019 8.45	30/08/2019 8.55
04.	Duration of Sampling	Min.	1440	1440	1440	1440	1440	1440	1440	1440	1441	1442
05.	Dominant Wind Direction (From)	---	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE
06.	Wind Speed Velocity	Km/Hr.	2 to 6	4 to 8	4 to 8	3 to 8	2 to 8	5 to 8	2 to 6	4 to 8	2 to 8	4 to 8
07.	Average Flow Rate For Dust Monitoring PM _{2.5}	m ³ /Hr.	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
08.	Average Flow Rate For Dust Monitoring PM ₁₀	m ³ /Min.	1.21	1.16	1.12	1.20	1.22	1.18	1.14	1.16	1.22	1.20
09.	Average Flow Rate for Gas Monitoring	LPM	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
10.	Permissible Limits of PM _{2.5} *	µg/m ³	60	60	60	60	60	60	60	60	60	60
11.	Measured Concentration of PM _{2.5}	µg/m ³	25.6	26.2	28.4	30.2	26.3	28.1	22.2	25.8	32.7	30.2
12.	Permissible Limits of PM ₁₀ *	µg/m ³	100	100	100	100	100	100	100	100	100	100
13.	Measured Concentration of PM ₁₀	µg/m ³	38.4	35.7	40.2	39.2	36.3	32.5	35.2	36.2	40.2	41.2
14.	Permissible Limits of SO ₂ *	µg/m ³	80	80	80	80	80	80	80	80	80	80
15.	Measured Concentration of SO ₂	µg/m ³	8.1	7.6	8.2	7.7	7.6	7.2	7.2	7.5	8.3	8.5
16.	Permissible Limits of NO ₂ *	µg/m ³	80	80	80	80	80	80	80	80	80	80
17.	Measured Concentration of NO ₂	µg/m ³	7.8	7.1	8.0	7.5	7.6	7.2	6.8	7	7.3	7.9
18.	Permissible Limits of NH ₃ **	µg/m ³	850	850	850	850	850	850	850	850	850	850
19.	Measured Concentration of NH ₃	µg/m ³	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D
20.	Permissible Limits of HCL **	µg/m ³	200	200	200	200	200	200	200	200	200	200
21.	Measured Concentration of HCL **	µg/m ³	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D

Instrument Used: Ecotech make 2 Nos. of (1) RDS, Model No.: APM - 217BL, (2) Gaseous Pollutants Sampler Model No. AAS-109, (3) Ecotech PM_{2.5} Sampler Model No.: AAS 127

All Calibration done on.: 06/05/2019

*Permissible Limits are as per NAAQ Standard dated 16th November 2009., **Permissible Limits are as per GPCB CC&A

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Ref. No.: 2719/08/2019-20

Date: 31/08/2019

DETAILED RESULTS OF AMBIENT AIR QUALITY MONITORING FOR THE MONTH : AUGUST' 2019

Name of company : Atul Limited,
Address : District : Valsad - 396 020.

Contact Person: Mr. Hriday Desai, General Manager (HSE)

S. No.	Particulars	Unit	Location No.- 2: Hariya Water Tank									
			01		02		03		04		05	
01.	No. of Week	---										
02.	Date & Time Starting of Monitoring	---	01/08/2019 8.40	02/08/2019 8.50	07/08/2019 8.35	08/08/2019 8.55	12/08/2019 8.40	16/08/2019 8.55	21/08/2019 8.50	22/08/2019 9.05	28/08/2019 9.30	29/08/2019 9.45
03.	Date & Time - Ending of Monitoring	---	02/08/2019 8.40	03/08/2019 8.50	08/08/2019 8.35	09/08/2019 8.55	13/08/2019 8.40	17/08/2019 8.55	22/08/2019 8.50	23/08/2019 9.05	29/08/2019 9.30	30/08/2019 9.45
04.	Duration of Sampling	Min.	1440	1440	1440	1440	1440	1440	1440	1440	1440	1440
05.	Dominant Wind Direction (From)	---	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE
06.	Wind Speed Velocity	Km/Hr.	4 to 8	3 to 6	2 to 6	4 to 6	2 to 6	4 to 6	5 to 8	4 to 6	5 to 8	6 to 8
07.	Average Flow Rate For Dust Monitoring PM _{2.5}	m ³ /Hr.	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
08.	Average Flow Rate For Dust Monitoring PM ₁₀	m ³ /Min.	1.20	1.22	1.18	1.16	1.22	1.20	1.16	1.12	1.14	1.12
09.	Average Flow Rate for Gas Monitoring	LPM	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
10.	Permissible Limits of PM _{2.5} *	µg/m ³	60	60	60	60	60	60	60	60	60	60
11.	Measured Concentration of PM _{2.5}	µg/m ³	20.3	22.4	18.2	20.7	19.6	18.2	25.1	29.8	20.0	17.4
12.	Permissible Limits of PM ₁₀ *	µg/m ³	100	100	100	100	100	100	100	100	100	100
13.	Measured Concentration of PM ₁₀	µg/m ³	30.2	32.1	34.2	31.7	35.7	38.2	46.2	54.2	26.2	22.2
14.	Permissible Limits of SO ₂ *	µg/m ³	80	80	80	80	80	80	80	80	80	80
15.	Measured Concentration of SO ₂	µg/m ³	6.2	6.5	7.2	7.1	7	6.3	7.3	7.7	7.6	7.8
16.	Permissible Limits of NO ₂ *	µg/m ³	80	80	80	80	80	80	80	80	80	80
17.	Measured Concentration of NO ₂	µg/m ³	5.8	5.5	6.2	5.8	5.2	5.3	6	6.4	6	5.8
18.	Permissible Limits of NH ₃ **	µg/m ³	850	850	850	850	850	850	850	850	850	850
19.	Measured Concentration of NH ₃	µg/m ³	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
20.	Permissible Limits of HCL **	µg/m ³	200	200	200	200	200	200	200	200	200	200
21.	Measured Concentration of HCL	µg/m ³	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.

Instrument Used: Ecotech make 2 Nos. of (1) RDS, Model No.: APM - 217BL, (2) Gaseous Pollutants Sampler Model No. AAS-109, (3) Ecotech PM_{2.5} Sampler Model No.: AAS 127

All Calibration done on : 06/05/2019

*Permissible Limits are as per NAAQ Standard dated 16th November 2009. **Permissible Limits are as per GPCB CC&A

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Hriday Desai
Analyst



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Ref. No.: 2720/08/2019-20

Date: 31/08/2019

REPORT OF AMBIENT AIR QUALITY MONITORING (NAAQM - AUGUST - 2019)

Name of company : Atul Limited,
Dist. : Valsad - 396 020.

Test Method : As per IS Standards - 5182_23/4/6

Location of Sampling : 66 KVA GEB Sub Station

Sr. No.	Particulars	Unit	Permissible Limits*	1 st Time	2 nd Time
01.	Date of sampling	---	---	02/08/2019	16/08/2019
02.	Time of sampling	Hr	---	8.35	8.30
03.	Duration of sampling	Min.	---	1440.00	1440.00
04.	Dominant Wind Direction (From)	---	---	SE	SE
05.	Wind Speed	Km/Hr	---	4 to 8	5 to 8
06.	Avg. flow rate during sampling PM 10	m ³ /min	---	1.2	1.2
07.	Avg. flow rate during sampling PM 2.5	m ³ /Hr	---	1.0	1.0
08.	Avg. flow rate for Gas sampling	LPM	---	0.2	0.2
09.	Measured Concentration of PM 10	µg/m ³	100	35.7	32.5
10.	Measured Concentration of PM 2.5	µg/m ³	60	26.2	28.1
11.	Measured Concentration of SO ₂	µg/m ³	80	7.6	7.2
12.	Measured Concentration of NO ₂	µg/m ³	80	7.1	7.2
13.	Measured Concentration of O ₃	µg/m ³	100	5.1**	6.2**
14.	Measured Concentration of NH ₃	µg/m ³	400	N.D	N.D
15.	Measured Concentration of CO	mg/m ³	2.00	0.72**	0.79**
16.	Measured Concentration of C ₆ H ₆	µg/m ³	5	1.36**	1.41**
17.	Measured Concentration of Pb	µg/m ³	1	0.67	0.70
18.	Measured Concentration of Ni	ng/m ³	20	1.4	1.6
19.	Measured Concentration of As	ng/m ³	6	ND	ND
20.	Measured Concentration of B(a)P	ng/m ³	1	ND	ND

Instrument used : Ecotech make - RDS, Gaseous Sampler & PM 2.5 Sampler

All Calibration done on : 05/05/2019

*Permissible Limits are as per NAAQM Standard 2009.,

** 8:00 Hours monitoring value



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Ref. No.: 2721/08/2019-20

Date: 31/08/2019

REPORT OF AMBIENT AIR QUALITY MONITORING (NAAQM - AUGUST - 2019)

Name of company : Atul Limited,
Dist. : Valsad - 396 020.

Test Method : As per IS Standards - 5182_23/4/6

Location of Sampling : Hariya Water Tank

Sr. No.	Particulars	Unit	Permissible Limits*	1 st Time	2 nd Time
01.	Date of sampling	---	---	02/08/2019	16/08/2019
02.	Time of sampling	Hr	---	8.50	8.55
03.	Duration of sampling	Min.	---	1440.00	1440.00
04.	Dominant Wind Direction (From)	---	---	SE	SE
05.	Wind Speed	Km/Hr	---	3 to 6	4 to 6
06.	Avg. flow rate during sampling PM 10	m ³ /min	---	1.2	1.2
07.	Avg. flow rate during sampling PM 2.5	m ³ /Hr	---	1.0	1.0
08.	Avg. flow rate for Gas sampling	LPM	---	0.2	0.2
09.	Measured Concentration of PM 10	µg/m ³	100	32.1	38.2
10.	Measured Concentration of PM 2.5	µg/m ³	60	22	18
11.	Measured Concentration of SO ₂	µg/m ³	80	6.5	6.3
12.	Measured Concentration of NO ₂	µg/m ³	80	5.5	5.3
13.	Measured Concentration of O ₃	µg/m ³	100	4.6**	6.0**
14.	Measured Concentration of NH ₃	µg/m ³	400	N.D.	N.D.
15.	Measured Concentration of CO	mg/m ³	2.00	0.66**	0.71**
16.	Measured Concentration of C ₆ H ₆	µg/m ³	5	1.12**	1.18**
17.	Measured Concentration of Pb	µg/m ³	1	0.10	0.11
18.	Measured Concentration of Ni	ng/m ³	20	1.2	1.1
19.	Measured Concentration of As	ng/m ³	6	ND	ND
20.	Measured Concentration of B(a)P	ng/m ³	1	ND	ND

Instrument used : Ecotech make - RDS, Gaseous Sampler & PM 2.5 Sampler

All Calibration done on : 05/05/2019

*Permissible Limits are as per NAAQM Standard 2009.,

** 8:00 Hours monitoring value

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Ref. No.: 2818/09/2019-20

Date : 30/09/2019

DETAILED RESULTS OF AMBIENT AIR QUALITY MONITORING FOR THE MONTH : SEPTEMBER' 2019

Name of company : Atul Limited,
Address : District : Valsad - 396 020.

Contact Person: Mr. Hriday Desai, General Manager (HSE)

S. No.	Particulars	Unit	Location No.- 1: 66 KVA GEB Sub Station							
			01		02		03		04	
01.	No. of Week	---								
02.	Date & Time Starting of Monitoring	---	04/09/2019 8.55	05/09/2019 9.00	11/09/2019 8.30	12/09/2019 8.40	18/09/2019 9.00	19/09/2019 9.10	25/09/2019 8.20	26/09/2019 8.30
03.	Date & Time - Ending of Monitoring	---	05/09/2019 8.55	06/09/2019 9.00	12/09/2019 8.30	13/09/2019 8.40	19/09/2019 9.00	20/09/2019 9.10	26/09/2019 8.20	27/09/2019 8.30
04.	Duration of Sampling	Min.	1440	1440	1440	1440	1440	1440	1440	1440
05.	Dominant Wind Direction (From)	---	SE	SE	SE	SE	SE	SE	SE	SE
06.	Wind Speed Velocity	Km/Hr.	4 to 6	4 to 6	2 to 8	3 to 8	4 to 8	5 to 8	4 to 8	4 to 8
07.	Average Flow Rate For Dust Monitoring PM _{2.5}	m ³ /Hr.	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
08.	Average Flow Rate For Dust Monitoring PM ₁₀	m ³ /Min.	1.22	1.18	1.20	1.20	1.18	1.22	1.20	1.20
09.	Average Flow Rate for Gas Monitoring	LPM	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
10.	Permissible Limits of PM _{2.5} *	µg/m ³	60	60	60	60	60	60	60	60
11.	Measured Concentration of PM _{2.5}	µg/m ³	20.3	22.1	19.4	18.6	20.4	18.4	20.6	21.4
12.	Permissible Limits of PM ₁₀ *	µg/m ³	100	100	100	100	100	100	100	100
13.	Measured Concentration of PM ₁₀	µg/m ³	39.4	38.2	37.6	39.4	35.6	40.2	39.4	37.6
14.	Permissible Limits of SO ₂ *	µg/m ³	80	80	80	80	80	80	80	80
15.	Measured Concentration of SO ₂	µg/m ³	8.2	8.1	7.8	7.9	7.2	7.6	7.9	7.5
16.	Permissible Limits of NO ₂ *	µg/m ³	80	80	80	80	80	80	80	80
17.	Measured Concentration of NO ₂	µg/m ³	9.3	9.7	8.8	8.7	8.6	8.2	8.4	8.2
18.	Permissible Limits of NH ₃ **	µg/m ³	850	850	850	850	850	850	850	850
19.	Measured Concentration of NH ₃	µg/m ³	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D
20.	Permissible Limits of HCL **	µg/m ³	200	200	200	200	200	200	200	200
21.	Measured Concentration of HCL **	µg/m ³	N.D	N.D	N.D	N.D.	N.D.	N.D.	N.D.	N.D.

Instrument Used: Ecotech make 2 Nos. of (1) RDS, Model No.: APM - 217BL, (2) Gaseous Pollutants Sampler Model No. AAS-109, (3) Ecotech PM2.5 Sampler Model No.: AAS 127

All Calibration done on : 06/05/2019

*Permissible Limits are as per NAAQ Standard dated 16th November 2009., **Permissible Limits are as per GPCB CC&A



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Date : 30/09/2019

Ref. No.: 2820/09/2019-20

REPORT OF AMBIENT AIR QUALITY MONITORING (NAAQM - SEPTEMBER - 2019)

Name of company : Atul Limited,

Dist. : Valsad - 396 020.

Test Method : As per IS Standards - 5182_23/4/6

Location of Sampling : 66 KVA GEB Sub Station

Sr. No.	Particulars	Unit	Permissible Limits*	1 st Time	2 nd Time
01.	Date of sampling	---	---	05/09/2019	19/09/2019
02.	Time of sampling	Hr	---	9.00	9.10
03.	Duration of sampling	Min.	---	1440.00	1440.00
04.	Dominant Wind Direction (From)	---	---	SE	SE
05.	Wind Speed	Km/Hr	---	4 to 6	5 to 8
06.	Avg. flow rate during sampling PM 10	m ³ /min	---	1.2	1.2
07.	Avg. flow rate during sampling PM 2.5	m ³ /Hr	---	1.0	1.0
08.	Avg. flow rate for Gas sampling	LPM	---	0.2	0.2
09.	Measured Concentration of PM 10	µg/m ³	100	38.2	40.2
10.	Measured Concentration of PM 2.5	µg/m ³	60	22.1	18.4
11.	Measured Concentration of SO ₂	µg/m ³	80	8.1	7.6
12.	Measured Concentration of NO ₂	µg/m ³	80	9.7	8.2
13.	Measured Concentration of O ₃	µg/m ³	100	6.8**	6.9**
14.	Measured Concentration of NH ₃	µg/m ³	400	N.D	N.D
15.	Measured Concentration of CO	mg/m ³	2.00	0.75**	0.80**
16.	Measured Concentration of C ₆ H ₆	µg/m ³	5	1.66**	1.81**
17.	Measured Concentration of Pb	µg/m ³	1	0.52	0.62
18.	Measured Concentration of Ni	ng/m ³	20	1.6	1.9
19.	Measured Concentration of As	ng/m ³	6	ND	ND
20.	Measured Concentration of B(a)P	ng/m ³	1	ND	ND

Instrument used : Ecotech make - RDS, Gaseous Sampler & PM 2.5 Sampler

All Calibration done on : 05/05/2019

*Permissible Limits are as per NAAQM Standard 2009.,

** 8:00 Hours monitoring value



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Ref. No.: 2819/09/2019-20

Date : 30/09/2019

DETAILED RESULTS OF AMBIENT AIR QUALITY MONITORING FOR THE MONTH : SEPTEMBER' 2019

Name of company : Atul Limited,
Address : District : Valsad - 396 020.

Contact Person: Mr. Hriday Desai, General Manager (HSE)

S. No.	Particulars	Unit	Location No.- 2: Hariya Water Tank							
			01		02		03		04	
01.	No. of Week	---								
02.	Date & Time Starting of Monitoring	---	04/09/2019 9.00	05/09/2019 9.15	11/09/2019 8.55	12/09/2019 9.10	18/09/2019 9.30	19/09/2019 9.40	25/09/2019 8.45	26/09/2019 8.55
03.	Date & Time - Ending of Monitoring	---	05/09/2019 9.00	06/09/2019 9.15	12/09/2019 8.55	13/09/2019 9.10	19/09/2019 9.30	20/09/2019 9.40	26/09/2019 8.45	27/09/2019 8.55
04.	Duration of Sampling	Min.	1440	1440	1440	1440	1440	1440	1440	1440
05.	Dominant Wind Direction (From)	---	SE	SE	SE	SE	SE	SE	SE	SE
06.	Wind Speed Velocity	Km/Hr.	4 to 6	2 to 6	2 to 4	4 to 8	2 to 4	4 to 8	4 to 8	4 to 8
07.	Average Flow Rate For Dust Monitoring PM _{2.5}	m ³ /Hr.	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
08.	Average Flow Rate For Dust Monitoring PM ₁₀	m ³ /Min.	1.18	1.2	1.22	1.18	1.18	1.20	1.20	1.22
09.	Average Flow Rate for Gas Monitoring	LPM	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
10.	Permissible Limits of PM _{2.5} *	µg/m ³	60	60	60	60	60	60	60	60
11.	Measured Concentration of PM _{2.5}	µg/m ³	16.4	18.2	17.8	16.2	17.4	15.2	17.2	16.3
12.	Permissible Limits of PM ₁₀ *	µg/m ³	100	100	100	100	100	100	100	100
13.	Measured Concentration of PM ₁₀	µg/m ³	32.8	34.2	33.7	37.8	32.1	36.4	38.2	39.7
14.	Permissible Limits of SO ₂ *	µg/m ³	80	80	80	80	80	80	80	80
15.	Measured Concentration of SO ₂	µg/m ³	5.8	6	6.4	6.3	6.4	5.9	6.2	6.7
16.	Permissible Limits of NO ₂ *	µg/m ³	80	80	80	80	80	80	80	80
17.	Measured Concentration of NO ₂	µg/m ³	6.5	6.8	7.5	7.3	7.1	6.7	7.2	7.6
18.	Permissible Limits of NH ₃ **	µg/m ³	850	850	850	850	850	850	850	850
19.	Measured Concentration of NH ₃	µg/m ³	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
20.	Permissible Limits of HCL **	µg/m ³	200	200	200	200	200	200	200	200
21.	Measured Concentration of HCL	µg/m ³	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.

Instrument Used: Ecotech make 2 Nos. of (1) RDS, Model No.: APM - 217BL, (2) Gaseous Pollutants Sampler Model No. AAS-109, (3) Ecotech - PM_{2.5} Sampler Model No.: AAS 127

All Calibration done on. : 06/05/2019

*Permissible Limits are as per NAAQ Standard dated 16th November 2009., **Permissible Limits are as per GPCB CC&A



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Date : 30/09/2019

Ref. No.: 2821/09/2019-20

REPORT OF AMBIENT AIR QUALITY MONITORING (NAAQM - SEPTEMBER- 2019)

Name of company : Atul Limited,

Dist. : Valsad - 396 020.

Test Method : As per IS Standards - 5182_23/4/6

Location of Sampling : Hariya Water Tank

Sr. No.	Particulars	Unit	Permissible Limits*	1 st Time	2 nd Time
01.	Date of sampling	---	---	05/09/2019	19/09/2019
02.	Time of sampling	Hr	---	9.15	9.40
03.	Duration of sampling	Min.	---	1440.00	1440.00
04.	Dominant Wind Direction (From)	---	---	SE	SE
05.	Wind Speed	Km/Hr	---	2 to 6	4 to 8
06.	Avg. flow rate during sampling PM 10	m ³ /min	---	1.2	1.2
07.	Avg. flow rate during sampling PM 2.5	m ³ /Hr	---	1.0	1.0
08.	Avg. flow rate for Gas sampling	LPM	---	0.2	0.2
09.	Measured Concentration of PM 10	µg/m ³	100	34.2	36.4
10.	Measured Concentration of PM 2.5	µg/m ³	60	18	15
11.	Measured Concentration of SO ₂	µg/m ³	80	6.0	5.9
12.	Measured Concentration of NO ₂	µg/m ³	80	6.8	6.7
13.	Measured Concentration of O ₃	µg/m ³	100	4.6**	6.0**
14.	Measured Concentration of NH ₃	µg/m ³	400	N.D.	N.D.
15.	Measured Concentration of CO	mg/m ³	2.00	0.66**	0.71**
16.	Measured Concentration of C ₆ H ₆	µg/m ³	5	1.12**	1.18**
17.	Measured Concentration of Pb	µg/m ³	1	0.10	0.11
18.	Measured Concentration of Ni	ng/m ³	20	1.2	1.1
19.	Measured Concentration of As	ng/m ³	6	ND	ND
20.	Measured Concentration of B(a)P	ng/m ³	1	ND	ND

Instrument used : Ecotech make - RDS, Gaseous Sampler & PM 2.5 Sampler

All Calibration done on : 05/05/2019

*Permissible Limits are as per NAAQM Standard 2009.,

** 8:00 Hours monitoring value



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Ref. No.: 230/04/2019-20

Report of Stack Emission of Boilers/Heaters, Month April 2019

Sr. No.	Source	Date of Sampling	Parameter			Type of fuel used	
			SPM	SO ₂	NO _x		
	Permissible limits *	---	100.0 mg/Nm ³	600.0 mg/Nm ³	600.0 mg/Nm ³		
1	FBC Boiler E1	18/04/2019	75	98	120	Coal	
2	FBC Boiler E2	---	Not Running During the Month				
3	FBC Boiler E3	18/04/2019	80	128	145		
4	FBC Boiler W1(old)	10/04/2019	65	95	135		
	Source	Date of Sampling	Parameter			Type of fuel used	
			SPM	SO ₂	NO _x		
	Permissible limits *	---	150.0 mg/Nm ³	100.0 ppm	50.0 ppm		
5	Hot Oil Unit (Resorcinol Plant)	10/04/2019	N.D.	N.D.	45	CNG	
6	Hot Oil Plant shed-B	25/04/2019	N.D.	N.D.	45	CNG	
7	Oil burner Shed-B (Stand By)	---	Not Running During the Month			CNG	
8	Thermic Fluid Heater of DCO/DAP Plant	12/04/2019	N.D.	N.D.	40	CNG	
9	DG set 1500 KVA (Standby)	---	Not Running During the Month			Diesel	
10	DG set 1010 KVA (Standby)	---	Not Running During the Month			Diesel	
	Source	Date of Sampling	Parameter				Type of fuel used
			SPM	SO ₂	NO _x	Mercury	
	Permissible Limits *	---	50.0 mg/Nm ³	600.0 mg/Nm ³	300.0 mg/Nm ³	---	
11	Boiler (50 TPH 2 Nos) Commn Stack, W2,W3	12/04/2019	45	105	95	ND	Coal

* Permissible Limits are as per MoEF Notification dated : 7th December, 2015. S.O.3305 (E)

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Ref. No.: 240/05/2019-20

Report of Stack Emission of Boilers/Heaters, Month MAY 2019

Sr. No.	Source	Date of Sampling	Parameter			Type of fuel used	
			SPM	SO ₂	NO _x		
	Permissible limits *	---	100.0 mg/Nm ³	600.0 mg/Nm ³	600.0 mg/Nm ³		
1	FBC Boiler E1	---	Not Running During the Month			Coal	
2	FBC Boiler E2	---	Not Running During the Month				
3	FBC Boiler E3	24/05/2019	85	135	152		
4	FBC Boiler W1(old)	17/05/2019	70	98	145		
	Source	Date of Sampling	Parameter			Type of fuel used	
	Permissible limits *	---	SPM	SO ₂	NO _x		
			150.0 mg/Nm ³	100.0 ppm	50.0 ppm		
5	Hot Oil Unit (Resorcinol Plant)	16/05/2019	N.D.	N.D.	46	CNG	
6	Hot Oil Plant shed-B	02/05/2019	N.D.	N.D.	48	CNG	
7	Oil burner Shed-B (Stand By)	---	Not Running During the Month			CNG	
8	Thermic Fluid Heater of DCO/DAP Plant	17/05/2019	N.D.	N.D.	45	CNG	
9	DG set 1500 KVA (Standby)	---	Not Running During the Month			Diesel	
10	DG set 1010 KVA (Standby)	---	Not Running During the Month			Diesel	
	Source	Date of Sampling	Parameter				Type of fuel used
	Permissible Limits *	---	SPM	SO ₂	NO _x	Mercury	
			50.0 mg/Nm ³	600.0 mg/Nm ³	300.0 mg/Nm ³	---	
11	Boiler (50 TPH 2 Nos) Commn Stack, W2,W3	17/05/2019	48	112	99	ND	Coal

* Permissible Limits are as per MoEF Notification dated : 7th December, 2015. S.O.3305 (E)

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Ref. No.: 250/06/2019-20

Report of Stack Emission of Boilers/Heaters, Month JUNE 2019

Sr. No.	Source	Date of Sampling	Parameter			Type of fuel used	
			SPM	SO ₂	NO _x		
	Permissible limits *	---	100.0 mg/Nm ³	600.0 mg/Nm ³	600.0 mg/Nm ³		
1	FBC Boiler E1	---	Not Running During the Month			Coal	
2	FBC Boiler E2	06/06/2019	84	132	150		
3	FBC Boiler E3	07/06/2019	81	133	148		
4	FBC Boiler W1(old)	05/06/2019	68	96	142		
	Source	Date of Sampling	Parameter			Type of fuel used	
	Permissible limits *	---	SPM	SO ₂	NO _x		
	Permissible limits *	---	150.0 mg/Nm ³	100.0 ppm	50.0 ppm		
5	Hot Oil Unit (Resorcinol Plant)	28/06/2019	N.D.	N.D.	42	CNG	
6	Hot Oil Plant shed-B	06/06/2019	N.D.	N.D.	44	CNG	
7	Oil burner Shed-B (Stand By)	---	Not Running During the Month			CNG	
8	Thermic Fluid Heater of DCO/DAP Plant	14/06/2019	N.D.	N.D.	43	CNG	
9	DG set 1500 KVA (Standby)	---	Not Running During the Month			Diesel	
10	DG set 1010 KVA (Standby)	---	Not Running During the Month			Diesel	
	Source	Date of Sampling	Parameter				Type of fuel used
	Permissible Limits *	---	SPM	SO ₂	NO _x	Mercury	
	Permissible Limits *	---	50.0 mg/Nm ³	600.0 mg/Nm ³	300.0 mg/Nm ³	---	
11	Boiler (50 TPH 2 Nos) Commn Stack, W2,W3	05/06/2019	47	109	95	ND	Coal

* Permissible Limits are as per MoEF Notification dated : 7th December, 2015. S.O.3305 (E)

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Ref. No.: 260/07/2019-20

Report of Stack Emission of Boilers/Heaters, Month JULY 2019

Sr. No.	Source	Date of Sampling	Parameter			Type of fuel used	
			SPM	SO ₂	NO _x		
	Permissible limits *	---	100.0 mg/Nm ³	600.0 mg/Nm ³	600.0 mg/Nm ³		
1	FBC Boiler E1	11/07/2019	87	120	135	Coal	
2	FBC Boiler E2	05/07/2019	82	127	147		
3	FBC Boiler E3	19/07/2019	82	126	138		
4	FBC Boiler W1(old)	25/07/2019	68	94	132		
	Source	Date of Sampling	Parameter			Type of fuel used	
			SPM	SO ₂	NO _x		
	Permissible limits *	---	150.0 mg/Nm ³	100.0 ppm	50.0 ppm		
5	Hot Oil Unit (Resorcinol Plant)	25-07-2019	N.D.	N.D.	38	CNG	
6	Hot Oil Plant shed-B	26-07-2019	N.D.	N.D.	39	CNG	
7	Oil burner Shed-B (Stand By)	---	Not Running During the Month			CNG	
8	Thermic Fluid Heater of DCO/DAP Plant	25-07-2019	N.D.	N.D.	42	CNG	
9	DG set 1500 KVA (Standby)	---	Not Running During the Month			Diesel	
10	DG set 1010 KVA (Standby)	---	Not Running During the Month			Diesel	
	Source	Date of Sampling	Parameter				Type of fuel used
			SPM	SO ₂	NO _x	Mercury	
	Permissible Limits *	---	50.0 mg/Nm ³	600.0 mg/Nm ³	300.0 mg/Nm ³	---	
11	Boiler (50 TPH 2 Nos) Commn Stack, W2,W3	13/07/2019	47	109	95	ND	Coal

* Permissible Limits are as per MoEF Notification dated : 7th December, 2015. S.O.3305 (E)

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Ref. No.: 270/08/2019-20

Report of Stack Emission of Boilers/Heaters, Month AUGUST' 2019

Sr. No.	Source	Date of Sampling	Parameter			Type of fuel used	
			SPM	SO ₂	NO _x		
	Permissible limits *	---	100.0 mg/Nm ³	600.0 mg/Nm ³	600.0 mg/Nm ³		
1	FBC Boiler E1	22/08/2019	65	103	123	Coal	
2	FBC Boiler E2	02/08/2019	83	108	138		
3	FBC Boiler E3	08/08/2019	73	142	147		
4	FBC Boiler W1(old)	25/07/2019	53	105	120		
	Source	Date of Sampling	Parameter			Type of fuel used	
			SPM	SO ₂	NO _x		
	Permissible limits *	---	150.0 mg/Nm ³	100.0 ppm	50.0 ppm		
5	Hot Oil Unit (Resorcinol Plant)	30-08-2019	N.D.	N.D.	22	CNG	
6	Hot Oil Plant shed-B	22-08-2019	N.D.	N.D.	27	CNG	
7	Oil burner Shed-B (Stand By)	---	Not Running During the Month			CNG	
8	Thermic Fluid Heater of DCO/DAP Plant	29-08-2019	N.D.	N.D.	42	CNG	
9	DG set 1500 KVA (Standby)	---	Not Running During the Month			Diesel	
10	DG set 1010 KVA (Standby)	---	Not Running During the Month			Diesel	
	Source	Date of Sampling	Parameter				Type of fuel used
			SPM	SO ₂	NO _x	Mercury	
	Permissible Limits *	---	50.0 mg/Nm ³	600.0 mg/Nm ³	300.0 mg/Nm ³	---	
11	Boiler (50 TPH 2 Nos) Commn Stack, W2,W3	09/08/2019	34	120	84	ND	Coal

* Permissible Limits are as per MoEF Notification dated : 7th December, 2015. S.O.3305 (E)

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Ref. No.: 280/09/2019-20

Report of Stack Emission of Boilers/Heaters, Month September' 2019

Sr. No.	Source	Date of Sampling	Parameter			Type of fuel used	
			SPM	SO ₂	NO _x		
	Permissible limits *	---	100.0 mg/Nm ³	600.0 mg/Nm ³	600.0 mg/Nm ³		
1	FBC Boiler E1	20/09/2019	60	114	142	Coal	
2	FBC Boiler E2	11/09/2019	80	107	138		
3	FBC Boiler E3	26/09/2019	68	135	132		
4	FBC Boiler W1(old)	19/09/2019	64	110	127		
	Source	Date of Sampling	Parameter			Type of fuel used	
			SPM	SO ₂	NO _x		
	Permissible limits *	---	150.0 mg/Nm ³	100.0 ppm	50.0 ppm		
5	Hot Oil Unit (Resorcinol Plant)	27-09-2019	N.D.	N.D.	28	CNG	
6	Hot Oil Plant shed-B	27-09-2019	N.D.	N.D.	30	CNG	
7	Oil burner Shed-B (Stand By)	---	Not Running During the Month			CNG	
8	Thermic Fluid Heater of DCO/DAP Plant	13-09-2019	N.D.	N.D.	38	CNG	
9	DG set 1500 KVA (Standby)	---	Not Running During the Month			Diesel	
10	DG set 1010 KVA (Standby)	---	Not Running During the Month			Diesel	
	Source	Date of Sampling	Parameter				Type of fuel used
			SPM	SO ₂	NO _x	Mercury	
	Permissible Limits *	---	50.0 mg/Nm ³	600.0 mg/Nm ³	300.0 mg/Nm ³	---	
11	Boiler (50 TPH 2 Nos) Commn Stack, W2,W3	20/09/2019	29	138	98	ND	Coal

* Permissible Limits are as per MoEF Notification dated : 7th December, 2015. S.O.3305 (E)





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Ref. No.: 235/04/2019-20

Date : 30/04/2019

Name of Company : Atul Limited
District : Valsad - 396 020.

REPORT OF STACK / VENT EMISSION ANALYSIS					
Scrubber & Vents					
Sr. No.	Stack Details	Date of Sampling	Parameter	Permissible Limits	Obtained Value (in mg/Nm ³ except where specified)
Atul East Site					
1	Phosgene Plant	---	Phosgene	0.1 ppm	Not in Use
2	Dechlorination Plant(Hypo)	05/04/2019	Cl ₂	9.0 mg/Nm ³	3.2
			HCl	20.0 mg/Nm ³	4.8
3	Common stack of HCL Sigr Unit-1 & 2	05/04/2019	Cl ₂	9.0 mg/Nm ³	6.5
			HCl	20.0 mg/Nm ³	6.8
FCB Plant					
4	Foul Gas Scubber	---	SO ₂	40.0 mg/Nm ³	Not in Use
			NOx	25.0 mg/Nm ³	
Sulfuric Acid (East Side)					
5	Sulphuric Acid Plant	19/04/2019	SO ₂	2.0 kg/T	0.9
			Acid Mist	50.0 mg/Nm ³	6.3
6	ChloroSulfonic Plant Reactor	Not running during visit	Cl ₂	9.0 mg/Nm ³	---
			HCl	20.0 mg/Nm ³	---
Incinerator					
7	Incinerator	04/04/2019	SPM	150.0 mg/Nm ³	80
			SO ₂	40.0 mg/Nm ³	17.8
			NOx	25.0 mg/Nm ³	13.5
			% of Efficiency	%	99.9

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PradiP.
Analyst



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Ref. No.: 236/04/2019-20

Date : 30/04/2019

Scrubber & Vents

Sr. No.	Stack Details	Date of Sampling	Parameter	Permissible Limits	Obtained Value (in mg/Nm ³ except where specified)
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NI Plant

8	Foul Gas Scrubber	Not Running During Visit	SO ₂	40.0 mg/Nm ³	---
			Nox	25.0 mg/Nm ³	---

2-4-D Plant

9	Dryer-1	18/04/2019	SPM	20.0 mg/Nm ³	7.2
10	Dryer-2		SPM	20.0 mg/Nm ³	7.9
11	Dryer-3		SPM	20.0 mg/Nm ³	9.5
12	Dryer-4		SPM	20.0 mg/Nm ³	8.1
13	Common Scrubber; 2,4D Plant	18/04/2019	Cl ₂	9.0 mg/Nm ³	7.3
			HCL	20.0 mg/Nm ³	8.1
			Phenol	---	N.D.

NBD Plant

14	Spray Dryer	---	SPM	150.0 mg/Nm ³	Not in Use
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CP Plant

15	MCPA	Not Running During visit	Cl ₂	9.0 mg/Nm ³	---
			HCL	20.0 mg/Nm ³	---
			SO ₂	40.0 mg/Nm ³	---
16	Fipronil	Not Running During visit	SO ₂	40.0 mg/Nm ³	---
			HCL	20.0 mg/Nm ³	---
17	Imidacloprid	Not Running During visit	NH ₃	175 mg/Nm ³	---
18	Pyrethroids	Not Running During visit	SO ₂	40.0 mg/Nm ³	---
			HCL	20.0 mg/Nm ³	---
19	Stack at Amine Plant	04/04/2019	NH ₃	175 mg/Nm ³	7.9





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Ref. No.: 237/04/2019-20

Date : 30/04/2019

Scrubber & Vents					
Sr. No.	Stack Details	Date of Sampling	Parameter	Permissible Limits	Obtained Value (in mg/Nm ³ except where specified)
Atul West Site					
28	Shed A05/03/44	03/04/2019	Cl ₂	9.0 mg/Nm ³	4.2
			HCl	20.0 mg/Nm ³	7.1
29	Shed B18/02/24 Fan	04/04/2019	SO ₂	40 Mg/Nm ³	5.2
			Cl ₂	9.0 mg/Nm ³	4.6
			HCl	20.0 mg/Nm ³	5.1
30	Shed B2/12/24 Reaction Vessel	04/04/2019	Cl ₂	9.0 mg/Nm ³	6.8
			HCl	20.0 mg/Nm ³	5.8
31	Shed C5/20/15 Chlorinator	05/04/2019	Cl ₂	9.0 mg/Nm ³	6.4
			HCl	20.0 mg/Nm ³	7
32	Shed D Niro Spray dryer 45	11/04/2019	SPM	150.0 mg/Nm ³	75
33	Shed D Niro Spray dryer 50		SPM	150.0 mg/Nm ³	58
34	Shed E 7/12/49 Spray Dryer	04-04-2019	SPM	150.0 mg/Nm ³	13.2
35	Shed F F6/1/15 Reaction Vessel	04/04/2019	Cl ₂	9.0 mg/Nm ³	6.3
			HCl	20.0 mg/Nm ³	6.7
36	Shed G 10/8/1 (receiver)	Not Running During Visit	Cl ₂	9.0 mg/Nm ³	---
			HCl	20.0 mg/Nm ³	---
37	Shed H H1/6/17 Chlorinator	11/04/2019	Cl ₂	9.0 mg/Nm ³	6.5
			HCl	20.0 mg/Nm ³	6.8
38	Shed K K-13/3/4 Final of Sulfuric acid plant	11/04/2019	SO ₂	2.0 kg/T	1.7
			Acid Mist	50.0 mg/Nm ³	13.5
39	Shed J15/09/25	11/04/2019	HBr	---	N.D.
			SO ₂	40 Mg/Nm ³	8.9
40	Shed J12/01/42	11-04-2019	SO ₂	40 Mg/Nm ³	7.5
			Cl ₂	20.0 mg/Nm ³	7.2
			HCl	9.0 mg/Nm ³	6.3
41	Shed J12/03/36	11/04/2019	SO ₂	40 Mg/Nm ³	9.1
			HCl	9.0 mg/Nm ³	6.5
42	Shed N Scrubber Fan N20/03/24	12/04/2019	Cl ₂	9.0 mg/Nm ³	6.3
			HCl	20.0 mg/Nm ³	9.8
43	Shed N Scrubber Fan N20/02/41	12/04/2019	SO ₂	40 Mg/Nm ³	8.3





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Ref. No.: 238/04/2019-20

Date : 30/04/2019

Scrubber & Vents					
Sr. No.	Stack Details	Date of Sampling	Parameter	Permissible Limits	Obtained Value (in mg/Nm ³ except where specified)
MPSL Plant					
20	Phosgene Scrubber at MPSL	12/04/2019	Phosgene	0.1 ppm	N.D.
21	Central Scrubber at MPSL	12/04/2019	Phosgene	0.1 ppm	N.D.
NICO Plant					
22	Central scrubber at Nico Plant	---	Acetonytryle, IPA	---	---
ESTER Plant					
23	Scrubber at Ester plant for Glyphosate	Not Running During visit	Formaldehyde	10 Mg/Nm ³	---
24	Central Scrubber MCPA Plant	Not Running During visit	HCL	20 Mg/Nm ³	---
25	MPP Plant Scrubber	Not Running During visit	HCL	20 Mg/Nm ³	---
			Phosgene	0.1 ppm	---
Atul East Site					
26	Sulfer Black Plant	19/04/2019	H ₂ S	---	N.D.
			NH ₃	175.0 mg/Nm ³	18.2
27	Sulfer Dyes Plant	19/04/2019	H ₂ S	---	N.D.
			NH ₃	175.0 mg/Nm ³	16.5

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Ref. No.: 239/04/2019-20

Date : 30/04/2019

Scrubber & Vents					
Sr. No.	Stack Details	Date of Sampling	Parameter	Permissible Limits	Obtained Value (in mg/Nm ³ except where specified)
Atul North Site					
44	Catalytic Incinerator of N-FDH Plant	12/04/2019	SPM	150.0 mg/Nm ³	60
			SO ₂	40.0 mg/Nm ³	13.5
			Nox	25.0 mg/Nm ³	11.8
			Formaldehyde	10.0 mg/Nm ³	N.D.
45	PHIN Plant vessel	10/04/2019	Phosgene	0.1 ppm	N.D.
46	DCDPS Plant	10/04/2019	SO ₃	—	N.D.
47	DDS Plant	10/04/2019	NH ₃	175 Mg/Nm ³	15.8
48	SPIC II Plant	13/04/2019	SO ₃	—	N.D.
49	SPIC I Plant	13/04/2019	NH ₃	175 Mg/Nm ³	15.8
50	SPIC IV Plant	10/04/2019	NH ₃	175 Mg/Nm ³	16.5
			SO ₂	—	8.5
51	Furnace (Phosgene Plant New)	25/04/2019	PM	150Mg/Nm ³	85
52	Rector (Phosgene Plant New)	25/04/2019	CO	—	N.D.
			Phosgene	0.1ppm	N.D.

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Ref. No.: 245/05/2019-20

Date : 31/05/2019

Name of Company : Atul Limited

District : Valsad - 396 020.

REPORT OF STACK / VENT EMISSION ANALYSIS

Scrubber & Vents

Sr. No.	Stack Details	Date of Sampling	Parameter	Permissible Limits	Obtained Value (in mg/Nm ³ except where specified)
Atul East Site					
1	Phosgene Plant	---	Phosgene	0.1 ppm	Not in Use
2	Dechlorination Plant(Hypo)	Shutdown during visit	Cl ₂	9.0 mg/Nm ³	---
			HCl	20.0 mg/Nm ³	---
3	Common stack of HCL Sigri Unit-1 & 2	Shutdown during visit	Cl ₂	9.0 mg/Nm ³	---
			HCl	20.0 mg/Nm ³	---
FCB Plant					
4	Foul Gas Scubber	---	SO ₂	40.0 mg/Nm ³	Not in Use
			NOx	25.0 mg/Nm ³	
Sulfuric Acid (East Side)					
5	Sulphuric Acid Plant	16/05/2019	SO ₂	2.0 kg/T	1.1
			Acid Mist	50.0 mg/Nm ³	7.8
6	ChloroSulfonic Plant Reactor	16/05/2019	Cl ₂	9.0 mg/Nm ³	8.1
			HCl	20.0 mg/Nm ³	15.3
Incinerator					
7	Incinerator	02/05/2019	SPM	150.0 mg/Nm ³	85
			SO ₂	40.0 mg/Nm ³	18.3
			NOx	25.0 mg/Nm ³	14.5
			% of Efficiency	%	99.9

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Ref. No.: 246/05/2019-20

Date : 31/05/2019

Scrubber & Vents

Sr. No.	Stack Details	Date of Sampling	Parameter	Permissible Limits	Obtained Value (in mg/Nm ³ except where specified)
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NI Plant

8	Foul Gas Scrubber	Not Running During Visit	SO ₂	40.0 mg/Nm ³	---
			Nox	25.0 mg/Nm ³	---

2-4-D Plant

9	Dryer-1	10/05/2019	SPM	20.0 mg/Nm ³	7.5
10	Dryer-2		SPM	20.0 mg/Nm ³	8.3
11	Dryer-3		SPM	20.0 mg/Nm ³	9.8
12	Dryer-4		SPM	20.0 mg/Nm ³	8.5
13	Common Scrubber; 2,4D Plant	10/05/2019	Cl ₂	9.0 mg/Nm ³	7.6
			HCL	20.0 mg/Nm ³	8.4
			Phenol	---	N.D.

NBD Plant

14	Spray Dryer	---	SPM	150.0 mg/Nm ³	Not in Use
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CP Plant

15	MCPA	Not Running During visit	Cl ₂	9.0 mg/Nm ³	---
			HCL	20.0 mg/Nm ³	---
			SO ₂	40.0 mg/Nm ³	---
16	Fipronil	Not Running During visit	SO ₂	40.0 mg/Nm ³	---
			HCL	20.0 mg/Nm ³	---
17	Imidacloprid	Not Running During visit	NH ₃	175 mg/Nm ³	---
18	Pyrethroids	Not Running During visit	SO ₂	40.0 mg/Nm ³	---
			HCL	20.0 mg/Nm ³	---
19	Stack at Amine Plant	02-05-19	NH ₃	175 mg/Nm ³	8.3





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Ref. No.: 248/05/2019-20

Date : 31/05/2019

Scrubber & Vents					
Sr. No.	Stack Details	Date of Sampling	Parameter	Permissible Limits	Obtained Value (in mg/Nm ³ except where specified)
MPSL Plant					
20	Phosgene Scrubber at MPSL	15/05/2019	Phosgene	0.1 ppm	N.D.
21	Central Scrubber at MPSL	15/05/2019	Phosgene	0.1 ppm	N.D.
NICO Plant					
22	Central scrubber at Nico Plant	---	Acetonytryle, IPA	---	---
ESTER Plant					
23	Scrubber at Ester plant for Glyphosate	Not Running During visit	Formaldehyde	10 Mg/Nm ³	---
24	Central Scrubber MCPA Plant	Not Running During visit	HCL	20 Mg/Nm ³	---
25	MPP Plant Scrubber	Not Running During visit	HCL	20 Mg/Nm ³	---
			Phosgene	0.1 ppm	---
Atul East Site					
26	Sulfer Black Plant	23/05/2019	H ₂ S	---	N.D.
			NH ₃	175.0 mg/Nm ³	18.6
27	Sulfer Dyes Plant	23/05/2019	H ₂ S	---	N.D.
			NH ₃	175.0 mg/Nm ³	17.2
28	MPP Plant	24/05/2019	HCL	20 Mg/Nm ³	15.3
29	Flavors & Fragrances Plant	24/05/2019	HCL	20 Mg/Nm ³	16.3

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Ref. No.: 247/05/2019-20

Date : 31/05/2019

Scrubber & Vents

Sr. No.	Stack Details	Date of Sampling	Parameter	Permissible Limits	Obtained Value (in mg/Nm ³ except where specified)
Atul West Site					
30	Shed A05/03/44	02/05/2019	Cl ₂	9.0 mg/Nm ³	4.3
			HCl	20.0 mg/Nm ³	7.3
31	Shed B18/02/24 Fan	02/05/2019	SO ₂	40 Mg/Nm ³	5.6
			Cl ₂	9.0 mg/Nm ³	4.3
			HCl	20.0 mg/Nm ³	5.3
32	Shed B2/12/24 Reaction Vessel	02/05/2019	Cl ₂	9.0 mg/Nm ³	7.1
			HCl	20.0 mg/Nm ³	6.2
33	Shed C5/20/15 Chlorinator	02/05/2019	Cl ₂	9.0 mg/Nm ³	6.5
			HCl	20.0 mg/Nm ³	7.1
34	Shed D Niro Spray dryer 45	02/05/2019	SPM	150.0 mg/Nm ³	80
35	Shed D Niro Spray dryer 50		SPM	150.0 mg/Nm ³	63
36	Shed E 7/12/49 Spray Dryer	Not Running During Visit	SPM	150.0 mg/Nm ³	---
37	Shed F F6/1/15 Reaction Vessel	02/05/2019	Cl ₂	9.0 mg/Nm ³	6.8
			HCl	20.0 mg/Nm ³	6.9
38	Shed G 10/8/1 (receiver)	Not Running During Visit	Cl ₂	9.0 mg/Nm ³	---
			HCl	20.0 mg/Nm ³	---
39	Shed H H1/6/17 Chlorinator	16/05/2019	Cl ₂	9.0 mg/Nm ³	6.6
			HCl	20.0 mg/Nm ³	7.1
40	Shed K K-13/3/4 Final of Sulfuric acid plant	09/05/2019	SO ₂	2.0 kg/T	1.8
			Acid Mist	50.0 mg/Nm ³	14.3
41	Shed J15/09/25	09/05/2019	HBr	---	N.D.
			SO ₂	40 Mg/Nm ³	9.1
42	Shed J12/01/42	09/05/2019	SO ₂	40 Mg/Nm ³	8.2
			Cl ₂	20.0 mg/Nm ³	7.6
			HCl	9.0 mg/Nm ³	6.5
43	Shed J12/03/36	09/05/2019	SO ₂	40 Mg/Nm ³	9.3
			HCl	9.0 mg/Nm ³	6.6
44	Shed N Scrubber Fan N20/03/24	09/05/2019	Cl ₂	9.0 mg/Nm ³	6.5
			HCl	20.0 mg/Nm ³	10.5
45	Shed N Scrubber Fan N20/02/41	09/05/2019	SO ₂	40 Mg/Nm ³	8.5



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Ref. No.: 249/05/2019-20

Date : 31/05/2019

Scrubber & Vents					
Sr. No.	Stack Details	Date of Sampling	Parameter	Permissible Limits	Obtained Value (in mg/Nm ³ except where specified)
Atul North Site					
46	Catalytic Incinerator of N-FDH Plant	09/05/2019	SPM	150.0 mg/Nm ³	65
			SO ₂	40.0 mg/Nm ³	14.8
			NO _x	25.0 mg/Nm ³	12.9
			Formaldehyde	10.0 mg/Nm ³	N.D.
47	PHIN Plant vessel	03/05/2019	Phosgene	0.1 ppm	N.D.
48	PHIN - II Plant	03/05/2019	HCL	20 Mg/Nm ³	13.2
			COCl ₂	0.1 ppm	N.D.
49	DCDPS Plant	17/05/2019	SO ₃	---	N.D.
50	DDS Plant	17/05/2019	NH ₃	175 Mg/Nm ³	16.3
51	SPIC II Plant	17/05/2019	SO ₃	---	N.D.
52	SPIC I Plant	17/05/2019	NH ₃	175 Mg/Nm ³	16.5
53	SPIC IV Plant	17/05/2019	NH ₃	175 Mg/Nm ³	17.3
			SO ₂	---	8.9
54	Furnace (Phosgene Plant New)	03/05/2019	PM	150Mg/Nm ³	95
55	Rector (Phosgene Plant New)	03/05/2019	CO	---	N.D.
			Phosgene	0.1ppm	N.D.



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Ref. No.: 255/06/2019-20

Date : 29/06/2019

Name of Company : Atul Limited

District : Valsad - 396 020.

REPORT OF STACK / VENT EMISSION ANALYSIS

Scrubber & Vents

Sr. No.	Stack Details	Date of Sampling	Parameter	Permissible Limits	Obtained Value (in mg/Nm ³ except where specified)
Atul East Site					
1	Phosgene Plant	---	Phosgene	0.1 ppm	Not in Use
2	Dechlorination Plant(Hypo)	22/06/2019	Cl ₂	9.0 mg/Nm ³	8.1
			HCl	20.0 mg/Nm ³	15.2
3	Common stack of HCL Sigri Unit-1 & 2	22/06/2019	Cl ₂	9.0 mg/Nm ³	8.1
			HCl	20.0 mg/Nm ³	12.3
FCB Plant					
4	Foul Gas Scubber	---	SO ₂	40.0 mg/Nm ³	Not in Use
			NOx	25.0 mg/Nm ³	
Sulfuric Acid (East Side)					
5	Sulphuric Acid Plant	21/06/2019	SO ₂	2.0 kg/T	1.2
			Acid Mist	50.0 mg/Nm ³	8.5
6	ChloroSulfonic Plant Reactor	21/06/2019	Cl ₂	9.0 mg/Nm ³	8.5
			HCl	20.0 mg/Nm ³	14.2
Incinerator					
7	Incinerator	06/06/2019	SPM	150.0 mg/Nm ³	92
			SO ₂	40.0 mg/Nm ³	20.3
			NOx	25.0 mg/Nm ³	16.1
			% of Efficiency	%	99.9

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Ref. No.: 256/06/2019-20

Date : 29/06/2019

Scrubber & Vents

Sr. No.	Stack Details	Date of Sampling	Parameter	Permissible Limits	Obtained Value (in mg/Nm ³ except where specified)
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NI Plant

8	Foul Gas Scrubber	Not Running During Visit	SO ₂	40.0 mg/Nm ³	---
			Nox	25.0 mg/Nm ³	---

2-4-D Plant

9	Dryer-1	26/06/2019	SPM	20.0 mg/Nm ³	8.3
10	Dryer-2		SPM	20.0 mg/Nm ³	10.1
11	Dryer-3		SPM	20.0 mg/Nm ³	10.5
12	Dryer-4		SPM	20.0 mg/Nm ³	9.5
13	Common Scrubber; 2,4D Plant	26/06/2019	Cl ₂	9.0 mg/Nm ³	8.2
			HCL	20.0 mg/Nm ³	9.8
			Phenol	---	N.D.

NBD Plant

14	Spray Dryer	---	SPM	150.0 mg/Nm ³	Not in Use
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CP Plant

15	MCPA	Not Running During visit	Cl ₂	9.0 mg/Nm ³	---
			HCL	20.0 mg/Nm ³	---
			SO ₂	40.0 mg/Nm ³	---
16	Fipronil	Not Running During visit	SO ₂	40.0 mg/Nm ³	---
			HCL	20.0 mg/Nm ³	---
17	Imidacloprid	Not Running During visit	NH ₃	175 mg/Nm ³	---
18	Pyrethroids	Not Running During visit	SO ₂	40.0 mg/Nm ³	---
			HCL	20.0 mg/Nm ³	---
19	Stack at Amine Plant	06-06-2019	NH ₃	175 mg/Nm ³	8.1





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Ref. No.: 258/06/2019-20

Date : 29/06/2019

Scrubber & Vents					
Sr. No.	Stack Details	Date of Sampling	Parameter	Permissible Limits	Obtained Value (in mg/Nm ³ except where specified)
MPSL Plant					
20	Phosgene Scrubber at MPSL	21/06/2019	Phosgene	0.1 ppm	N.D.
21	Central Scrubber at MPSL	21/06/2019	Phosgene	0.1 ppm	N.D.
NICO Plant					
22	Central scrubber at Nico Plant	---	Acetonytryle, IPA	---	---
ESTER Plant					
23	Scrubber at Ester plant for Glyphosate	Not Running During visit	Formaldehyde	10 Mg/Nm ³	---
24	Central Scrubber MCPA Plant	Not Running During visit	HCL	20 Mg/Nm ³	---
25	MPP Plant Scrubber	Not Running During visit	HCL	20 Mg/Nm ³	---
			Phosgene	0.1 ppm	---
Atul East Site					
26	Sulfer Black Plant	21/06/2019	H ₂ S	---	N.D.
			NH ₃	175.0 mg/Nm ³	19.8
27	Sulfer Dyes Plant	21/06/2019	H ₂ S	---	N.D.
			NH ₃	175.0 mg/Nm ³	18.1
28	MPP Plant	20/06/2019	HCL	20 Mg/Nm ³	15.2
29	Flavors & Fragrances Plant	20/06/2019	HCL	20 Mg/Nm ³	15.9

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Pruthi
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Ref. No.: 257/06/2019-20

Date : 29/06/2019

Scrubber & Vents					
Sr. No.	Stack Details	Date of Sampling	Parameter	Permissible Limits	Obtained Value (in mg/Nm ³ except where specified)
Atul West Site					
30	Shed A05/03/44	06/06/2019	Cl ₂	9.0 mg/Nm ³	4.5
			HCl	20.0 mg/Nm ³	7.5
31	Shed B18/02/24 Fan	07/06/2019	SO ₂	40 Mg/Nm ³	6.2
			Cl ₂	9.0 mg/Nm ³	4.6
			HCl	20.0 mg/Nm ³	6.1
32	Shed B2/12/24 Reaction Vessel	06/06/2019	Cl ₂	9.0 mg/Nm ³	7.8
			HCl	20.0 mg/Nm ³	6.5
33	Shed C5/20/15 Chlorinator	06/06/2019	Cl ₂	9.0 mg/Nm ³	6.6
			HCl	20.0 mg/Nm ³	7.8
34	Shed D Niro Spray dryer 45	05/06/2019	SPM	150.0 mg/Nm ³	86
35	Shed D Niro Spray dryer 50		SPM	150.0 mg/Nm ³	66
36	Shed E 7/12/49 Spray Dryer	Not Running During Visit	SPM	150.0 mg/Nm ³	---
37	Shed F F6/1/15 Reaction Vessel	06/06/2019	Cl ₂	9.0 mg/Nm ³	7.1
			HCl	20.0 mg/Nm ³	7.5
38	Shed G 10/8/1 (receiver)	Not Running During Visit	Cl ₂	9.0 mg/Nm ³	---
			HCl	20.0 mg/Nm ³	---
39	Shed H H1/6/17 Chlorinator	07/06/2019	Cl ₂	9.0 mg/Nm ³	7.1
			HCl	20.0 mg/Nm ³	7.3
40	Shed K K-13/3/4 Final of Sulfuric acid plant	07/06/2019	SO ₂	2.0 kg/T	1.5
			Acid Mist	50.0 mg/Nm ³	15.8
41	Shed J15/09/25	08/06/2019	HBr	---	N.D.
			SO ₂	40 Mg/Nm ³	9.8
42	Shed J12/01/42	08/06/2019	SO ₂	40 Mg/Nm ³	8.5
			Cl ₂	20.0 mg/Nm ³	8.2
			HCl	9.0 mg/Nm ³	6.9
43	Shed J12/03/36	08/06/2019	SO ₂	40 Mg/Nm ³	9.2
			HCl	9.0 mg/Nm ³	6.8
44	Shed N Scrubber Fan N20/03/24	07/06/2019	Cl ₂	9.0 mg/Nm ³	6.7
			HCl	20.0 mg/Nm ³	10.1
45	Shed N Scrubber Fan N20/02/41	07/06/2019	SO ₂	40 Mg/Nm ³	8.8



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Ref. No.: 259/06/2019-20

Date : 29/06/2019

Scrubber & Vents					
Sr. No.	Stack Details	Date of Sampling	Parameter	Permissible Limits	Obtained Value (in mg/Nm ³ except where specified)
Atul North Site					
46	Catalytic Incinerator of N-FDH Plant	14/06/2019	SPM	150.0 mg/Nm ³	70
			SO ₂	40.0 mg/Nm ³	14.3
			NO _x	25.0 mg/Nm ³	13.2
			Formaldehyde	10.0 mg/Nm ³	N.D.
47	PHIN Plant vessel	13/06/2019	Phosgene	0.1 ppm	N.D.
48	PHIN - II Plant	13/06/2019	HCL	20 Mg/Nm ³	12.9
			COCl ₂	0.1 ppm	N.D.
49	DCDPS Plant	13/06/2019	SO ₃	---	N.D.
50	DDS Plant	13/06/2019	NH ₃	175 Mg/Nm ³	15.9
51	SPIC II Plant	13/06/2019	SO ₃	---	N.D.
52	SPIC I Plant	13/06/2019	NH ₃	175 Mg/Nm ³	17.2
53	SPIC IV Plant	13/06/2019	NH ₃	175 Mg/Nm ³	18.6
			SO ₂	---	9.2
54	Furnace (Phosgene Plant New)	27/06/2019	PM	150Mg/Nm ³	99
55	Rector (Phosgene Plant New)	27/06/2019	CO	---	N.D.
			Phosgene	0.1ppm	N.D.

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Ref. No.: 265/07/2019-20

Date : 31/07/2019

Name of Company : Atul Limited

District : Valsad - 396 020.

REPORT OF STACK / VENT EMISSION ANALYSIS

Scrubber & Vents

Sr. No.	Stack Details	Date of Sampling	Parameter	Permissible Limits	Obtained Value (in mg/Nm ³ except where specified)
Atul East Site					
1	Phosgene Plant	---	Phosgene	0.1 ppm	Not in Use
2	Dechlorination Plant(Hypo)	18/07/2019	Cl ₂	9.0 mg/Nm ³	8.4
			HCl	20.0 mg/Nm ³	14.6
3	Common stack of HCL Sigr Unit-1 & 2	18/07/2019	Cl ₂	9.0 mg/Nm ³	7.5
			HCl	20.0 mg/Nm ³	11.3
FCB Plant					
4	Foul Gas Scubber	---	SO ₂	40.0 mg/Nm ³	Not in Use
			NOx	25.0 mg/Nm ³	
Sulfuric Acid (East Side)					
5	Sulphuric Acid Plant	18/07/2019	SO ₂	2.0 kg/T	0.9
			Acid Mist	50.0 mg/Nm ³	9.6
6	ChloroSulfonic Plant Reactor	18/07/2019	Cl ₂	9.0 mg/Nm ³	7.6
			HCl	20.0 mg/Nm ³	15.2
Incinerator					
7	Incinerator	05/07/2019	SPM	150.0 mg/Nm ³	97
			SO ₂	40.0 mg/Nm ³	17.2
			NOx	25.0 mg/Nm ³	17.6
			% of Efficiency	%	99.9

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Ref. No.: 266/07/2019-20

Date : 31/07/2019

Scrubber & Vents

Sr. No.	Stack Details	Date of Sampling	Parameter	Permissible Limits	Obtained Value (in mg/Nm ³ except where specified)
NI Plant					
8	Foul Gas Scrubber	Not Running During Visit	SO ₂	40.0 mg/Nm ³	---
			Nox	25.0 mg/Nm ³	---
2-4-D Plant					
9	Dryer-1	19/07/2019	SPM	20.0 mg/Nm ³	8.3
10	Dryer-2		SPM	20.0 mg/Nm ³	9.8
11	Dryer-3		SPM	20.0 mg/Nm ³	11.0
12	Dryer-4		SPM	20.0 mg/Nm ³	10.3
13	Common Scrubber; 2,4D Plant	19/07/2019	Cl ₂	9.0 mg/Nm ³	8.1
			HCL	20.0 mg/Nm ³	10.0
			Phenol	---	N.D.
NBD Plant					
14	Spray Dryer	---	SPM	150.0 mg/Nm ³	Not in Use
CP Plant					
15	MCPA	Not Running During visit	Cl ₂	9.0 mg/Nm ³	---
			HCL	20.0 mg/Nm ³	---
			SO ₂	40.0 mg/Nm ³	---
16	Fipronil	Not Running During visit	SO ₂	40.0 mg/Nm ³	---
			HCL	20.0 mg/Nm ³	---
17	Imidacloprid	Not Running During visit	NH ₃	175 mg/Nm ³	---
18	Pyrethroids	Not Running During visit	SO ₂	40.0 mg/Nm ³	---
			HCL	20.0 mg/Nm ³	---
19	Stack at Amine Plant	04-07-2019	NH ₃	175 mg/Nm ³	9.2





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Ref. No.: 268/07/2019-20

Date : 31/07/2019

Scrubber & Vents					
Sr. No.	Stack Details	Date of Sampling	Parameter	Permissible Limits	Obtained Value (in mg/Nm ³ except where specified)
MPSL Plant					
20	Phosgene Scrubber at MPSL	26-07-2019	Phosgene	0.1 ppm	N.D.
21	Central Scrubber at MPSL	26-07-2019	Phosgene	0.1 ppm	N.D.
NICO Plant					
22	Central scrubber at Nico Plant	---	Acetonytryle, IPA	---	---
ESTER Plant					
23	Scrubber at Ester plant for Glyphosate	Not Running During visit	Formaldehyde	10 Mg/Nm ³	---
24	Central Scrubber MCPA Plant	Not Running During visit	HCL	20 Mg/Nm ³	---
25	MPP Plant Scrubber	Not Running During visit	HCL	20 Mg/Nm ³	---
			Phosgene	0.1 ppm	---
Atul East Site					
26	Sulfer Black Plant	18/07/2019	H ₂ S	---	N.D.
			NH ₃	175.0 mg/Nm ³	20.2
27	Sulfer Dyes Plant	18/07/2019	H ₂ S	---	N.D.
			NH ₃	175.0 mg/Nm ³	16.5
28	MPP Plant	Not Running During visit	HCL	20 Mg/Nm ³	---
29	Flavors & Fragrances Plant	Not Running During visit	HCL	20 Mg/Nm ³	---

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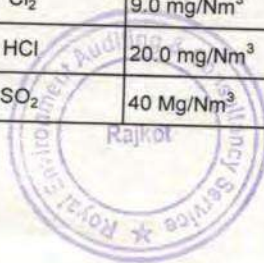
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Ref. No.: 267/07/2019-20

Date : 31/07/2019

Scrubber & Vents					
Sr. No.	Stack Details	Date of Sampling	Parameter	Permissible Limits	Obtained Value (in mg/Nm ³ except where specified)
Atul West Site					
30	Shed A05/03/44	04/07/2019	Cl ₂	9.0 mg/Nm ³	5.2
			HCl	20.0 mg/Nm ³	7.3
31	Shed B18/02/24 Fan	04/07/2019	SO ₂	40 Mg/Nm ³	7.1
			Cl ₂	9.0 mg/Nm ³	3.9
			HCl	20.0 mg/Nm ³	6.4
32	Shed B2/12/24 Reaction Vessel	04/07/2019	Cl ₂	9.0 mg/Nm ³	7.1
			HCl	20.0 mg/Nm ³	5.9
33	Shed C5/20/15 Chlorinator	04/07/2019	Cl ₂	9.0 mg/Nm ³	6.1
			HCl	20.0 mg/Nm ³	8
34	Shed D Niro Spray dryer 45	13/07/2019	SPM	150.0 mg/Nm ³	75
35	Shed D Niro Spray dryer 50		SPM	150.0 mg/Nm ³	69
36	Shed E 7/12/49 Spray Dryer	Not Running During Visit	SPM	150.0 mg/Nm ³	---
37	Shed F F6/1/15 Reaction Vessel	04/07/2019	Cl ₂	9.0 mg/Nm ³	8
			HCl	20.0 mg/Nm ³	9.1
38	Shed G 10/8/1 (receiver)	Not Running During Visit	Cl ₂	9.0 mg/Nm ³	---
			HCl	20.0 mg/Nm ³	---
39	Shed H H1/6/17 Chlorinator	11/07/2019	Cl ₂	9.0 mg/Nm ³	6.8
			HCl	20.0 mg/Nm ³	8.1
40	Shed K K-13/3/4 Final of Sulfuric acid plant	11/07/2019	SO ₂	2.0 kg/T	1.1
			Acid Mist	50.0 mg/Nm ³	18.1
41	Shed J15/09/25	11/07/2019	HBr	---	N.D.
			SO ₂	40 Mg/Nm ³	8.7
42	Shed J12/01/42	11/07/2019	SO ₂	40 Mg/Nm ³	12.3
			Cl ₂	9.0 mg/Nm ³	5.5
			HCl	20.0 mg/Nm ³	7.2
43	Shed J12/03/36	11/07/2019	SO ₂	40 Mg/Nm ³	9.8
			HCl	20.0 mg/Nm ³	7.2
44	Shed N Scrubber Fan N20/03/24	11/07/2019	Cl ₂	9.0 mg/Nm ³	7.8
			HCl	20.0 mg/Nm ³	8.3
45	Shed N Scrubber Fan N20/02/41	11-07-2019	SO ₂	40 Mg/Nm ³	8.2



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Ref. No.: 269/07/2019-20

Date : 31/07/2019

Scrubber & Vents					
Sr. No.	Stack Details	Date of Sampling	Parameter	Permissible Limits	Obtained Value (in mg/Nm ³ except where specified)
Atul North Site					
46	Catalytic Incinerator of N-FDH Plant	Not Running During visit	SPM	150.0 mg/Nm ³	---
			SO ₂	40.0 mg/Nm ³	---
			NO _x	25.0 mg/Nm ³	---
			Formaldehyde	10.0 mg/Nm ³	---
47	PHIN Plant vessel	12-07-2019	Phosgene	0.1 ppm	N.D.
48	PHIN - II Plant	12-07-2019	HCL	20 Mg/Nm ³	13.4
			COCl ₂	0.1 ppm	N.D.
49	DCDPS Plant	12-07-2019	SO ₃	---	N.D.
50	DDS Plant	12-07-2019	NH ₃	175 Mg/Nm ³	17.3
51	SPIC II Plant	12-07-2019	SO ₃	---	N.D.
52	SPIC I Plant	12-07-2019	NH ₃	175 Mg/Nm ³	18.3
53	SPIC IV Plant	12-07-2019	NH ₃	175 Mg/Nm ³	19.2
			SO ₂	---	9.2
54	Furnace (Phosgene Plant New)	26/07/2019	PM	150Mg/Nm ³	95
55	Rector (Phosgene Plant New)	26/07/2019	CO	---	N.D.
			Phosgene	0.1ppm	N.D.

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Ref. No.: 275/08/2019-20

Date : 31/08/2019

Name of Company : Atul Limited
District : Valsad - 396 020.

REPORT OF STACK / VENT EMISSION ANALYSIS					
Scrubber & Vents					
Sr. No.	Stack Details	Date of Sampling	Parameter	Permissible Limits	Obtained Value (in mg/Nm ³ except where specified)
Atul East Site					
1	Phosgene Plant	---	Phosgene	0.1 ppm	Not in Use
2	Dechlorination Plant(Hypo)	23/08/2019	Cl ₂	9.0 mg/Nm ³	6.3
			HCl	20.0 mg/Nm ³	8.1
3	Common stack of HCL Sigri Unit-1 & 2	23/08/2019	Cl ₂	9.0 mg/Nm ³	5.6
			HCl	20.0 mg/Nm ³	9.6
FCB Plant					
4	Foul Gas Scubber	---	SO ₂	40.0 mg/Nm ³	Not in Use
			NOx	25.0 mg/Nm ³	
Sulfuric Acid (East Side)					
5	Sulphuric Acid Plant	22/08/2019	SO ₂	2.0 kg/T	0.5
			Acid Mist	50.0 mg/Nm ³	7.3
6	ChloroSulfonic Plant Reactor	22/08/2019	Cl ₂	9.0 mg/Nm ³	6.7
			HCl	20.0 mg/Nm ³	12.6
Incinerator					
7	Incinerator	08/08/2019	SPM	150.0 mg/Nm ³	83
			SO ₂	40.0 mg/Nm ³	12.4
			NOx	25.0 mg/Nm ³	9.4
			% of Efficiency	%	99.9

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Ref. No.: 276/08/2019-20

Date : 31/08/2019

Scrubber & Vents					
Sr. No.	Stack Details	Date of Sampling	Parameter	Permissible Limits	Obtained Value (in mg/Nm ³ except where specified)

NI Plant

8	Foul Gas Scrubber	Not Running During Visit	SO ₂	40.0 mg/Nm ³	---
			Nox	25.0 mg/Nm ³	---

2-4-D Plant

9	Dryer-1	22/08/2019	SPM	20.0 mg/Nm ³	5.6
10	Dryer-2		SPM	20.0 mg/Nm ³	6.2
11	Dryer-3		SPM	20.0 mg/Nm ³	15.4
12	Dryer-4		SPM	20.0 mg/Nm ³	8.3
13	Common Scrubber; 2,4D Plant	22/08/2019	Cl ₂	9.0 mg/Nm ³	7.2
			HCL	20.0 mg/Nm ³	8.6
			Phenol	---	N.D.

NBD Plant

14	Spray Dryer	---	SPM	150.0 mg/Nm ³	Not in Use
----	-------------	-----	-----	--------------------------	------------

CP Plant

15	MCPA	Not Running During visit	Cl ₂	9.0 mg/Nm ³	---
			HCL	20.0 mg/Nm ³	---
			SO ₂	40.0 mg/Nm ³	---
16	Fipronil	Not Running During visit	SO ₂	40.0 mg/Nm ³	---
			HCL	20.0 mg/Nm ³	---
17	Imidacloprid	Not Running During visit	NH ₃	175 mg/Nm ³	---
18	Pyrethroids	Not Running During visit	SO ₂	40.0 mg/Nm ³	---
			HCL	20.0 mg/Nm ³	---
19	Stack at Amine Plant	08-08-2019	NH ₃	175 mg/Nm ³	16.4





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Ref. No.: 278/08/2019-20

Date : 31/08/2019

Scrubber & Vents					
Sr. No.	Stack Details	Date of Sampling	Parameter	Permissible Limits	Obtained Value (in mg/Nm ³ except where specified)
MPSL Plant					
20	Phosgene Scrubber at MPSL	29-08-2019	Phosgene	0.1 ppm	N.D.
21	Central Scrubber at MPSL	29-08-2019	Phosgene	0.1 ppm	N.D.
NICO Plant					
22	Central scrubber at Nico Plant	---	Acetonytryle, IPA	---	---
ESTER Plant					
23	Scrubber at Ester plant for Glyphosate	Not Running During visit	Formaldehyde	10 Mg/Nm ³	---
24	Central Scrubber MCPA Plant	Not Running During visit	HCL	20 Mg/Nm ³	---
25	MPP Plant Scrubber	Not Running During visit	HCL	20 Mg/Nm ³	---
			Phosgene	0.1 ppm	---
Atul East Site					
26	Sulfer Black Plant	22/08/2019	H ₂ S	---	N.D.
			NH ₃	175.0 mg/Nm ³	35.4
27	Sulfer Dyes Plant	22/08/2019	H ₂ S	---	N.D.
			NH ₃	175.0 mg/Nm ³	25.7
28	MPP Plant	08-08-2019	HCL	20 Mg/Nm ³	14.5
29	Flavors & Fragrances Plant	Not Running During visit	HCL	20 Mg/Nm ³	---

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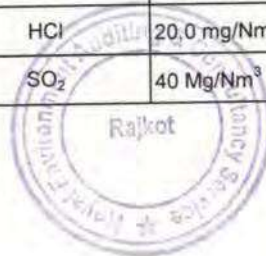
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Ref. No.: 277/08/2019-20

Date : 31/08/2019

Scrubber & Vents					
Sr. No.	Stack Details	Date of Sampling	Parameter	Permissible Limits	Obtained Value (in mg/Nm ³ except where specified)
Atul West Site					
30	Shed A05/03/44	01/08/2019	Cl ₂	9.0 mg/Nm ³	6.3
			HCl	20.0 mg/Nm ³	8.3
31	Shed B18/02/24 Fan	02/08/2019	SO ₂	40 Mg/Nm ³	16.2
			Cl ₂	9.0 mg/Nm ³	4.6
			HCl	20.0 mg/Nm ³	8.1
32	Shed B2/12/24 Reaction Vessel	02/08/2019	Cl ₂	9.0 mg/Nm ³	5.4
			HCl	20.0 mg/Nm ³	8.4
33	Shed C5/20/15 Chlorinator	03/08/2019	Cl ₂	9.0 mg/Nm ³	6.1
			HCl	20.0 mg/Nm ³	7.6
34	Shed D Niro Spray dryer 45	03/08/2019	SPM	150.0 mg/Nm ³	60
35	Shed D Niro Spray dryer 50		SPM	150.0 mg/Nm ³	68
36	Shed E 7/12/49 Spray Dryer	Not Running During Visit	SPM	150.0 mg/Nm ³	---
37	Shed F F6/1/15 Reaction Vessel	02/08/2019	Cl ₂	9.0 mg/Nm ³	6.8
			HCl	20.0 mg/Nm ³	8.6
38	Shed G 10/8/1 (receiver)	Not Running During Visit	Cl ₂	9.0 mg/Nm ³	---
			HCl	20.0 mg/Nm ³	---
39	Shed H H1/6/17 Chlorinator	01/08/2019	Cl ₂	9.0 mg/Nm ³	5.3
			HCl	20.0 mg/Nm ³	8.4
40	Shed K K-13/3/4 Final of Sulfuric acid plant	01/08/2019	SO ₂	2.0 kg/T	0.8
			Acid Mist	50.0 mg/Nm ³	12.4
41	Shed J15/09/25	01/08/2019	HBr	---	N.D.
			SO ₂	40 Mg/Nm ³	13.7
42	Shed J12/01/42	01/08/2019	SO ₂	40 Mg/Nm ³	10.8
			Cl ₂	9.0 mg/Nm ³	6.3
			HCl	20.0 mg/Nm ³	5.7
43	Shed J12/03/36	01/08/2019	SO ₂	40 Mg/Nm ³	14.1
			HCl	20.0 mg/Nm ³	9.4
44	Shed N Scrubber Fan N20/03/24	08/08/2019	Cl ₂	9.0 mg/Nm ³	6.2
			HCl	20.0 mg/Nm ³	10.3
45	Shed N Scrubber Fan N20/02/41	08-08-2019	SO ₂	40 Mg/Nm ³	15.1



P. Adarsh
Analyst



Royal

Environment Auditing & Consultancy Service

303-304, Shivalik-7, B/s Bal Adalat, Gondal Road, RAJKOT - 360 002.
Ph. +91 281 2360695 Email : royaleenvironment@live.com admin@royalconsultancy.com

Ref. No.: 279/08/2019-20

Date : 31/08/2019

Scrubber & Vents					
Sr. No.	Stack Details	Date of Sampling	Parameter	Permissible Limits	Obtained Value (in mg/Nm ³ except where specified)
Atul North Site					
46	Catalytic Incinerator of N-FDH Plant	Not Running During visit	SPM	150.0 mg/Nm ³	---
			SO ₂	40.0 mg/Nm ³	---
			NO _x	25.0 mg/Nm ³	---
			Formaldehyde	10.0 mg/Nm ³	---
47	PHIN Plant vessel	10-08-2019	Phosgene	0.1 ppm	N.D.
48	PHIN - II Plant	10-08-2019	HCL	20 Mg/Nm ³	9.6
			COCl ₂	0.1 ppm	N.D.
49	DCDPS Plant	09-08-2019	SO ₃	---	N.D.
50	DDS Plant	09-08-2019	NH ₃	175 Mg/Nm ³	23.2
51	SPIC II Plant	09-08-2019	SO ₃	---	N.D.
52	SPIC I Plant	09-08-2019	NH ₃	175 Mg/Nm ³	12.3
53	SPIC IV Plant	09-08-2019	NH ₃	175 Mg/Nm ³	17.5
			SO ₂	---	8.6
54	Furnace (Phosgene Plant New)	29/08/2019	PM	150Mg/Nm ³	87
55	Rector (Phosgene Plant New)	29/08/2019	CO	---	N.D.
			Phosgene	0.1ppm	N.D.



Royal Environment Auditing & Consultancy Service

Prachi
Analyst



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Ph. +91 281 2360695 Email : royalenvironment@live.com admin@royalconsultancy.com

Ref. No.: 285/09/2019-20

Date : 30/09/2019

Name of Company : Atul Limited

District : Valsad - 396 020.

REPORT OF STACK / VENT EMISSION ANALYSIS

Scrubber & Vents

Sr. No.	Stack Details	Date of Sampling	Parameter	Permissible Limits	Obtained Value (in mg/Nm ³ except where specified)
Atul East Site					
1	Phosgene Plant	---	Phosgene	0.1 ppm	Not in Use
2	Dechlorination Plant(Hypo)	19/09/2019	Cl ₂	9.0 mg/Nm ³	7.1
			HCl	20.0 mg/Nm ³	9.4
3	Common stack of HCL Sigri Unit-1 & 2	19/09/2019	Cl ₂	9.0 mg/Nm ³	5.2
			HCl	20.0 mg/Nm ³	10.2
FCB Plant					
4	Foul Gas Scubber	---	SO ₂	40.0 mg/Nm ³	Not in Use
			NO _x	25.0 mg/Nm ³	
Sulfuric Acid (East Side)					
5	Sulphuric Acid Plant	19/09/2019	SO ₂	2.0 kg/T	0.7
			Acid Mist	50.0 mg/Nm ³	12.4
6	ChloroSulfonic Plant Reactor	19/09/2019	Cl ₂	9.0 mg/Nm ³	5.4
			HCl	20.0 mg/Nm ³	10.6
Incinerator					
7	Incinerator	12/09/2019	SPM	150.0 mg/Nm ³	65
			SO ₂	40.0 mg/Nm ³	15.4
			NO _x	25.0 mg/Nm ³	7.3
			% of Efficiency	%	99.9





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Ph. +91 281 2360695 Email : royalsenvironment@live.com admin@royalconsultancy.com

Ref. No.: 286/09/2019-20

Date : 30/09/2019

Scrubber & Vents					
Sr. No.	Stack Details	Date of Sampling	Parameter	Permissible Limits	Obtained Value (in mg/Nm ³ except where specified)

NI Plant

8	Foul Gas Scrubber	Not Running During Visit	SO ₂	40.0 mg/Nm ³	---
			Nox	25.0 mg/Nm ³	---

2-4-D Plant

9	Dryer-1	20/09/2019	SPM	20.0 mg/Nm ³	7.8
10	Dryer-2		SPM	20.0 mg/Nm ³	9.4
11	Dryer-3		SPM	20.0 mg/Nm ³	8.2
12	Dryer-4		SPM	20.0 mg/Nm ³	10.2
13	Common Scrubber; 2,4D Plant	20/09/2019	Cl ₂	9.0 mg/Nm ³	7.4
			HCL	20.0 mg/Nm ³	6.4
			Phenol	---	N.D.

NBD Plant

14	Spray Dryer	---	SPM	150.0 mg/Nm ³	Not in Use
----	-------------	-----	-----	--------------------------	------------

CP Plant

15	MCPA	Not Running During visit	Cl ₂	9.0 mg/Nm ³	---
			HCL	20.0 mg/Nm ³	---
			SO ₂	40.0 mg/Nm ³	---
16	Fipronil	Not Running During visit	SO ₂	40.0 mg/Nm ³	---
			HCL	20.0 mg/Nm ³	---
17	Imidacloprid	Not Running During visit	NH ₃	175 mg/Nm ³	---
18	Pyrethroids	Not Running During visit	SO ₂	40.0 mg/Nm ³	---
			HCL	20.0 mg/Nm ³	---
19	Stack at Amine Plant	05-09-2019	NH ₃	175 mg/Nm ³	24.2

ED Jadhav



Pradip
Analyst



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Ph. +91 281 2360695 Email : royaleenvironment@live.com admin@royalconsultancy.com

Ref. No.: 288/09/2019-20

Date : 30/09/2019

Scrubber & Vents					
Sr. No.	Stack Details	Date of Sampling	Parameter	Permissible Limits	Obtained Value (in mg/Nm ³ except where specified)
MPSL Plant					
20	Phosgene Scrubber at MPSL	19-09-2019	Phosgene	0.1 ppm	N.D.
21	Central Scrubber at MPSL	19-09-2019	Phosgene	0.1 ppm	N.D.
NICO Plant					
22	Central scrubber at Nico Plant	---	Acetonytryle, IPA	---	---
ESTER Plant					
23	Scrubber at Ester plant for Glyphosate	Not Running During visit	Formaldehyde	10 Mg/Nm ³	---
24	Central Scrubber MCPA Plant	Not Running During visit	HCL	20 Mg/Nm ³	---
25	MPP Plant Scrubber	Not Running During visit	HCL	20 Mg/Nm ³	---
			Phosgene	0.1 ppm	---
Atul East Site					
26	Sulfer Black Plant	19/09/2019	H ₂ S	---	N.D.
			NH ₃	175.0 mg/Nm ³	45.3
27	Sulfer Dyes Plant	19/09/2019	H ₂ S	---	N.D.
			NH ₃	175.0 mg/Nm ³	32.6
28	MPP Plant	20-09-2019	HCL	20 Mg/Nm ³	15.7
29	Flavors & Fragrances Plant	Not Running During visit	HCL	20 Mg/Nm ³	---

Royal Environment Auditing & Consultancy Service



Prudip
Analyst



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Ph. +91 281 2360695 Email : royalservice@live.com admin@royalconsultancy.com

Ref. No.: 287/09/2019-20

Date : 30/09/2019

Scrubber & Vents					
Sr. No.	Stack Details	Date of Sampling	Parameter	Permissible Limits	Obtained Value (in mg/Nm ³ except where specified)
Atul West Site					
30	Shed A05/03/44	04/09/2019	Cl ₂	9.0 mg/Nm ³	7.2
			HCl	20.0 mg/Nm ³	8.9
31	Shed B18/02/24 Fan	04/09/2019	SO ₂	40 Mg/Nm ³	18.3
			Cl ₂	9.0 mg/Nm ³	6.2
			HCl	20.0 mg/Nm ³	14.3
32	Shed B2/12/24 Reaction Vessel	04/09/2019	Cl ₂	9.0 mg/Nm ³	6.3
			HCl	20.0 mg/Nm ³	9.4
33	Shed C5/20/15 Chlorinator	04/09/2019	Cl ₂	9.0 mg/Nm ³	7.6
			HCl	20.0 mg/Nm ³	9.7
34	Shed D Niro Spray dryer 45	12/09/2019	SPM	150.0 mg/Nm ³	75
35	Shed D Niro Spray dryer 50		SPM	150.0 mg/Nm ³	68
36	Shed E 7/12/49 Spray Dryer	Not Running During Visit	SPM	150.0 mg/Nm ³	---
37	Shed F F6/1/15 Reaction Vessel	04/09/2019	Cl ₂	9.0 mg/Nm ³	6.9
			HCl	20.0 mg/Nm ³	8.2
38	Shed G 10/8/1 (receiver)	Not Running During Visit	Cl ₂	9.0 mg/Nm ³	---
			HCl	20.0 mg/Nm ³	---
39	Shed H H1/6/17 Chlorinator	05/09/2019	Cl ₂	9.0 mg/Nm ³	7.3
			HCl	20.0 mg/Nm ³	12.4
40	Shed K K-13/3/4 Final of Sulfuric acid plant	05/09/2019	SO ₂	2.0 kg/T	0.6
			Acid Mist	50.0 mg/Nm ³	15.7
41	Shed J15/09/25	05/09/2019	HBr	---	N.D.
			SO ₂	40 Mg/Nm ³	15.2
42	Shed J12/01/42	05/09/2019	SO ₂	40 Mg/Nm ³	14.8
			Cl ₂	9.0 mg/Nm ³	7.2
			HCl	20.0 mg/Nm ³	6.7
43	Shed J12/03/36	05/09/2019	SO ₂	40 Mg/Nm ³	16.4
			HCl	20.0 mg/Nm ³	10.6
44	Shed N Scrubber Fan N20/03/24	06/09/2019	Cl ₂	9.0 mg/Nm ³	7.8
			HCl	20.0 mg/Nm ³	11.4
45	Shed N Scrubber Fan N20/02/41	06-09-2019	SO ₂	40 Mg/Nm ³	14.2



Royal

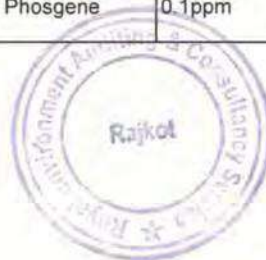
Environment Auditing & Consultancy Service

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Ref. No.: 289/09/2019-20

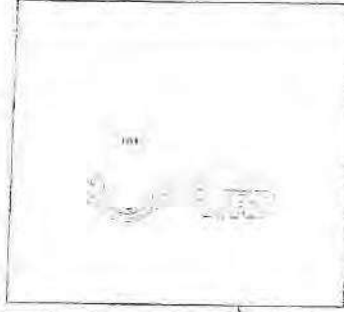
Date : 30/09/2019

Scrubber & Vents					
Sr. No.	Stack Details	Date of Sampling	Parameter	Permissible Limits	Obtained Value (in mg/Nm ³ except where specified)
Atul North Site					
46	Catalytic Incinerator of N-FDH Plant	Not Running During visit	SPM	150.0 mg/Nm ³	---
			SO ₂	40.0 mg/Nm ³	---
			NO _x	25.0 mg/Nm ³	---
			Formaldehyde	10.0 mg/Nm ³	---
47	PHIN Plant vessel	12-09-2019	Phosgene	0.1 ppm	N.D.
48	PHIN - II Plant	12-09-2019	HCL	20 Mg/Nm ³	14.3
			COCl ₂	0.1 ppm	N.D.
49	DCDPS Plant	12-09-2019	SO ₃	---	N.D.
50	DDS Plant	12-09-2019	NH ₃	175 Mg/Nm ³	45.2
51	SPIC II Plant	06-09-2019	SO ₃	---	N.D.
52	SPIC I Plant	06-09-2019	NH ₃	175 Mg/Nm ³	35.6
53	SPIC IV Plant	06-09-2019	NH ₃	175 Mg/Nm ³	25.7
			SO ₂	---	8.2
54	Furnace (Phosgene Plant New)	19-09-2019	PM	150Mg/Nm ³	74
55	Rector (Phosgene Plant New)	19/09/2019	CO	---	N.D.
			Phosgene	0.1ppm	N.D.



જા.નં.: દનવિવિ-૩/પીબી-૨/અતુલ લી/ ૪૭૫૮

તા. ૦૬-૦૯-૨૦૧૭.



કાર્યપાલક ઈજનેરશ્રીની કચેરી
દમણગંગા નહેર વિશાખા વિભાગ નં.૩,
નેશનલ હાઈવે નં.૮, બલીઠા (વાપી)
ફોન નં.૦૨૬૦-૨૪૦૧૩૧૨
ફેક્સ નં.૦૨૬૦-૨૪૨૩૪૬૨
ઈ-મેલ:- dcdd3vapi@yahoo.com

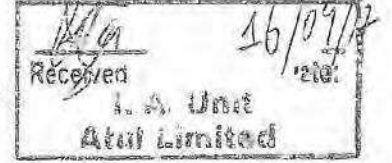
પ્રતિ,
અધિક્ષક ઈજનેરશ્રી,
દમણગંગા યોજના વર્તુળ,
વલસાડ.

O:- LP

CC:- ARP

→ CC:- US File

CC:- SO



વિષય :- અતુલ લીમિટેડ, અતુલ દ્વારા ઔદ્યોગિક હેતુ માટે પાર નદીમાંથી ઉપાડવામાં આવતા પાણીના દરોજથા સંબંધે તા.૨૭-૦૧-૨૦૧૬ ની અસરથી કરારનામું કરવા બાબત.

સંદર્ભ:-

- (૧) સરકારશ્રીના ઠરાવ ક્રમાંક:- ડબલ્યુટીઆર/૧૬/૨૦૧૬/૬૯૧૯૪૨/પી, તા.૨૦-૦૭-૨૦૧૭.
- (૨) વર્તુળ કચેરીના પત્રાંક:- ડીએમએન/પીબી/પારનદી-અતુલ/૧૮૬૯, તા.૦૮-૦૮-૨૦૧૭.

ઉપરોક્ત વિષયના અનુસંધાનમાં સવિનય જણાવવાનું કે મે. અતુલ લીમિટેડ, અતુલને ઔદ્યોગિક હેતુ માટે પાર નદીમાંથી દૈનિક ૧૮૧૮૪ કિલોલીટર (4.0 MGD) i.e. વાર્ષિક ૬૬૩૭૧૬૦ કિલોલીટર પાણીનો જથ્થો ઉપાડવા માટે કરવામાં આવેલ કરારનામાની મુદત પૂર્ણ થતાં સરકારશ્રીના સંદર્ભ(૧) થી મંજૂર થયેલ નવા કરારનામા ઉપર તા.૧૩-૦૯-૨૦૧૭ ના રોજ (તા.૨૭-૦૧-૨૦૧૬ ની પશ્ચાદવર્તી અસરથી) સહી સિક્કા કરવામાં આવેલ છે. જે સંદર્ભ(૧) થી દર્શાવેલ સરકારશ્રીના ઠરાવમાં આપેલ સુચના મુજબ છે. ઉક્ત કરારનામાની બે નકલ તેમજ કરેલ કરારનામા બાબતે આપવાનું રહેતું પ્રમાણપત્ર આ સાથે સાદર કરવામાં આવે છે. જે આપ સાહેબને સુવિદિત થાય.

બિડાણ:- (૧) પ્રમાણપત્ર
(૨) કરારનામાની નકલ

(એન.કે.ભારદ્વાજ)

કાર્યપાલક ઈજનેર
દમણગંગા નહેર વિશાખા વિભાગ નં.૩
બલીઠા (વાપી)

* નકલ રવાના પ્રતિ નાયબ કાર્યપાલક ઈજનેરશ્રી દમણગંગા નહેર પેટાવિભાગ નં.૧૧, પારડી તરફ જાણ તેમજ જરૂરી કાર્યવાહી સારું. બિડાણ:- કરારનામાની નકલ.

* નકલ રવાના પ્રતિ, શ્રી બી.એન. મોહનન, હોલ ટાઇમ ડાયરેક્ટર, અતુલ લિમિટેડ, અતુલ, તા. પારડી, જિ. વલસાડ. તરફ જાણ તેમજ જરૂરી કાર્યવાહી થવા સારું.

બિડાણ:- કરારનામાની નકલ.

પાણી અને વાણી સાયવીને વાપરો.

AGREEMENT

Period:- 27-01-2016 to 26-01-2017

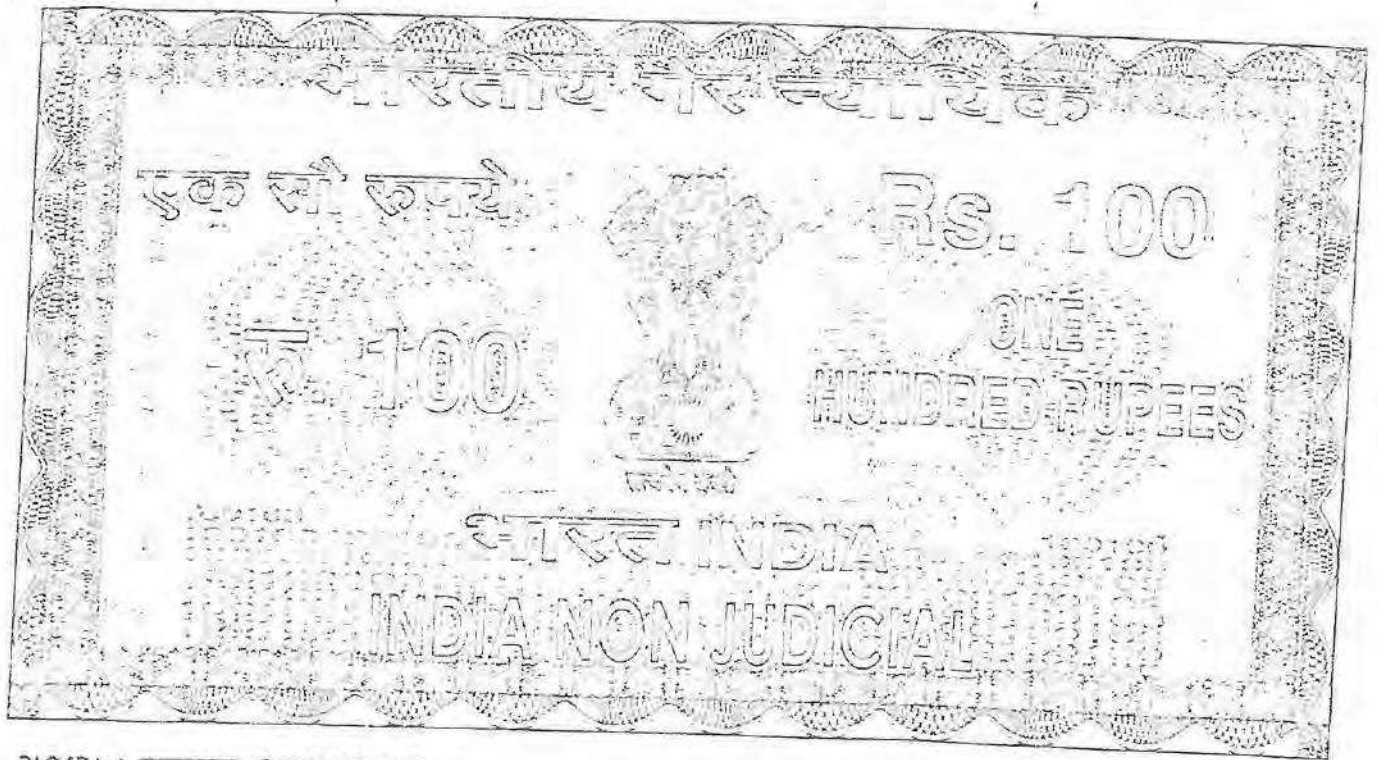
ATUL LIMITED

ATUL.

Permission for withdrawal of
Water

For Industrial Purpose

From Par River @ Village Atul



ગુજરાત ગુજરાત GUJARAT

સ.નં. ૧૮૮-૪ તારીખ ૬-૯-૨૦૧૭ ૧૦૦/ BE 850803
 એકે રૂપિયા ૨૧૧૩૬૧
 જે સાંધણ સાથે રૂપિયા ૦૦૦૦૦૦ તે આજરોજ
 શ્રી. આર.પી. લી.મ.૨૩
 કે. આર.પી. તા. અમદાવાદ ને વેચાણ આપ્યો.
 હસ્તે રઘુભાઈ પાંડે એમ. એન. ધીરા
 બંધ જવારની સહી મંડીપ વેન્ડર
રઘુભાઈ તા. નં. ૧૪/૮૪
 ખંડુજી ટેકરા, વલસાડ

AGREEMENT

Agreement for supply of water to ATUL LIMITED, ATUL, TALUKA & DIST. VALSAD, 396020 for drawl of 4 M.G.D(18184 Cubic meter/ kilo liters per day)i.e 6637160 cubic meter per year water from Notified 'RIVER PAR' IN Dist.Valsad for Industrial purpose.

This agreement made on this day of 13th Sept. 2017 between ATUL LIMITED, ATUL through its Authorized Representative Shri B.N.Mohanam Whole Time Director, Atul Limited, Atul/ hereinafter in this agreement called the "Licencee" Which expression shall, unless context otherwise requires and admits, be deemed to include its administrators, executors, successors and assigns) having its registered office at Atul House, G I Patel Marg,

Raghu

Executive Engineer,
D'ganga Canal Distry Dn. No. 3,
BALITHA (VAPI)

B. N. Mohanam
Whole-time Director
&
Infrastructure Unit

Navrangpura Ahmedabad 380014 of the one part and the Governor of the State of Gujarat through Executive Engineer, Damanganga Canal Distributory Division No. 3, Balitha (Vapi), in office (herein after called as "The Government" which expression shall, unless context otherwise requires and admits, be deemed to include his successors in office and assigns) of the other part.

WHERE AS the Licencee has applied to the Government for permission to draw water from 'RIVER PAR' Notified vide Notification No. GH/J/41/76/INF-1075/3/P Dated 13.08.1976 published in Government Gazette on dated 07.10.1976 at drawl point Atul Limited Pump house on river Par for manufacture of Chemical Products(~~type of production in detail for e.g. 'Viscos Yarn/Beverages' pre/paper etc'~~) for purpose of Non-Agricultural Industrial (~~Industrial/Drinking~~) for use of its proposed/existing Plant at Atul Limited Atul Ta. & Dist. Valsad (~~Official Name of licencee and Detailed Location of the Production unit/ Institution~~).

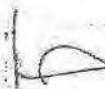
AND WHEREAS the Government has, under its sanction letter No. Narmada, Water Resources, Water Supply & Kalpsar Department Resolution No. WTR/1092/22319/ 14/Part.3/P dated 25.01.2006 & Resolution No. WTR/16/2016/691942/P, dated:- 20-07-2017, agreed to grant such permission on the terms and conditions here-in-after appearing and as mentioned in the Government of Gujarat; Narmada, Water Resources, Water Supply & Kalpsar Department Resolution No. WTR/2005/41/P, dated 03/02/2007.

NOW THIS INDENTURE WITNESS and the parties here to hereby agree as follows:

- (1) The Government hereby grants the permission to the Licencee to draw water from NOTIFIED RIVER PAR at following drawl point on the terms and conditions hereafter appearing. (1) At Atul Weir, village Atul on river Par. (For the period upto water available in Atul weir) (2) At Pardi checkwall, village Atul on river Par. (For a period during which water is not available at Atul weir). This period will be decided every year by the Superintending Engineer, depending upon the availability of water in Atul weir.) The licencee shall construct and maintain the head works for drawing water from River Par and other required structures at suitable places as approved by the Government or its authorised officer at their risk & cost and shall provide all ancillary arrangements that may be required in connection with the drawing and conveying the water required for the use of Licencee near village Atul & Haria in Valsad Taluka of Valsad District. The intake structures shall be open to inspection by the Government and the Government shall exercise necessary control.


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- (2) The licensee shall install and maintain at its own cost, the pipeline and other requirements required for conveying water from the source of supply to the place of actual use. The expenditure towards the drawl of water i.e. installation of pumps, pipelines, meters and all other requirements in connection with the drawl of water, shall be borne by the Licensee.
- (3) The licensee shall draw water directly from River Par to the extent of 18184 Cubic meters/ kilo liters per day throughout the each financial year for the construction period and there after maximum up to 36368 Cubic meters/per day or less as may be required for the optimum plant capacity under operation from time to time. It would be permissible for the Licensee to increase the intake up to 18184 Cubic metres per day for one month during the construction period and thereafter maximum up to 36368 cubic metres per day for a period not exceeding one to Four month on available natural flow in river Par without any water supply from another sources with the approval of the Narmada, Water Resources, Water Supply & Kalpsar Department, to facilitate the filling of the Licensee reservoir before cut trail flow in river Par or dry season in each year. closure of the canal.
- (4) (1) The licensee agrees to bear the cost herein below detailed that may be apportioned between the beneficiaries on prorata basis of their demands, on account of remodeling that may take place to meet the total requirements of the beneficiaries in case.

Supply of water to him is from River Par. The cost of remodeling shall include cost of preparation of plans, estimates and scrutiny thereof, etc. as per Appendix-I to the Gujarat Public Works Department manual volume I & II. The total cost of strengthening and remodeling of _____ canal is estimated to be Rupees _____ at present, out of which the share of the Licensee is estimated to be Rupees _____. The licensee shall deposit this amount of Rupees _____ in advance to enable the Government to take up the entire work on priority basis. The licensee shall pay the balance amount on the basis of actual immediately after the work is completed.


- (4) (2) The licensee shall be allowed to draw the water only after he is paid up the apportioned cost referred to in sub-clause 4(1) above, in advance.


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- (5) (i). The licensee shall pay a licence fee at the rate of Rs. 501/- per year or at as such rates as may be fixed by the Government from time to time in that behalf during the subsistence as the agreement.
- (5) (ii). The demand of 18184 kiloliters per day of water for the each financial year. The licensee should obtain the approval of their yearly demand of each financial year. Every year before 1st April, otherwise the earlier approved quantity of water will be considered for the next financial year also & security deposit will be recovered for earlier approved demand. The licensee shall draw water directly from up stream of Atul weir at Atul, pump house on notified Par River at near village Atul of Valsad taluka to the extent of total 18184 (Kiloliters) Cubic metres per day for the period of each financial year.
- (5) (iii). No penalty will charged to the licensee if utilized quantity of water upto 25 % less or more then the reserved quantity of water. Penalty will be charged at the rate of 25% addition to normal water charges for quantity utilized by the unit less than 75% of reserved quantity of water without prior approval. In case where unit will utilized 25% or more quantity of water than the reserved the excess utilized quantity will be charge at the rate 25% addition to normal water charge.
- (6) The licensee shall pay for the quantity of water drawn, as measured in the manner provided under clause-7 below, at the rates and terms given below.
- (i) The Licencee shall pay the water charges for the quantity of water actually drawn as per the rates mentioned in the Government of Gujarat, Narmada, Water Resources, Water supply & Kalpsar Department Resolution No. WTR/2005/41/P dated, 3-2-2007, effective from 01-01-2007 subject to fulfillment of conditions laid down in above mentioned resolution as well as conditions mentioned in sanction letter.
- (ii) The interest rates, penalty and all other charges/conditions mentioned in above mentioned Government of Gujarat, Narmada, Water Resources, Water Supply & Kalpsar Department, resolution No. WTR/2005/41/P, dated, 03-02-2007 shall be applicable and the licensee shall have to fulfill it.
- (iii) The above rates so fixed shall be subject to upward revision that may be made by the government in Narmada, Water Resources, Water Supply & Kalpsar Department from time to time in connection with water reserved and used for irrigation & non-irrigation


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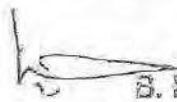
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purposes. The rates fixed by the government shall be exclusive of cost of pumping, conveying etc. of water from the source.

- (iv) The charges as mentioned in sub clause-(i), above, shall be paid in advance by the Licencee before 10th day of each month following the month to which water charges pertains calculated as per the estimated requirement of water for the month. The bills as per actual payment of charges shall be prepared every month and served on the Licencee for payment thereof.
- (v) If the arrears of water charges referred to above accumulate for more than six months, the Government shall be at liberty to ask the licencee to stop drawl of water from the source and it shall be incumbent on the licencee to do so and in case of default, Government may take action to stop entry into the intake without any notice at the risk and cost of the licencee.
- (vi) If the Scientific measuring devices referred to in Clause-7 below, ceases to function or goes out of order in any month, the charges leviable in respect of that month shall be calculated on the basis of the average quantity of water drawn in the preceding three months or the quantity of water drawn in the same month of preceding year whichever is higher, provided that there has been no increase in the capacity of the plant/plants and the corresponding water requirements thereof during such year. If the capacity of the Plant/Plants has increased during such year, the water drawn shall be correspondingly estimated on the prorata basis. For the purpose of such estimate, the licencee shall furnish necessary data to the Executive Engineer concerned whose decision in the matter shall be final and binding to the licencee.
- (7) A suitable scientific measuring device shall be installed by the Licencee at suitable place in consultation with and with the approval of the Executive Engineer, Damanganga Canal Distributory Division No. 3, Balitha (Vapi) or his successor in office for measuring the quantity of water drawn by the Licencee.
- The cost of measuring device, its installation and maintenance shall be borne by the Licencee. The measurement of the quantity of water drawn shall be taken jointly by the representative of the Government and of the Licencee. The measuring device shall be open for inspection by the concerned authorities.
- (8) If the measuring device referred to in the clause-7, ceases to function or goes out of order, the Licencee shall, as and when such occasion arises, get necessary repairs


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BALITHA (VAPI)

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thereto carried out and restore the same to its original position or replace the same if so found necessary and as required by the Executive Engineer concerned within one month of its going out of order.

- (9) The water drawn by the Licencee from the River Par shall be used only for the purpose for which permission to use the same is granted to him and as such the use shall be confined to the legitimate requirements of the Licencee.

The Licencee shall not draw water from the above mentioned sources for sale or supply to any person, firm or Company or other body by whatever name called.

- (10) (1) The grant of the permission to draw water under this agreement shall not mean any assurance to the Licencee regarding availability of quantity of water as per the requirements of the Licencee and regarding the quality of water. The Licencee shall not be entitled to any compensation for non availability of quantity of water on account of reasons beyond the control of the government/department. It shall be incumbent on the licencee to make its own arrangement to meet its requirement of water during the periods the canal is closed on account of repairs or accidental breach.

- (10) (2) If the special measures for conserving the water and reducing the losses of evaporation and seepage are found necessary in scarcity years, the expenses on this account shall be borne by the Licencee.

- (11) The permission granted in this agreement shall not in any manner prejudicially affect the existing water rights vested in the riparian owners nor shall it in any way prejudice the rights of government to launch or implement any new scheme or schemes in public interest in future in connection with the water of Notified River Par of the ~~(Name of~~ *Office of division*) from which Licencee is permitted to draw water.

- (12) The drawl of water under this agreement by the licencee shall be subject to the provisions of the *Gujarat Irrigation and Drainage Act, 2013, Gujarat Irrigation and Drainage Rules, 2014* and other rules made there under as amended from time to time and orders that may be passed or issued in that behalf by the Government / Department from time to time.

- (13) The Licencee shall at all reasonable times allow the officers of the government to inspect the work sites and records regarding quantity of water drawn, utilized and supplied to other parties, if any, and to take copy of the records.

[Signature]


Executive Engineer,
Gangga Canal Disty Dn. No. 3,
BALITHA (VAPI)

[Signature]
R. Mohanan
Whole-time Director
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(14) ~~An amount equivalent to three months prevailing water charges shall be initially deposited by the licensee with the Executive Engineer, Damanganga Canal Distributory Division No.3, Balitha (Vapi) or his successor in the office as security deposit for the due performance of the terms of this agreement. The deposit shall be in the form of Fixed Deposit in any Nationalized Bank/schedule bank and shall be pledged by the licensee in favour of the Executive Engineer, Damanganga Canal Distributory Division No. 3, Balitha (Vapi) or his successor in office. The enhancement in amount of security deposit due to yearly increase in the rate of water charges shall also be deposited by the Licensee. Such Fixed Deposit must continue in force during entire period of this agreement without any break.~~

or

- (14) *An amount equivalent to three months prevailing water charges shall be initially deposited by the licensee with the Executive Engineer, Damanganga Canal Distributory Division No. 3, Balitha (Vapi) or his successor in the office as security deposit for the due performance of the terms of this agreement. The deposit shall be in the form of Bank Guarantee. The enhancement in amount of security deposit due to yearly increase in the rate of water charges shall also be deposited by the Licensee. In the case of acceptance of Bank Guarantee in form of a Security Deposit, it must be issued from Nationalized Bank based in Gujarat State only and shall be pledged by the licensee in favour of the Executive Engineer, Damanganga Canal Distributory Division No. 3, Balitha (Vapi) or his successor in office. Such Bank Guarantee must continue in force during entire period of this agreement without any break.*
- (15) The Executive Engineer, Damanganga Canal Distributory Division No. 3, Balitha (Vapi) shall dispose of all matters pertaining to this agreement subject and falling within his purview subject to decision that may be taken in appeal before the Superintending Engineer, Damanganga Project Circle Valsad in the matter and the decision of the Superintending Engineer in the matter shall be final.
- (16) The Licensee shall make its own arrangements for storing its water requirement of about 45-120 - 150 days. The Executive Engineer, Damanganga Canal Distributory Division No. 3, Balitha (Vapi) _____ shall ordinarily inform licensee in advance about the period of closures of the canal for any reason.


Executive Engineer,
Damanganga Canal Distributory Div. No. 3,
BALITHA (VAPI)

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S. N. Sathyan
Whole-time Director
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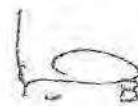
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- (17) The Licencee shall arrange at its own cost the discharge of the trade waste and effluents after due treatment as may be permitted from time to time by the State Water Pollution Control Board safely in the place earmarked for the purpose in the vicinity in consultation and with the approval of Public Health Authority. In case where the Collector, Valsad District finds that the arrangement of discharge is not suitable, it shall be the duty of Licencee to make other suitable arrangement as may be directed by him. If the discharge of trade waste and effluent proves to be a source of nuisance to the field and or the population in the neighborhoods, the Licencee shall treat the same further in such manner as may be directed by the Government.
- (18) This agreement shall remain in force for a period of 5 (Five) years (repeat in words ~~Years~~) from the date of execution 27.01.2016 / or ~~* from dated~~ / / 20 ~~*,~~ applicable ~~only where retrospective effect sanctioned~~ thereof unless terminated earlier, by the Licencee by giving six calendar month's notice in writing to the Government for the purpose. The Licencee shall not be eligible for any compensation on account of such premature termination.
- (19) The Government may allow the drawl of water according to the terms stated in this agreement after the expiry of the agreement on receipt of a request to that effect from the Licencee at least six month before the expiry of the period of this agreement.
- (20) The Licencee shall bear all the legal charges, stamp duty, registration fees and translation charges and all other charges and expenses incurred in connection with this presents.
- (21) The Government shall be entitled to terminate this agreement upon serving the Licencee with a notice of 1 month(One Month)for breach of any of the terms and conditions of this agreement or in the event the Licencee fails to pay any sum due to the Government under this agreement. The Licencee shall not be eligible to claim any compensation from the Government on account of withdrawing the facility of drawl of water as a result of premature termination of the agreement or even otherwise. Without prejudice to any right of the Government to proceed in accordance with the relevant clauses/rules No.6(v) to recover such sums due from the Licencee, the security deposits shall be forfeited. Any drawl of water from the River Par (~~Location of drawl point~~) after the expiry of the period of the notice shall be treated as an unauthorised act and shall be subject to such penal charges as may be determined by the Government.



Executive Engineer,
B. N. M. Canal Distry Dn. No. 2,
BALITSA (VAPI)

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Whole-time Director
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- (22) Except as otherwise herein provided, all notices to be given and other actions to be taken on behalf of the Licencee shall be given or taken by the Whole time Director, Atul Limited, Atul or any other official authorized by the Licencee.
- (23) All sums and amount due and payable under this agreement shall be recoverable as arrears of land revenue under the Gujarat Land Revenue Code, 1879 without prejudice to any other rights or remedies available to the Government under any other case.
- (24) Both parties are bounded to follow all the condition mentioned in attached appendix in Gujarati vernacular.

IN WITNESS WHERE OF ~~Mr./Mrs./Ms.~~ Shri B.N.Mohanan Whole Time Director Atul Limited at village Haria in Atul Taluka Valsad of Valsad District duly authorized by the Board of Directors of the Licencee for and on behalf of the Licencee and Shri N.K. Bhardwaj Executive Engineer, Damanganga Canal Distributory Division No. 3, Balitha (Vapi) for and on behalf of the Governor of Gujarat have signed there presents and herein set their respective seals on the day and year first above written.



N.K. Bhardwaj
 Sealed and delivered by
 Mr. N.K. Bhardwaj
 Executive Engineer
 Damanganga Canal Distry. Division No. 3,
 Balitha (Vapi)
 For and on behalf of the Governor of
 Gujarat in presence of

Witness (I)

H. J. PATEL
A.A.E.

Witness (II)

[Signature]
 Com. G. Kotecha
 A.E.

[Signature]

Signed, Sealed and delivered by
 Mr. B.N. Mohanan
 Whole Time Director
 Atul Limited
 Atul



For and on behalf of the Licencee In
 presence of

Witness (I)

[Signature]
 D.N. Thakkar
 Manager

Witness (II)

[Signature]
 A.R. Pillai
 Manager - District

અલાયદી શરતો: -

- (૧) પાણી લેવા સબબ સરકારશ્રી દ્વારા વખતો વખત નક્કી થતાં પાણીના સામાન્ય દરો, સ્થાયીદરો તથા અન્ય દરો સરકારશ્રીને નક્કી કરેલ સમય મર્યાદામાં ફરજિયાત ભરવાના રહેશે.
- (૨) પરવાનેદાર સંસ્થા એકમે/પાણીનો ખરેખર ઉપાડ કરતાં પહેલાં સરકારશ્રી નક્કી કરે તે શરતો સાથેનું કરારનામું કરવાનું રહેશેકરારનામું કર્યા સિવાય કોઈપણ સંજોગોમાં પાણી ઉપાડી શકશે નહીં તેમ થશે તો પાણી ઉપાડની તારીખથી દોઢા દરે આકારણી કરવામાં આવશે નહીં.
- (૩) પરવાનેદાર સંસ્થાએ પાણી ઉપાડતાં પહેલાં પાણીનો જથ્થો માપવા મેઝરીંગ ડીવાઇસ તેના ખર્ચ અને જોખમે મુકવાનું રહેશેવોટર મીટર મુકવા સિવાય પાણી ઉપાડશે તો તેને અનધિકૃત ગણી સામાન્ય દરોના દોઢા દરે આકારણી કરવામાં આવશે.
- (૪) દરેક માસની પાણીની જરૂરીયાત મુજબના સામાન્ય દરો અને સ્થાયી દરો દર માસની દસમી તારીખ પહેલાં આગોતરા ભરવાના રહેશેસ્થાયી દરો પાણી ઉપાડે કે ન ઉપાડે તો પણ મંજૂર કરેલ જથ્થા ઉપર મંજૂરીની તારીખથી લેવાના રહેશે.
- (૫) પરવાનેદાર સંસ્થાએ પોતાને જોઈતો એક વર્ષના સમયગાળા માટેનો પાણીનો જથ્થો દરેક વર્ષની ૧લી એપ્રિલ પહેલાં સંબંધિત અધીક્ષક ઇજનેરશ્રી પાસે લેખિતમાં મંજૂર કરાવવાનો રહેશેતેમ કરવામાં ચૂક થશે તો એટલે કે પહેલી એપ્રિલ પછી જો વાર્ષિક જથ્થો મંજૂર કરાવવામાં આવશે અથવા પહેલી એપ્રિલ પહેલાં જે તે વર્ષનો આરક્ષિત જથ્થો લેખિતમાં મંજૂર કરાવવામાં નહીં આવે તો સ્થાયીદરો પાણી ઉપાડે કે ન ઉપાડે તો પણ સરકારે મૂળ મંજૂર કરેલ જથ્થા ઉપર લેવામાં આવશે તથા આ બાબતે નાણાકિય વળતરનો કોઈ દાવો સ્વીકારવામાં આવશે નહીં.
- (૬) બિલની તારીખથી બે માસમાં પાણીનાં નાણાં નહીં ભરાય તો સરકારશ્રી દ્વારા વખતો વખતના નક્કી થતા દરોએ વ્યાજ અને સર્વિસ ચાર્જ લેવામાં આવશેજો બિલના નાણાં છ માસમાં ચૂકવવામાં નહીં આવે તો પાણી પુરવઠો બંધ કરવામાં આવશે.
- (૭) પરવાનેદાર સંસ્થાને અપાયેલ મંજૂરી આ વિભાગના જે તે વખતના નિયમો, ઠરાવોની જોગવાઈઓ, મુંબઇ સિંચાઈ અધિનિયમન ની જોગવાઈઓ તથા ગુજરાત નહેર નિયમો ૧૮૭૯-૬૦ ની જોગવાઈઓને આધિન રહેશે અને તે નિયમો પરવાનેદાર સંસ્થાને બંધનકર્તા ૧૯૬૨રહેશે.
- (૮) પરવાનેદાર સંસ્થાને જે સ્થળેથી પાણી લેવા મંજૂરી અપાયેલ હોય, તે સ્થળેથી મંજૂરી મુજબનો પૂરતો પાણીનો જથ્થો ના મળે કે અપુરતો મળે તો તેવા પ્રસંગોએ અન્ય કોઈ સ્થળમાંથી પાણી છોડવામાં આવશે નહીં તથા અછતના વર્ષમાં પાણીની ઉપલબ્ધિ મુજબ પરવાનેદાર સંસ્થાની પાણીની જરૂરીયાતના જથ્થામાં કાપ મુકવામાં આવશેઆ અંગે વળતરનો કોઈ દાવો સ્વીકારવામાં આવશે નહીં.



Executive Engineer,
Tiganga Canal Distry Dn. No. 3,
BALITHA (VAPI)


B. M. Mohanan
Whole-time Director
&

- (૯) પરવાનેદાર સંસ્થાએ પાણીના પ્રાપ્તિ સ્થાનથી તેના ખરેખર ઉપયોગના સ્થળ સુધી પાણી લઈ જવાની વ્યવસ્થા તથા તે માટે એયતથા પાઇપલાઇન વિગેરે તેના ખર્ચ અને આર.સી.આર. કર જોખમેવાના રહેશે પાઇપલાઇન કોસીંગ જો નહેરમાંથી પસાર કરવાની થાય તો નિયમોનુસાર ડીપોઝીટ તેમજ ભાડુ આપવાનું થશે.
- (૧૦) બિલો બનાવતી વખતે પાણીના જથ્થાની માપણી અને આકારણી ઉપાડના સ્થળેથી આપવામાં આવતા જથ્થા મુજબ કરવાની રહેશે વપરાશકાર સંસ્થા કે એકમને મળેલ પાણીના જથ્થા મુજબ નહીં.
- (૧૧) પાણી આપવા માટે નહેરોને રીમોડલીંગ, લાઇનીંગ કે સ્ટ્રેન્ધનીંગ કરવાની જરૂર જણાશે તો તે માટેનો પ્રમાણસરનો ખર્ચ પરવાનેદાર સંસ્થાએ ભોગવવાનો રહેશે.
- (૧૨) પરવાનેદાર સંસ્થા તેને મંજૂર કરાયેલ પાણીના જથ્થામાંથી સરકારશ્રીની પરવાનગી સિવાય અન્ય કોઇને કોઇ હેતુ માટે પાણી આપી શકશે નહીં, કે મેળવેલ મંજૂરીના હેતુ સિવાય અન્ય હેતુ માટે પાણી વાપરી શકશે નહીં.
- (૧૩) ભવિષ્યમાં નહેરમાં સિંચાઈ માટે પાણી બંધ કરવાના પ્રસંગોએ પરવાનેદાર સંસ્થાએ તેટલા સમયના સ્ટોરેજ માટેની વૈકલ્પિક વ્યવસ્થા તેના ખર્ચ અને જોખમે કરવાની રહેશે.
- (૧૪) પરવાનેદાર સંસ્થાએ પોતાની સંસ્થામાં પાણીના વપરાશ બાદ નીકળતા ગંદા પાણીને ગુજરાત પ્રદુષણ નિયંત્રણ બોર્ડની પરવાનગી મુજબ શુદ્ધિકરણ કરીને છોડવાનું રહેશે.



N. P.
 એન. કે. ભારદ્વાજ
 ડિપ્ટી પાલક ઇજનેર
 વિશાખા વિભાગ નં-૩
 ખલીઠા (વાપી).

[Signature]
 (શ્રી બી. એન. મોહનન)
 હોલરાર્કમ ડાયરેક્ટર
 અતુલ લીમીટેડ
 અતુલ



સાક્ષીઓ.

(૧)

[Signature]
 C. M. G. Kotecha
 LAE I

(૨)

[Signature]
 (H. J. PATEL)
 AAE

સાક્ષીઓ.

(૧)

[Signature]
 D. N. Thakkar

(૨)

[Signature]
 A. R. Pillai

ANNEXURE-VII
MEDICAL CHECKUP REPORT

Sr No	EMP. ID	Display Name	Unit	Grade	Medical Check-up Date
1	27421	Dipak kumar Patel	U&S	6	12/04/2019 (EHM)
2	64010	Sanjay kumar Patel	U&S	5	18/09/2018 (PEM)
3	1267	Krishna kant Panchal	U&S	4	19/03/2019 (EHM)
4	1644	Nishith kumar Gandhi	U&S	4	24/01/2018 (EHM)
5	61060	Bhavik Naik	U&S	4	20/03/2019 (EHM)
6	62083	Bhupesh Prajapati	U&S	4	05/03/2019 (EHM)
7	62130	Prashant Itekar	U&S	4	11/032019 (EHM)
8	63314	Trilok Kasvala	U&S	4	29/03/2019 (EHM)
9	63862	Ramkumar Raja	U&S	4	28/07/2018 (PEM)
10	62382	Viral Patel	U&S	4	11/03/2019 (EHM)
11	27221	Ritesh Patel	U&S	4	20/02/2019 (EHM)
12	33638	Jayanti patel	U&S	4	21/02/2019 (EHM)
13	33645	Sanjay Modi	U&S	4	22/02/2019 (EHM)
14	62229	Parmod Singh	U&S	4	11/03/2019 (EHM)
15	63388	Chintan Rawal	U&S	4	15/03/2019 (EHM)
16	64070	Joy Sarkar	U&S	4	17/12/2018 (PEM)
18	1860	Dharmesh Chaudhari	U&S	3	18/03/2019 (EHM)
19	5191	Hasmukh Patel	U&S	3	14/03/2019 (EHM)
20	6223	Nitin Naik	U&S	3	01/03/2019 (EHM)
21	6256	Khusalbhai Patel	U&S	3	15/03/2019 (EHM)
22	62914	Nimesh Kumar Soni	U&S	3	13/03/2019 (EHM)
25	6541	Abdulsamad Shaikh	U&S	3	15/03/2019 (EHM)
27	6561	Yashin Shaikh	U&S	3	12/03/2019 (EHM)
28	6562	Shashikant Patel	U&S	3	18/03/2019 (EHM)
30	63075	Dilip Zala	U&S	3	19/03/2019 (EHM)
31	62762	Premkant Tiwari	U&S	3	18/03/2019 (EHM)
32	62914	Nimesh Soni	U&S	3	13/03/2019 (EHM)
35	63096	Mohan Patel	U&S	3	13/03/2019 (EHM)
36	62606	Manesh patel	U&S	3	11/03/2019 (EHM)
37	6574	Kamlesh Ratod	U&S	3	19/02/2019 (EHM)
38	63743	Parixit Jadav	U&S	3	21/05/2018 (PEM)
39	63744	Vipul Karena	U&S	3	14/05/2018 (PEM)
40	63351	Sagar Sharma	U&S	3	12/02/2018 (EHM)
59	63769	Yatinkumar Patel	U&S	2	06/06/2018 (PEM)
62	64093	Viralkumar Prajapati	U&S	2	31/12/2018 (PEM)
63	64320	Kishorbhai Tandel	U&S	2	04/23/2019 (PHM)
65	62527	Divyesh Patel	U&S	2	11/02/2019 (PHM)
66	63041	Mayur Patel	U&S	2	01/01/2019 (PEM)
67	63204	Tejas Mistry	U&S	2	29/01/2019 (PHM)

68	63263	Rahul Ahire	U&S	2	08/02/2019 (PHM)
69	62915	Pankaj Lad	U&S	2	31/01/2019 (PHM)
70	63892	Pankaj Tandel	U&S	2	29/01/2019 (PHM)
71	63949	Nehul Patel	U&S	2	04/02/2019 (PHM)
72	64800	Ritesh Patel	U&S	2	29/06/2019 (PEM)
75	64210	Rahul Patel	U&S	2	22/04/2019 (PEM)
76	62911	Dilip Patel	U&S	2	12/02/2019 (PHM)
79	64794	Parimal Patel	U&S	2	31/08/2019 (PEM)
80	64502	Minesh Rathod	U&S	2	19/06/2019 (PEM)
84	64224	Harshiv Desai	U&S	GT	14/03/2019 (PEM)
85	64530	Rahul Gangajaliya	U&S	GT	13/06/2019 (PEM)
86	64229	Raj rajput	U&S	GT	22/03/2019 (PEM)
87	64548	Yash Bhavsar	U&S	GT	25/06/2019 (PEM)
88	64531	Sunny Patel	U&S	GT	18/06/2019 (PEM)
89	64528	Devarshi Trivedi	U&S	GT	13/06/2019 (PEM)
ABBREVIATION :					
1	EHM	Executive Health Monitoring			
2	PHM	Periodic Health Monitoring			
3	PEM	Pre-employment Health Monitoring			

Laboratory Report

LAB080055

Name	Mr Darshal V Desai	Report Date	06-12-2019
Age/Gender	32 Y/M	MR No	MR001804
Visit ID	OP092761		
Doctor	Vishal Mehta		
Test Date	06-12-2019 08:50	Lab ID No	LAB080055
Sample Date	06-12-2019 08:16	Specimen	Blood

Haematology

Test Description	Result	Units	Reference Range
CBC + DIFF - Complete Haemogram			
WBC - White Blood Cell Count	7.07	10 ³ uL	Normal 4.23 - 9.07
RBC - Red Blood Cell Count	5.08	10 ⁶ uL	Normal 4.63 - 6.08
HGB - Haemoglobin	15.60	g/dL	Normal 13.7 - 17.5
HCT - Haematocrit (PCV)	44.90	%	Normal 40.1 - 51.0
MCV - Mean Cell Volume	88.40	fL	Normal 79.0 - 92.2
MCH - Mean Cell Haemoglobin	30.70	pg	Normal 25.7 - 32.2
MCHC - Mean Cell Haemoglobin Concentration	34.70	g/dL	Normal 32.3 - 36.5
PLT - Platelet Count	263.00	10 ³ /uL	Normal 163 - 337
RDW-SD - RBC Distribution Width Standard Deviation	41.00	fL	Normal 35.1 - 43.9
RDW-CV - RBC Distribution Width Coefficient Variation	12.90	%	Normal 11.6 - 14.4
PDW - PLT Distribution Width	9.20	fL	
MPV - Mean Platelet Volume	9.10	fL	
P-LCR - PLT Large Cell Ratio	17.30	%	
PCT - Plateletcrit	0.24	%	
NEUT - Neutrophil Count	65.50	%	Normal 34.0 - 67.9
LYMPH - Lymphocyte Count	26.70	%	Normal 21.8 - 53.1
MONO - Monocyte Count	4.80 *	%	Normal 5.3 - 12.2
EO - Eosinophil Count	2.40	%	Normal 0.8 - 7.0
BASO - Basophil Count	0.60	%	Normal 0.2 - 1.2

Key: *=Abnormal Low, **=Critical Low,***=Improbable Low, #=Abnormal High, ##=Critical High, ###=Improbable High

Haematology Analyzer : Sysmex XS-800i (fully automated 5-part blood cell counter) [Transasia]

Biochemistry Analyzer : Cobas C-111 (fully automated) [Roche]

Lab Technician
Mrs.Priti Desai



Laboratory Report

Name	Mr Darshal V Desai	Report Date	06-12-2019
Age/Gender	32 Y/M	MR No	MR001804
Visit ID	OP092761		
Doctor	Vishal Mehta		

Biochemistry

Test Description	Result	Units	Reference Range
FBS - Fasting Blood Sugar			
Specimen: Blood			Sample Date: 12/6/19 8:16 AM
Lab ID No: LAB080056			Test Date: 12/6/19 9:05 AM
Blood Sugar - Fasting	94	mg/dL	Normal 70.0 - 110.0
Lipid Profile			
Specimen: Serum			Sample Date: 12/6/19 8:16 AM
Lab ID No: LAB080057			Test Date: 12/6/19 12:00 PM
Total Cholesterol	179.81	mg/dL	Normal upto 250
HDL Cholesterol	41.56	mg/dL	Normal 30.0 - 70.0
Triglycerides	90.26	mg/dL	Normal 60.0 - 165
VLDL Cholesterol	18.05	mg/dL	Normal 7.0 - 35.0
LDL Cholesterol	120.2	mg/dL	Normal 50.0 - 190.0
LDL/HDL Ratio	2.89		Normal Upto 3.0
TC/HDL Ratio	4.33 #		Normal Upto 4.0
SGOT / AST			
Specimen: Serum			Sample Date: 12/6/19 8:16 AM
Lab ID No: LAB080058			Test Date: 12/6/19 12:00 PM
SGOT / AST	28.70	Units/L	Normal 5.0 - 40.0 [Limitations-interference : Physiological Plasma concentrations of Sulfasalazine Sulfapyridine may lead to false results]
SGPT / ALT			
Specimen: Serum			Sample Date: 12/6/19 8:16 AM
Lab ID No: LAB080059			Test Date: 12/6/19 12:00 PM
SGPT / ALT	37.70	Units/L	Normal 5.0 - 40.0 [Limitations-interference : Physiological Plasma concentrations of Sulfasalazine Sulfapyridine may lead to false results]
Bilirubin (Serum)			
Specimen: Serum			Sample Date: 12/6/19 8:16 AM
Lab ID No: LAB080060			Test Date: 12/6/19 12:00 PM
Total Bilirubin	0.56	mg/dL	Normal 0.3 - 1.0
Direct Bilirubin	0.30 #		Normal Upto 0.2
Indirect Bilirubin	0.26		Normal Upto 0.8

Specimen:Serum
Lab ID No: LAB080061

Sample Date:12/6/19 8:16 AM
Test Date: 12/6/19 12:05 PM

Uric Acid 6.40 mg/dL Normal 3.4 - 7.0

Specimen:Serum
Lab ID No: LAB080062

Sample Date:12/6/19 8:16 AM
Test Date: 12/6/19 12:00 PM

Creatinine (Serum) 0.80 mg/dL Normal 0.8 - 1.4

Key: *=Abnormal Low, **=Critical Low,***=Improbable Low, #=Abnormal High, ##=Critical High, ###=Improbable High

Haematology Analyzer : Sysmex XS-800i (fully automated 5-part blood cell counter) [Transasia]

Biochemistry Analyzer : Cobas C-111 (fully automated) [Roche]

Lab Technician
Mrs.Priti Desai



Laboratory Report

Name	Mr Darshal V Desai	Report Date	06-12-2019
Age/Gender	32 Y/M	MR No	MR001804
Visit ID	OP092761		
Doctor	Vishal Mehta		
Test Date	06-12-2019 15:27	Lab ID No	LAB080063
Sample Date	06-12-2019 08:16	Specimen	Urine

Microbiology

Test Description	Result	Units	Reference Range
Urine Routine And Microscopy			
Volume	30	ml	
Colour	Yellow		
Appearance	Clear		
pH	5.0		
Specific Gravity	1.030		
Protein (Albumin)	Negative	mg/dL	
Glucose	Negative	g/dL	
Ketone (Acetone)	Negative	mg/dL	
Bilirubin	Negative		
Blood	Negative		
Epithelial Cells	2 - 4	/hpf	
Pus Cells	1 - 2	/hpf	
RBCs	Absent	/hpf	
Crystals	Absent		
Amorphous	Absent		
Casts	Absent		
Yeast Cells	Absent	/hpf	
Mucous	Absent		
Bacteria	Nil	/hpf	

Key: *=Abnormal Low, **=Critical Low,***=Improbable Low, #=Abnormal High, ##=Critical High, ###=Improbable High

Haematology Analyzer : Sysmex XS-800i (fully automated 5-part blood cell counter) [Transasia]

Biochemistry Analyzer : Cobas C-111 (fully automated) [Roche]

Lab Technician
Mrs.Priti Desai





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Ref. No.: 2322/04/2019-20

Date: 30/04/2019

REPORT OF NOISE LEVEL MEASUREMENT

Name of company : Atul Limited,
Address : District : Valsad - 396 020.

Date of Monitoring : 24/04/2019

Sr. No.	LOCATIONS	Avg. Results in dB(A)	
		Day Time 6.00 AM - 10.00 PM	Night Time 10.00 PM - 6.00 AM
Prescribed Limits		75.0	70.0
01.	Near Main Guest House	68.9	56.1
02.	Near TSDF	66.2	60.3
03.	Wyeth colony	60.4	52.4
04.	Garm Panchayat Hall	69.5	55.1
05.	Main office building , North site	66.5	58.9
06.	ETP, West site	70.2	55.1
07.	Opposite Shed D, West site	68.9	55.9
08.	ETP, West site	68.7	56.3
09.	Near Haria water tank	64.5	55.2
10.	66KV	67.8	56.2

Instruments used : Sound level meter, Model : SL - 4030 (Lutron Make)

Range : A - 30 to 80 dB, B-50 to 100 dB, C-80 to 130 dB., Calibration Due on : 16/09/2019

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Poadip
Analyst



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Ref. No.: 2422/05/2019-20

Date: 31/05/2019

REPORT OF NOISE LEVEL MEASUREMENT

Name of company : Atul Limited,
Address : District : Valsad - 396 020.

Date of Monitoring : 16/05/2019

Sr. No.	LOCATIONS	Avg. Results in dB(A)	
		Day Time 6.00 AM - 10.00 PM	Night Time 10.00 PM - 6.00 AM
Prescribed Limits		75.0	70.0
01.	Near Main Guest House	65.3	55.5
02.	Near TSDF	65.9	61.3
03.	Wyeth colony	61.3	53.2
04.	Garm Panchayat Hall	70.2	56.2
05.	Main office building , North site	66.9	59.1
06.	ETP, West site	70.6	55.9
07.	Opposite Shed D, West site	68.9	55.4
08.	ETP, West site	69.3	57.3
09.	Near Haria water tank	65.1	56.8
10.	66KV	66.9	56.9

Instruments used : Sound level meter, Model : SL - 4030 (Lutron Make)

Range : A - 30 to 80 dB, B-50 to 100 dB,C-80 to 130 dB., Calibration Due on 16/09/2019

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Prudip.
Analyst



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Ref. No.: 2522/06/2019-20

Date: 29/06/2019

REPORT OF NOISE LEVEL MEASUREMENT

Name of company : Atul Limited,
Address : District : Valsad - 396 020.

Date of Monitoring : 14/06/2019

Sr. No.	LOCATIONS	Avg. Results in dB(A)	
		Day Time 6.00 AM - 10.00 PM	Night Time 10.00 PM - 6.00 AM
Prescribed Limits		75.0	70.0
01.	Near Main Guest House	64.2	52.4
02.	Near TSDF	63.4	60.2
03.	Wyeth colony	62.1	52.4
04.	Garm Panchayat Hall	67.2	53.4
05.	Main office building , North site	67.2	57.3
06.	ETP, West site	69.8	52.8
07.	Opposite Shed D, West site	67.6	53.4
08.	ETP, West site	68.4	56.1
09.	Near Haria water tank	67.2	57.1
10.	66KV	65.2	58.3

Instruments used : Sound level meter, Model : SL - 4030 (Lutron Make)

Range : A - 30 to 80 dB, B-50 to 100 dB, C-80 to 130 dB., Calibration Due on : 16/09/2019

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Analyst



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Ref. No.: 2622/07/2019-20

Date: 31/07/2019

REPORT OF NOISE LEVEL MEASUREMENT

Name of company : Atul Limited,
Address : District : Valsad - 396 020.

Date of Monitoring : 26/07/2019

Sr. No.	LOCATIONS	Avg. Results in dB(A)	
		Day Time 6.00 AM - 10.00 PM	Night Time 10.00 PM - 6.00 AM
Prescribed Limits		75.0	70.0
01.	Near Main Guest House	58.6	50.2
02.	Near TSDF	62.3	59.8
03.	Wyeth colony	56.4	50.4
04.	Garm Panchayat Hall	65.7	52.7
05.	Main office building , North site	69.2	64.2
06.	ETP, West site	62.8	58.4
07.	Opposite Shed D, West site	61.3	52.1
08.	ETP, West site	67.4	55.4
09.	Near Haria water tank	58.7	54.2
10.	66KV	68.1	56.1

Instruments used : Sound level meter, Model : SL - 4030 (Lutron Make)

Range : A - 30 to 80 dB, B-50 to 100 dB,C-80 to 130 dB., Calibration done on : 13/09/2018

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[Signature]
Analyst



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Ref. No.: 2722/08/2019-20

Date: 31/08/2019

REPORT OF NOISE LEVEL MEASUREMENT

Name of company : Atul Limited,
Address : District : Valsad - 396 020.

Date of Monitoring : 23/08/2019

Sr. No.	LOCATIONS	Avg. Results in dB(A)	
		Day Time 6.00 AM - 10.00 PM	Night Time 10.00 PM - 6.00 AM
Prescribed Limits		75.0	70.0
01.	Near Main Guest House	52.6	49.2
02.	Near TSDF	58.2	52.8
03.	Wyeth colony	40.2	35.4
04.	Garm Panchayat Hall	60.7	55.7
05.	Main office building , North site	62.2	58.6
06.	ETP, West site	59.3	53.2
07.	Opposite Shed D, West site	62.4	54.2
08.	ETP, West site	64.3	60.3
09.	Near Haria water tank	45.3	38.4
10.	66KV	63.2	54.8

Instruments used : Sound level meter, Model : SL - 4030 (Lutron Make)

Range : A - 30 to 80 dB, B-50 to 100 dB,C-80 to 130 dB., Calibration done on : 13/09/2018

Royal Environment Auditing & Consultancy Service



Prabir
Analyst



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Ref. No.: 2822/09/2019-20

Date : 30/09/2019

REPORT OF NOISE LEVEL MEASUREMENT

Name of company : Atul Limited,
Address : District : Valsad - 396 020.

Date of Monitoring : 27/09/2019

Sr. No.	LOCATIONS	Avg. Results in dB(A)	
		Day Time 6.00 AM - 10.00 PM	Night Time 10.00 PM - 6.00 AM
Prescribed Limits		75.0	70.0
01.	Near Main Guest House	55.3	51.2
02.	Near TSDF	62.4	59.8
03.	Wyeth colony	56.4	45.2
04.	Garm Panchayat Hall	60.1	58.6
05.	Main office building , North site	62.4	54.5
06.	ETP, West site	65.4	60.6
07.	Opposite Shed D, West site	62.8	58.4
08.	ETP, West site	67.2	59.5
09.	Near Haria water tank	57.6	55.3
10.	66KV	62.4	58.2

Instruments used : Sound level meter, Model : SL - 4030 (Lutron Make)

Range : A - 30 to 80 dB, B-50 to 100 dB, C-80 to 130 dB., Calibration done on : 1/08/2019

Royal Environment Auditing & Consultancy Service



Pradip
Analyst

Training Record: Participant List

Subject: Workplace Safety.

Day: 01

Faculty: PARIMAL SHAH & MIKESH CHEVALI Date: 26/10/19

Venue: Atul Club.

Time: 08:00 am to 05:00 PM

PLEASE WRITE NEATLY IN BLOCK CAPITAL LETTERS.

No	Name	Employee #	Business Unit	Site	Mobile #	Sign
1	Shubham Sharma	64655	BI/Coustic	East	9340434939	<u>Shubham</u>
2	Siddhesh Maheshwari	64364	BI/Coustic	East	7874774447	<u>Siddhesh</u>
3	Milan J. Gandharva	64365	BI/Coustic	East	9737177845	<u>Milan</u>
4	Rohit Lakhare	64572	CO/Shed-B	West	8460551626	<u>Rohit</u>
5	KANDARP DESAI	64549	PO/Inst. Maintenance	NORTH	9601063230	<u>Kandarp</u>
6	Pooresh H Patel	200068	CP/Small Part	East	78744156795	<u>P.H. Patel</u>
7	Ankit D. Bhatt	61171	CP-Eng.	East	9919335534	<u>Ankit</u>
8	Harshod. L. Patil	1542	CP.	East	9982174423	<u>Harshod</u>
9	Kishan K. Suvajita	63969	CP Engg	East	9927006740	<u>Kishan</u>
10	Vishv N. Naik	81539	AR/Kilolab	East	9978355944	<u>V. Naik</u>
11	Ranjay Kumar Sharma	64091	CO/Shed-E	West	7405888262	<u>Ranjay</u>
12	Ayush Chaurasia	64780	CO/Chd	West	8460384638	<u>Ayush</u>
13	Anil Gupta	64785	CO/Shed E	West	9664907004	<u>Anil</u>
14	Raj A. Rajput	64229	UG-S/PIH	West	8460673400	<u>Raj Rajput</u>
15	Rakesh Prajapati	64228	CP/Sulfagrow	East	9723170714	<u>Rakesh</u>
16	Barun Shaw	64703	CP/Sulfa	East	8777594397	<u>Barun</u>
17	Jyoti Gondaliji	64492	PO/Epoxy-1	North	7046108211	<u>Jyoti</u>
18	Jyoti Chauhan	64168	BI/Resorcinal	East	7568637033	<u>Jyoti</u>
19	Kaushik Vasoya	64536	PO/CIVIL	North	8758016392	<u>Kaushik</u>
20	Bhavin Vaghani	64541	UGS/civil	EAST	9725282137	<u>Bhavin</u>
21	Shubham Malge	64740	PO/H-2	North	9584479613	<u>Shubham</u>
22	Jignesh Chaudhari	64542	BE CIVIL	East	7401377072	<u>Jignesh</u>
23	Anita S. Singh	64395	CP/Indico-2	East	9808579958	<u>Anita</u>
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Training Record: Participant List

Subject: Workplace Safety.

Day: 01

Faculty: PARIMAL SHAH & MIKESH CHEVALI

Date: 16/10/19

Venue: Atul Club.

Time: 08:00 am to 05:00 PM

PLEASE WRITE NEATLY IN BLOCK CAPITAL LETTERS.

No	Name	Employee #	Business Unit	Site	Mobile #	Sign
1	Moulish J Shah	40986	Polymer-QC	North	9909080124	[Signature]
2	Laxmi shyona	62367	PO-NETP	North	-	[Signature]
3	Kamali shyona	64863	CP-Division	East	9978425751	[Signature]
4	HARSHAD C PRASAD	1390	CO-SIDYUS	East	9898266767	H.C. Prasad
5	Sanjay S. Modi	33645	URS (PH)	West	9825595517	[Signature]
6	Vinayak D. Desai	64553	BI/S.Acid	East	9926025160	[Signature]
7	GAURAV KHARWA	64555	Polymer	North	8154913602	[Signature]
8	Arunal Patel	64552	BI/Caustic	East	9998640062	[Signature]
9	Rakesh Singh	63521	CO-Petro	East	4033318635	[Signature]
10	Jay Prakash	63675	CP-Indoxant	East	8866984898	[Signature]
11	Hemant M Shah	900049	RAIL ^{Production} East	East	9998045790	Hemant Shah
12	H. B. shah	64832	PO/NETP	North	8320037127	[Signature]
13	Nafees Ahmad	64652	PO/NETP	North	8780293747	[Signature]
14	Vishal Desai	63269	CP/Est ²⁰²	East	9033669090	[Signature]
15	Ashob Koradiya	64455	BI	East	9626699496	[Signature]
16	Paras Madhurya	64556	PO-Mech	NORTH	7567086500	[Signature]
17	Jignesh Chavhan	64542	BI-civil	East	7405377082	[Signature]
18	Jayesh Tank	63653	CP-Ester	East	9737128841	[Signature]
19	Soham Patel	63703	CO-SB	East	9996965451	[Signature]
20	Sulav Mustafa	62750	CO-SP	WEST	8905350084	[Signature]
21	Dinesh Jagtap	63666	CO(Shed-N)	West	9601004862	[Signature]
22	Ajay M. Vaghela	64783	CO(Shed-D)	west	9099108090	[Signature]
23	DOLU. Kulkarni	63761	BI East	East	8980502998	[Signature]
24	Dongare S.	64807	EP-2 (PO)	North	9173789131	[Signature]
25	Ratul kuma	64631	EP-1 (PO)	North	9773496713	[Signature]
26	Ravi B Gyer	33581	URS-	East	9904033313	[Signature]
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Training Record: Participant List

Subject: Process Safety Training
 Faculty: Safety Team
 Venue: Learning Centre.

Day: 01
 Date: 27/11/2019
 Time: 08:00 am to 05:00 pm

PLEASE WRITE NEATLY IN BLOCK CAPITAL LETTERS.

No	Name	Employee #	Business Unit	Site	Mobile #	Sign
1	Devans P. Patel	63898	CO/Anal.Lab	West	972979880	D.P.Patel
2	Jeevan Jadhav	64924	PO/Atul	North	9672472851	Jadhav
3	Bhupendra Singh	63227	CO/Prod	West	7405099316	B Singh
4	Deepak Nale	64916	PO/Atul	North	9702047438	Deepak
5	Gaurav Vaidya	64417	PO/R&D	North	953732852	G Vaidya
6	VYAS RAJ J.	64602	CO/R&D	WEST	9160932689	Vyas
7	Suhay Rujendra P.	63896	CO/CAE	WEST	738389377	Suhay
8	Rushikesh P	63963	AR-PL	East	9518736769	Rushikesh
9	Ashwin P. Shetkar	62345	AR-R&D	East	9974952859	Ashwin
10	Nagendra Singh Rao	63856	AR-R&D	East	8982702051	Nagendra
11	Soni Kevin H.	64050	CP-Prod.	East	8001770471	Soni
12	Mang Chaudhary	64082	CO-R&D	West	9913297867	Mang
13	P.P. Dhimmaj	1675	CO/R&D	West	9998926985	P.P. Dhimmaj
14	Mohsin M. Khalifa	61649	CO/Plant	West	7984877329	M Khalifa
15	Mo. Rajik S	63377	CO/Plant	West	7695496162	Mo Rajik
16	Kamlesh Patil	6574	U/S	West	9726873367	Kamlesh
17	Dattam S Jadhav	500065	PO	West North	9924757897	Dattam
18	Sahin A. Mondal	62743	CO	West	9586535346	Sahin
19	N.P. Shant H. Shetty	64918	CP	East	9197620159	N.P. Shetty
20	Vishnu Dev	64930	BI	East	9616181454	Vishnu
21	Sanket Kalavady	64932	CP	East	9924775647	Sanket
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Training Record: Participant List

Subject: Process Safety Training

Day: 01

Faculty: Safety Team

Date: 27/11/2019

Venue: Learning Centre.

Time: 08:00 am to 05:00 pm

No	Name	Employee #	Business Unit	Site	Mobile #	Sign
1	Jignesh G. Patel	63835	BI-CETP	East		Jignesh
2	Rajnikant A. Patel	63798	BI-CETP	East		Rajnikant
3	Indrajit K.K	64778	BI-Caustic	East		Indrajit
4	Shubham Dubey	64627	BI-Caustic	East		Shubham
5	Saurabh Saha	64904	BI-Aisole	East		Saurabh
6	Akshay Patel	64054	CO-SIB	East		Akshay
7	Tushar Bhanderi	63866	PO-epa	North		Tushar
8	Murshid Ahmad	63995	CO-SID	East		Murshid
9	Devangha Chauhan	64168	BI-Residual	East		Devangha
10	Sushil Kumar	64705	CP-MPP	East		Sushil
11	Hemal M Shah	900049	CO-RACL	East		Hemal
12	Anandish Modi	62945	AR-Kilo Lab	East		Anandish
13	Kamlesh B. Patel	63392	AR-R&D	East		Kamlesh
14	Anish G. Patel	61337	AR-R&D	East		Anish
15	Moham. B. Patel	63096	Power Plant	West		Moham.
16	Narash Mishra	10220	ARomatics	Amlesh		Narash
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Training Record: Participant List

Subject: Cascade-2 Safety Training Day: 01
 Faculty: PARIMAL SHAH Date: 12/12/19
 Venue: ECC, East Site Time: 08:00 am to 12:00 PM

No	Name	Employee #	Business Unit	Site	Mobile #	Sign
1	Chiman B Patel	5944	BI-RESO	East site		CB Patel
2	Jivan. B. Ratnod	5877	BI RESO	East site		JBRatnod
3	Patil Tushar R	64965	CO	East site		Patil
4	Tony D Mustang	63204	Power Plant Buildings V&S	East site		T.D Mustang
5	Bhavad N. Patel	6319	CP Dilubhai	East site		Bhavad N
6	Rahul K. Patel	63916	CP Dilubhai	East site		RKP
7	Sunil M. Patel	51728	SP Power	"		Sunil
8	Diyesh B. Patel	52975	BI-Anaven	East side		D.P. Patel
9	Diyang M. Patel	52877	"	"		D.P. Patel
10	Vitesh J. Sahani	64771	CP	East site		Vitesh
11	Vasava Harshada C.	64957	BI	"		Vasava H.C.
12	Nayak APesh. J.	64954	BI-RESO	East		APesh J.
13	Vinay Kumar P. Patil	64964	CO West	West side		Vinay P. Patil
14	Vasava Rahul R	64959	BI	East		Vasava R.R.
15	Narimchandra C. Patil	5346	BI	East		NCPatil
16	Valand Harsh R.	52873	BI-Coastal	East		Valand R.
17	Minesh S. Rathod	64502	V&S Powerplant	West-site		Rathod M.S.
18	Almas T. LAL	64968	CO-West	West		Almas T.
19	Patil N. Patel	6264	CP East	East		Patil N.
20	Vojva Sunil Komarp Jusha	64958	BI	East		S.K. Vojva
21	Chhagan V. Tandol	5681	CP	East		Chhagan V.
22	Jigneshkumar B. Nayak	64966	CO	West		Jigneshkumar B.
23	Jayen C. Patel	62684	CP	East		Jayen C.
24	Pritesh B. Patil	63736	CP/MPP	East		Pritesh B.
25	Tandol Kishor V.	64320	ULS/PIH	East		Tandol K.V.
26	Yash R. Patel	63764	ULS/PIH	East		Y.R. Patel
27	Vikas R. Patil	64960	BI	East		V.R. Patil
28	Patel Kevin P.	64963	CO	West site		Kevin P.
29	Patel Fehil U.	64962	CO	West site		Fehil U.
30	Patel Brijesh N.	64962	CO	West site		Brijesh N.

PLEASE WRITE NEATLY IN BLOCK CAPITAL LETTERS.

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Training Record: Participant List

Subject: Grade-2 Safety Training
Faculty: PARIMAL SHAH
Venue: ECC, East site

Day: 01
Date: 12/12/19
Time: 08:00am to 12:00 PM

No	Name	Employee #	Business Unit	Site	Mobile #	Sign
1	Jigar P. Patel	64967	CO.	West site		Patel J.P
2	Ketam R. Gandhi	6326	CP Inst	East site	9725136302	KPG
3	Darraj B. Tandil	52878	BI. SACID	East site	7046554398	Darraj
4	Suman M. Maik	6345	DCP.	East site	6345	Suman
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Training Record: Participant List

Subject: New Employee Safety Induction Day: 01
 Faculty: PAPIMAL SHAM Date: 26/11/19
 Venue: HR Conference Hall. Time: 01:00 to 4:00PM

No	Name	Employee #	Business Unit	Site	Mobile #	Sign
1	Jitendra R Chavan	810066	ABL, Ambemath	Ambemath	9773562840	<i>[Signature]</i>
2	Renish Rampusiyq	64931	PH, R&D	North	9726037880	<i>[Signature]</i>
3	Sanket Kulkarni	64932	CP, AFW	EAST	9924775647	<i>[Signature]</i>
4	Subans Kausik	64934	PO		7758383265	<i>[Signature]</i>
5	Tejaswini Nikam	64933	AR	EAST	9665476951	<i>[Signature]</i>
6	HITESH PANCHASARA	64929	TE	EAST	9904840354	<i>[Signature]</i>
7	Anand Philave	810065	ABL, Ambemath	Ambemath	9892156622	<i>[Signature]</i>
8	Mansand Rahul	81570	SHE	West	955618670	<i>[Signature]</i>
9	Vishnu Dev	64930	BI	EAST	9616101452	<i>[Signature]</i>
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TEST REPORT

QR/5.10/01

Page: 1 of 1

Customer's Name and Address :

ATUL LIMITED P.O ATUL-396 020, DIST:VALSAD.	Test Report No. : PLPL/181220045 Issue Date : 21/01/2019 Customer's Ref. : As Per Quotation
--	--

Description of Sample : Water Sample	Quantity/No. of Samples : 02 Ltr/01
Sampling Date : 20/12/2018	Protocol (Purpose) : QC
Sample Receipt Date : 20/12/2018	Lab ID : PLPL/181220045
Packing/Seal : Sealed	Test of Parameters : As Per Table
Date of Starting of Test : 20/12/2018	Date of Completion : 21/01/2019
Identification of Sample : Borewell near Easter plant, East Site, Atul Ltd #	

RESULT TABLE

SR. NO.	PARAMETERS	UNIT	RESULT	ACCEPTABLE LIMIT AS PER IS 10500:2012	PERMISSIBLE LIMIT AS PER IS 10500:2012	TEST METHOD
1	Colour	Hazen	1	Max 5	Max 15	IS3025(P-4)83Re.02
2	pH	--	6.7	6.5 - 8.5	--	IS3025(P-11)83Re.02
3	Suspended Solids	mg/L	24	--	--	IS3025(P-17)84Re.02
4	Total Dissolved Solids	mg/L	1894	Max 500	Max 2000	IS3025(P-16)84Re.02
5	Chloride as Cl	mg/L	920	Max 250	Max 1000	IS3025(P-32)88Re.99 Argentometric method
6	Oil & Grease	mg/L	ND [§]	Max 0.5	--	APHA(22 nd Edi)5520 B
7	Phenolic Compound as C ₆ H ₅ OH	mg/L	ND [§]	Max 0.001	Max 0.002	IS3025(P-43)92Re.03 4-Aminoantipyrine method
8	Hexavalent Chromium as Cr ⁺⁶	mg/L	ND [§]	--	--	APHA(22 nd Edi)3500Cr B Colorimetric method
9	Sulphate as SO ₄	mg/L	384	Max 200	Max 400	IS 3025 (P-24)1986
10	Cyanide as CN	mg/L	ND [§]	Max 0.05	--	APHA(22 nd Edi)4500CN E Colorimetric & Tritometric
11	COD	mg/L	ND [§]	--	--	APHA(22 nd Edi) 5220-B OPEN REFLUX
12	BOD (3 Days @ 27°C)	mg/L	ND [§]	--	--	IS 3025 (P-44)1993
13	Sulphide as S	mg/L	ND [§]	Max 0.05	--	APHA(22 nd Edi) 4500-S
14	Ammonical Nitrogen as NH ₃	mg/L	2.55	Max 0.5	--	IS:3025 (P-34) 1988 (Re.2003)
15	Total Hardness as CaCO ₃	mg/L	183	Max 200	Max 600	IS3025(P-21)84EDTARe.02
16	Total Alkalinity	mg/L	540	Max 200	Max 600	IS3025(P-23)86Re.03
17	Mercury as Hg	mg/L	ND [§]	Max 0.001	--	AAS APHA(22 nd Edi)3112 B
18	Calcium as Ca	mg/L	56	Max 75	Max 200	IS3025(P-21)84EDTARe.02
19	Magnesium as Mg	mg/L	10.32	Max 30	Max 100	
20	Fluoride as F	mg/L	1.05	Max 1.0	Max 1.5	APHA(22 nd Edi) 4500 F D SPANDS Method

Detection Limit : Oil & Grease : < 2 , Phenolic Compound : < 0.005, Hexavalent Chromium as Cr+6 : < 0.05, Cyanide as CN: < 0.0001, Sulphide as S: < 0.025, Mercury as Hg: < 0.001.
§ : Not Detected, # : Detail given by customer.

Dr. Maheshwari Solanki
Sr. Scientist

Recognised by MoEF, New Delhi Under
Sec. 12 of Environmental (Protection) Act-1986

● GPCB approved
schedule II auditor

● ISO 14001

Dr. Arun Bajpai
Lab Manager(Q)

● OHSAS 18001

● ISO 9001

Note: This report is subject to terms & conditions mentioned overleaf
"Pollucon House", Plot No. 5 & 6, Opp. P. B. S. Co. Ltd. Industrial Society, Jayatri Farsan Mart,
Navjivan Circle, Udhana Magdalla Road, Surat-395007, Gujarat, India.

0261-2635750, 0261-2635751, 0261-2635775, 07016605174, WEB: www.polluconlab.com, E. mail: pollucon@gmail.com, info@polluconlab.com



TEST REPORT

QR/5.10/01

Page: 1 of 1

Customer's Name and Address :

ATUL LIMITED P.O ATUL-396 020, DIST:VALSAD.	Test Report No. : PLPL/181225011 Issue Date : 04/01/2019 Customer's Ref. : Verbal
--	--

Description of Sample	: Solid Sample	Quantity/No. of Samples	: 03 kg/01
Sampling By	: Pollucon Lab.pvt.ltd.	Protocol (Purpose)	: QC
Sample Receipt Date	: 25/12/2018	Lab ID	: PLPL/181225011
Packing/Seal	: Sealed	Test of Parameters	: As Per Table
Date of Starting of Test	: 25/12/2018	Date of Completion	: 04/01/2019
Identification of Sample	: NEAR BOILER PLANT WEST SITE#		

RESULT TABLE

SR. NO.	PARAMETERS	UNIT	RESULT	TEST METHOD
1	pH	--	7.87	IS:2720(P-26)1987
2	Chloride	mg/kg	34.31	Soil Manual of India
3	Sulphate	mg/kg	161	IS:2720(P-27)
4	Organic Matter	%	0.60	IS:2720(P-22)1972
5	Colour	--	Brownish	Soil Manual of India
6	Soil Texture	--	Sandy Loam	Soil Manual of India
7	Nature Moisture Content	%	9.35	IS:2720(P-2)
8	Bulk Density	gm/cm ³	1.18	Soil Manual of India
9	Mercury	mg/kg	Not Detected	USEPA 3050 B
10	Total Nitrogen	%	2.14	FCO 2018

: Detail given by customer.

Dr. Maheshwari Solanki
Sr. Scientist

Dr. Arun Bajpai
Lab Manager(Q)

Note: This report is subject to terms & conditions mentioned overleaf.

FSSAI Approved Lab

● Recognised by MoEF, New Delhi Under
Sec. 12 of Environmental (Protection) Act-1986

● GPCB approved
schedule II auditor

● ISO 14001

● OHSAS 18001

● ISO 9001

"Pollucon House", Plot No. 5 & 6, Opp.Balaji Industrial Society, Old Shantinath Silk Mill Lane, Near Gaytri Farsan Mart,
Navjivan Circle,Udhana Magdalla Road, Surat-395007, Gujarat, India.

Phone : 0261-2635750, 0261-2635751, 0261-2635775, 07016605174, WEB: www.polluconlab.com, E. mail: pollucon@gmail.com, info@polluconlab.com



ATUL LIMITED

EXPANSION IN EXISTING CAPTIVE POWER PLANT



Table No. 2.14– Technical Specification of existing & proposed ESP

Sr. No.	Particulars	Units	Details
A.	Existing		
1.	Type of ESP	---	Horizontal dry
2.	Number of gas fields in series in direction of gas flow	Nos.	three
3.	Number of electrical fields per boiler	Nos.	three
4.	Type of Discharge Electrode	---	spiral
5.	Type of Rapping	---	Tumbling hammer
6.	Total no. of high voltage rectifier units installed	Nos.	three
7.	Pressure drop across ESP (flange to flange)	mmwc	10 to 15
8.	Ash hopper outlet flange elevation	---	3.0
9.	No. of hoppers in ESP	Nos.	3
B.	Proposed		
1.	Make	---	CETHAR
2.	Fuels		
2.1	Fuel combinations - 1	---	100 % Imported coal
2.2	Fuel combinations - 2	---	100 % Indian coal
2.3	Fuel combinations - 3	---	50 % Indian coal + 50 % Imported coal
2.4	Fuel combinations - 4	---	100 % Lignite (By adding limestone)
2.5	Fuel combinations - 5	---	70 % Indian Coal + 30 % Lignite (By adding limestone)
3.	Gas flow rate to ESP		
3.1	Fuel combinations - 1	m^3/s	
3.2	Fuel combinations - 2		21.60
3.3	Fuel combinations - 3		24.25
3.4	Fuel combinations - 4		23.25



ATUL LIMITED

EXPANSION IN EXISTING CAPTIVE POWER PLANT



Sr. No.	Particulars	Units	Details
3.5	Fuel combinations - 5		22.60
4.	Gas temperature at inlet of ESP		
4.1	Fuel combinations - 1	°C	140
4.2	Fuel combinations - 2		
4.3	Fuel combinations - 3		
4.4	Fuel combinations - 4		
4.5	Fuel combinations - 5		
5.	Inlet dust concentration		
5.1	Fuel combinations - 1	gm/nm ³	22.15
5.2	Fuel combinations - 2		56.40
5.3	Fuel combinations - 3		32.30
5.4	Fuel combinations - 4		52.40
5.5	Fuel combinations - 5		54.30
6.	Outlet dust concentration with all fields in service	mg/nm ³	50
7.	General Data of ESP		
7.1	Type of ESP	---	Horizontal flow dry type
7.2	Number of precipitators for boiler	No.	1
7.3	Number of gas paths per Precipitator		1
7.4	Number of gas fields in series in direction of gas flow		4
7.5	Number of electrical fields per boiler		4
7.6	Type of Discharge Electrode	---	spiral
7.7	Type of Rapping	---	Tumbling hammer
7.8	Total Collecting Area	m ²	3822
7.9	Total no. of high voltage rectifier	Nos.	4
7.10	Pressure drop across ESP (flange to flange)	mmwc	30
7.11	Ash hopper outlet flange elevation	---	3
7.12	No. of hoppers in ESP	Nos.	4

ANNEXURE-XII

AGREEMENT

BETWEEN

AMBUJA CEMENTS LIMITED (ACL)
MUMBAI, INDIA

AND

ATUL LIMITED
ATUL, GUJARAT

For

SUPPLY OF DRY FLY ASH

From

ATUL LIMITED, ATUL, VALSAD GUJARAT

Dated: 21.09.2019

This agreement is made at Mumbai on ___ day of October 2019 between:

M/s. Ambuja Cements Ltd (ACL), a company incorporated under the Companies Act, 1956, having its Corporate office at Elegant Business Park, MIDC Cross Road 'B', Off Andheri Kurla Road., Andheri (E), Mumbai 400059, and having its registered office at PO Ambujanagar- 362715, Taluka- Kodinar, Dist: Gir Somnath, Gujarat - India (hereinafter referred to as the "ACL or Purchaser" which expression shall unless excluded by or repugnant to the context includes its successors and/or permitted assigns) of the **FIRST PART**;

AND

Atul Limited, a company incorporated under the provisions of the company act, 1956 and having its registered office at Atul House, G I Patel Marg, Ahmedabad – 380014, Gujarat, India and manufacturing facility At Post Atul, Ta – Valsad, Dist. Valsad, Gujarat (herein referred to as "the Supplier" which expression shall, unless repugnant to the context of meaning thereof, be deemed to mean and include its successors in business and assigns) represented herein by its Mr. B N Mohanan, Whole Time Director & Occupier of the company who is authorised to do so through the resolution dated 13th May 2011 passed by its board of directors of the **SECOND PART**;

Supplier has approached ACL to supply dry fly ash generated from their Captive Thermal Power Plant.

ACL is manufacturing various grade of cement including PPC. ACL has expressed its interest to purchase fly ash and/or other any products (collectively referred to as "Product(s)" and more particularly described under Annexure I) for their captive or any other use for cement plant at Magdalla and / or at any other location or associates of ACL on the terms and conditions as furnished below:

1. Scope of Supply and Quantity

The Supplier shall supply Product(s) per day as per schedule informed to the Supplier from time to time. However, actual off take qty may increase/decrease depending on availability and as per ACL's requirement which shall be communicated to the Supplier.

2. Rate:

ACL Agrees to pay Rs. 40 PMT (Ex Works) as fixed price during entire tenure of this agreement. This price includes material cost, loading charges and all other related expenses but excludes GST.

MUTANI HARBHAI SANKARI BANK LTD
LAW GARDEN BRANCH
AHMEDABAD
STAMP DUTY
00000
SPECIAL ADHESIVE
INDIA
RS 000000
GUJARAT
2429 9520716

[Handwritten signature]
[Handwritten signature]

3. Taxes

GST

Goods and Service Tax shall be paid extra as applicable at the rate prevailing at the time of dispatch. Presently GST is applicable @ 5%, i.e. 2.5% as CGST Plus 2.5% as SGST as per the Goods and Service Tax Act, 2017. Supplier shall ensure to provide documents as per GST Rules and sent to Consignees Works / Destination as required by the Purchaser for availing GST credit. The Supplier will provide proper Duty paying document to the Purchaser. However, the claiming of GST Credit is the responsibility of the Purchaser.

In the event of Consignee's Works / Units being not able to obtain GST credit, on account of improper/incomplete GST documents, GST shall not be reimbursed till the documents are rectified by the supplier to the requirements as per statutes.

Supplier needs to mention GST Number on the challans, invoice-cum-challans, and delivery notes accompanying the consignment.

4. Delivery:

The Supplier shall ensure delivery/availability of material as per schedule communicated to the Supplier by plant representative.

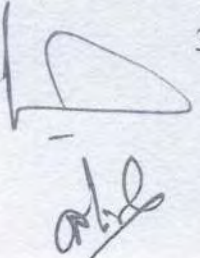
5. Payment Terms:

ACL hereby agrees to make payment as mentioned herein as per Clause 2 above against monthly invoices raised by M/s Atul Limited, within 30 (Thirty) days from the invoicing date. For invoice purpose actual material receipt at ACL i.e. weighment at ACL Plant weighbridge shall be considered.

All the payments shall be made by ACL directly to supplier through RTGS facility.

6. Quality:

Quality of the Product(s) supplied by the Supplier should be acceptable as per IS: 3812 Part 1 2013 for the manufacturing of Portland Pozzolana Cement (PPC). ACL reserves the right to check and verify quality for conformance to IS: 3812. In case of non-conformance of Product(s) to IS provisions, the parties shall resolve the issue mutually.


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7. **Loading Facility:**

Supplier shall make proper arrangement for loading flyash to bulker / close body trucks. Supplier shall take care legal and statutory compliance of flyash storage, loading station along with nearby facilities owned by supplier.

Supplier shall provide weighbridge at loading station so to ensure optimum loading of processed ash in vehicles appointed by ACL.

8. **Conditions Precedent**

ACL shall provide to the Supplier;

- (a) Entity profile
- (b) Copy of Pan Card
- (c) Copy of list of Directors / Partners, / Authorised Signatories containing name, address and specimen signature.
- (d) Copy of GST certificate

9. **Representations And Warranties**

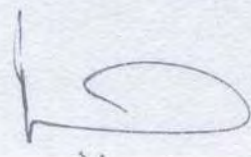

The parties represent and warrant that they shall obtain and/or have obtained individually all required and necessary approvals, consents, permits and authorization, as applicable, for entering into this Agreement and perform any act and/or obligation under this Agreement including but not limited to all requisite environmental sanctions.

The parties represent and warrant that they have been duly authorized and have the full right and authority to enter into, execute and deliver this Agreement;

The parties represented warrant that they have the authority to enter into this Agreement and shall not be in violation of any applicable law upon the execution of this Agreement;

This Agreement constitutes its legal, valid and binding obligation, enforceable against it in accordance with the terms hereof;

Its representations shall stand true and valid during the term, including extension thereof, and it shall have an obligation to disclose to the other party as and when any of its representations ceases to be true and valid.

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8. Termination

1. If, any party to this Agreement:

- i. is in material breach of its obligations under this Agreement;
- ii. fails to comply with applicable law and/or permits; and
- iii. abandons or repudiates the Agreement;
- iv. Supplier's inability to provide the agreed quantity and quality of Product(s)

In such case, the other party may give notice regarding the same.

Then the party in default is required to make good such failure or breach to its reasonable satisfaction, within a period of 30 (thirty) days from the date of receipt of such notice. If the defaulting party fails to make good the cause within the specified period, then the other party can terminate the Agreement by giving a further notice of 10 days.

2. Without prejudice to any claim for any antecedent breach, either party shall be entitled at its option, on the occurrence of any of the following events, to terminate this Agreement by delivering a written notice of 90 (ninety) days to that effect to the other party:

- i. If any direction or order from any Governmental Authority or any change in applicable law is enacted and brought in force, which prevents or significantly impairs the construction of the performance of any of the party under this Agreement. In this case, the agreement will automatically become void;
- ii. In case a force majeure event continues for a continuous period of more than 90 (ninety) days, both parties shall mutually discuss on terms and conditions so as to terminate the agreement and in no case the agreement shall terminate automatically.

Neither party, Supplier and/or ACL shall be liable for any indirect or consequential damages.

9. Force Majeure Clause :

Notification procedure for Force Majeure

In the event of occurrence of a Force Majeure Event, the affected Party shall, within 48 (forty eight) hours of the occurrence of such Force Majeure Event, notify the other Party in writing of a such Force Majeure Event and providing detailed explanation as to why the event constitutes a Force Majeure Event. If the other Party disputes the Force Majeure Event, it shall, within 48 (forty eight) hours of receiving such notice from the affected Party give to the affected Party written notice of such dispute. In case, the force majeure conditions continue for a period of seven (7) days, the other party shall have option to terminate the Agreement by giving written notice of three (3) days.



10. CSR, Health & Safety

Both the parties shall ensure CSR, Health and safety related statutory compliances.

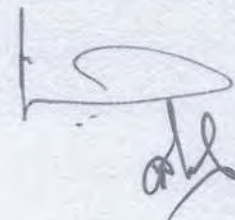
11. Governing Law, Dispute Resolution And Jurisdiction

This agreement shall be governed by, and construed in accordance with the laws of India and the Courts in Mumbai shall have an exclusive jurisdiction to resolve any dispute between the Parties in relation to this LOI.

In the event a dispute, difference or claim ("Dispute") arises out of or in relation to or in connection with the interpretation or implementation of this LOI, the Parties (the "Disputing Parties") shall attempt in the first instance to resolve such Dispute through amicable consultations between the Disputing Parties. If the Dispute is not resolved through such consultations within 30 (thirty) days (or such longer period as the Disputing Parties may agree to in writing) then either of the Disputing Parties may, by notice in writing to each other, refer the dispute to a mutually appointed sole arbitrator for arbitration. In case if the parties could not agree upon such sole arbitrator, then each Party can appoint one arbitrator each, and such appointed arbitrators shall appoint the 3rd arbitrator and these three arbitrators shall conduct arbitration proceedings. Arbitration shall be conducted in accordance with the Arbitration and Conciliation Act, 1996 or any other statutory modification (s), re-enactment thereof for the time being in force.

The arbitration shall be conducted as follows:

- (a) the arbitration proceeding shall be conducted in Mumbai, in English;
- (b) Subject to sub clause (g) here in below, the arbitration award shall be final and binding on the Disputing Parties and the Disputing Parties agree to be bound thereby and to act accordingly;
- (c) the arbitrator shall have the powers to make interim award/s, have summary powers as well as the powers to make award without giving reasons.
- (d) the arbitrator may award to a Disputing Party that prevails on the merits, its costs and expenses (including fees of its counsel);
- (e) without prejudice to and subject to the indemnification provisions in this LOI, the Parties shall equally bear the costs incurred in the arbitration unless otherwise awarded or fixed by the arbitrator; and
- (f) the Disputing Parties shall co-operate in good faith to expedite, to the maximum extent practicable, the conduct of any arbitral proceedings commenced pursuant to this LOI.

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(g) The courts in Mumbai shall have the exclusive jurisdiction in case of (i) execution of arbitral awards or (ii) in case if either of the parties proceeds for injunctive relief and/or (iii) in case of appeals against such arbitral awards.

12. Ethical View Reporting Policy and Anti Bribery & Corruption Directives (Abc Directives) of the Company

Supplier is aware that the ACL has instituted a whistleblower policy viz. Ethical View Reporting Policy and an Anti-Bribery & Corruption Directives (ABCD), which is a part of the Code of Conduct initiated by the Company promote the highest standards of professionalism, honesty, integrity and ethical behavior within its organization. Supplier declare(s) that he / they / it has / have not paid or agreed to pay any favor either in cash or kind to any of the officials of the ACL either directly or indirectly to secure this agreement and further undertake(s) to promptly inform the ACL if any such demand is made in future by any officials of ACL directly or indirectly. The Supplier is also aware that if it is found indulged in any of fraudulent, unfair or unethical practices, the Supplier shall be liable for such action at the sole discretion of the Company including termination of this Agreement by concurrent notice and the decision of the Company in this regard shall be final and binding on the Supplier.

13. Cost of Agreement

The cost and expenses for executing this Agreement will be borne by the respective party. However, the stamp duty, registration charges and any other government charges, if any, shall be borne by the parties equally.

14. Amendment

Any amendments to this Agreement shall be in writing and will be effective after the signatures of both the parties.

15. Packing

Packing of the Product(s) will be done as per standard packaging process followed by the Supplier..

16. Consideration and property in the products

That price for the sale of the Product(s) shall be the basic selling price as per the Supplier's selling price list on ex- works basis. The property in the Product(s) will pass to the Purchaser at the factory gate of the Supplier.



17. Quality complaint

Complaint for quality, if any, should be intimated within seven (7) days of receipt of the Product(s) by the Purchaser. If there is any discrepancy in the quality of Products, a joint analysis will be conducted by both the parties.

18. Mode of Payment

The Purchaser will pay the consideration to the Supplier by way of NEFT / RTGS / cheques.

19. Assignments

This Agreement is personal to the parties and the same cannot be assigned to any third party without the consent of the other party, other than the assignment by the Purchaser to any of its affiliates of its group companies.

20. Compliance with laws

Both the parties agree to comply with the statutory laws as may be applicable to them from time to time for their respective areas of activities.

21. Rights of the Supplier

- a. To receive orders from the Purchaser.
- b. To receive the periodical reports and purchase projections from the Purchaser.

22. Rights of the Purchaser

To receive products as per specification within the prescribed time limit.

23. Non-Exclusive

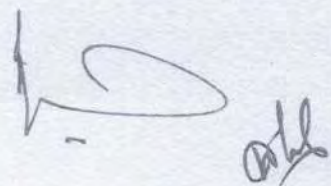
The sale of the products to the Purchaser will be on non-exclusive basis. The Supplier reserves the right to sell the Product(s) to any other Proprietorship / Firm / Limited Liability Partnership / Company for similar purposes during the continuance of this Agreement.

24. Insurance

Insurance of the Products will be the responsibility of the Purchaser.

25. Confidentiality

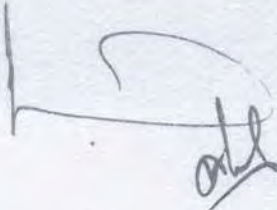
- (a) Each Party acknowledges that in the course of performance of this Agreement, the Party has and will come into the possession of confidential information of the other Party including, but



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not limited to technical information, the Product specifications, price lists, reports, information concerning the Product(s) of the Supplier, results of business activities, purchase projections etc. ("Confidential Information").

- (b) The Confidential Information will remain the sole and exclusive property of the Party disclosing the same and will not be used unless with the disclosing Party's prior written consent.
- (c) The Party receiving the Confidential Information shall not use the Confidential Information after termination or expiration of this Agreement and will immediately return the Confidential Information to the disclosing Party.
- (d) Confidential Information will not include information which:
 - i. is or becomes a part of information in the public domain through no act or omission of the receiving Party;
 - ii. was in the receiving Party's lawful possession prior to the disclosure and had not been obtained by the receiving Party either directly or indirectly from the Supplier;
 - iii. is lawfully disclosed to the receiving Party by a third party without restriction on disclosure;
 - iv. is independently developed by the receiving Party;
 - v. is required to be disclosed by the applicable law.
- (e) The obligations of confidentiality set out in this Agreement shall survive the termination or expiration of this Agreement for a period 2 years from termination of this Agreement.
- (f) Each Party acknowledges that the Confidential Information may be price-sensitive information and that the use | disclosure of such information may be regulated or prohibited by applicable legislation relating to insider trading and agree to comply with the legislation.
- (g) The Supplier confirms that it is aware of the Privacy policy of the Purchaser which can be retrieved from the Purchaser's website (www.ambujacement.com). The Supplier hereby gives its consent for procurement, use, storage and disposal of personal and sensitive data, as defined in the Privacy Policy by ACL in the manner provided in the Privacy Policy.
- (h) The Supplier further undertakes to get similar consent from its employees, representatives, agents, sub-Supplier(s) (and its employees) and/or any other person (collectively referred to as "interested parties") who may be involved in or working for the execution and performance of the Supplier's obligations under this contract allowing ACL to procure, use, store, and dispose, personal and sensitive data as per the Privacy Policy. The Supplier agrees to indemnify ACL for

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any claim raised by any interested parties which has resulted from failure of the Supplier to obtain consent from the interested parties.

- (i) The Supplier hereby further agrees and undertakes to comply with privacy and data protection law which may be currently in force or may become enforceable in future.

26. Intellectual Property Rights

Entering into this Agreement does not grant the Purchaser a license or any other right under any patent or patent applications or any trademarks or trademark applications relating to the information which may now or hereafter be owned by the Supplier or its subsidiary companies or its associated companies.

27. Severability

Any part of the Agreement if declared or held invalid by competent court of law, or operation of law, the remainder of the Agreement shall survive and shall be binding on the parties.

28. Entire Agreement

This Agreement is entire and final Agreement between the parties and supersedes all prior oral or written Agreements or commitments on the subject matter.

29. Validity and Extension of Agreement

This Agreement will be valid from 25.09.2019 to 31/12/2020.

Upon expiration of the term of this agreement, both the parties here to mutually agree for renewal on terms and conditions as decided parties mutually.

Indemnity

The Supplier, its directors, associates, employees, successors, assignees, servants or any of them, to the extent caused by them, shall also indemnify and hold ACL, its directors, employees, successors, assignees, servants or any of them harmless from:

- a. All liabilities, claims, demands, costs, charges, expenses, taxes and assessments, including penalties, direct damages, proceedings, reasonable attorney's fees and litigation expenses, arising out of any acts or omissions or resulting from any breach of Supplier's obligations under this Agreement.
- b. Any claim, demand, course of action, loss, expenses or liability on account of injury or death of persons (including the employees of ACL and the Supplier / SubSupplier) or damage to or loss of property (including Agreement Works/the property of ACL/Third

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ACL

Parties) arising out of the negligent acts, errors or omissions of Supplier or its sub-Supplier/associates in performance of Supplier's obligation under this Agreement.

- c. Any claim by Government authorities/quasi-Governmental body for failure by the Supplier to pay fines, taxes, duties, fees applicable to them arising out of the Project.
- d. Any claim by third party including sub-Suppliers for failure to make payment for labour, services, equipment and materials arising out of this Project.
- e. Any claim with regard to designs, methods, process including but not limited to claims arising out of infringement of Intellectual Property legislations and amendments there to, patent, trademark, property information, know-how, copyright, unpatented inventions or any unauthorised use of work.

The Supplier shall defend at his own expenses any suit proceedings for any claim asserted against ACL. ACL shall give reasonable assistance required in defending the suit and ACL reserves the right to defend/settle the claim if Supplier fails to defend diligently any such suits or proceedings without relieving the Supplier of his obligation.

31. Language

This Agreement is executed in English language and the said version shall be binding between the parties.

32. General Terms and Conditions.

Terms and Conditions attached as per Annexure – A and Annexure –B shall be part of this agreement.

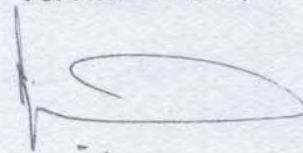
Thanking you,

For Ambuja Cements Limited,



**Rajiv Malhotra
Joint President**

For Atul Limited.,



(Authorized Signatory)



ONSITE EMERGENCY PLAN

OF

M/s ATUL LTD.

P.O. ATUL – 396 020, DIST- VALSAD, GUJARAT

MARCH- 2017

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PREFACE

Our First Emergency Plan was prepared in 1990 and then after it has been regularly updated as & when required based on learning from various Mock drills and on account of expansion in the facility. Updating of the On site emergency plan was done to incorporate various elements of risks, hazards and consequences that are relevant to our Plants which were taken either from published data or derived from our own experience. Mock drills were conducted to test the plan and improve our emergency preparedness. Also, we had reviewed the potential hazards and assessment earlier done. The results of these exercises, identification and assessment of all credible scenarios, survey of various Rules, Regulations and standards were taken as basis for modifying the On Site Emergency Plan, classification of Emergencies as well as keeping in view the requirements of implementation of ISO 14001:2015 and OHSAS 18001:2015.

As emergencies arise suddenly the necessity to remain always alert and ready with supporting facilities to face them is of paramount importance. This document can't be said to be the complete as it only sets the broad guidelines. It is only by periodically conducting regular table top exercise and mock drills our preparedness will improve which will help us to minimize the consequences of emergencies as and when they arise.

All the key personnel are requested to study the document and become familiar with the contents and disseminate information to those working with them.

Shri. B. N. Mohanan

Whole-Time Director

ATUL LIMITED ENVIRONMENT MANAGEMENT SYSTEM						
BUSINESS	VALSAD COMPLEX				Page	of
TITLE	PREVENTIVE MAINTENANCE SCHEDULE.					
DOCUMENT NO.	EF/U&S/PH-W/25/00	REVISION NO.	0	COPY NO.	1	
EFFECTIVE DATE	01/04/2018	UTILITY & SERVICES, POWER PLANT (WEST)		REVIEW DATE	31/03/2019	

Sr. No.	Description of equipment / activity	Frequency	FY 2018-19											
			Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar

1.1 - Annual overhauling of Boilers

1.1.1	Annual / Semi annual overhauling of FBC boiler no. 1 (GT - 3266)	2 per year									√				
1.1.2	Annual / Semi annual overhauling of FBC boiler no. 2 (GT - 8885)	2 per year		√											
1.1.3	Annual / Semi annual overhauling of FBC boiler no. 3 (GT - 9047)	2 per year				√									

1.2 - Activities carried out for Boilers as per schedule 1.1.1, 1.1.2 and 1.1.3

1.2.1	Replacement of all the bed tubes.	This activity is to be checked / carried out as per frequency mentioned against Sr. no. 1.1.1, 1.1.2 & 1.1.3.													
1.2.2	Checking of hole diameter For fluidizing air nozzles, cleaning / replacement of the same if necessary.	This activity is to be checked / carried out as per frequency mentioned against Sr. no. 1.1.1, 1.1.2 & 1.1.3.													
1.2.3	Check condition of air preheater tubes & Economizer tubes and replacement of the same if necessary.	This activity is to be checked / carried out as per frequency mentioned against Sr. no. 1.1.1, 1.1.2 & 1.1.3.													
1.2.4	Cleaning of gas path for air preheaters & Economizer	This activity is to be checked / carried out as per frequency mentioned against Sr. no. 1.1.1, 1.1.2 & 1.1.3.													
1.2.5	Checking of bearings / drive couplings for BFP, ID, PA,FD & SA fans and motors.	This activity is to be checked / carried out as per frequency mentioned against Sr. no. 1.1.1, 1.1.2 & 1.1.3.													

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**ATUL LIMITED
ENVIRONMENT MANAGEMENT SYSTEM**


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TITLE	PREVENTIVE MAINTENANCE SCHEDULE					
DOCUMENT NO.	EF/U&S/PH-W/25/00	REVISION NO.	0	COPY NO.	1	
EFFECTIVE DATE	01/04/2018	UTILITY & SERVICES, POWER PLANT (WEST)		REVIEW DATE	31/03/2019	

Sr. No.	Description of equipment / activity	Frequency	FY 2018-19											
			Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar
1.2.6	Checking condition of Spreader Rotors / Pocket Feeders and Replacement of the same if necessary.		This activity is to be checked / carried out as per frequency mentioned against Sr. no. 1.1.1, 1.1.2 & 1.1.3.											
1.2.7	Check of condition of drag chains / PA lines and repair / replacement of the same if necessary.		This activity is to be checked / carried out as per frequency mentioned against Sr. no. 1.1.1, 1.1.2 & 1.1.3.											
1.2.8	Cleaning and checking of all ESPs fields (including internal parts & hoppers).		This activity is to be checked / carried out as per frequency mentioned against Sr. no. 1.1.1, 1.1.2 & 1.1.3.											
1.2.9	Checking of thickness of all duct plates and replacement of the same if necessary.		This activity is to be checked / carried out as per frequency mentioned against Sr. no. 1.1.1, 1.1.2 & 1.1.3.											
1.2.10	Checking / Testing of all the interlocks		This activity is to be checked / carried out as per frequency mentioned against Sr. no. 1.1.1, 1.1.2 & 1.1.3.											
1.2.11	Overhauling, calibration and testing of all the safety valves, water level guages, Valves & motorized actuators.		This activity is to be checked / carried out as per frequency mentioned against Sr. no. 1.1.1, 1.1.2 & 1.1.3.											
1.2.12	Cleaning and checking of all the MCCs / PCC, starters, feeders and cable terminations. Repair / replacement of spares wherever required.		This activity is to be checked / carried out as per frequency mentioned against Sr. no. 1.1.1, 1.1.2 & 1.1.3.											

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ATUL LIMITED					
ENVIRONMENT MANAGEMENT SYSTEM					
BUSINESS	VALSAD COMPLEX				Page of
TITLE	PREVENTIVE MAINTENANCE SCHEDULE				
DOCUMENT NO.	EF/U&S/PH-W/25/00	REVISION NO.	0	COPY NO.	1
EFFECTIVE DATE	01/04/2018	UTILITY & SERVICES, POWER PLANT (WEST)		REVIEW DATE	31/03/2019

Sr. No.	Description of equipment / activity	Frequency	FY 2018-19											
			Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar
1.4.10	Checking / replacement of troughing idlers, impact idlers & return idlers.	Monthly	√	√	√	√	√	√	√	√	√	√	√	√
1.4.11	Checking / replacement of grating of walk ways / platforms and hand railings.	Monthly	√	√	√	√	√	√	√	√	√	√	√	√
1.4.12	Checking condition of Skirt board, belt hoods, discharge coal chutes & belt joints.	Monthly	√	√	√	√	√	√	√	√	√	√	√	√
1.4.13	Checking of lighting in coal plant and surrounding area.	Monthly	√	√	√	√	√	√	√	√	√	√	√	√
1.4.14	Checking general condition of support structures.	1 per year	√	√	√	√	√	√	√	√	√	√	√	√
1.4.15	Checking operation of dust extraction system.	Monthly	√	√	√	√	√	√	√	√	√	√	√	√
1.4.16	House keeping of entire coal crusher house.	Monthly	√	√	√	√	√	√	√	√	√	√	√	√


 Prepared By:
 Dhaval Patel
 (Plant In-charge)


 Approved By:
 Chandrasekhar D
 (GM-Infrastructure Unit)

**ATUL LIMITED
ENVIRONMENT MANAGEMENT SYSTEM**

2018-19

BUSINESS	VALSAD COMPLEX				Page of
TITLE	PREVENTIVE MAINTENANCE RECORDS				
DOCUMENT NO.	ER/U&S/PH-W/26/00	REVISION NO.	0	COPY NO.	1
EFFECTIVE DATE	01/04/2018	UTILITY & SERVICES, POWER PLANT (WEST)		REVIEW DATE	31/03/2019

Sr. No.	Description of equipment / activity	Frequency	FY 2018-19											
			Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar

1.4 - Activities carried out for Coal Handling Plant

1.4.1	Checking / Replacement of screen cloths of Vibrating Screen.	Monthly	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
1.4.2	Checking / Replacement of V-belt of Vibration Screen & Crushers.	Monthly	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
1.4.3	Checking / Replacement of Bearings of Vibration Screen & Crushers.	Monthly	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
1.4.4	Checking / Replacement of Lub oil for fluid coupling for Crusher.	Monthly	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
* 1.4.5	Checking of Structure / Duct Plates of entire Coal crusher house.	1 per year	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
1.4.6	Checking of all safety interlocks.	Monthly	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
1.4.7	Checking condition of drive pulleys (plummer blocks, oil in gear box and coupling etc.)	Monthly	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
1.4.8	Condition of tail pulleys (plummer blocks, oil in gear box and coupling etc.)	Monthly	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
1.4.9	Condition of gravity take up pulleys (plummer blocks, oil in gear box and coupling etc.)	Monthly	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
1.4.10	Checking / replacement of troughing idlers, impact idlers & return idlers.	Monthly	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
1.4.11	Checking / replacement of grating of walk ways / platforms and hand railings.	Monthly	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
1.4.12	Checking condition of Skirt board, belt hoods, discharge coal chutes & belt joints.	Monthly	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
1.4.13	Checking of lighting in coal plant and surrounding area.	Monthly	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

* Doing on monthly basis.

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ATUL LIMITED					2018-19
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BUSINESS	VALSAD COMPLEX				Page of
TITLE	PREVENTIVE MAINTENANCE RECORDS				
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EFFECTIVE DATE	01/04/2018	UTILITY & SERVICES, POWER PLANT (WEST)		REVIEW DATE	31/03/2019

Sr. No.	Description of equipment / activity	Frequency	FY 2018-19											
			Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar
1.4.14	Checking general condition of support structures.	1 per year	-											
1.4.15	Checking operation of dust extraction system.	Monthly	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>
1.4.16	House keeping of entire coal crusher house.	Monthly	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>

Dhaval Patel
 Prepared By:
 Dhaval Patel
 (Plant In-charge)

Chandrasekhar D
 Approved By:
 Chandrasekhar D
 (GM-Infrastructure Unit)

**ATUL LIMITED .
ENVIRON MANAGEMENT SYSTEM**

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BUSINESS	VALSAD COMPLEX				PAGE OF	
TITLE	PREVENTIVE MAINTENANCE RECORDS					
DOC.NO.	ER/U&S/PH-W/26/00	REV NO	00	COPY NO:	1	
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S. No.	Description of equipment / activity	Frequency	FY 2018-19											
			Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar

1.1 - Annual overhauling of Boilers

1.1.1	Annual / Semi annual overhauling of FBC boiler no. 1 (GT - 3266)	2 per year	✓	-	-	-	-	-	-	-	<i>Handwritten</i>	-	-	-
1.1.2	Annual overhauling of FBC boiler no. 2 (GT - 8885)	1 per year	-	✓	-	-	-	-	-	-	-	-	-	-
1.1.3	Annual overhauling of FBC boiler no.3 (GT - 9047)	1 per year	-	-	-	-	-	-	-	-	<i>Handwritten</i>	-	-	-

1.2 - Activities carried out for Boilers as per schedule 1.1.1, 1.1.2 and 1.1.3

1.2.1	Replacement of all the bed tubes.	2 per year	<i>Handwritten</i>	<i>Handwritten</i>	-	-	-	-	-	-	<i>Handwritten</i>	<i>Handwritten</i>	-	-
1.2.2	Checking of hole diameter For fluidizing air nozzles, cleaning / replacement of the same if necessary.	2 per year	<i>Handwritten</i>	<i>Handwritten</i>	-	-	-	-	-	-	<i>Handwritten</i>	<i>Handwritten</i>	-	-
1.2.3	Check condition of air preheater tubes (PA & SA) & Economizer tubes and replacement of the same if necessary.	2 per year	<i>Handwritten</i>	<i>Handwritten</i>	-	-	-	-	-	-	<i>Handwritten</i>	<i>Handwritten</i>	-	-
1.2.4	Cleaning of gas path for air preheaters & Economizer	2 per year	<i>Handwritten</i>	<i>Handwritten</i>	-	-	-	-	-	-	<i>Handwritten</i>	<i>Handwritten</i>	-	-
1.2.5	Checking of bearings / drive couplings for BFP, ID, PA & SA fans and motors.	2 per month	<i>Handwritten</i>	<i>Handwritten</i>	-	-	-	-	-	-	<i>Handwritten</i>	<i>Handwritten</i>	-	-
1.2.6	Checking condition of Spreader Rotors and Replacement of the same if necessary.	2 per month	<i>Handwritten</i>	<i>Handwritten</i>	-	-	-	-	-	-	<i>Handwritten</i>	<i>Handwritten</i>	-	-
1.2.7	Check of condition of drag chains and repair / replacement of the same if necessary.	Weekly	<i>Handwritten</i>	<i>Handwritten</i>	-	-	-	-	-	-	<i>Handwritten</i>	<i>Handwritten</i>	-	-
1.2.8	Cleaning and checking of all ESPs fields (including internal parts & hoppers).	2 per year	<i>Handwritten</i>	<i>Handwritten</i>	-	-	-	-	-	-	<i>Handwritten</i>	<i>Handwritten</i>	-	-

IF TUBE thickness is ok than tubes were not change

APPENDIX I
(See Paragraph-6)


FORM 1

Note : If space provided against any parameter is inadequate, Kindly upload supporting document under 'Additional Attachments if any' at the last part of the Form1. Please note that all such Annexures must be part of single pdf document.

(I) Basic Information

S.No.	Item	Details
	Whether it is a violation case and application is being submitted under Notification No. S.O.804(E) dated 14.03.2017 ?	No
1.	Name of the Project/s Brief summary of project Proposal Number Project Cost (in lacs)	Atul Ltd Annexure-Brief summary of project IA/GJ/IND/27464/2015 1957
2.	S. No. in the schedule Project Sector	5(f) Synthetic organic chemicals industry (dyes & dye intermediates; bulk Industrial Projects - 1
3.	Proposed capacity/area/length/tonnage to be handled/command area/lease area/number or wells to be drilled	6770.95 TPM ha.
4.	New/Expansion/Modernization Proposal Number MoEFCC file number(Previous EC) Uploaded EC letter	Expansion IA/GJ/IND/6606/2009 J-11011/85/2009-IA.II(I) Annexure-Uploaded EC letter
5.	Existing Capacity/Area etc.	31237.96 ha.
6.	Category of project i.e. 'A' or 'B'	A
7.	Does it attract the general condition? If yes, please specify	No
8.	Does it attract the specific	No

condition? If yes, please specify

9. Location of the project At & Post Atul Dist Valsad
Shape of the project land Block (Polygon)
Uploaded GPS file [Annexure-GPS file](#) 
Uploaded copy of survey of India Toposheet [Annexure-Survey of india toposheet](#)
Plot/Survey/Khasra No. Plot No. 5, 6, 29, 30, 33, 34, 35, 37, 38, 80, 81, 84, 85, 91 Survey No. 274, 275, 276
Town / Village Atul
State of the project Gujarat

Details of State of the project

S.no	State Name	District Name	Tehsil Name
(1.)	Gujarat	Valsad	Valsad
10.	Nearest railway station along with distance in kms	Atul, 2 km	
	Nearest airport along with distance in kms	Daman, 15 km	
11.	Nearest Town/City/District Headquarters along with distance in kms	Valsad , 8 km	
12.	Village Panchayats, Zila Parishad, Municipal Corporation, Local body (Complete postal address with telephone nos. to be given)		
13.	Name of the Applicant	Dr. Sharad	
14.	Registered Address	M/s Atul Industries Ltd, Atul, Valsad. Atul - 396020	
<u>Address for correspondance:</u>			
	Name of the Company	ATUL LTD	
	Name of the Applicant	Dr. Sharad	
15.	Designation (Owner/ Partner/ CEO)	Corp. General Manager-EHS	
	Pin code	396020	
	E-mail	hriday_desai@atul.co.in	
	Telephone No.	2632-233261	

Fax No.	2632-233619
Copy of documents in support of the competence/authority of the person making this application to make application on behalf of the User Agency .	NIL
16. Details of Alternative Sites examined, if any. Location of these sites should be shown on a toposheet	No
17. Whether part of Interlinked projects?	No
18. Whether separate application of Interlinked project has been submitted?	N/A
19. If Yes, MoEF file number	N/A
Date of submission	N/A
20. If No, Reason	N/A
21. Whether the proposal involves Approval/ Clearance under: if yes, details of the same and their status to be given	
(i) Whether the proposal involves approval/clearance under the Forest (Conservation) Act,1980?	No
(ii) Whether the proposal involves approval/clearance under the wildlife (Protection) Act,1972?	No
(iii) Whether the proposal involves approval/clearance under the C.R.Z notification, 2011?	No
22. Whether there is any Government Order/Policy relevant/relating to the site?	No
23. Whether any Forest Land Involved?	
Area of Forest land Involved (hectares)	N/A
24. Whether there is any litigation	No

pending against the project and/or land in which the project is proposed to be set up?

- | | |
|--|-----|
| (a) Name of the Court | N/A |
| (b) Name of the Sub court | N/A |
| (c) Case No. | N/A |
| (d) Orders/directions of the court, if any and relevance with the proposed project | N/A |

(II) Activity

1 Construction, operation or decommissioning of the Project involving actions, which will cause physical changes in the locality (topography, land use, changes in water bodies, etc.)

S.No	Information/Checklist confirmation	Yes/No	Details there of (with approximate quantities/rates, wherever possible) with source of information data
1.1	Permanent or temporary change in land use, land cover or topography including increase in intensity of land use (with respect to local land use plan)	No	There will not be any requirement of land as the proposed project is expansion project and to be developed in existing industrial premises & existing infrastructure.
1.2	Clearance of existing land, vegetation and buildings?	No	Not Applicable The land does not have any vegetation.
1.3	Creation of new land uses?	No	Not applicable as described in Item 1.1
1.4	Pre-construction investigations e.g. bore houses, soil testing?	Yes	As a part of civil activity, the soil testing will be carried out to confirm the soil bearing capacity before construction of proposed expansion.
1.5	Construction works?	Yes	New plant building will be constructed for addition of new products within premises. Layout Plan showing existing and proposed area is attached as Annexure-1.
1.6	Demolition works?	No	Not applicable
1.7	Temporary sites used for construction works or housing of construction workers?	No	Local workers will be employed for construction as well as operation phase.

1.8	Above ground buildings, structures or earthworks including linear structures, cut and fill or excavations and fill or excavations	Yes	Construction work for addition of new products shall be carried out.
1.9	Underground works including mining or tunnelling?	No	Not Applicable
1.10	Reclamation works?	No	Not Applicable
1.11	Dredging?	No	Not Applicable
1.12	Offshore structures?	No	Not Applicable
1.13	Production and manufacturing processes?	Yes	Expansion in existing capacity and addition of new products are mentioned in PFR. Manufacturing process is attached as Annexure – 2 for each product.
1.14	Facilities for storage of goods or materials?	Yes	The storage facilities for raw material has been provided within existing premises.
1.15	Facilities for treatment or disposal of solid waste or liquid effluents?	Yes	High COD concentrated effluent stream shall be incinerated in company's own well designed (as per CPCB guidelines) existing incinerator. Existing incinerator is having sufficient capacity to take additional nominal load of proposed expansion as per CPCB guidelines. Incineration ash shall be disposed off at company's own approved land fill site. High TDS effluent stream shall be evaporated in existing Multiple Effect Evaporation System. Evaporated salt shall be disposed off at Company's own appro
1.16	Facilities for long term housing of operational workers?	No	Local people will be employed as workers. The area is well developed with all infrastructure facilities as it is being a part of our existing project boundary.
1.17	New road, rail or sea traffic during construction or operation?	No	The project site is very well connected with National Highway No - 8. Hence no additional Transport infrastructure is required.
1.18	New road, rail, air water borne or	No	The area is well developed with all

	other transport infrastructure including new or altered routes and stations, ports, airports etc?		infrastructure facilities.
1.19	Closure or diversion of existing transport routes or infrastructure leading to changes in traffic movements?	No	Not Applicable
1.20	New or diverted transmission lines or pipelines?	No	Not Applicable
1.21	Impoundment, damming, culverting, realignment or other changes to the hydrology of watercourses or aquifers?	No	Not Applicable
1.22	Stream crossings?	No	Not Applicable
1.23	Abstraction or transfers of water from ground or surface waters?	Yes	The fresh water requirement for the proposed expansion will be met through existing water supply system.
1.24	Changes in water bodies or the land surface affecting drainage or run-off?	No	Not Applicable
1.25	Transport of personnel or materials for construction, operation or decommissioning?	Yes	The transport of the material will be required during the operation phase for the raw materials. However no significant adverse impacts are envisaged as the traffic will not increase considerably after the proposed expansion.
1.26	Long-term dismantling or decommissioning or restoration works?	No	Not Applicable
1.27	Ongoing activity during decommissioning which could have an impact on the environment?	No	Not Applicable
1.28	Influx of people to an area in either temporarily or permanently?	Yes	Additional 50 nos. of locally employed manpower shall be utilized.

1.29	Introduction of alien species?	No	Not Applicable
1.30	Loss of native species or genetic diversity?	No	No loss of native species.
1.31	Any other actions?	No	Not Applicable

Use of Natural resources for construction or operation of the Project (such as land, water, materials or energy, especially any resources which are non-renewable or in short supply):

S.No	Information/Checklist confirmation	Yes/No	Details thereof (with approximate quantities/rates, wherever possible) with source of information data
2.1	Land especially undeveloped or agricultural land (ha)	No	Not Applicable as described in Item 1.1.
2.2	Water (expected source & competing users) unit: KLD	Yes	Source: River PAR Existing: 22,569 KL/day Proposed: 5,788.70 KL/day Total: 28,357.70 KL/day
2.3	Minerals (MT)	No	Not applicable
2.4	Construction material – stone, aggregates, sand / soil (expected source – MT)	Yes	Stone, Aggregates, Sand/Soil, cement, steel will be purchased from local suppliers & the quantity shall be decided after the completion of construction drawing & designing for expansion.
2.5	Forests and timber (source – MT)	No	No forest resource or timber will be used in the project.
2.6	Energy including electricity and fuels (source, competing users) Unit: fuel (MT),energy (MW)	Yes	Power requirement: Existing sources: 1. 34 MW Captive power plant 2. D.G. set – 3100 KVA Proposed: 15 MW from Captive power plant
2.7	Any other natural resources (use appropriate standard units)	No	Not applicable

Use, storage, transport, handling or production of substances or materials, which could be harmful to human health or the environment or raise concerns about actual or perceived risks to human health

S.No	Information/Checklist confirmation	Yes/No	Details thereof (with approximate quantities/rates, wherever possible) with source of information data
------	------------------------------------	--------	--

3.1	Use of substances or materials, which are hazardous (as per MSIHC rules) to human health or the environment (flora, fauna, and water supplies)	Yes	List of hazardous chemicals, storage quantity, state, etc. are mentioned in PFR.
3.2	Changes in occurrence of disease or affect disease vectors (e.g. insect or water borne diseases)	No	Not Applicable
3.3	Affect the welfare of people e.g. by changing living conditions?	No	The project will not affect the welfare of people. However, Social upliftment programs will have a positive effect on the local people.
3.4	Vulnerable groups of people who could be affected by the project e.g. hospital patients, children, the elderly etc.	No	Not Applicable
3.5	Any other causes	No	Not Applicable

4 Production of solid wastes during construction or operation or decommissioning (MT/month)

S.No	Information/Checklist confirmation	Yes/No	Details thereof (with approximate quantities/rates, wherever possible) with source of information data
4.1	Spoil, overburden or mine wastes	No	Not Applicable
4.2	Municipal waste (domestic and or commercial wastes)	Yes	Domestic effluent will be treated in Septic Tank/soak pit system.
4.3	Hazardous wastes (as per Hazardous Waste Management Rules)	Yes	Detail of Hazardous waste is given in the PFR.
4.4	Other industrial process wastes	Yes	Detail of process waste is given in the PFR.
4.5	Surplus product	No	---
4.6	Sewage sludge or other sludge from effluent treatment	No	ETP sludge shall be disposed off through own TSDF site of Atul.
4.7	Construction or demolition wastes	Yes	Only construction waste and debris will be generated and shall be used for filling the low lying areas in the premises and area

			dressing.
4.8	Redundant machinery or equipment	No	Not Applicable
4.9	Contaminated soils or other materials	No	Not Applicable
4.10	Agricultural wastes	No	Not Applicable
4.11	Other solid wastes	No	Not Applicable

5 Release of pollutants or any hazardous, toxic or noxious substances to air(Kg/hr)

S.No	Information/Checklist confirmation	Yes/No	Details thereof (with approximate quantities/rates, wherever possible) with source of information data
5.1	Emissions from combustion of fossil fuels from stationary or mobile sources	Yes	Emissions from Boilers and D. G. Set will be well within GPCB/CPCB norms after providing of adequate APC devices. From Boilers and D.G.Set PM: <150 mg/Nm ³ SO ₂ : <100 ppm NO _x : <50 ppm Chimney height of 80 meters shall be provided. Detail of existing and proposed Stack with APC device are mentioned in PFR.
5.2	Emissions from production processes	Yes	Details of process stack and APC for the same is mentioned in PFR.
5.3	Emissions from materials handling including storage or transport	Yes	Fugitive emission shall be generated due to coal handling and boiler ash handling. The same will be controlled by Dust Extraction System and by using closed trucks for transportation. Detail EMP is prepared for Coal loading, unloading, transportation and handling during the operation phase. All liquid raw materials shall be procured in tankers and shall be transferred through a closed circuit pipe lines. Solid raw material are dissolved in water and charged through close pipeline into reacto
5.4	Emissions from construction activities including plant and equipment	Yes	Fugitive emission shall be generated due to construction activities and vehicular emission in the construction phase only which will be mitigated by implementing

			adequate EMP.
5.5	Dust or odours from handling of materials including construction materials, sewage and waste	No	All the waste shall be stored in designated places and shall be transported to their own TSDF or Incineration Site in their own closed vehicles.
5.6	Emissions from incineration of waste	Yes	APC device attached with incinerator have sufficient capacity to take care of proposed load.
5.7	Emissions from burning of waste in open air (e.g. slash materials, construction debris)	No	No open burning of waste shall be done in the premises.
5.8	Emissions from any other sources	No	Not Applicable

6 Generation of Noise and Vibration, and Emissions of Light and Heat:

S.No	Information/Checklist confirmation	Yes/No	Details thereof (with approximate quantities/rates, wherever possible) with source of information data
6.1	From operation of equipment e.g. engines, ventilation plant, crushers	Yes	Noise will be generated from Boiler but will be restricted to the plant area only and will maintain within prescribed limit. Proper environment plan shall be in place to mitigate the noise. Vibrating pads and acoustic enclosures will be provided for noise generating equipments as per the requirements. Workmen exposed to high noise shall be provided with PPE.
6.2	From industrial or similar processes	Yes	All machinery / equipment shall be well maintained, proper foundation with anti vibrating pads wherever applicable.
6.3	From construction or demolition	Yes	Construction activities will be allowed only for day time to achieve the prescribed norms of noise. No demolition work will be carried out.
6.4	From blasting or piling	No	Not Applicable
6.5	From construction or operational traffic	Yes	During construction phase, noise due to vehicular movement and construction equipments vehicles shall be done to ensure

			noise level within the prescribed norms.
6.6	From lighting or cooling systems	No	Not Applicable
6.7	From any other sources	No	Not Applicable

7 Risks of contamination of land or water from releases of pollutants into the ground or into sewers, surface waters, groundwater, coastal waters or the sea:

S.No	Information/Checklist confirmation	Yes/No	Details thereof (with approximate quantities/rates, wherever possible) with source of information data
7.1	From handling, storage, use or spillage of hazardous materials	Yes	Hazardous material shall be stored in designated storage area with concrete flooring and no spillage is likely to occur.
7.2	From discharge of sewage or other effluents to water or the land (expected mode and place of discharge)	Yes	Domestic effluent will be treated septic tank /Soak pit system. The waste water generated from the proposed expansion will be treated in adequate MEE, Incinerator and full fledged ETP.
7.3	By deposition of pollutants emitted to air into the land or into water	No	Treated effluent shall be discharged into 4 km long pipeline constructed by all companies of Atul complex which finally discharged the treated effluent into tidal zone of river Par.
7.4	From any other sources	No	Not Applicable
7.5	Is there a risk of long term build up of pollutants in the environment from these sources?	No	Not Applicable

8 Risk of accidents during construction or operation of the Project, which could affect human health or the environment

S.No	Information/Checklist confirmation	Yes/No	Details thereof (with approximate quantities/rates, wherever possible) with source of information data
8.1	From explosions, spillages, fires etc from storage, handling, use or production of hazardous substances	Yes	All standard safety measures and guidelines of Factory Act are being followed to minimize the accidents and same shall be continued after proposed expansion. Fire accidents will be controlled with fire hydrant system installed within the plant to

		attend any emergency. PPE are provided to workers. The risk assessment has been carried out and all mitigative measures are taken to avoid accidents.
8.2 From any other causes	No	Safety awareness trainings are given to the employees and shall be imparted from time to time and same shall be continued after proposed expansion.
8.3 Could the project be affected by natural disasters causing environmental damage (e.g. floods, earthquakes, landslides, cloudburst etc)?	No	There is no history of flood in Valsad District. The buildings are designed considering seismic zone III. The land is plain terrain – no scope of landslide. This area is having moderate rainfall and there is no history of cloudburst. However, adequate Disaster Management and Damage control plan is already formulated and implemented and will be updated time to time.

9 Factors which should be considered (such as consequential development) which could lead to environmental effects or the potential for cumulative impacts with other existing or planned activities in the locality

S.No	Information/Checklist confirmation	Yes/No	Details thereof (with approximate quantities/rates, wherever possible) with source of information data
9.1	<p>Lead to development of supporting utilities, ancillary development or development stimulated by the project which could have impact on the environment e.g.:</p> <p>Supporting infrastructure (roads, power supply, waste or waste water treatment, etc.) housing development extractive industries supply industries Other</p>	No	Site is having existing road infrastructure, power supply, which are to be utilized, thus it will not lead to considerable impact on environment.
9.2	Lead to after-use of the site, which could have an impact on the	No	Not Applicable

	environment		
9.3	Set a precedent for later developments	No	Not Applicable
9.4	Have cumulative effects due to proximity to other existing or planned projects with similar effects	No	Not Applicable

(III) Environmental Sensitivity

S.No	Areas	Name/Identity	Aerial distance (within 15km.) Proposed project location boundary
1	Areas protected under international conventions, national or local legislation for their ecological, landscape, cultural or other related value	No	---
2	Areas which are important or sensitive for ecological reasons - Wetlands, watercourses or other water bodies, coastal zone, biospheres, mountains, forests	No	---
3	Areas used by protected, important or sensitive species of flora or fauna for breeding, nesting, foraging, resting, over wintering, migration	No	---
4	Inland, coastal, marine or underground waters	No	---
5	State, National boundaries	No	---
6	Routes or facilities used by the public for access to recreation or other tourist, pilgrim areas	No	---
7	Defence installations	No	---
8	Densely populated or built-up area	Yes	Valsadtown at ~8 km
9	Areas occupied by sensitive man-	No	---

	made land uses (hospitals, schools, places of worship, community facilities)		
10	Areas containing important, high quality or scarce resources.(ground water resources,surface resources,forestry,agriculture,fisheries,tourism,minerals)	No	---
11	Areas already subjected to pollution or environmental damage.(those where existing legal environmental standards are exceeded)	No	---
12	Areas susceptible to natural hazard which could cause the project to present environmental problems (earthquakes, subsidence, landslides, erosion, flooding or extreme or adverse climatic conditions) similar effects	No	All possible measures & precautions are considered and implemented to overcome the issues of hazards of any Natural Calamity.

(IV) Proposed Terms of Reference for EIA studies

1	Uploaded Proposed TOR File	Annexure-TOR file
2	Uploaded scanned copy of covering letter	Annexure-scanned copy of covering letter
3	Uploaded Pre-Feasibility report(PFR)	Annexure-PFR
4	Uploaded additional attachments(only single pdf file)	Annexure-Additional attachments

(V) Undertaking

I hereby give undertaking that the data and information given in the application and enclosures are true to be best of my knowledge and belief and I am aware that if any part of the data and information found to be false or misleading at any stage, the project will be rejected and clearance given, if any to the project will be revoked at our risk and cost.

V.(i) Name of Applicant	Dr. Sharad
Designation	Corp. General Manager-EHS
Name of Company (Applicant Name should not be given here)	ATUL LTD
Address	M/s Atul Industries Ltd, Atul, Valsad. Atul -

396020

Print

ATUL LIMITED

**Survey No. 274,275 & 276,
At & Post: Atul- 396 020,
Dist: Valsad,
Gujarat**

ENVIRONMENTAL IMPACT ASSESSMENT REPORT

FOR

INSTALLATION OF PROPOSED 22 MW CPP



Prepared By:

Eco Chem Sales & Services

A-wing, Ashoka Pavilion,
Office floor, Opp. Kapadia Health Club,
New Civil Road,
Surat-001



ATUL LIMITED

**Survey No. 274,275 & 276,
At & Post: Atul- 396 020,
Dist.: VALSAD
Gujarat**

ENVIRONMENTAL IMPACT ASSESSMENT REPORT

FOR

**PROPOSED EXPANSION OF CAPTIVE POWER PLANT
(CPP) FROM 34 MW TO 56 MW BY INSTALLING
ADDITIONAL 22 MW CPP**

Prepared By:

ECO CHEM SALES & SERVICES

(NABET ACCREDITED CONSULTANT)
**A-Wing, Ashoka Pavilion,
Office Floor, Opp. Kapadia Health Club,
New Civil Road, Surat- 395001.**

PREFACE

Environmental Impact Assessment is a multidisciplinary activity to be incorporated at the planning phase of a project. EIA study integrates the environmental concerns of developmental activities into the process of decision-making so as to satisfy the need of Sustainable Development. It identifies, predicts and signifies the environmental impacts of the proposed project likely to appear at the consequent stages of the development activity (Pre- commissioning, Commissioning and Post-commissioning). These impacts can either be Positive or Negative, Detrimental or Incremental, Direct or Indirect, etc.

EIA has emerged as one of the successful policy innovations of the 20th Century in the process of ensuring sustained development. The EIA process in India was made mandatory and was also promoted a legislative status through a Notification issued by the Ministry of Environment, Forests and Climate Change (MoEFCC) in January 1994.

The proposed project is an expansion project proposed by Atul Ltd., which is an integrated chemical company manufacturing about 1350 products and formulations serving about 4000 customers across the globe. The proposed expansion envisages a new additional 22 MW CPP to meet the power and steam requirements of the additional production capacity of Atul. The project site is located at Survey No. 274,275 & 276, At & Post Atul. As a part of the proponent's long term environmental commitment, the company has initiated the study of Environment Impact Assessment (EIA) within the proposed plant site and its neighboring area of 10 km radius. The company has appointed Eco Chem Sales & Services, a registered Environmental Consultancy to carry out the work of Environmental Impact Assessment Study.

The applicability of the SO 1533 for the proposed project was explored by considering different possibilities & provisions made in the said EIA notification, SO 1533 amended on 14th September 2006. Considering the products, the proposed project falls under Category 1 (d) – B.

The proposed project falls under category-B project, hence it is to be considered at the State level and requires EIA study as per TORs awarded by SEAC, Gandhinagar and needs to undergo a public hearing.

Thus, the proponent has decided to undergo a systematic EIA study for proposed project to plan its project activities in accordance with the application of sustainable development. SEAC has approved the Terms of Reference (ToRs) proposed for the study against the submission of Form-I along with Pre-Feasibility Report at the SEAC, Gandhinagar. With reference to the ToRs, the EIA study for the proposed project was conducted during the period of Dec 2014 to Feb 2015. Eco Chem Sales & Services has conducted a thorough EIA Study for the proposed project by following the guidelines of MoEF cited in Notification SO 1533 & EIA Manual. This report is prepared to enlighten all the aspects of the study with all the essential data & information. The report has been prepared with utmost care to cover maximum details of the study and relevant facets of the project to comply with the approved TORs. Any errors/ deviation detected in the report are due to oversight and are purely unintentional. All efforts have been made to cover-up the shortcomings and remove the errors from the reports.

At the moment of release of the EIA Report, we would like to express our gratitude to the management & Staff of Atul Ltd. for their valuable support & co-operation. We are also thankful to SEAC-Gandhinagar, various Govt. Departments; members of EIA Team and all other associated persons as well as organizations for their direct or indirect support, assistance & co-operation.

Place: SURAT



NABET/EIA/RA037/104
The Chief Executive Officer
Eco Chem Sales & Services
Office Floor, Ashoka Pavillion-A,
Opp. Kapadia Health Club,
New Civil Road,
Surat – 395001
(Kind Attention: Mrs. Rekha Shah)

May 11, 2015

Dear Madam,

Sub: Re-Accreditation

This has reference to your application to QCI-NABET for re-accreditation (RA) as EIA Consultant Organization and the assessment carried for same in your organization from Mar. 11-12-13-14, 2014.

The Accreditation Committee has approved renewal of accreditation given to your organization for a period of three years from Mar. 14, 2014 to Mar. 13, 2017 subject to coverage of balance Functional areas and specific response to NCs/Obs./Alerts Issued, if applicable (Refer Annexure III) with the following details:

1. Annexure I - Scope of accreditation
2. Annexure II - Non-Conformances/ Observations/ Alerts (NCs/ Obs./ Alerts)
3. Annexure III - Terms and conditions of accreditation
4. Annexure IV - Result of assessment
5. Annexure V - Guidelines for addressing Major Non-Conformances/ Observations/ Alerts
6. Annexure VI - Format to be followed for mentioning the names of the experts involved in EIA reports prepared by Eco Chem Sales & Services.

Result of RA including Non-Conformances/ Observations/ Alerts (NCs/ Obs./ Alerts) applicable to your organization as per RA are posted on QCI website vide minutes of the Accreditation Committee meetings dated Apr. 11, Nov. 19 and Nov. 26, 2014.

You are requested to submit closure action for the NCs/ Obs. as per guidelines by June 11, 2015. Continuation of this accreditation of your organization is subject to the clearance of all dues by your organization, satisfactory compliance to Non-Conformances/ Observations/ Alerts (NCs/ Obs./ Alerts).

With best regards,

Yours sincerely,

(Abhay Sharma)
Assistant Director

Scope of Accreditation

Annexure I

Sl. No.	Sector number		Name of Sector	Category A/B
	As per MoEF Notification	As per NABET Scheme		
1.	1 (a) (i)	1	Mining of minerals including Open cast/ Underground mining	A
2.	1 (d)	4	Thermal Power Plants	A
3.	3 (a)	8	Metallurgical industries (ferrous & non ferrous) – both primary and secondary	A
4.	3 (b)	9	Cement Plants	B
5.	5 (a)	16	Chemical Fertilizers	B
6.	5 (b)	17	Pesticides industry and pesticide specific intermediates (excluding formulations)	A
7.	5 (d)	19	Textile – cotton and manmade fibers	A
8.	5 (f)	21	Synthetic organic chemicals industry (dyes & dye intermediates; bulk drugs and intermediates excluding drug formulations; synthetic rubbers; basic organic chemicals, other synthetic organic chemicals and chemical intermediates)	A
9.	5 (i)	24	Pulp & paper industry excluding manufacturing of paper from wastepaper and manufacture of paper from ready pulp without bleaching	A
10.	6 (a)	27	Oil & gas transportation pipeline (crude and refinery/ petrochemical products), passing through national parks/ sanctuaries/ coral reefs/ ecologically sensitive Areas including LNG terminal	A
11.	7 (e)	33	Ports, harbours, jetties, marine terminals, break waters and dredging	B
12.	7 (f)	34	Highways, Railways, transport terminals, mass rapid transport systems	A
13.	8 (a)	38	Building and large construction projects including shopping malls, multiplexes, commercial complexes, housing estates, hospitals, institutions	B
Total = 13 Sectors				


 (Abhay Sharma)
 Assistant Director



National Accreditation Board for Education & Training



Quality Council of India

CERTIFICATE OF ACCREDITATION

(CONDITIONAL)¹

M/s Eco Chem Sales & Service

Office Floor, Ashoka Pavilion 'A', Opp. Kapadia Health Club, New Civil Road, Surat - 395001

are hereby accorded conditional accreditation under the QCI-NABET Scheme for Accreditation of EIA Consultant Organizations (Rev. 09, August 2011) for the following scope/s:

S.No.	Name of the Sector ²	Category
1.	Thermal Power Plants	B
2.	Metallurgical industries (ferrous & non ferrous) – both primary and secondary	A
3.	Cement Plants	A
4.	Chemical fertilizers	B
5.	Pesticides industry and pesticide specific intermediates (excluding formulations)	A
6.	Textile – Cotton and manmade fibers	A
7.	Synthetic organic chemicals industry etc.	A
8.	Pulp & paper industry etc.	A
9.	Oil & gas transportation pipeline etc.	A
10.	Industrial estates/ parks/ complexes/ areas, export processing zones (EPZs), Special Economic Zones (SEZs) etc.	A
11.	Ports, harbours, jetties, marine terminals, break waters and dredging	B
12.	Common Effluent Treatment plants (CETPs)	B
13.	Building and large construction projects including shopping malls, multiplexes, commercial complexes, housing estates, hospitals, institutions	B
14.	Food Processing	-

1-Coverage of 5 core Functional areas viz AP, WP, SHW, SE and EB.

2-Details are given in Annexure IA

Accreditation to the above Sectors is subject to the EIA reports being prepared by the experts (EIA Coordinators & Functional Area Experts) mentioned in Annexure IB and compliance to the Terms and Conditions mentioned in Annexure IC.

Final certificate of Accreditation shall be issued on fulfilment of the following condition:

1. Arranging in-house/empanelled expert/s for vibration, Geology and Soil Conservation.

Certificate No: NABET/ EIA/ 1114/ SA037

Valid up to: Feb. 01, 2014[#]



C.E.O.


Subject to

- Continual compliance to NABET Scheme and any updation, if applicable.
- Updated status of accreditation should be verified from QCI website (www.qcin.org).







(Format of first inside page for EIA reports mentioning the names of the experts involved)







Declaration by Experts contributing to the EIA of **Atul Limited.**, AT & POST: ATUL – 396 020, Dist: VALSAD, Gujarat. I, hereby, certify that I was a part of the EIA team in the following capacity that developed the above EIA.

Name of EIA Coordinator	:	Mr. Dhaval Jnaveri
Signature	:	
Date	:	10/07/2015
Period of Involvement	:	December 2014 to February 2015
Contact Information	:	eco@ecoshripad.com and rsshah06@yahoo.com

Functional Area Experts:

No.	Functional Areas	Name of Experts	Involvement (Period & Task)	Signature
1	AP	Rekha Shah	Selecting ambient air monitoring locations, review of AAQM data, review of existing stack monitoring data & Air pollution control measures, suggested APC for proposed expansion	
2	WP	Kirtan Patel	Identifying water monitoring locations, review of existing wastewater treatment facility, suggested water reusing options	
3	SHW	Rekha Shah	Inventory of Hazardous/solid waste, suggested waste disposal	
4	HG	Rekha Shah	Identifying the sources of surface and ground water. Review analysis reports of SW, GW & Soil Samples. Giving suggestions in EMP & Post Project	


(Format of first inside page for EIA reports mentioning the names of the experts involved)

			Monitoring Plan as well as Preventive/Mitigation Measures.	
5	SE	Ghanshyam Patel	Generated primary data, livestock inventory/impacts, identified village-wise amenities/needs.	
6	EB	Dipti Patel	Conducting site survey and visiting the surrounding area for collection of primary data, secondary sources for generating primary data of study/core area.	
7	AQ	Dhaval Jhaveri	Meteorological & Air Pollution dispersion studies, suggesting environmental management plan for air pollution control measures	
8	NV (Noise only)	Dipti Patel	Selecting the noise monitoring locations, identification of impacts and mitigation measures & EIA documentation	
9	LU	Nirzar Lakhia	Prepare 10 km radius landuse map using Geocoded False Colour Composite scene of IRS-IC LISS III / LISS IV images along with Survey of India (SOI) Toposheets	
10	RH	Kirtan Patel	Identification of process & storage area, Fire accidents from Coal and Diesel storage and lethality damages, DMP and EPP for onsite & offsite were provided.	

(Format of first inside page for EIA reports mentioning the names of the experts involved)

Declaration by the Head of the Accredited Consultant Organization

I, Rekha S. Shah, hereby, confirms that the above mentioned experts prepared the EIA of Atul Limited .I also confirm that I shall be fully accountable for any mis-leading information mentioned in this statement.

Signature	:	
Name	:	Rekha S. Shah
Designation	:	CEO
Name of the EIA Consultant Organization	:	Eco Chem Sales & Services, Office floor, Ashoka Pavillion – A, Opp. Kapadia Health club, Surat – 395 001
NABET Certificate No. & Issue Date	:	Listed in Sr. no. 35 of QCI List (Rev. 33, August, 2015)

(Format of first inside page for EIA reports mentioning the names of the experts involved)

EIA Team (Supporting Members)

No	Name of Members	Signature
1	Foram Desai	
2	Hemlata Patel	
3	Sunilkumar Pandey	
4	Dhaval Shah	
5	Jinal Mistry	
6	Rajat Gondaliya	
7	Sunil Patel	
8	Deepak Maru	



ATUL LTD

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E-mail: atul_infra@atul.co.in Website: www.atul.co.in

Undertaking letter for Owing EIA & EMP report

Dated: 24/10/2015

The Member Secretary,
State Level Expert Appraisal Committee (SEAC),
Gujarat Pollution Control Board,
4th floor, Sector – 10 A,
Paryavaran Bhavan,
Gandhinagar.

Respected Sir,

Subject: Undertaking letter for ownership of EIA and EMP and other documents of our proposed expansion of Captive Power Plant (CPP) of ATUL LIMITED located at Survey No.: 274, 275 & 276, at & post: Atul – 396 020, Dist: Valsad, Gujarat.

Reference: MoEF & CC office memorandum vide letter No: J-11013/41/2006 (A.II (I), Dated: 05/10/2011

We hereby give you an undertaking for owing the contents and information provided in EIA and EMP report submitted to SEAC, Gandhinagar for Environmental Clearance for proposed expansion of Captive Power Plant (CPP) from 34 MW to 56 MW by installing additional 22 MW CPP within the existing premises of ATUL LIMITED located at Survey No.: 274, 275 & 276, at & post: Atul – 396 020, Dist: Valsad, Gujarat.

Yours Sincerely,


ATUL LIMITED 



LALBHAI GROUP



ECO CHEM
SALES & SERVICE

POLLUTION CONTROL CONSULTANT
ENGINEERS & CONTRACTORS

Dated: 24/10/2015

The Member Secretary,
State Level Expert Appraisal Committee (SEAC),
Gujarat Pollution Control Board,
4th floor, Sector – 10 A,
Paryavaran Bhavan,
Gandhinagar.

Respected Sir,

Subject: Undertaking on the compliance of Terms Of Reference issued by the SEAC, Gandhinagar for proposed expansion of Captive Power Plant (CPP) of ATUL LIMITED located at Survey No.: 274, 275 & 276, at & post: Atul – 396 020, Dist: Valsad, Gujarat.

Reference: MoEF & CC office memorandum vide letter No: J-11013/41/2006 IA.II (I), Dated: 04/08/2009.

A We hereby give you an undertaking that the Terms Of Reference (ToR) issued by the SEAC, Gandhinagar for carrying out Environmental Impact Assessment (EIA) & Environmental management Plan (EMP) studies for proposed expansion of Captive Power Plant (CPP) from 34 MW to 56 MW by installing additional 22 MW CPP within the existing premises of ATUL LIMITED have been address and incorporated in the final EIA & EMP report submitted to SEAC, Gandhinagar:

Yours Sincerely,

ECO CHEM SALES & SERVICES



ATUL LIMITED

EXPANSION IN EXISTING CAPTIVE POWER PLANT



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ABBREVIATIONS

1. NH – National Highway
2. CPP – Captive Power Plant
3. EC – Environmental Clearance
4. SEIAA – State Level Environment Impact Assessment Authority
5. CC&A – Consolidated Consent & Authorization
6. GPCB – Gujarat Pollution Control Board
7. SFB – Stoker Fired Boilers
8. ESP – Electrostatic Precipitator
9. AFBC – Atmospheric Fluidized Bed Combustion
10. EIA – Environmental Impact Assessment
11. SEAC – State level Expert Appraisal Committee
12. MoEF – Ministry of Environment & Forest
13. TOR – Terms of Reference
14. APH – Air Pre Heater
15. MGF – Multi Grade Filter
16. MB – Membrane Filter
17. UF – Ultra Filtration
18. SMBS – Sodium Meta Bisulphite
19. ETP – Effluent Treatment Plant
20. PPEs – Personnel Protective Equipments
21. GLC – Ground Level Concentration
22. ISCST3 – Industrial Source Complex – Short Term dispersion model
23. RSPM – Respirable Suspended Particulate Matter
24. SPM – Suspended Particulate Matter



25. SO₂ – Sulphur Dioxide
26. NO_x – Oxides of Nitrogen
27. APHA – American Public Health Association
28. EMP – Environmental Management Plan
29. CPCB – Central Pollution Control Board
30. FMO – Factory Medical Officer
31. OHC – Occupational Health Centre
32. PEL – Permissible Exposure Limit
33. CSR – Corporate Social Responsibility
34. EMS – Environmental Management System
35. EMC – Environmental Management Cell
36. KLD-Kilo liter per day
37. RO-Reverse osmosis plant
38. DM-De Mineralized plant
39. BMCR-Boiler Max. continuous rating
40. PRDS- Pressure reducing & de superheating station
41. TPH-Tonne per Hour
42. PLC- programmable logic controller
43. MOU- memorandum of understanding
44. SOP-Standard Operating Procedure
45. MSRL-Mild Steel Rubber Lined
46. NA-Not Applicable



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EXPANSION IN EXISTING CAPTIVE POWER PLANT



TOR ISSUED BY SEAC, GUJARAT



K C Mistry
SECRETARY

State Level Expert Appraisal Committee

**STATE LEVEL EXPERT APPRAISAL
COMMITTEE, GUJARAT.**

Office : Gujarat Pollution Control Board,
"Paryavaran Bhavan", Sector 10-A,
Gandhinagar-382010, GUJARAT

Phone : 079 -23232152,

Fax : 079 -23222784.

Email : ms-gpcb@gujarat.gov.in

Ref. No.: EIA-10-2014-6886-E 262 02/05/2015

To,
✓ Dr. G I Dave
Atul Limited,
At & Post: Atul- 396020
Dist.: Valsad


**Sub: Environment Clearance under the EIA Notification 2006 for your proposed project
at Atul Limited, Valsad.**

Dear Sir,

This refers to your application on the subject mentioned above and the meeting held with the State Level Expert Appraisal Committee, Gujarat, on 5th Dec 2014. The relevant information furnished in Form I, Prefeasibility report and presentation made before the SEAC was considered and the additional TOR required was communicated to you by the SEAC immediately after the said presentation. However, a copy of the same is attached herewith for further necessary action at your end. You may please furnish the desired information / documents to enable us to process the application further.

With regards,

Yours sincerely,


(K C Mistry)
Secretary, State Level Expert Appraisal Committee

Encl.: As above.



ATUL LIMITED

EXPANSION IN EXISTING CAPTIVE POWER PLANT



Atul Limited

Atul, Valsad

Screening & Scoping
Case

Project / Activity No.: 1(d)

- Project Proponent submitted Application vide their letter dated 21/08/2014.

Project status: Expansion

Project / Activity Details:

This is an existing chemical manufacturing complex and unit has applied for additional CPP as tabulated below:

Sr no	Product Name	Production Capacity		
		Existing	Proposed	After Expansion
1.	Captive Power plant (CPP)	34 MW	22 MW	56 MW

This is an existing chemical manufacturing complex. Unit has presently 34 MW Captive Power Plant and now proposing enhancement of existing power plant by installing Coal based Captive Power Plant (CPP) of 22 MW capacity.

Expected project cost is Rs. 96.82 Crores. The proposed power plant is within the existing premises. No additional land required for proposed expansion. Existing plot area is 45079 sq. meters. Area for green belt is 16500 sq. meter. Requirement of fresh water will be 2904 KL/day for the proposed project, which will be sourced from the existing water system. Effluent generation from the entire Atul complex is 19873 KLPD, which is treated in Effluent Treatment Plant of 20 MLD capacity consists of conventional primary, secondary and tertiary stage treatment units. Final treated effluent from the ETP is collected in guard pond and then discharged through closed pipeline to estuary zone of river Par via a diffuser. The waste water generated from the proposed expansion will be 565 KLPD. Effluent generation will be mainly from utilities i.e. Pretreatment plant for water, blow down from boilers, cooling tower & condensate from turbine. The condensate will be recycled and reused. Effluent will be collected in a collection sump of 1500 KL capacity and will be used for ash and dust suppression, gardening. Hence, there will be no additional load of effluent on the existing 20 MLD ETP. Domestic wastewater generation from the proposed activity will be 1 KL/day, which will be treated with the existing sewage (937 KLPD). Existing coal consumption is 20200 MT/Month. Total coal consumption after proposed expansion will be 34138 MT/month, i.e. Additional 13938 MT/Month. There are 3 AFBC boilers, one AFBC and two Stoker fired Boilers. In place of two stoker fired boilers, it is proposed to set up two nos of new Boilers having capacity 50 TPH each. ESP is proposed as air pollution control measures. Existing Diesel & FO consumption for starting up of Boiler is 340 Liters/hr & 1100 KL/Month respectively. Natural gas is used to the tune of 200000 SCM/Month. Online stack monitoring facilities are available provided for existing stacks and will be provided for the proposed stacks. In addition to existing DG set of 3100 KVA unit has proposed one DG set with capacity 1500 KVA. Generation of fly ash and bottom ash will be 6019.2 MT/Month & 1504.8 MT/Month respectively. Fly ash will be supplied to Cement Manufacturing & company's own brick manufacturing plant. Hazardous waste collection, storage and disposal will be carried out as per Hazardous Waste Management Rules.

Technical presentation by the project proponent included general information, location map, plant layout, project synopsis, power generation process, water & fuel consumption details, proposed



Terms of Reference etc

As the ESP has been proposed as an APCM to the proposed CPP, the project proponent was asked to run the ESP efficiently to achieve the norms, to provide online stack monitoring system with tripping arrangement, to employ the trained personals for running the ESP. On asking about SO₂ emission, project proponent informed that they proposed lime dosing for control of SO₂ from the flue gas. After detailed discussion regarding the project, the following additional Terms of Reference were prescribed for EIA study to be done covering 10 Km radius from the project boundary.

1. Need for the proposed expansion shall be justified in detail.
2. Present land use pattern of the study area shall be given based on satellite imagery.
3. Demarcation of proposed activities in lay out of the existing premises. Provision of continuous unobstructed peripheral open path within the project area for unobstructed easy movement of the emergency vehicle / fire tenders without reversing back. Mark the same in the plant layout.
4. Explore feasibilities to go for air cooled condensers instead of water cooled condensers in order to reduce the raw water requirement and thus stress on ground water.
5. Technical details of the proposed power plant along with details of strategy for implementation reuse / recycle and other cleaner production options for reduction of wastes. Generation of waste gases and utilization of waste heat have to be set out.
6. Details of the ETP units including its capacity, size of each unit, retention time and other technical parameters.
7. Work out the complete treated wastewater reuse plan within the Atul Complex instead of discharging waste water into the existing ETP. Submit action plan for complete reuse/ recycle of treated waste water and no increase in effluent load on existing ETP. Submit undertaking in this regard.
8. Application wise break-up of treated effluent quantity to be recycled / reused in various applications like sprinkling on roads, coal storage yard and green belt development etc. Details about availability of open land for utilizing increased quantum of effluent due to the proposed power plant for plantation / gardening.
9. Assessment of source of the water supply with adequacy of the same to meet with the requirements for the project. Copy of letter of permission obtained from the concerned authority for supply of additional raw water for the proposed activities.
10. Detailed water balance (including reuse-recycle, if any) alongwith qualitative and quantitative analysis of each waste stream to be generated from all sources including Boilers, Cooling Towers, D.M. Plant etc. Details of methods to be adopted for the water conservation.
11. Details of the treatment facilities proposed for the effluent to be generated from the power plant. Details of the ETP units including its capacity, size of each unit, retention time and other technical parameters and details about up-gradation in the existing ETP/Central ETP (if any proposed) to take care of the wastewater to be generated from the proposed activities.
12. Characteristics of untreated and treated wastewater. A detailed effluent treat ability study vis-à-vis the adequacy and efficacy of the treatment facilities proposed for the wastewater to be generated alongwith adequacy and efficacy report. The characteristic on which treatability is based shall also be stated.
13. Site-specific meteorological data including temperature, relative humidity, hourly wind speed and direction and rainfall shall be provided.
14. Anticipated environmental impacts due to the proposed project/production may be evaluated for significance and based on corresponding likely impacts VECs (Valued Environmental Components) may be identified. Baseline studies may be conducted within the study area of 10 km for all the concerned/identified VECs and likely impacts will have to be assessed for their magnitude in order to identify mitigation measures.
15. One complete season AAQ data (except monsoon) to be given along with the dates of



- monitoring. The parameters to be covered shall be in accordance with the revised National Ambient Air Quality Standards. The location of the monitoring stations should be so decided as to take into consideration the pre-dominant downwind direction, population zone and sensitive receptors including reserved forests. There should be at least one monitoring station in the upwind direction. There should be at least one monitoring station in the pre dominant downwind direction at a location where maximum ground level concentration is likely to occur.
16. Impact of the project on the AAQ of the area. Details of the model used and the input parameters used for modelling should be provided. The air quality contours may be plotted on a location map showing the location of project site, habitation, sensitive receptors, if any. The wind roses should also be shown on this map. Air quality modelling to be carried out considering the partial and complete failure of the ESP.
 17. Quantity of the fuel requirement, its source and transportation, storage, handling and management along with the environmental management to be adopted for this. Fuel analysis to be provided (sulphur, ash content and heavy metals including Pb, Cr, As and Hg).
 18. A confirmed fuel linkage along with the supportive documents of long term supply of coal for the project requirements should be provided.
 19. Specific details of (i) Details of the utilities required (ii) Quantity and characteristics of each fuel along with analysis report and its source (iii) Flue gas emission rate from each utility (iv) Air Pollution Control Measures proposed to each of the utility along with its adequacy.
 20. Technical details of ESP proposed to be installed as air pollution control system along with its adequacy, details of its operational controls with DCS system for online monitoring of the pollutants from the stack etc. Details of provisions to be kept in ESP to ensure that in any case the air emission does not cross the GPCB norms including provision of standby field in the ESP, preventive maintenance, failure / tripping control system, guarantee from the ESP supplier, alternative arrangements in case of the failure / tripping of the ESP etc. ESP should be designed to achieve GPCB norms at the outlet.
 21. List of all the sources of fugitive emission. Detailed plan for prevention and control of fugitive emission / dusting at each and every stage of fuel handling including unloading / loading at port, transportation from port to plant, unloading / loading / stacking / conveyance / transfer at plant etc. Detailed specifications and schematic diagram of water sprinkling system including number of sprinklers to be installed, pipe diameter and nozzle diameter of the sprinklers, quantity of water to be consumed by sprinklers etc.
 22. Impact on local transport infrastructure due to the project such as transportation of fuel, ash etc. Base line status of the existing traffic, projected increase in truck traffic as a result of the project in the present road network, impact on it due to the project activities, carrying capacity of the existing roads and whether it is capable of handling the increased load. Arrangement for improving the infrastructure like road etc. if any should be covered. Whether any additional infrastructure would need to be constructed and the agency responsible for the same with time frame.
 23. Details and time bound program for installation of online monitoring system in the existing as well as proposed plants for monitoring of the pollutants from the stacks and process vents with a software and an arrangement to reflect the online monitored data on the company's server, which can be accessed by the GPCB on real time basis.
 24. Provision of Continuous Ambient Air Quality Monitoring Station within premises, with an arrangement to reflect monitored data on the company's server, which can be accessed by the GPCB on real time basis.
 25. Details of measures proposed for the noise pollution abatement and its monitoring.
 26. Details of management of the hazardous wastes to be generated from the project stating detail of storage area for each type of waste, its handling, its utilization and disposal etc. How the manual handling of the hazardous wastes will be minimized.
 27. Detailed plan of ash evacuation, handling, storage and utilization should be provided. Undertaking stating that ash pond shall not be constructed and it shall be stored in closed silos only should be incorporated.



28. Details of seismic design aspects to be adhered to in the project.
29. Technical details of conveyor belts and mitigation measures to ensure that there will be no dust emission from conveyor belts.
30. Details of proposed disposal of solid wastes that may generate due to spillage of materials.
31. Specific safety measures proposed at storage yard / warehouse and conveyor belts.
32. Details of fire fighting system including provision for flame detectors, temperature actuated heat detectors with alarms, automatic sprinkler system, location of fire water tanks & capacity, separate power system for fire fighting, details of qualified and trained fire personnel & their job specifications, nearest fire station & time required to reach the proposed site. Submit line diagram of the fire hydrant network.
33. Copy of membership certificate of Common Environmental Infrastructure like TSDF, if any taken, should be incorporated.
34. Details of 100% fly ash utilization plan as per latest fly ash Utilization Notification of GOI along with firm agreements / MoU with contracting parties including other usages etc. shall be submitted. The plan shall also include disposal method / mechanism of bottom ash.
35. A detailed EMP including the protection and mitigation measures for impact on human health and environment as well as detailed monitoring plan and environmental management cell proposed for implementation and monitoring of EMP. The EMP should also include the concept of waste-minimisation, recycle/reuse/recover techniques, energy conservation, and natural resource conservation. Total capital cost and recurring cost/annum earmarked for environment pollution control measures.
36. Occupational health impacts on the workers and mitigation measures proposed to avoid the human health hazards along with the personal protective equipment to be provided to the workers. Provision of industrial hygienist and monitoring of the occupational injury to workers as well as impact on the workers. Plan for periodic medical check up of the workers exposed. Details of work zone ambient air quality monitoring plan as per Gujarat Factories Rules.
37. Risk assessment including prediction of the worst-case scenario and maximum credible accident scenario related to fire and explosion issues due to storage and use of fuel should be carried out. The worst-case scenario should take into account the maximum inventory of storage at site at any point in time. The risk contours should be plotted on the plant layout map clearly showing which of the activities would be affected in case of an accident taking place. Based on the same, proposed safeguard measures including On-Site / Off-Site emergency plan should be provided. Measures to guard against fire hazards including details of automatic fire detection and control system & detailed fire control plan showing hydrant pipeline network, provision of DG Sets, fire pumps, jockey pump, toxic gas detectors etc. should also be provided.
38. Provisions for water supply, fuel (kerosene or cooking gas), lighting, sanitation etc. to the construction work force so as to avoid felling of trees/mangroves and pollution of water and the surroundings. Details of personal protective equipments to be provided to construction workers at the site.
39. Submit checklist in the form of Do's & Don'ts of preventive maintenance strengthening of HSE, manufacturing utility staff for safety related measures.
40. Detailed five year greenbelt development program including annual budget, types & number of trees to be planted, area under green belt development (with map), budgetary outlay, along with commitment of the management to carry out the tree plantation activities outside the premises at appropriate places in the nearby areas and elsewhere.
41. Proposal for socio-economic development activities including community welfare program most useful in the project area for the overall improvement of the environment. Submit a detailed plan for social corporate responsibilities, with appropriate budgetary provisions for the next five years and activities proposed to be carried out, specific to the current demographic status of the area.
42. Plan for compliance of the EP Rules and CREP guidelines for the proposed power plant.
43. Compliance status of the existing unit with respect to various conditions given in the Environmental Clearance and CC&A orders obtained for the existing plants. Records of any



legal breach of Environmental laws i.e. details of show- cause notices, closure notices etc. served by the GPCB to the existing unit in last three years and actions taken then after for prevention of pollution.

44. Copy of Environmental Clearance obtained for the existing project and a certified report of the status of compliance of the conditions stipulated in the environmental clearance for the existing operation of the project by the Regional Office of the MoEF.
45. Details of fatal / non-fatal accidents, loss of life or man hours, if any, occurred in the existing unit in last three years and measures proposed to be taken for avoiding reoccurrence of such accidents in future.
46. A tabular chart for the issues raised and addressed during public hearing/consultation and commitment of the project proponent on the same should be provided. An action plan to address the issues raised during public hearing and the necessary allocation of funds for the same should be provided.
47. Any litigation pending against the project and / or any direction / order passed by any Court of Law against the project, if so, details thereof.
48. Does the company have a well laid down Environment Policy approved by its Board of Directors? If so, it may be detailed in the EIA report. Does the Environment Policy prescribe for standard operating process / procedures to bring into focus any infringement / deviation / violation of the environmental or forest norms / conditions ? If so, it may be detailed in the EIA.
49. What is the hierarchical system or administrative order of the company to deal with the environmental issues and for ensuring compliance with the EC conditions. Details of this system may be given.
50. Does the company have a system of reporting of non-compliances / violations of environmental norms to the Board of Directors of the company and / or shareholders or stakeholders at large? This reporting mechanism should be detailed in the EIA Report.
51. Certificate of accreditation issued by the NABET, QCI to the environmental consultant should be incorporated in the EIA Report.

These additional TORs shall be considered for the preparation of the draft EIA report in addition to all the relevant information as per the generic structure of EIA given in Appendix III in the EIA Notification, 2006. The draft EIA report shall be submitted to the Gujarat Pollution Control Board for conducting the public consultation process as per the provisions of the EIA Notification, 2006. The project shall be appraised on receipt of the final EIA report.

The TORs prescribed shall be valid for a period of two years for submission of the EIA-EMP reports along with Public Hearing Proceedings (wherever stipulated).



TOR COMPLIANCE

Sr. No.	TOR Points	Compliance of TOR
1.	Need for the proposed expansion shall be justified in detail.	Complied. Justification of the proposed expansion is mentioned in Section: 1.5, Page No: 41 of Chapter – 1.
2.	Present land use pattern of the study area shall be given based on satellite imagery.	Complied. Land use study of the project site has been carried out by NABET approved FAE. The LU maps have been prepared from geocoded false color composite scene of IRS-IC LISS III/LISS IV images alongwith toposheet of survey of India. Refer Section: 3.7.1, Page No: 138-140 of Chapter – 3.
3.	Demarcation of proposed activities in lay out of the existing premises. Provision of continuous unobstructed peripheral open path within the project area for unobstructed easy movement of the emergency vehicle / fire tenders without reversing back. Mark the same in the plant layout.	Complied. Demarcation of proposed activities in lay out of the existing premises is mentioned in Figure No: 2.2, Page No: 57 of Chapter – 2.
4.	Explore feasibilities to go for air cooled condensers instead of water cooled condensers in order to reduce the raw water requirement and thus stress on ground water.	Complied. The water source for the proposed project is river Par, hence there shall not be any stress on ground water. The proponent has explored out the possibility of Air cooled condensers instead of water cooled condensers, but they have not been found viable due to the following reasons: <ul style="list-style-type: none">• More Power Consumption• More Space requirement• Steam generation costs are higher• Economically not viable
5.	Technical details of the proposed power plant along with details of strategy for	Complied. Technical details of power plant discussed in



Sr. No.	TOR Points	Compliance of TOR
	implementation reuse / recycle and other cleaner production options for reduction of wastes. Generation of waste gases and utilization of waste heat have to be set out.	<p>Refer Section 2.6, Page No: 68-73 of Chapter – 2.</p> <p>Options for implementing Cleaner Production already considered in the proposed expansion project. Refer Section 8.4, Page No. 298 of Chapter -8.</p> <p>Proposed power plant is not designed for using fuel other than Coal & Lignite. For utilization of waste hot gases, the CPP has already incorporated Economiser & APH in Gas Circuits.</p>
6.	Details of the ETP units including its capacity, size of each unit, retention time and other technical parameters	<p>Complied.</p> <p>The wastewater generated due to the proposed expansion will not be treated in ETP, it will be utilized for Coal quenching, Dust Suppression and Fire Hydrant.</p> <p>However, details of the existing ETP units, its capacity, size of each unit, retention time and other technical parameters are mentioned in Section: 8.3.2, Page No: 283-288 of Chapter – 8.</p>
7.	Work out the complete treated wastewater reuse plan within the Atul Complex instead of discharging waste water into the existing ETP. Submit action plan for complete reuse/ recycle of treated waste water and no increase in effluent load on existing ETP. Submit undertaking in this regard.	<p>Complied.</p> <p>After the proposed expansion, wastewater will be generated from Pretreatment Plant, Cooling Tower, etc. This wastewater having low TDS in the range of 400-500 ppm. Hence, the wastewater generated due to the proposed expansion will not be treated in ETP, it will be utilized for Coal quenching, Dust Suppression and Fire Hydrant.</p> <p>Undertaking for the same is attached as Annexure – 11.</p>
8.	Application wise break-up of treated effluent quantity to be recycled / reused in various applications like sprinkling on roads, coal storage yard and green belt	<p>Complied.</p> <p>The generated wastewater for the proposed expansion will be utilized for Coal quenching, Dust Suppression and Fire Hydrant.</p>



Sr. No.	TOR Points	Compliance of TOR
	development etc. Details about availability of open land for utilizing increased quantum of effluent due to the proposed power plant for plantation / gardening.	Refer Section 2.8.1, Page No. 83-84 of Chapter -2.
9.	Assessment of source of the water supply with adequacy of the same to meet with the requirements for the project. Copy of letter of permission obtained from the concerned authority for supply of additional raw water for the proposed activities.	Complied. Water will be withdrawn from Par River. The existing unit has obtained permission of the same from Irrigation Department, which shall also suffice the additional water requirement due to the proposed expansion. Permission of the same is attached as Annexure – 3.
10.	Detailed water balance (including reuse-recycle, if any) alongwith qualitative and quantitative analysis of each waste stream to be generated from all sources including Boilers, Cooling Towers, D.M. Plant etc. Details of methods to be adopted for the water conservation.	Complied. Water Balance including Water Consumption and Wastewater Generation is given in Section 2.8.1 of Chapter – 2, page no. 82-84.
11.	Details of the treatment facilities proposed for the effluent to be generated from the power plant. Details of the ETP units including its capacity, size of each unit, retention time and other technical parameters and details about up-gradation in the existing ETP/Central ETP (if any proposed) to take care of the wastewater to be generated from the proposed activities.	Complied. The wastewater generated due to the proposed expansion will not be treated in ETP, it will be utilized for Coal quenching, Dust Suppression and Fire Hydrant. However, details of the existing ETP units, its capacity, size of each unit, retention time and other technical parameters are mentioned in Section: 8.3.2, Page No: 285-287 of Chapter – 8.
12.	Characteristics of untreated and treated wastewater. A detailed effluent treat ability study vis-à-vis the adequacy and efficacy of the treatment facilities proposed for the wastewater to be generated along with adequacy and	Complied Characteristics of untreated and treated wastewater are given in Section 8.3.2 of Chapter – 8, page no. 285



Sr. No.	TOR Points	Compliance of TOR
	efficacy report. The characteristic on which treatability is based shall also be stated.	
13.	Site-specific meteorological data including temperature, relative humidity, hourly wind speed and direction and rainfall shall be provided.	Complied Site specific micrometeorological data is collected for the period Dec 2014 - February 2015. Details of the same provided in Section 3.4 of Chapter – 3, page no. 101-122
14.	Anticipated environmental impacts due to the proposed project/production may be evaluated for significance and based on corresponding likely impacts VECs (Valued Environmental Components) may be identified. Baseline studies may be conducted within the study area of 10 km for all the concerned/identified VECs and likely impacts will have to be assessed for their magnitude in order to identify mitigation measures.	A baseline study has been conducted for the period December 2014-February 2015 within the study area of 10 km. Anticipated environmental impacts due to the proposed project/production may have been evaluated for likely impacts. Mitigation measures for the identified impacts have also been suggested to be implemented for the proposed expansion.
15.	One complete season AAQ data (except monsoon) to be given along with the dates of monitoring. The parameters to be covered shall be in accordance with the revised National Ambient Air Quality Standards. The location of the monitoring stations should be so decided as to take into consideration the pre-dominant downwind direction, population zone and sensitive receptors including reserved forests. There should be at least one monitoring station in the upwind direction. There should be at least one monitoring station in the pre dominant downwind direction at a location where maximum ground level concentration is likely to occur.	Complied. AAQ data for the study period December 2014-February 2015 has been generated based on the sampling, monitoring and analysis. AAQ monitoring has been carried out in surrounding villages for 8 locations. 2 locations in Upwind and Downwind direction each were selected, which were Chanvai and Chichvada and are Rentlav and Udwada respectively. Details of the same are given in Section 3.5 of Chapter – 3, page no. 123-132.
16.	Impact of the project on the AAQ of the	Complied



Sr. No.	TOR Points	Compliance of TOR
	area. Details of the model used and the input parameters used for modelling should be provided. The air quality contours may be plotted on a location map showing the location of project site, habitation, sensitive receptors, if any. The wind roses should also be shown on this map. Air quality modelling to be carried out considering the partial and complete failure of the ESP.	For impact prediction of Air pollutant due to proposed expansion on existing ambient air quality, ISCST3 model has been used. Guidelines and Methodology prescribed by CPCB have been followed for measurement of GLC. Contours of the same have been plotted, shown in Section 4.6.1, Chapter – 4, page no. 182-190
17.	Quantity of the fuel requirement, its source and transportation, storage, handling and management along with the environmental management to be adopted for this. Fuel analysis to be provided (sulphur, ash content and heavy metals including Pb, Cr, As and Hg).	Complied. Details of fuel requirement is given in Section 2.5.3 of Chapter – 2, page no. 65. EMP for fuel handling is given in Section 8.3.1 of Chapter – 8, page no. 280-282. Fuel analysis reports area attached as Annexure – 7.
18.	A confirmed fuel linkage along with the supportive documents of long term supply of coal for the project requirements should be provided.	Complied. Coal Linkage been attached as Annexure – 4.
19.	Specific details of: (i) Details of the utilities required (ii) Quantity and characteristics of each fuel along with analysis report and its source (iii) Flue gas emission rate from each utility (iv) Air Pollution Control Measures proposed to each of the utility along with its adequacy.	Complied. Details of Utility requirements, flue gas emission and APC are given in Section 4.6.1 (b) of Chapter – 4, page no. 182-190 Details of fuel a requirement is given in Section 2.5.3 of Chapter – 2, page no. 65. Fuel analysis reports area attached as Annexure – 7. Technical Specification of APC is given in Section 2.8.2 of Chapter – 2, page no. 87-90.
20.	Technical details of ESP proposed to be	Complied.



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	<p>installed as air pollution control system along with its adequacy, details of its operational controls with DCS, system for online monitoring of the pollutants from the stack etc. Details of provisions to be kept in ESP to ensure that in any case the air emission does not cross the GPCB norms including provision of standby field in the ESP, preventive maintenance, failure / tripping control system, guarantee from the ESP supplier, alternative arrangements in case of the failure / tripping of the ESP etc. ESP should be designed to achieve GPCB norms at the outlet.</p>	<p>Technical Specification of APC is given in Table no. 2.14 and Section 2.8.2 of Chapter – 2, page no. 89-90.</p>
21.	<p>List of all the sources of fugitive emission. Detailed plan for prevention and control of fugitive emission / dusting at each and every stage of fuel handling including unloading / loading at port, transportation from port to plant, unloading / loading / stacking / conveyance / transfer at plant etc. Detailed specifications and schematic diagram of water sprinkling system including number of sprinklers to be installed, pipe diameter and nozzle diameter of the sprinklers, quantity of water to be consumed by sprinklers etc.</p>	<p>Complied. All the sources are identified and mitigation measures for the same are incorporated in Section 8.3.1 (b) of Chapter – 8, page no. 281-282.</p>
22.	<p>Impact on local transport infrastructure due to the project such as transportation of fuel, ash etc. Base line status of the existing traffic, projected increase in truck traffic as a result of the project in the present road network, impact on it due to the project activities, carrying capacity of the existing roads and whether it is capable of handling the increased load. Arrangement for improving the</p>	<p>Complied. According to fuel quantity and solid waste generation, transportation requirement has been calculated for proposed expansion and described in Section 8.5 page no. 299-300 of Chapter -8. The fuel will be transported by means of railways till Atul Railway Station which is located at a distance of approx. 2 km. From here,</p>



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	infrastructure like road etc. if any should be covered. Whether any additional infrastructure would need to be constructed and the agency responsible for the same with time frame.	the fuel will be transported through trucks upto the project site.
23.	Details and time bound program for installation of online monitoring system in the existing as well as proposed plants for monitoring of the pollutants from the stacks and process vents with a software and an arrangement to reflect the online monitored data on the company's server, which can be accessed by the GPCB on real time basis.	Complied. Online Monitoring System is installed at the Existing Stacks for monitoring of pollutant parameters. Online monitoring system is also planned to be attached with the proposed stacks after the proposed expansion.
24.	Provision of Continuous Ambient Air Quality Monitoring Station within premises, with an arrangement to reflect monitored data on the company's server, which can be accessed by the GPCB on real time basis.	Complied. 10 locations have been identified for monitoring of Ambient Air Quality over the site, out of which 6 are near the CPP and coal shade.
25.	Details of measures proposed for the noise pollution abatement and its monitoring.	Complied. Measures have been proposed for control/abatement of noise pollution in Section 8.3.5 of Chapter – 8, page no. 290-291.
26.	Details of management of the hazardous wastes to be generated from the project stating detail of storage area for each type of waste, its handling, its utilization and disposal etc. How the manual handling of the hazardous wastes will be minimized.	Complied. Details of management of the hazardous wastes to be generated from the project with details of storage area for each type of waste, its handling, its utilization and disposal are given in Section 4.6.3 (b) of Chapter – 4, page no. 195-196.
27.	Detailed plan of ash evacuation, handling, storage and utilization should be provided. Undertaking stating that ash pond shall not be constructed and it shall be stored in closed silos only should be incorporated.	Complied. A detailed Ash Handling Plan has been proposed for the proposed expansion project which is given in Section 2.7.4 of Chapter – 2, page no. 77-78 Ash will be stored in closed Silo and no Ash Pond shall be constructed. Undertaking for the



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		same is attached as Annexure - 11
28.	Details of seismic design aspects to be adhered to in the project.	Complied. The proposed expansion shall be carried out considering Seismic design aspects.
29.	Technical details of conveyor belts and mitigation measures to ensure that there will be no dust emission from conveyor belts.	Complied. Closed Conveyor Belts shall be provided and details of the same is described in Section 2.7.1 of Chapter – 2, page no. 75-76. A systematic diagram of coal handling is attached as Annexure – 5.
30.	Details of proposed disposal of solid wastes that may generate due to spillage of materials.	Complied. Only Ash will be generated as a solid waste for the proposed project, which shall be stored in Silos and conveyed through a ‘Dense Phase Conveyance System’. Hence, chances of spillage of solid wastes are NIL.
31.	Specific safety measures proposed at storage yard / warehouse and conveyor belts.	Complied. For safety measures at the storage yard & warehouse, refer Section 6.7.4 of Chapter – 6, page no. 235.
32.	Details of fire-fighting system including provision for flame detectors, temperature actuated heat detectors with alarms, automatic sprinkler system, location of fire water tanks & capacity, separate power system for fire-fighting, details of qualified and trained fire personnel & their job specifications, nearest fire station & time required to reach the proposed site. Submit line diagram of the fire hydrant network.	Complied. A Fire Fighting System has been proposed for the proposed expansion in Section 6.9 Chapter – 6, page no. 241.
33.	Copy of membership certificate of Common Environmental Infrastructure like TSDF, if any taken, should be incorporated.	NA Since, no hazardous wastes shall be generated due to the proposed expansion.
34.	Details of 100% fly ash utilization plan as	Complied.



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	per latest fly ash Utilization. Notification of GOI along with firm agreements / MoU with contracting parties including other usages etc. shall be submitted. The plan shall also include disposal method / mechanism of bottom ash.	Unit has MOU with Ambuja Cement for fly ash utilization. Also, the unit has its own Brick Manufacturing Unit for fly ash utilization. MOU with Ambuja Cement is attached as Annexure - 10
35.	A detailed EMP including the protection and mitigation measures for impact on human health and environment as well as detailed monitoring plan and environmental management cell proposed for implementation and monitoring of EMP. The EMP should also include the concept of waste-minimisation, recycle/reuse/recover techniques, energy conservation, and natural resource conservation. Total capital cost and recurring cost/annum earmarked for environment pollution control measures.	Complied. A detailed EMP including the protection and mitigation measures for impact on human health and environment as well as detailed monitoring plan and environmental management cell proposed for implementation and monitoring of EMP is given in Chapter – 8 of EIA report. Total capital cost and recurring cost/annum earmarked for environment pollution control measures is given in Section 8.8 of Chapter – 8, page no. 306.
36.	Occupational health impacts on the workers and mitigation measures proposed to avoid the human health hazards along with the personal protective equipment to be provided to the workers. Provision of industrial hygienist and monitoring of the occupational injury to workers as well as impact on the workers. Plan for periodic medical check up of the workers exposed. Details of work zone ambient air quality monitoring plan as per Gujarat Factories Rules.	Complied. Occupational health impacts on the workers have been identified and mitigation measures for the same have been proposed. Details of the same given in Section 8.3.6 of Chapter – 8, page no. 292-294. Atul Ltd. has its own Medical Centre with a full time Doctor for monitoring of Occupational health of the employees. Regular medical check-up of the employees is carried out and shall be carried out for the proposed expansion also.
37.	Risk assessment including prediction of the worst-case scenario and maximum credible accident scenario related to fire and explosion issues due to storage and use of fuel should be carried out. The	Complied. A detailed Risk Assessment Study (RA) has been carried out for the proposed expansion project which is described in Chapter – 6 of the EIA report.



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	worst-case scenario should take into account the maximum inventory of storage at site at any point in time. The risk contours should be plotted on the plant layout map clearly showing which of the activities would be affected in case of an accident taking place. Based on the same, proposed safeguard measures including On-Site / Off-Site emergency plan should be provided. Measures to guard against fire hazards including details of automatic fire detection and control system & detailed fire control plan showing hydrant pipeline network, provision of DG Sets, fire pumps, jockey pump, toxic gas detectors etc. should also be provided.	Based on the RA, Onsite and Offsite Emergency Plan has been prepared which shall safeguard in case of any emergency arising within the plant.
38.	Provisions for water supply, fuel (kerosene or cooking gas), lighting, sanitation etc. to the construction work force so as to avoid felling of trees/mangroves and pollution of water and the surroundings. Details of personal protective equipments to be provided to construction workers at the site.	Complied. Provisions for water supply, fuel (kerosene or cooking gas), lighting, sanitation etc. to the construction work force will be provided through the existing facilities of the existing unit. Details of PPE is provided in Section 8.3.6 of Chapter – 8, page no. 292-297.
39.	Submit checklist in the form of Do's & Don'ts of preventive maintenance, strengthening of HSE, manufacturing utility staff for safety related measures.	Complied. Refer Section 8.3.6 of Chapter – 8, page no 296-297.
40.	Detailed five year greenbelt development program including annual budget, types & number of trees to be planted, area under green belt development [with map], budgetary outlay; along with commitment of the management to carry out the tree plantation activities outside the premises at appropriate places in the nearby areas and elsewhere.	Complied. A detailed Greenbelt Development & Management Plan alongwith map showing greenbelt for proposed expansion is described in Section 8.6 of Chapter – 8, page no. 301-304.



Sr. No.	TOR Points	Compliance of TOR
41.	Proposal for socio-economic development activities including community welfare program most useful in the project area for the overall improvement of the environment. Submit a detailed plan for social corporate responsibilities, with appropriate budgetary provisions for the next five years and activities proposed to be carried out; specific to the current demographic status of the area.	Complied A budget of Rs. 6.35 Crores is allocated for welfare activities to be undertaken for the proposed expansion. Moreover, detailed CSR plan is described in Section 8.12 of Chapter – 8, page no. 308-309.
42.	Plan for compliance of the EP Rules and CREP guidelines for the proposed power plant.	Complied. Attached as Annexure 12 and 13 respectively.
43.	Compliance status of the existing unit with respect to various conditions given in the Environmental Clearance and CC&A orders obtained for the existing plants. Records of any legal breach of Environmental laws i.e. details of show-cause notices, closure notices etc. served by the GPCB to the existing unit in last three years and actions taken then after for prevention of pollution.	Complied. Compliance report of EC and CC&A is attached as Annexure – 14 & Annexure – 12 respectively. There have been no legal breaches by the proponent, hence no notices have been served to the proponent by GPCB in the last three years.
44.	Copy of Environmental Clearance obtained for the existing project and a certified report of the status of compliance of the conditions stipulated in the environmental clearance for the existing operation of the project by the Regional Office of the MoEF.	Complied. Copy of EC is attached as Annexure – 1. Six monthly report has been submitted to MoEF Bhopal for verification. Letter of the same is attached as Annexure – 14.
45.	Details of fatal / non-fatal accidents, loss of life or man hours, if any, occurred in the existing unit in last three years and measures proposed to be taken for avoiding reoccurrence of such accidents in future.	Complied. No fatal/non-fatal accidents have taken place in the industry in the last three years. Adequate safety measures have been incorporated in the EIA report for avoiding accidents for the proposed expansion as well.



Sr. No.	TOR Points	Compliance of TOR
46.	A tabular chart for the issues raised and addressed during public hearing/consultation and commitment of the project proponent on the same should be provided. An action plan to address the issues raised during public hearing and the necessary allocation of funds for the same should be provided.	Agreed. Issues raised and addressed during public hearing/consultation shall be provided alongwith the Final EIA report. Also, an action plan shall be prepared for addressing the issues raised during public hearing.
47.	Any litigation pending against the project and / or any direction / order passed by any Court of Law against the project, if so, details thereof.	NA No litigations are pending against the project or proponent.
48.	Does the company have a well laid down Environment Policy approved by its Board of Directors? If so, it may be detailed in the EIA report. Does the Environment Policy prescribe for standard operating process / procedures to bring into focus any infringement / deviation / violation of the environmental or forest norms / conditions? If so, it may be detailed in the EIA.	Complied. The company has a well-developed Environment Policy which is attached as Annexure - 15 .
49.	What is the hierarchical system or administrative order of the company to deal with the environmental issues and for ensuring compliance with the EC conditions. Details of this system may be given.	Complied. The company has developed a Hierarchal system for dealing with the environmental issues and for ensuring compliance with the EC conditions. Details of the same are given in Section 8.9 of Chapter - 8, page no. 307 .
50.	Does the company have a system of reporting of non-compliances / violations of environmental norms to the Board of Directors of the company and / or shareholders or stakeholders at large? This reporting mechanism should be detailed in the EIA Report.	Complied. The company has developed a Hierarchal system for reporting of non-compliances / violations of environmental norms to the higher management. Details of the same are given in Section 8.9 of Chapter - 8, page no. 307 .



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Sr. No.	TOR Points	Compliance of TOR
51.	Certificate of accreditation issued by the NABET, QCI to the environmental consultant should be incorporated in the EIA Report.	Complied. Consultant Profile of NABET, QCI approved Environmental Consultant is enclosed as Chapter – 10 of the EIA report.



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CHAPTER – 1 INTRODUCTION

1.1 GENERAL

Electricity is the key to all development. Sustainable power supply is a major precondition for the socio-economic development of country. Electricity is an essential requirement for all parts of our life. It has been recognized as a basic human need. It is a critical infrastructure on which the socio-economic development of the country depends. Supply of electricity at reasonable rate to rural India is essential for its overall development. Equally important is availability of reliable and quality power at competitive rates to Indian industry to make it globally competitive and to enable it to exploit the tremendous potential of employment generation.

The chemical manufacturing industry depends heavily on power and steam for process applications. Uninterrupted power and steam is a principle energy source for chemical industrial processes. Steam provides energy for process heating, pressure control, mechanical drives, and component separation, and is also a source of water for many industrial operations and chemical reactions.

The proposed project is an expansion project proposed by Atul Ltd, which is an integrated chemical company manufacturing about 1350 products and formulations serving about 4000 customers across the globe. The proposed expansion envisages a new 22 MW CPP to meet the power and steam requirements of the existing and additional production capacity of Atul.

1.2 INTRODUCTION OF PROJECT PROPONENT

Atul was founded by a legendary Indian, Mr Kasturbhai Lalbhai, on September 15, 1947, exactly a month after India became independent with the dream to generate large-scale employment, create wealth in rural India and make the country self-sufficient in its requirements of chemicals.

Atul Limited became the first private sector company of India to be inaugurated by Jawaharlal Nehru, the first Prime Minister of the country. The Company thus commenced its business with just a few dyestuffs, the know-how of which was brought from foreign companies. Atul Limited is a member of Lalbhai Group, one of the oldest business houses of India, with interests mainly in textiles and chemicals. The Group is strongly committed to serve the society in the fields of education, health as well as culture.



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Over the years, Atul Limited joined hands with world-renowned multi-national companies namely American Cyanamide Company (now a part of BASF AG and Pfizer Inc) in 1947, Imperial Chemical Industries plc (now a part of Akzo Nobel and Astra Zeneca plc) in 1955 and Ciba-Geigy Ltd. (now a part of BASF AG and Huntsman Corporation) in 1960 to form three joint venture companies, namely, Cyanamid India Ltd., Atic Industries Ltd. and Cibatul Ltd. respectively. Consequent to worldwide divestment of dyes and polymers business by ZENECA plc (formerly a part of ICI plc) and Ciba Ltd. respectively, Atic Industries Ltd. and Cibatul Ltd. were merged into Atul Limited in 1995 and 1998 respectively.

Atul's registered office is in Ahmedabad whereas its corporate headquarters are located in Atul, Gujarat. The Company is listed on the NSE in India and has over 35,000 shareholders. Atul Limited is an improvement driven, integrated chemical company serving about 4,000 customers belonging to 27 industries across the world. The Company has established subsidiary companies in the USA (1994), the UK (1996), Germany (1998), China (2004) and Brazil (2012) to serve its customers and thus enhance breadth and depth of its business. From a small beginning (one dyestuff and one manufacturing plant), Atul has grown into a diversified chemical conglomerate, with about 1,350 products and formulations with 13 subsidiary and associate companies. The Company has taken small, but firm steps to grow its business with larger purpose.

1.3 DETAILS OF THE PROJECT SITE

The company is located at & post: Atul, Valsad District, Gujarat. The latitude & longitude of the project site is 20°32'10.61"N and 72°56'23.56"E respectively. The project site falls in Valsad district of Gujarat. The site is connected by road with National Highway (NH) No. 8 which is at around 2 km from the project site in East-East-North direction. The nearest town is Valsad which is at around 7 km from the project site in North direction. The nearest railway station is Atul which is at around 1.5 km from the project site in North-West direction whereas Valsad railway station is at around 7 km from the project site in North direction. Location of the project site is mentioned in **Figure No. 1.1**. Atul Limited is an existing chemical manufacturing complex with existing Captive Power Plant (CPP) of 34 MW and is now planning to expand their existing CPP by installing new 22 MW Coal based CPP with latest technology.



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Figure No. 1.1 – Location of the Project Site



PROJECT SITE





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1.4 EXISTING SCENARIO & PROPOSED EXPANSION

Atul Complex is self-sufficient in meeting continuous and uninterrupted steam demand for all its chemical manufacturing processes and it also meets more than 85% of electricity demand for its housing colonies. Atul Limited is having an existing CPP of 34 MW capacity. Atul Limited holds Environmental Clearance (EC) from Ministry of Environment & Forests (MoEF), Delhi vide File No. J-11011/85/2009-IA II (I) dated 13th May, 2009 and also obtained valid Consolidated Consent & Authorization (CC&A) from Gujarat Pollution Control Board (GPCB) vide no. AWH-67717 dated 04/11/2014. Copy of the EC and CC&A are attached as **Annexure – 1** and **Annexure – 2** respectively. Atul Limited is planning to expand the existing facilities and existing production capacity in near future. To meet the future requirement of captive power and steam, Atul Limited is proposed coal based captive power plant with 22 MW capacity in the existing premises of Atul Complex, Valsad, Gujarat.

1.5 JUSTIFICATION OF THE PROPOSED EXPANSION

- Atul Limited is planning to expand the existing facilities & infrastructure in near future.
- Atul Limited is proposing expansion in current manufacturing capacity, which will in turn increase the power and steam requirement.
- In the existing unit, two numbers of Stoker Fired Boilers (SFB) are provided with Scrubbers for dust collection. As, it is old technology and not feasible to provide ESP with these boilers, the SFBs will be replaced with higher efficiency boilers with adequate APC facility.
- Thus, Atul Ltd. is planning expansion in the unit and replacing the old low efficient SFBs boilers with highly efficient boilers which would be having ESP not only to maintain GPCB norms but also to cater future requirement of captive consumption.
- It is proposed to install 2 × 50 TPH Boilers of Atmospheric Fluidized Bed Combustion (AFBC) type and it will be having highly efficient ESP which can cater dust up to 99.9%.
- The proposed Boilers will be having Dust Extraction System in coal handling plant and pneumatic System for Bed Ash as well as for Fly Ash.



1.6 DEMAND SUPPLY GAP

Currently, the power & steam requirement to meet the demand for existing production is given below, which is being fulfilled by existing east and west side CPP.

Power and Steam requirement for existing production:

Steam Generation Capacity				
FBC-1	FBC-2	FBC-3	FBC (W)	Total steam TPH
30	30	50	40	150

Captive power generation / drawl				
Top up 1	Top up 2	TG set (W)	Grid drawl	Total power MW
1.5	13.5	3.6	1.5	20.1

Now, Atul Limited is planning to expand the existing production capacity. Hence for the proposed expansion in production capacity it will require additional steam and power as below:

	Process steam TPH			Power (MW) Peak
	2.5 Bar	7 Bar	19 Bar	
Additional demand 14-15	4	3	1	1.5
Additional demand 15-16	17	15	5	6
Total additional demand	21	18	6	7.5
Present consumption	50	20	12	20.1
Grand total	71	38	18	27.6
Total steam required	127			27.6



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Equipment	Steam flow TPH				Power generation (MW)
	Turbine inlet flow @65 Bar	Exhaust flow @2.5 Bar	Exhaust extraction @7 Bar	Extraction flow @19 Bar	
TOP UP 1 - East (Upgradation)	50	5(TFP)	35	10	4
TOP UP 2 - East	60	5	0	0	13.5
5.6 MW TG - West	40	36	0	0	4
Total	150	46	35	10	21.5
Demand by 15-16 (peak)		74	50	18	35.5
Shortage By 15-16		28	15	8	14
In-house consumption for new power plant		12	-	-	3
Total requirement		40	15	8	17.0
Additional steam/Power required		63+ (17-6.3) X 4.1		= 106.87 TPH	18 MW
Boiler capacity recommended		100 TPH		Shortage	7 TPH
Turbine capacity required		22 MW			

Owing to the additional steam and power requirement to meet the demand of additional production, Atul limited proposes 22 MW Captive Power Plant with 2 x 50 TPH boilers.



1.7 REGULATORY FRAMEWORK & NEED OF EIA STUDY

Environmental Impact Assessment (EIA) report is a formal report to be provided by the project proponent and prepared by an independent environmental consultant. The EIA summarizes process and results of baseline environmental monitoring to identify the potential for significant and diverse impacts. The Government of India, as per its policy has given emphasis on Sustainable Development as a part of any developmental activity. Along with industrial growth, environmental protection is an integrated criterion for this concept. In line with this policy, MoEF has defined EC framework under the Environmental Protection Act, 1986. As per the EIA Notification – 2006, prior EC is required for establishing/expanding the industry/development projects.

The applicability of the S. O. 1533 for the proposed expansion project was explored by considering different possibilities and provision made in the said notification. Considering the products and capacity, it is noticed that the proposed expansion project falls under Category 1 (d) – B < 500 MW (coal/lignite/naphtha and gas based) of the schedule of EIA notification 2006, S. O. 1533.

As per the provision of the S. O. 1533, it is necessary to get EC for the proposed expansion project prior to commissioning of the project activities. Hence it is necessary to seek EC by applying to State Level Expert Appraisal Committee (SEAC) along with the EIA study report as per Terms of Reference (TOR) awarded by SEAC, Gandhinagar and needs to undergo a public hearing. Eco Chem Sales & Services has carried out the EIA studies as per TOR and EIA guidelines. A mitigation plan has been prepared and a detailed Environmental Management Plan (EMP) is drawn to effectively mitigate or minimize potentially adverse environmental impacts and the details are presented in the chapters.

1.8 SCOPE & OBJECTIVES OF THE EIA STUDY

This EIA Report is prepared to comply with TOR given by the SEAC, Gandhinagar as per the guideline. The scope of study includes detailed characteristics of environmental components. For the purpose of environmental assessment, the villages in the surrounding 10 km area have been surveyed and relevant data has been collected.



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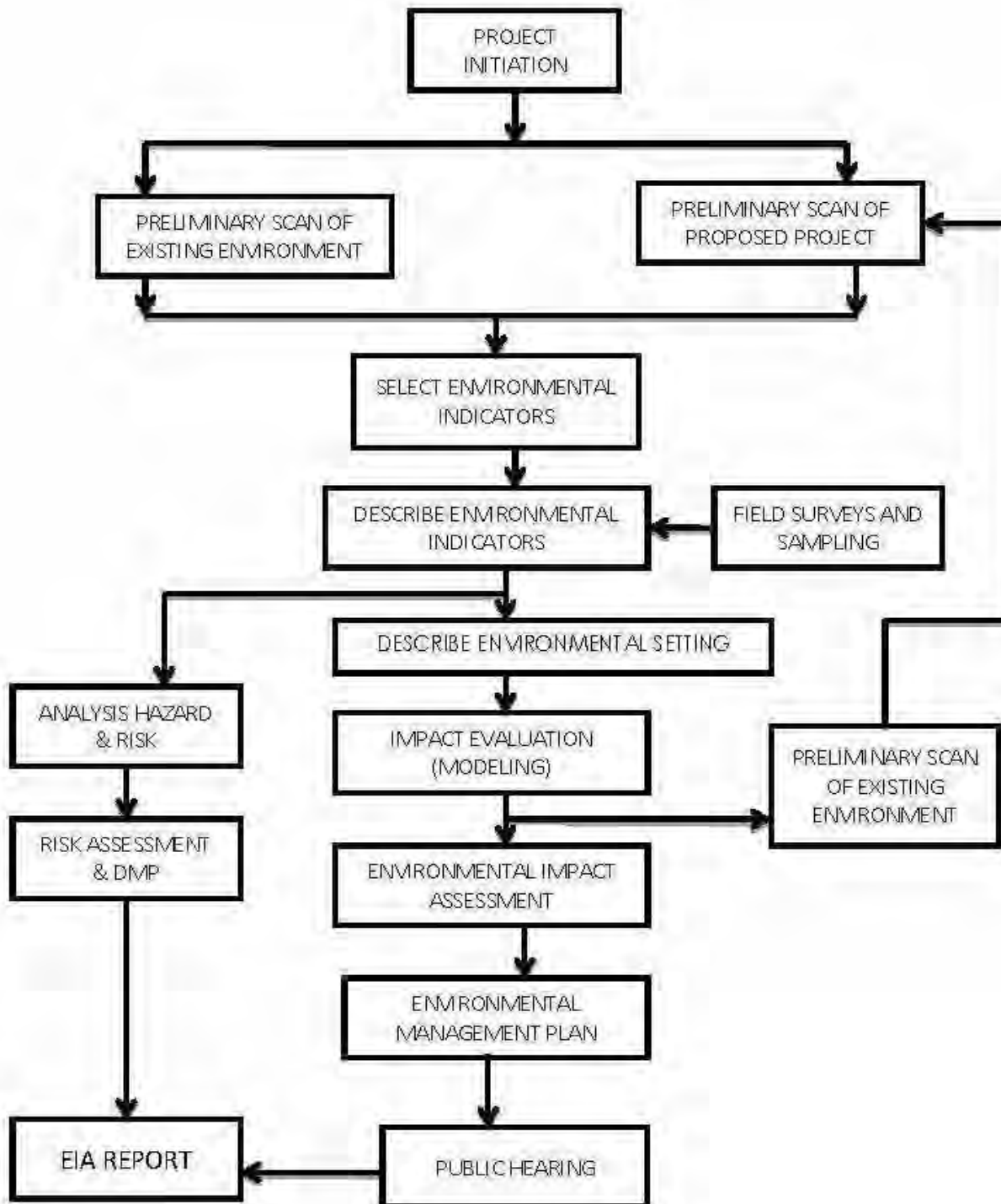


The objectives of this EIA are:

- To describe the project and associated works together with the requirements for carrying out the expansion.
- To identify and describe the elements of the community and environment likely to be affected by the project, and/or likely to cause impacts by the project, including both the natural and man-made environment.
- To identify and quantify any environmental impacts associated with the proposed expansion and recommend appropriate mitigation measures.
- To identify existing landscape and visual quality in the study area so as to evaluate the landscape and visual impacts of the proposed expansion project.
- To propose mitigation measures to minimize pollution, environmental disturbance and nuisance during construction and operation of the project.
- To identify, assess and specify methods, measures and standards, to be included in the detailed design, construction and operation of the project which are necessary to mitigate these impacts and reduce them to allowable levels within established standards/guidelines.
- To identify and justify the need for environmental monitoring to define the scope of the requirements necessary to ensure the implementation and the effectiveness of the environmental protection and pollution control measures adopted.
- To identify constraints associated with the mitigation measures recommended in this EIA.
- To identify any additional studies necessary to fulfill the objectives to the requirements of this EIA Study.



Figure No. 1.2 – Flowchart of EIA activities carried out for EIA report





1.9 THE EIA CYCLE AND PROCEDURES

The EIA process in India is made up of the following phases:

1.9.1 Screening

Screening is done to see whether proposed expansion requires environmental clearance as per the statutory notifications. Screening Criteria are based upon the following:

1. Scales of investment.
2. Type of development.
3. Location of development.

1.9.2 Scoping

Scoping is a process of detailing the TOR of EIA. It has to be done by the consultant in consultation with the project proponent and guidance, if need be, from Impact Assessment Agency. The MoEF has published guidelines for different sectors, which outline the significant issues to be addressed in the EIA studies. Quantifiable impacts are to be assessed on the basis of magnitude, prevalence, frequency & duration and significance of non-quantifiable impacts are commonly determined through the socio-economic criteria. After the areas, where the project could have significant impact, are identified, the baseline status of these should be monitored and then the likely changes in these on account of the construction and operation of the proposed expansion project should be predicted.

1.9.3 Baseline data collection

A baseline study illustrates the original status of the environment in the area before implementation of the proposed expansion. The site-specific primary data should be monitored for the identified parameters and supplemented by secondary data if available. The study serves the purpose of a base reference against which the changes due to implementation of the proposed expansion are measured.

For the proposed expansion project, baseline data have been collected for Air Environment, Water Environment, and Land Environment within 10 km radius of the project site. The site-specific primary data has been monitored for the identified parameters and supplemented by secondary data if available.



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A. Air Environment

Existing status of ambient air quality at 8 locations in the vicinity of the site for parameters namely PM₁₀, PM_{2.5}, SO₂, NO_x, & CO have been described. Maximum number of sampling stations was selected considering the prominent wind direction of the region. Micro-meteorological data like wind speed, wind direction, temperature, relative humidity etc., were collected by using the wind monitor as per CPCB guideline. Data were collected on hourly basis for the period December 2014 to February 2015. This weather station was installed near the project site.

B. Noise Environment

Noise level monitoring was carried out from selected 8 locations for day and night time by sound level meter to assess the present scenario of noise environment.

C. Water Environment

Ground & Surface Water samples were collected from various locations within 10 km radius from the project site for the study of existing water resources with respect to water quality. Physical, chemical and micro biological parameters were analyzed to assess the water quality. Water quality is being assessed with drinking water standards.

D. Land Environment

Soil samples were collected from 7 selected locations within the impact zone and analyzed for relevant parameters like texture, pH, conductivity, ESP, Copper, Total Nitrogen, Chromium, Magnesium, Moisture, etc.

The study of mapping land use and land cover for the area covering 10 km radial distance from site was conducted using Geocoded False Colour Composite scene of IRS-IC LISS III / LISS IV images along with Survey of India (SOI) Toposheets.

E. Ecology & Socio-Economic Environment

Secondary Data for flora and fauna were collected from various literature published by forest department. Data were verified with primary data collected during survey and discussion with local public. Socio Economic data was collected by conducting survey and interaction with local people. Primary data has been collected and generated by in-house FAE by conducting survey and



interaction/discussion with the local public. Secondary data has also been obtained from the Census 2011 for comparing the data.

1.9.4 Impact prediction

Impact prediction is a way of ‘mapping’ the environmental consequences of the significant aspects of the project and its alternatives. Environmental impact evaluation actually grows out of scoping and baseline study of the project. Environmental impact can never be predicted with absolute certainty and this is all the more reason to consider all possible factors and take all possible precautions for reducing the degree of uncertainty. EIA assigns various quantified values to different levels of all the impacts affecting the environment. For the proposed expansion project, detailed impacts were predicted during the construction and operation phase for any change in physical, biological, cultural and/or socio economic environment that can be attributed to activities related to alternatives under study for meeting the project needs.

1.9.5 Mitigation measures and Environmental Management Plan (EMP)

Efficient mitigation plan has been drawn up for the identified impacts and is supplemented with an Environmental Management Plan (EMP) to guide the proponent towards environmental improvements. An EIA report should provide clear information to the decision-maker on the different environmental scenarios without the project, with the project and with alternatives. Uncertainties should be clearly reflected in the EIA report.

- Delineation of mitigation measures including prevention and control for each environmental component.
- Delineation of monitoring scheme for compliance of conditions.
- Delineation of implementation plan including scheduling and resource allocation.

1.9.6 Risk Assessment and Disaster Management Plan

EIA requires inclusion/coverage of all significant Risks & Hazards and their mitigation measures. Depending on nature, location & scale of the project, report should contain components as follows:

- Hazard identification taking recourse to hazard indices, inventory analysis, Natural Hazard Probability etc.
- Consequence analysis of failures and accidents resulting in fire, explosion, hazardous releases etc.
- Assessment of risk on the basis of the necessary evaluations
- Preparation of an Onsite/Off site Emergency Plan and Disaster Management Plan



1.10 EIA REVIEW AND APPLICATION FOR EC

The EIA report prepared as per ToR given by SEAC, Gujarat vide letter no. EIA-10-2014-6886-E.762 dated 02/05/2015 for proposed expansion project should be reviewed at different level (From Management to Technical Expert) and then necessary changes & modification shall be made for imperative version of EIA report for submission/further application. After careful review of all the details, the application & report is to be made for EC for the proposed expansion project.

1.11 STRUCTURE OF EIA REPORT

The generic structure of the EIA report as per the guideline provided by MoEF is illustrated in the following tabulated format.

Table No. 1.1 – Structure of EIA report

No.	EIA Structure	Contents
1.	Introduction	<ul style="list-style-type: none">• Purpose of the report• Identification of project & project proponent• Brief description of nature, size, location of the project and its importance• Scope of the study – details of regulatory scoping carried out (As per Terms of Reference).
2.	Project Description	<ul style="list-style-type: none">• Condensed description of those aspects of the project (based on project feasibility study), likely to cause environmental effects. Description contains the details of the following:<ul style="list-style-type: none">○ Type of project○ Need for the proposed expansion.○ Location details showing general location, specific location, project boundary and project site layout○ Technology and process description○ Project description including drawings showing project layout, components of project, etc., schematic representations of the feasibility drawings which give



No.	EIA Structure	Contents
		<p>information important for EIA purpose.</p> <ul style="list-style-type: none">○ Description of mitigation measures incorporated into the project to meet environmental standards.
3.	Description of the Environment	<ul style="list-style-type: none">• Study area, study period, components & methodology.• Establishment of baseline for valued environmental components, as identified in the scope.• Study Period: December 2014 to February 2015• Base maps of all environmental components.• Land use Map• Frequency of monitoring.• Summary of each environmental component.
4.	Anticipated Environmental Impacts & Mitigation Measures	<ul style="list-style-type: none">• Details of investigated environmental impacts due to project location, possible accidents, project design, project construction, regular operations.• Measures for minimizing and/or offsetting adverse impacts identified.• Irreversible and Irretrievable commitments of environmental components.• Assessment of significance of impacts (Criteria for determining significance, Assigning significance)• Mitigation measures.
5.	Environmental Monitoring Program	<ul style="list-style-type: none">• Technical aspects of environmental monitoring for the effectiveness of mitigation measures (Incl. Measurement methodologies, frequency, location, data analysis, reporting schedules, emergency procedures, budget & procurement schedules)
6.	Additional Study	<ul style="list-style-type: none">• Hazard Identification• Risk Assessment & control/prevention Measures• Disaster Management plan



No.	EIA Structure	Contents
		<ul style="list-style-type: none">• MOM of Public Hearing
7.	Project Benefits	<ul style="list-style-type: none">• Detail of the Socio-Economic & other tangible benefits of the project.
8.	Environment Management Plan	<ul style="list-style-type: none">• Description of the administrative aspects of ensuring that mitigation measures are implemented and their effectiveness monitored, after approval of the Clearance. The Chapter consist of:<ul style="list-style-type: none">○ Mitigation measures for impacts○ Pollution Prevention Plan○ Greenbelt Development Plan○ Waste management plan○ Environment Management Cell○ Budgetary Provisions for EMS
9.	Summary & Conclusion	<ul style="list-style-type: none">• Description of EIA report in brief and Conclusion
10.	Disclosure of Consultant Engaged	<ul style="list-style-type: none">• Detail of the EIA Consultant



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CHAPTER – 2 PROJECT DESCRIPTION

2.1 GENERAL

Atul Limited is a member of Lalbhai Group, one of the oldest business houses of India, with interests mainly in textiles and chemicals. The Group is strongly committed to serve the society in the fields of education, health as well as culture. Atul Ltd. operates through six business divisions, namely, Agrochemicals, Aromatics, Bulk Chemicals & Intermediates, Colors, Pharmaceuticals & Intermediates and Polymers. The bulk chemicals and Intermediates division of Atul Ltd. commenced its manufacturing of bulk chemicals in 1960 and intermediates in 1963. The proponent now proposes to expand its existing capacity of existing Captive Power Plant (CPP) of 34 MW by addition of new 22 MW coal based CPP with latest technology

2.2 PROJECT LOCATION

The Atul limited is located at Survey No. 274,275 & 276, At & Post Atul. The project site falls in Valsad district of Gujarat. Valsad district is surrounded by Vapi in the south, Valsad in the north, Dharampur in the east and Atar village in the west. The project location is well connected with road, rail and air route for transportation activities. The salient features of the project site are mentioned in **Table No. – 2.1**. The location of the proposed project site on Google map is shown in **Figure No. – 2.2**. Layout plan showing the existing and expansion location is given in **Figure No. – 2.2**.

Project Co-ordinate		
Corner	Latitude	Longitude
A	20°32'20.48"N	72°56'50.19"E
B	20°32'4.29"N	72°56'50.23"E
C	20°31'56.79"N	72°55'37.86"E
D	20°32'26.09"N	72°55'39.12"E



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2.2.1 Site selection criteria

- The land for the proposed expansion is already in the possession of Atul Limited as the proposed expansion will be carried out within the existing premises. All the infrastructure facilities are available with the existing premises of Atul Limited.
- Valsad district is well connected by road & rail to the rest of India. The site is also well connected by NH No. 8 which is a part of the Golden Quadrilateral.
- Valsad district is a thriving belt of industrial activity surrounded by many scattered small and medium scale industries.
- The human resource required for the proposed expansion project will be easily available.

2.2.2 Alternative Site Selection

As the proposed expansion project is to be setup for the captive requirement of power for the existing & future expansion within Atul premises, alternative site has not been considered. Since, by nature, the project is an expansion project, the existing premises of operational unit is the only convenient site for the proposed expansion project of power generation of additional power by installation of a CPP.

2.2.3 Connectivity and Salient features of the Project Site

Valsad district is located between $20^{\circ} 07''$ to $21^{\circ} 05''$ North latitude and between $72^{\circ} 43''$ to $73^{\circ} 00''$ East longitude. The Geographical location of the plant site is approximately at latitude of $20^{\circ}36'36''$ N, and longitude of $72^{\circ}55'33''$ E. The nearest town Valsad is located about 7 kms away from the project site. Project site is well connected by Road and Rail line.

The salient features mentioned below, indicate favorable conditions for industrial development at the project location.



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Table No. 2.1 – Salient Features of the Project site

Sr. No.	Particulars	Name	Aerial distance from the Project Site
1.	Nearest village	Hariya	@ 2.10 km in NW direction.
2.	Nearest Town	Valsad	@ 7.00 km in N direction.
3.	Nearest River	Par River	@ 700.00 m in SE direction.
4.	Nearest National Highway	N. H. No. 8	@ 2.00 km in EEN direction.
5.	Nearest Railway station	Atul	@ 1.50 km in NW direction.
6.	Nearest Airport	Daman	@ 15.20 km in SW direction.
7.	Nearest Tourist Places	Tithal	@ 7.70 km in NW direction.
8.	Protected areas (National parks/ sanctuaries)	---	None within 10 km radial periphery
9.	Defense installations	---	None within 10 km radial periphery
10.	Sites of Historical / Archaeological Importance	---	None within 10 km radial periphery

Note: All the above – mentioned distance are the aerial distances from project site.



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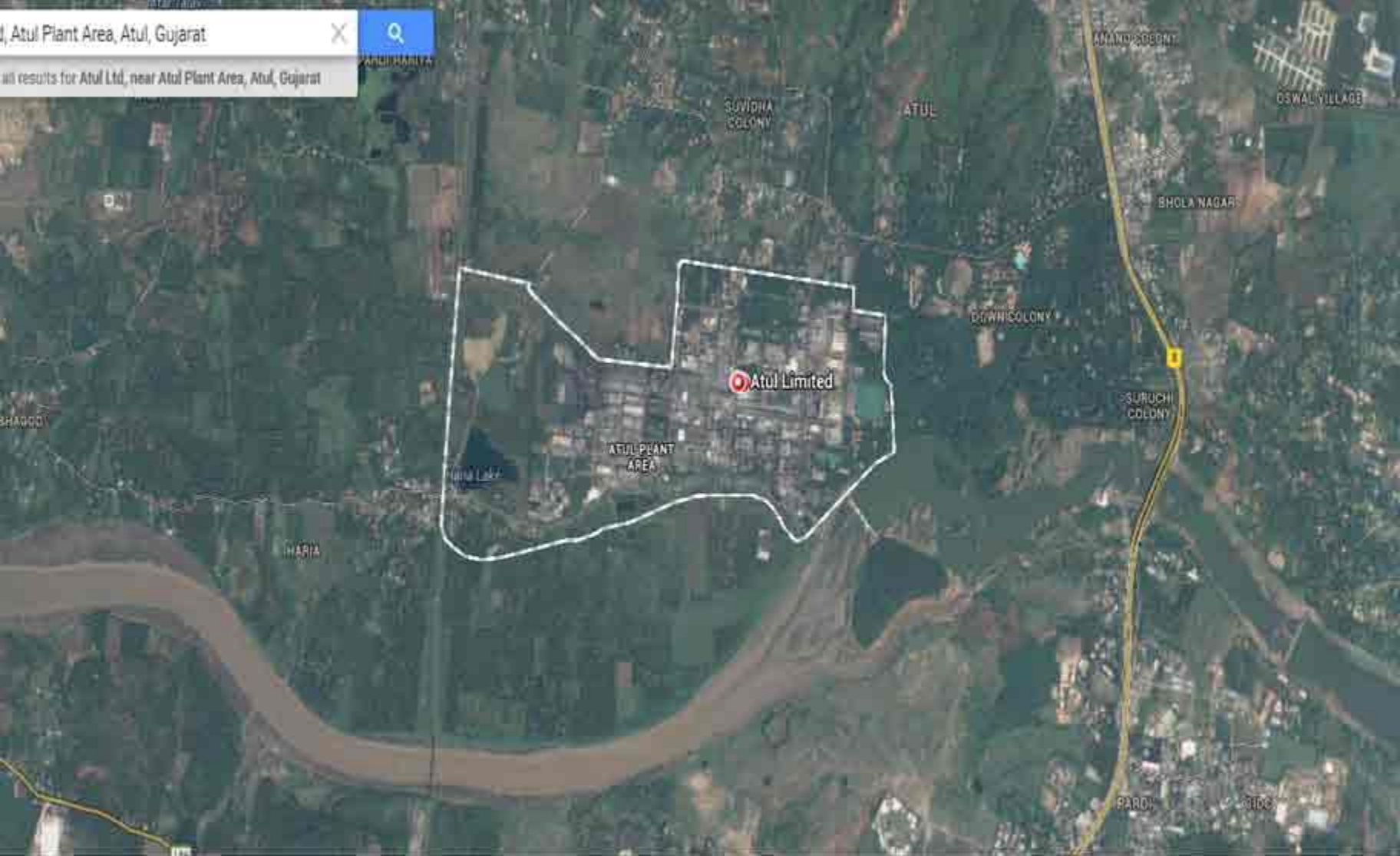


Figure No. 2.1 Google Map

Atul Plant Area, Atul, Gujarat



Search results for Atul Ltd, near Atul Plant Area, Atul, Gujarat





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Figure No. 2.2 Layout Plan showing Existing and Proposed Location



- NOT TO BE MOVED (FIXED INSTALLATION)
- OPEN TO BE MOVED TO BE SHOWN
- OPEN TO BE MOVED TO BE SHOWN

(Scale 1:100)	
ATUL LIMITED	
FACTORY LAYOUT	
OF ATUL	
DRG. NO. 101-A-6000	

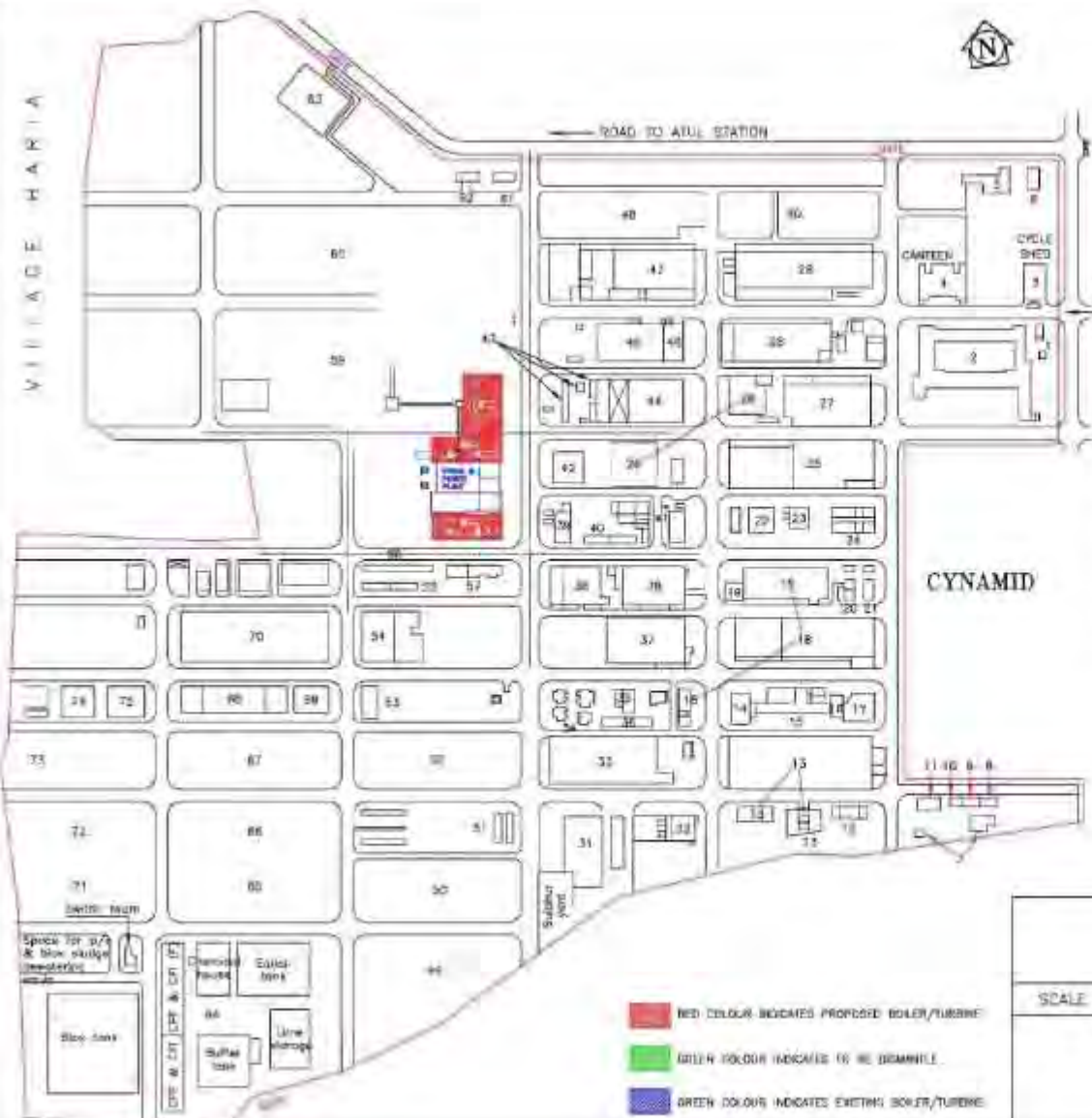
VILLAGE HARIJA



ROAD TO ATUL STATION

MAIN GATE

CYNAMID



1. Security office
2. Main office bldg
3. Scooter/Cycle shed
4. Main canteen/Restroom
5. I.A. office nit office
6. Credit society
7. South over security alarm
8. Incinerator
9. Laundry
10. South area canteen
11. South area w/s
12. Training hall
13. Shed D (A/P, PDE)
14. M.C. Room
15. A/P services
16. Inst. w/s subn
17. A/P section room
18. Shed A (Cops (free part)
19. Fire station
20. Production office
21. Ambulance team/SHC office
22. New USA NG plant
23. Transformer & control room
24. Vol II & III services
25. Shed B (Vol ambulance plant and II)
26. Shed F
27. Shed C (BM & AQ plant)
28. Shed E (Phone N)
29. B.M. store no.1
30. Storage yard
31. Shed K (Sulphuric acid plant)
32. Shed G (Plant plant)
33. Shed U (PDI plant)
34. Cooling towers
35. Section room (PDI)
36. Shed G.J.K.L. maintenance w/s
37. Shed H (Vol IV plant)
38. Reg. lab. Q/C lab
39. DM water store
40. Lab. extension
41. Vol II services
42. Fire station
43. North area security block
44. Engg. stores
45. Main workshop
46. Engg. office
47. B.M. store no.2. Banded w/s
48. Engg. stores yard
- 49.
- 50.
51. Contractors shed
- 52.
53. Civil w/s
54. Shed F
55. M.C. main shed F
56. Contractors shed
57. Sub station
58. Steam & power plant
59. Dock yard
60. Cuss yard
61. Sodium cyanide storage
62. Solvent stores
63. Storehouse for chemical waste
64. Shed L (K.I.P.)
- 65.
- 66.
- 67.
68. (NGV only) (Vol III plant)
69. Shed W (Vol V)
70. Shed N (Vol V)
- 71.
- 72.
- 73.
74. Cooling towers / DHR 208/41
75. Sub station no.2

ATUL LTD
COLORS DIVISION SITE-WEST
 P.O. ATUL, 398020 GUJARAT, INDIA

SCALE: N.T.S.	DRAWN: I B LAD	15.07.2014
SITE LAYOUT ATUL - WEST	CHECKED	
	APPROVED	
A0/		

- RED COLOUR INDICATES PROPOSED BOILER/TURBINE
- GREEN COLOUR INDICATES TO BE DEMOLISH
- GREEN COLOUR INDICATES EXISTING BOILER/TURBINE



2.3 PROJECT LOCATION DESCRIPTION

2.3.1 Climate Conditions

A. General

The climate of this region is governed by its location in the tropics and by the monsoon. Annually recurring monsoon divide the year in to three seasons as follows:

- The pre-monsoon period from March to May, a time of the year having hot climate.
- The southwest monsoon prevailing from June to September.
- The post monsoon period from October to February.

B. Rainfall

About 95% of the annual rainfall is received in the months of June to September. The total annual rainfall observed from the historical data of year 1951-2010 is 2467 mm. There was no rain or showers during the study period.

C. Temperature

The summer season from March to May experiences continuous increase in temperatures which decreases during monsoons, increases slightly during the post-monsoon season and again decreases during the winter. During the study period minimum temperature was recorded 13.4⁰C in the month of January, 2014 and maximum temperature was recorded 41.0⁰C in the month of February, 2015.

D. Relative Humidity

The climate of Valsad region is characterized by a humid summer because of the closeness to coastline. Humidity is usually high during the monsoon months and decreases gradually during the post-monsoon months. Humidity was observed between 08 to 93 %. Visibility - The general visibility in the area is good. Visibility in the monsoon normally deteriorates during rains and occasional squalls.

E. Wind

The annual resultant vector for wind direction shows winds blowing from WSW. During summer and monsoon, the winds blow mostly from the sea direction. The post-monsoon & winter seasons experience a change in direction, with the winds blowing from NE, ENE or NNE. The wind speed is high during monsoon and post monsoon seasons, slightly moderate during summer and winter seasons. Data were



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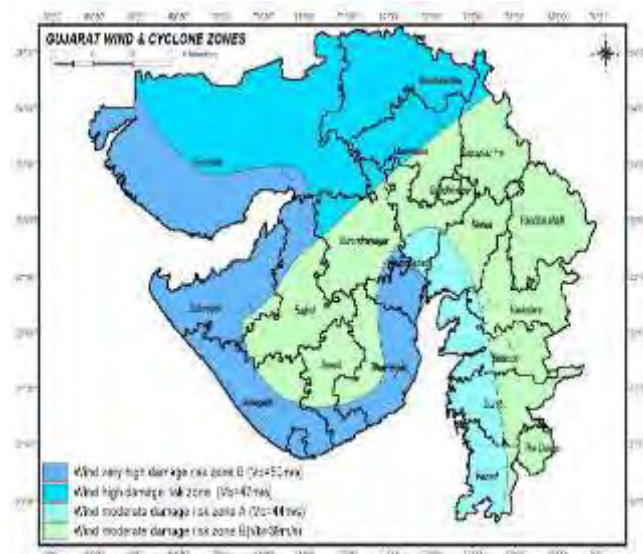


collected for the Period of December 2014 to February 2015. The wind speed was in the range of 0 to 12.0 km/hr during study period. It was maximum in the month of December, 2015.

F. Cyclone

Cyclones are huge revolving storms caused by winds blowing around a central area of low atmospheric pressure. Cyclone is a storm accompanied by the high speed wind. It brings torrential rains and creates several dangers for people living around tropical areas. These winds are strong enough to easily topple fences, sheds, trees, power poles and caravans, while hurling helpless people through the air.

It is observed that Valsad lies under very moderate damage risk zone ($V_b = 44$ m/s). It has been estimated that the probability of the cyclonic depression is very less.



Source: BMTPC, India (This map was collated based on the data compiled by the ministry of Urban Development & poverty alleviation)

G. Earthquake

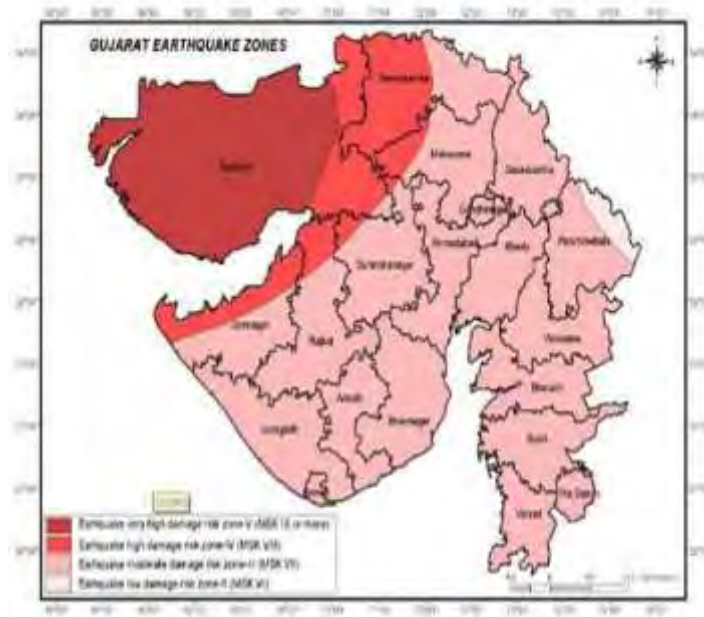
An Earthquake is a sudden, rapid shaking of the earth caused by the breaking and shifting of rocks beneath the earth surface. It is observed that project lies very moderate damage risk zone. Atul Limited has experienced earthquakes very rarely with low intensity.



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Source: BMTPC, India (This map was collated based on the data compiled by the ministry of Urban Development & poverty alleviation).



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2.4 DESCRIPTION OF THE EXISTING FACILITIES

Atul Limited is having an existing coal based CPP of 34 MW capacity at Atul Complex, Valsad, Gujarat. To meet the future captive power and steam requirement, Atul Limited is now proposing a new coal based CPP of 22 MW in the existing premises. Thus, total production capacity of CPP after proposed expansion will be 56 MW. No additional land will be purchased/procured for proposed CPP expansion. Total Plot area for the existing CPP is 45,079 m² and open space of 10,000 sq. meter near existing CPP area will be utilized for proposed expansion.

PHOTOGRAPHS OF THE EXISTING UNIT





2.5 RESOURCES REQUIREMENT

Resources such as Land, Power, Water, Manpower, etc. are required for the proposed expansion. Each of the resources is briefly described in the following sections.

2.5.1 Land requirement

The proposed expansion shall be developed within existing premises by using existing infrastructure. No additional land will be purchased/procured for proposed expansion. Total occupied plot area for existing CPP is 45,079 m² and an additional 10,000 m² open space is available in existing plant, which will be utilized for proposed expansion. Area Break up for existing and proposed facilities is mentioned in the following table:

Table No. 2.2 – Land area breakup

Sr. No.	Description	Area (m ²)		
		Existing	Proposed	Total
1.	Process Area	10,000	7,000	17,000
2.	Utilities	7,000	1,500	8,500
3.	Administration & Lab	1,000	80	1,080
4.	Ware House	10,579	00	10,579
5.	Green belt	16,500	1,420	17,920
TOTAL		45,079	10,000	55,079
6.	Additional Open Land	10,000	-10,000 (Utilized for proposed CPP)	00



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Table No. 2.3 – Land area breakup for proposed CPP

Sr. No.	Description	Proposed
1.	Boiler	900
2.	Bunker	120
3.	ESP	320
4.	Chimney	60
5.	Fly Ash Silo	80
6.	Bed Ash Silo	60
7.	Panel Room	80
8.	Cooling Tower	1000
9.	Coal Yard	5400
10.	Coal Crushing plant	400
11.	RO Plant	80
TOTAL		8500

2.5.2 Water requirement

The additional water requirement for proposed expansion will be fulfilled by existing source i.e. Par River during the construction as well as operation phase. Ground water is not being extracted for the existing operation nor it will be extracted for proposed expansion. The unit has already obtained permission from irrigation department, which accommodates additional water requirement for proposed CPP expansion. Copy of the letter is attached as **Annexure – 3**. Total water requirement on 100% existing production load is 22,569 KLD (21,632 KLD for Industrial purpose + 937 KLD for domestic purpose). Water requirement for existing CPP is 3,905 KLD and additional 2,094 KLD water will be required for proposed expansion. Additional 1 KLD water will be required for additional man power generated due to proposed expansion.

Water consumption during operation phase for existing and proposed expansion project is mentioned in the **Table No. – 2.4**.



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Table No. 2.4 – Water Consumption details

Sr. No.	Particulars	Water Consumption (KL/Day)		
		Existing	Proposed	Total
A.	Domestic	5.00	1.00	6.00
B.	Industrial			
1.	Process	0.00	0.00	0.00
2.	Boiler	1,170.00	414.00	1,584.00
3.	Cooling	2,735.00	1,680.00	4,415.00
4.	Washing	0.00	0.00	0.00
	Total (B)	3,905.00	2,094.00	5,999.00
	Total (A+B)	3,910.00	2,095.00	6,005.00



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2.5.3 Power & Fuel requirement

Existing:

- Power requirement: 34 MW Co-Gen. CPP.
- D. G. Set – 3100 KVA (In case of emergency)
- Fuel:
 - a. Coal/Lignite – 20,200 MT/Month
 - b. Diesel oil: 340 lit/hr

Proposed:

- Power requirement: 22 MW Co-Gen. CPP.
 - D.G. set – 1500 KVA (In case of emergency)
- Note: 10.00 MW DGVCL grid power as standby for initial startup of power plant.
- Fuel:
 - a. Details of fuel consumption with various options are mentioned in below table
 - b. Diesel Oil: 300 lit/hr

Table No. 2.5 – Details of Fuel consumption with various options

No.	Type of Fuel	Option No.	Fuel Consumption (TPH)	Fuel Consumption (TPM)
1.	100 % Imported coal	I	14.12	10,166
2.	100 % Indian coal	II	23.23	16,725
3.	50 % Indian coal + 50 % Imported coal	III	18.95	13,644
4.	100 % Lignite (By adding limestone)	IV	20	14,400
5.	70 % Indian Coal + 30 % Lignite (By adding limestone)	V	22.15	15,948

Atul Limited had applied for the long term coal linkage for proposed CPP to the Ministry of Coal. Copy of the same is attached as **Annexure – 4**. Existing coal linkage is also attached as **Annexure-4**.



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2.5.4 Man Power requirement

The company employs around 80% of the existing man-power from the nearby area. Same policy of local employment will be followed for the proposed expansion project as well.

The existing unit has total manpower of 3,900 nos. (Including contractor) and in existing CPP around 50 persons are employed. Additional Manpower shall be employed during the construction & operation phase directly and indirectly through contracts for Civil Construction, Mechanical erection, Electrification, Piping Works and Associated Amenities for proposed CPP expansion.

During construction phase, it is expected to generate direct & indirect employment of about 200-500 people of various skills. Local businessmen will get opportunity to supply construction materials. This will increase local business of the area.

In order to operate and maintain the proposed CPP additional 10-20 manpower will be required during the operation phase.

2.5.5 Raw Material requirement & Product

Raw Material requirement:

No raw materials other than fuel & water will be required for the existing as well as proposed CPP. Details of the fuel requirement and water requirement are mentioned in power & fuel requirement and water requirement respectively.

Sr. No.	Raw Material	Unit	Existing	Proposed	Total
1	Indian Coal and/or Imported coal and/or Lignite	MT/month	20,200	Max. 16,725	36,925
2	Water Requirement	KL/day	3,905	2,094	5,999



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Detail of Product:

Sr. No.	Product Name	Unit	Existing	Proposed	Total
1	Captive Power Plant (CPP)	MW	34	22	56



2.6 DESCRIPTION OF PROPOSED CPP

Atul Ltd. has an existing CPP of 34 MW at the existing premises. Also, an additional Cogeneration CPP is proposed to be installed to achieve electric power and steam for continuous production. A CPP will also be beneficial for uninterrupted power supply, which will also help in minimization of production loss and power transmission losses from the grid.

A high pressure AFBC Power Boiler of 2x50 TPH Capacity shall be installed to generate and supply superheated steam to drive the steam turbine and associated plant viz. cooling tower, switch yard, HT/LT switch gears, power transformers, load dispatch centers etc. The raw material for boiler shall be water, Indian coal and/or Imported Coal and/or lignite. The boiler feed water shall be of specified quality which will be treated raw water from RO/DM plant. The purpose of Economizer is to preheat the feed water before it enters the steam drum and thus to recover some heat from the flue gas leaving the boiler. The fuel shall be fired in presence of combustion air in the boiler, where hot flue gases will be evolved and the liberated heat associated with the flue gases shall be removed continuously. The steam shall be generated continuously due to feed water. Steam from power boiler shall be fed to a condensing cum double extraction Turbine. The extraction of steam shall be used for various operations of the plant. The balance steam shall be condensed and the condensate shall be recycled to boiler feed tank. The Electrical distribution system shall include H.T. & L.T. distribution panels, motors, starters, circuit breakers, switch gears, plant protection devices like lightening arrestors, earthing and cables etc. During power generation, the energy transformation in the entire cycle shall be from thermal energy to mechanical energy and then to electrical energy. The flue gases from the economizer shall be taken to ESP, thereby discharging the clean flue gases in to open atmosphere through a Chimney. Ash collected from Boiler and bottom silo shall be subjected to conditioning, which is proposed to be used in an ancillary unit to make fly ash bricks which will be used in the construction of buildings or will be sold to cement manufacturing unit.

A connection of 10.0 MW is also proposed to be taken from grid as a second backup source for start-ups of power plant to meet emergency situations.

The mass balance flow diagram is mentioned in **Figure No. 2.3**.



2.6.1 Components of CPP

Deaerator:

The deaerator will supply feed water at 155^oC at 100% BMCR. The steam for deaerator will be supplied from Turbine Bleed. At low load to maintain minimum deaerator outlet temperature, pegging steam will be supplied from main steam line through PRDS station.

The deaerator with a direct intimate contact type heat exchanger will be placed before boiler feed pump in the feed water cycle to remove the dissolved corrosive gases from the feed water which will go to the boiler. The deaerator will consist of vertical deaerating chamber called header and horizontal feed storage tank. The oxygen will be reduced to 0.005 cm³/lit and carbon dioxide to untraceable limits, in the condensate leaving deaerator.

The condensate and make up water will enter the deaerating chamber and will be broken into fine particles by the spray nozzles. The sprayed water will fall through tray stack for heat and mass transfer. Condensate will be divided into fine droplets and comes in contact with the steam resulting in release of non-condensate gases which will be carried by the steam moving upwards. Part of the steam will be condensed in the deaerating chamber while some escapes along with the Non-condensable gases whose quantity will be negligible. The condensate after leaving deaerating header will enter into feed storage tank from where it will be taken by the boiler feed pumps.

Table No. 2.6 – Technical specification of Boiler and Auxiliaries

Sr. No.	Description	Parameters/Values
A.	Boiler	
1.	Superheater outlet steam flow	100 TPH (2 x 50 TPH)
2.	Steam pressure at SH outlet	65 ata
3.	Steam temperature at SH outlet	485 ± 5 ^o C
4.	Feed water temp. Entering Eco	150 ^o C
5.	Flue gas outlet temperature	140 ^o C
6.	Efficiency at MCR	Around 86 ~ 88%
7.	Excess air (at 100% MCR)	20 %
8.	Superheat temperature control	By spray + excess air adjustment
9.	Safety valves	As per system requirement on drum, Superheater steam, etc.
10.	Soot blowers	As per manufacturers design



Sr. No.	Description	Parameters/Values
11.	Ambient air temperature	32°C
B.	Boiler Feed Pump (Typical)	
1.	Number of pumps	3 x 100% (2W+ 1S) Capacity Electrical driven pump.
2.	Type	Multistage barrel type horizontal with shaft driven booster pump
3.	Capacity	65 m ³ /hr
4.	Liquid handled (for design)	Feed water at 170°C
5.	Drive	Electrical driven
C.	Deaerator & Feed Water Storage Tank	
1.	Number	One (1)
2.	Type	Spray cum tray with horizontal feed water tank.
3.	Normal operating pressure	6.0 kg/cm ² g @ MCR condition
4.	Feed water tank capacity	20 minutes storage at normal water level to low water level

Steam Turbine:

The steam turbine will be a horizontally split, single cylinder 3000 rpm Single stage, double extraction cum condensing type unit with uncontrolled extractions for regenerative feed heating. The turbine will be designed for main steam parameters of 63 ata 480 ± 50°C at emergency stop valves turbine. The turbine will exhaust against condenser pressure of about 0.10 ata. The Turbo-generator set will be designed for a maximum throttle steam flow at Turbine Valve Wide Open condition of about 105% of Turbine MCR condition. The turbine will be rated for a minimum of 22 MW and shall be capable of both constant variable pressure operations as well as with HP heater out.

A fully automatic gland sealing system will be provided which will have provision to receive necessary steam from auxiliary steam heaters during start-up and low load operation.

The turbine will be equipped with the following:

- Electro-hydraulic governing system backed up by Hydro-mechanical system ensuring stable operation under grid fluctuation, control oil supply unit.
- Electric motor driven rotor turning gear.



- c. Self-contained lubricating oil system on AC and DC motor driven lube oil pump for supplying oil to turbine and Generator bearings to the governing and control system.
- d. Oil coolers, lube oil purifier, oil vapour extractor etc.

All essential controls and safety interlocks will be provided. The turbine will be complete with 2 x 100% condensate pumps, air ejectors or vacuum pumps with standby system motor operated vacuum breaker valve, gland steam condenser, deaerating heater, 2 x 100% boiler feed pumps oil coolers, steam and other miscellaneous piping and valves associated with the boilers and the steam turbines, including all control stations and all instrumentation.

Table No. 2.7 – Technical specification of Steam Turbine

Sr. No.	Description	Parameters/Values
A.	Turbine	
1.	Type of Turbine	Double Extraction cum condensing Turbine
2.	Number of cylinders	Single
3.	Type of governing	Electro-hydraulic
4.	Speed	3000 rpm
5.	Maximum continuous rating	18,000 kW
6.	Steam pressure before ESV	63 ata
7.	Steam temperature before ESV	$480 \pm 5^{\circ}\text{C}$ at inlet of Turbine ESV
8.	Turbine Exhaust pressure	0.10 ata
B.	Circulating Water Pumps	
1.	Condenser cooling water Pumps	Two (2) x 100% (1W+1S)
2.	Rated capacity required	4000 m ³ /hr
3.	Auxiliary cooling water Pumps	Two (2) x 100% (1W+1S)
4.	Water inlet temp.	32 ^o C
5.	Duty	Continuous
6.	Lubrication	Self, water lubrication
7.	Motor design ambient temp	50 ^o C



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- **Boiler make-up water stream:** Two (1 Working + 1 Stand by) x 100 % clarifier water transfer pumps for boiler make-up shall be horizontal centrifugal type with CI casing with BZ impeller. The capacity of the water treatment plant has been calculated as follows:

Table No. 2.8 – Water Treatment Plant capacity

Sr. No.	Description	Capacity
1.	Boiler capacity	50 TPH
2.	Nos. of Boilers	2
3.	Total Capacity of Boilers	100 TPH
4.	Bolier losses (Blow down, Vent etc.)	5 %
5.	Blow down Water Quantity	5 m ³ /hr
6.	Operating Hours of water treatment plant	20
7.	Required Water Treatment Plant Capacity	66 m ³ /hr

- **Cooling Water Make-Up System:** Separate 2 x 100 % cooling tower make-up pumps will be provided to MGF from clarified water storage tank for pretreatment. The cooling tower make up water required has been calculated as follows:

Table No. 2.9 – Cooling tower make up water requirement

Sr. No.	Description	Parameter/Values
1.	Cooling water requirement	4000 m ³ /hr
2.	Cooling range	9.5°C
3.	Evaporation loss	66.64 m ³ /hr
4.	Cycles of concentration for the cooling water system	5
5.	Blow down	16.66 m ³ /hr
6.	Drift loss	2 m ³ /hr
7.	Total Losses	85.3 m ³ /hr
8.	Operating hours of cooling tower	24
9.	Cooling Tower make-up water Requirement	85.3 m ³ /hr

- **Cooling Tower:** The One no. of 4100 m³/hr FRP type Induced Draft cooling tower is envisaged with 3 x 120 % (3W + 1S) Cells to meet the condenser cooling water requirement and auxiliary equipments. The cooling towers will discharge the re-cooled circulating water to cooling water pump house circulating water sumps.



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Sr. No.	Description	Parameter/Values
1.	Number of cooling tower	One (01)
2.	Number of cells	04 (3W+1S)
3.	Type of cooling tower	Induced Draft
4.	Design inlet circulating water flow rate	4100 m ³ /hr
5.	Capacity of each cell	1400 m ³ /hr per cell
6.	Cooling range of circulating water	9.5 ^o C
7.	Ambient wet bulb temperature for Design	28.5 ^o C
8.	Circulating water make up	Clarified water

- Suitable arrangement for shock & continuous dosing of chlorine to curb organic growth and chemical dosing i.e. scale / corrosion inhibitor and biocide dosing for maintaining 5 C.O.C. will be made.

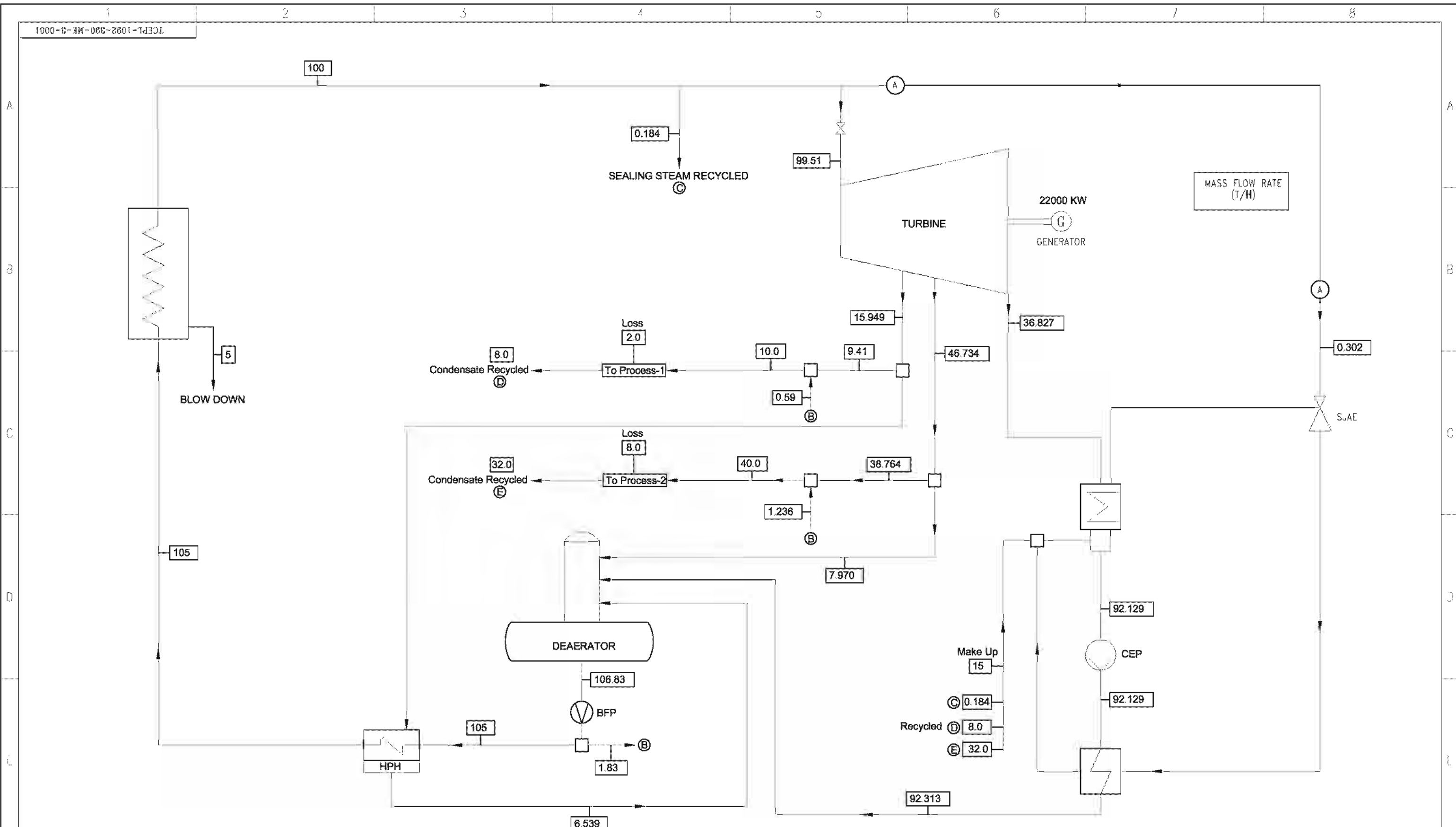


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Figure No. 2.3 – Mass Balance Flow Diagram



Make Up 15
 Recycled (C) 0.184
 (D) 8.0
 (E) 32.0

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OWNER'S CONSULTANT	TRACTEBEL CONSULTING ENGINEERS PVT LIMITED TRACTEBEL HOUSE, 100/101, CHEMUNJI - 35, TARA ROAD
PROJECT	1 x 22 MW CAPTIVE POWER PLANT
TITLE	MASS BALANCE DIAGRAM
DATE	20.05.14
JOB NO	1092
DRAWING NO	TCEPL-1092-390-MK-3-0001
REVISION	00

F

A

B

C

D

E

F

A

B

C

D

E

F



2.7 AUXILIARY SYSTEM

2.7.1 Coal Handling System

A standard coal handling system with screening, coal crushing, conveying system and dust extraction system is already installed for existing CPP and similar practice shall be implemented for proposed expansion. In addition to the existing coal yard, additional area of 5400 m² shall be allotted for coal storage yard for the proposed expansion. Indian/Imported Coal and/or Lignite is/shall be transported by Trucks from Atul Railway station to coal stock yard. The size of the coal generally made available from the sources will be less than 150 mm size. The coal from the coal yard will be transferred to the proposed underground grizzly hoppers using front-end loaders and further will be conveyed to the crusher house through conveyor system, where coal will be screened and crushed to (-) 6 mm. Coal crusher will be of impactor type. Ferrous un-crushable material will be removed during crushing and screening by magnetic separator. Sized coal from crusher house will be conveyed to minimum 16 hr storage capacity coal bunkers located in the boiler house. From bunkers coal will be fed to the boilers through the feeding system.

Dust extraction system will be provided in the crusher house and bunker house as per existing practice. Dust suppression system will be provided at loading & unloading point, stockyard area etc. Ventilation will be provided in MCC, all buildings etc. The system will be provided with maintenance hoist, belt weighers, Traveling tippers, samplers, metal detectors, magnetic separators, bunker level indicators (ultrasonic type) etc. Coal handling plant will be designed to incorporate single stream, rated for 50 TPH for operating 12 hr/day.

Table No. 2.10 – Details of Coal handling system

Sr. No.	Description	Existing	Proposed
1.	Crusher		
a.	Type	Impact Blade	Impact Blade
b.	Feed material	Indian/Imported Coal and/or Lignite	Indian/Imported Coal and/or Lignite
c.	Maximum feed size	< 150 mm	< 150 mm
d.	Product size	(-) 6.00 mm	(-) 6.00 mm
e.	Bulk density (minimum)	0.7 Ton/m ³	0.7 Ton/m ³



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Sr. No.	Description	Existing	Proposed
f.	Bulk density (maximum)	0.8 Ton/m ³	0.8 Ton/m ³
g.	Capacity (rated)	50 TPH	135 TPH
h.	Operation hours per day	12 hr/day	12 hr/day
i.	Capacity (designed)	82 TPH	150 TPH
2.	Rotor Specification		
a.	Rotor diameter	1200 mm	1000 mm
b.	Rotor width	1200 mm	1600 mm
c.	Rotor speed	448 rpm	400 rpm
3.	Material of construction		
a.	Frame & Body	MS Fabricated	MS Fabricated
c.	Roller liners (Impact bars & casing liners)	MN Steel Gr	MN Steel Gr
d.	Bearing blocks	Spherical Roller	Spherical Roller
e.	Lubrication method	Manual	Manual
f.	Housing opening mechanism	Manual Mechanical	Manual Mechanical
4.	Motor Specification		
a.	Motor power	120 hp	150 hp
b.	Motor rpm	1440 rpm	1440 rpm
c.	Drive transmission details	Fixed speed through fluid coupling V belt drive	Fixed speed through fluid coupling V belt drive
d.	Quantity	1 No.	1 No.

The schematic diagram of Coal Handling System is attached as **Annexure - 5**. Plant elevation layout for fuel handling system is attached as **Annexure – 6**. Analysis report of Indian Coal, Imported Coal and lignite are attached as **Annexure – 7**.



2.7.2 Lime Dosing system (If Lignite is used as main Fuel)

Proponent shall use lignite with low sulfur content. However, practice of lime dosing is proposed for the proposed expansion to control SO_x emissions on using lignite as fuel. Limestone of size (-) 5 mm size will be received at the site. This shall be unloaded into above ground dump hopper by trucks. The limestone shall be fed to the screen via vibrating feeder and belt conveyor. At the screen, (-) 3 mm size limestone shall be separated and fed to the limestone silo. Oversize particles of size (+) 3 mm shall be fed to the crusher for reducing the size to (-) 3 mm. Crushed limestone shall be fed to the silo. The silo is proposed to have adequate storage capacity for 24 hr storage. However as a safety measure, it is proposed to have Boiler designed for feeding/charging lime stone for SO_x control. This will reduce the SO_x emission level. Online dosing of good quality lime stone arrangement shall be provided along with separate bunker in line with boiler fuel feeding so that suitable quantity of lime stone can be added if and when required. At present, lime dosing is carried out manually for the existing CPP whereas in the proposed expansion, the quantity of lime stone will be controlled through DCS system according to the limit of SO_x in stack automatically.

2.7.3 Fly Ash Handling System

The existing unit has a well-designed Fly Ash Collection & Handling system with storage silos. For the proposed expansion, fly ash collected from various Economizers, Air Pre Heater (APH), ESP hoppers along the flue gas path, will be automatically and sequentially collected in air locked feeders in dry form to the proposed fly ash RCC silo through pressure conveying system. Fly ash will be collected in RCC silos having adequate storage capacity of 2 days storage from where it will be unloaded into trucks for ash utilization facilities. Provision will be also made to dispose of fly ash in wet form to ash disposal area in case of emergencies. Fly ash piping stream of adequate capacity is envisaged during specification/detailed engineering stage will be provided and will be connected to respective air lock feeders. Fly ash will be reused in company's own brick manufacturing unit and/or sold to cement manufacturer.

2.7.4 Bed Ash Handling System

The proponent has already designed Bed Ash handling System for collection of bed ash arising from the existing CPP. For the proposed expansion, ash will be extracted from bed ash hopper through air cooler and transported to bed ash silo with capacity of 2 days storage through collectors with 100 NB pipe. The collectors separate most of the dust and carryover are passed through a bag filter, thus ensuring that



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practically no dust is carried to the mechanical exhauster. For unloading and conditioning of the ash from silo to the truck, a hydromix dust conditioner complete with a metering cut-off gate will be provided. The requirement of conditioning water shall be met from the HDC water supply pumps, which will draw cooling tower blow down water. The system will be complete with requisite piping, fittings, valves, silo blowers, slide valves, vacuum breakers, instruments, control panel etc. Dry ash will be reused in company's own brick manufacturing unit and/or sold to cement manufacturer.



BRICK MANUFACTURING UNIT

2.7.5 Raw Water Treatment System

Water requirement for the proposed CPP will be fulfilled from the same source. The unit has already obtained permission for water withdrawal from Irrigation Department which is adequate for the additional water requirement for the proposed CPP expansion, which is attached as Annexure – 3.

The existing unit has well-designed Raw Water Treatment system. For the proposed expansion, the same system shall be utilized with certain modifications/upgradation. Raw water from the water storage tank is pumped to a pre-treatment plant to cater the requirements for Boiler make-up water stream, Potable & Service water & cooling make-up water stream.

- The water treatment plant consists of two sub system as follows:
 - Pre- Treatment Plant
 - Post Treatment – Mixed Bed System



PRE-TREATMENT SYSTEM

Pretreatment system is common for both boiler make-up and cooling water makeup stream. Raw water pre-treatment system mainly consists of the following systems:

- Coagulant dosing system (1x100%)
- Polymer dosing system (1x100%)
- High rate solid conduct clarifier (1x100%)
- Acid (HCL) dosing system (1x100%)
- Chlorine dosing system (1x100%)

After pretreating the raw water, it is stored in Clarified Raw Water Storage tank from where, the water will be diverted to Multi Grade Filter.

- **Multi Grade Filter (MGF):** The raw water is filtered through a MGF unit in order to remove suspended matters and turbidity in the raw water. Vessels are designed for 1 x 100 % filtered water flow required as per plant water balance. Internally it is fitted with inlet distributor and a bottom collecting system. Externally, it is fitted with frontal pipe work and isolation valves. This unit is charged with a uniform grade of filtering sand, which is supported on different grades of under bed materials. Suspended matters get entrapped when the raw water is passed in downward direction through the filter bed. The unit is isolated for backwash when the pressure drop across the sand bed increases more than specified limit of 0.8 kg/cm². 100% free board is provided to allow for expansion in course of backwash and total suspended solids at MGF outlet shall be 5 mg/l.
- **Ultra Filtration (UF) System:** UF is a membrane filtration technique in which forces like pressure or concentration gradients leads to a separation through a semi permeable membrane. Suspended solids and solutes of high molecular weight are retained in the retentate, while water and low molecular weight solutes pass through the membrane in the permeate. Also, UF is the pre-requirement of RO plant.
- **Sodium Meta Bisulphate (SMBS) & Anti Scalant Dosing System:** To prevent any residual chlorine from causing fouling of membrane a SMBS Dosing & Oxidation Reduction Process (ORP) Analyser with auto dump valve is provided. In case the residual chlorine in water is high, the auto dump valve will activate to prevent water from entering the system. To prevent formation of scales within the units, anti scalant dosing is carried out.



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- **Micron Cartridge Unit:** One no. of micron cartridge Vessel, houses the PP cartridge elements of 5 micron rating which remove micron size particles.
- **RO System:** One no. of RO Module which will remove molecules and irons from solution.
- **De-Gasification Tower:** The water from Basket Filter Unit is further passed-through a 1 x 100 % no. of Degasser tower for removal of alkalinity present in raw water. It is a Mild Steel Rubber Lined (MSRL) vertical pressure vessel, which is internally fitted with inlet distributor and a bottom collecting system. Externally, it is fitted with pipe work and isolation valves.

POST TREATMENT SYSTEM

- **Mixed Bed Exchangers:** The treated water is further passed through the 2 x 100 % nos. of Mixed Bed Unit for polishing of treated water and further reduces the conductivity of Boiler Feed Water. It is a Mild Steel Rubber Lined (MSRL) vertical pressure vessel, which is internally fitted with inlet distributor and a bottom collecting system. Externally, it is fitted with frontal pipe work and isolation valves. This unit is charged with cation & anion resins. For Re-generation of mixed bed unit, HCl & NaOH are used to re-charge the resin once in stipulated time. The unit is isolated for re-generation when the conductivity leakage goes beyond specified limit. After, this the water is sent to pH Correction system for pH correction.
- **DM Water Tank:** The water is then stored in DM water storage tank from where it is transferred to Deaerator system for removal of Oxygen to prevent rusting of boiler.

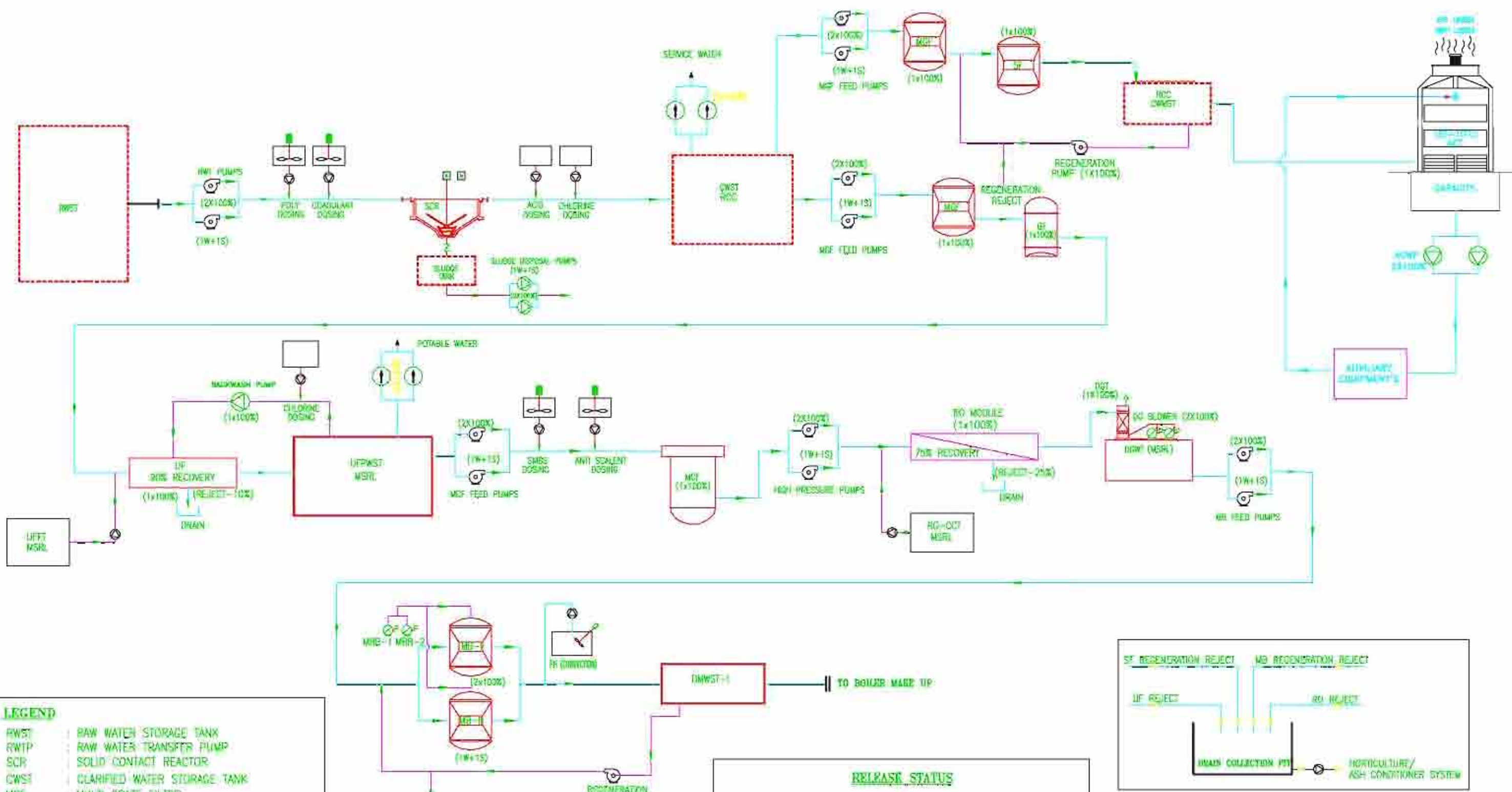


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Figure No. 2.4 – Raw water treatment Diagram

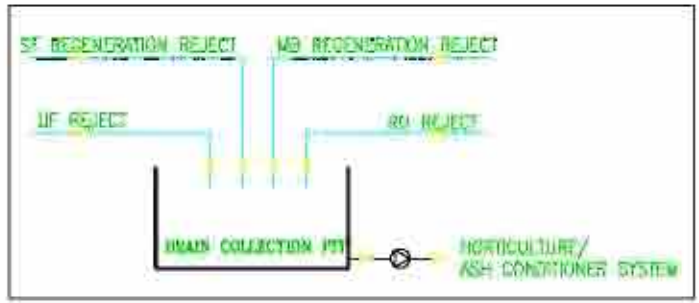


LEGEND

RWST	RAW WATER STORAGE TANK
RWTP	RAW WATER TRANSFER PUMP
SCR	SOLID CONTACT REACTOR
CWST	CLARIFIED WATER STORAGE TANK
MGF	MULTI GRATE FILTER
BF	BASKET FILTER
UF	ULTRA FILTER
UFPWST	ULTRA FILTER PURIFIED WATER STORAGE TANK
MCF	MICRON CARTRIDGE FILTER
RO	REVERSE OSMOSIS
DGT	DEGASSER TOWER
MB	MIXED BED
SMB	SODIUM META BISULPHATE
MSB	MIXED BED BLOWER
UFFT	ULTRA FAST FLUSH TANK
MSRL	MILD STEEL RUBBER LINED
CCT	CHEMICAL CLEARING TANK
RCC	REINFORCED CEMENT CONCRETE
CWMST	COOLING WATER MAKE UP STORAGE TANK
SF	SOFTENER

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PROJECT: LX10 MW CAPTIVE POWER PLANT

DRAWING NO: TCEPL-1002-300-ME-2-0006

DATE: 1008



2.8 POLLUTION POTENTIAL AND ITS CONTROL MEASURES

2.8.1 Water Environment

Source of water: Irrigation department of Par river

The unit has obtained permission for withdrawal raw water from existing source. Additional water requirement for the proposed expansion shall be met from the same source. The existing water permission is adequate for increase in water requirement due to the proposed expansion as at any circumstance unit has 25% additional sanction over and above permission which will accommodate the requirement.

Table No. 2.11 – Water Consumption & Wastewater Generation details

Sr. No.	Particulars	Water Consumption (KL/Day)			Wastewater Generation (KL/Day)		
		Existing	Proposed	Total	Existing	Proposed	Total
A.	Domestic	5.00	1.00	6.00	2.00	1.00	3.00
B.	Industrial						
1.	Process	0.00	0.00	0.00	0.00	0.00	0.00
2.	Boiler	1,170.00	414.00	1,584	805.00	50.0	855.00
3.	Cooling	2,735.00	1,680.00	4,415	1,944.00	220.0	2164.00
4.	Washing	0.00	0.00	0.00	0.00	0.00	0.00
	Total (B)	3,905.00	2,094.00	5,999.00	2,749.00	270.00	3019.00
	Total (A+B)	3,910.00	2,095.00	6,005.00	2,751.00	271.00	3022.00

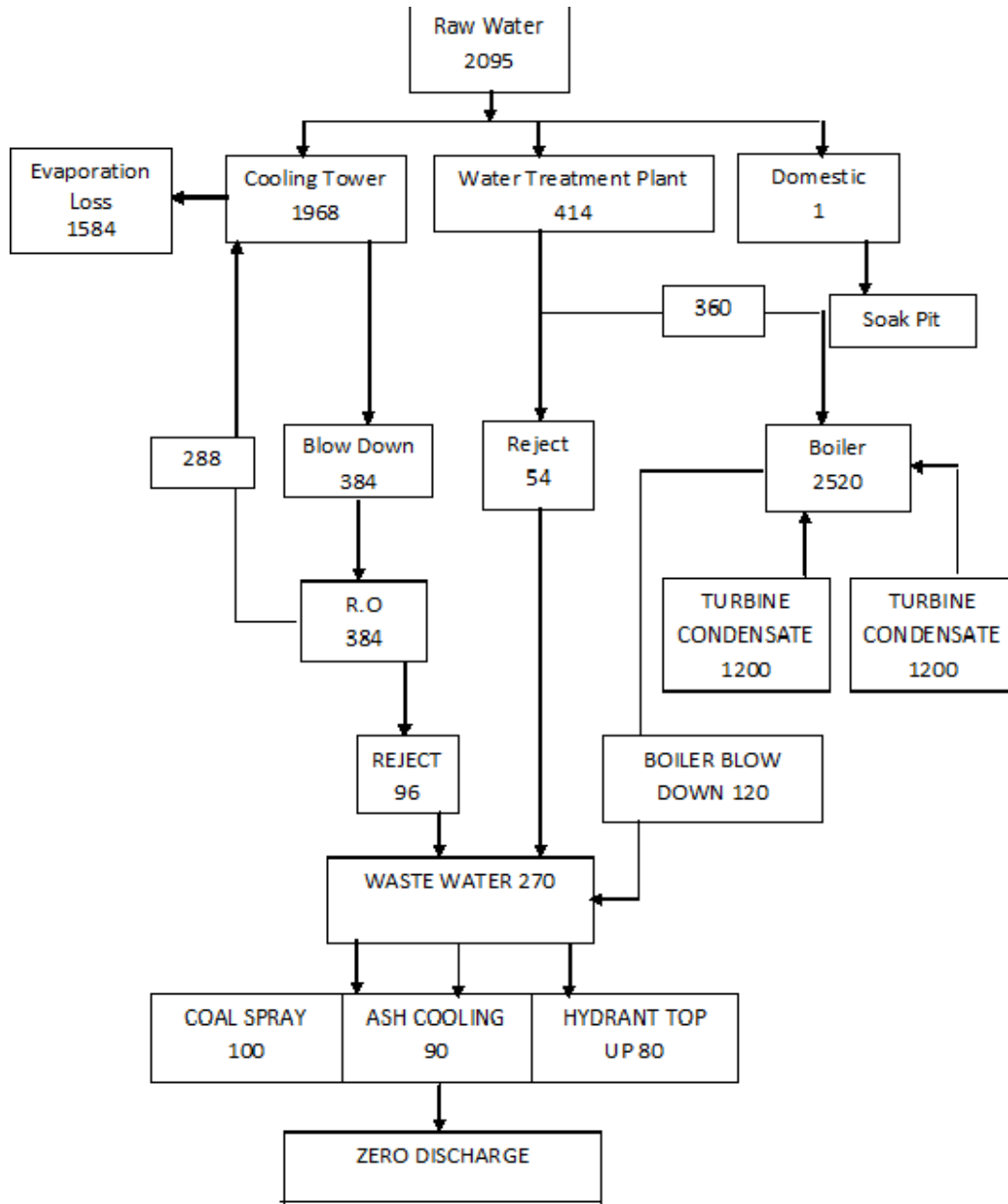


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Figure No. 2.5 – Water Balance Diagram (Expansion)





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Treatment facility for sewage and effluent:

- **Sewage Treatment:**

Sewage generated during construction & operation phase due to proposed expansion will be treated in existing septic tank /soak pit facility.

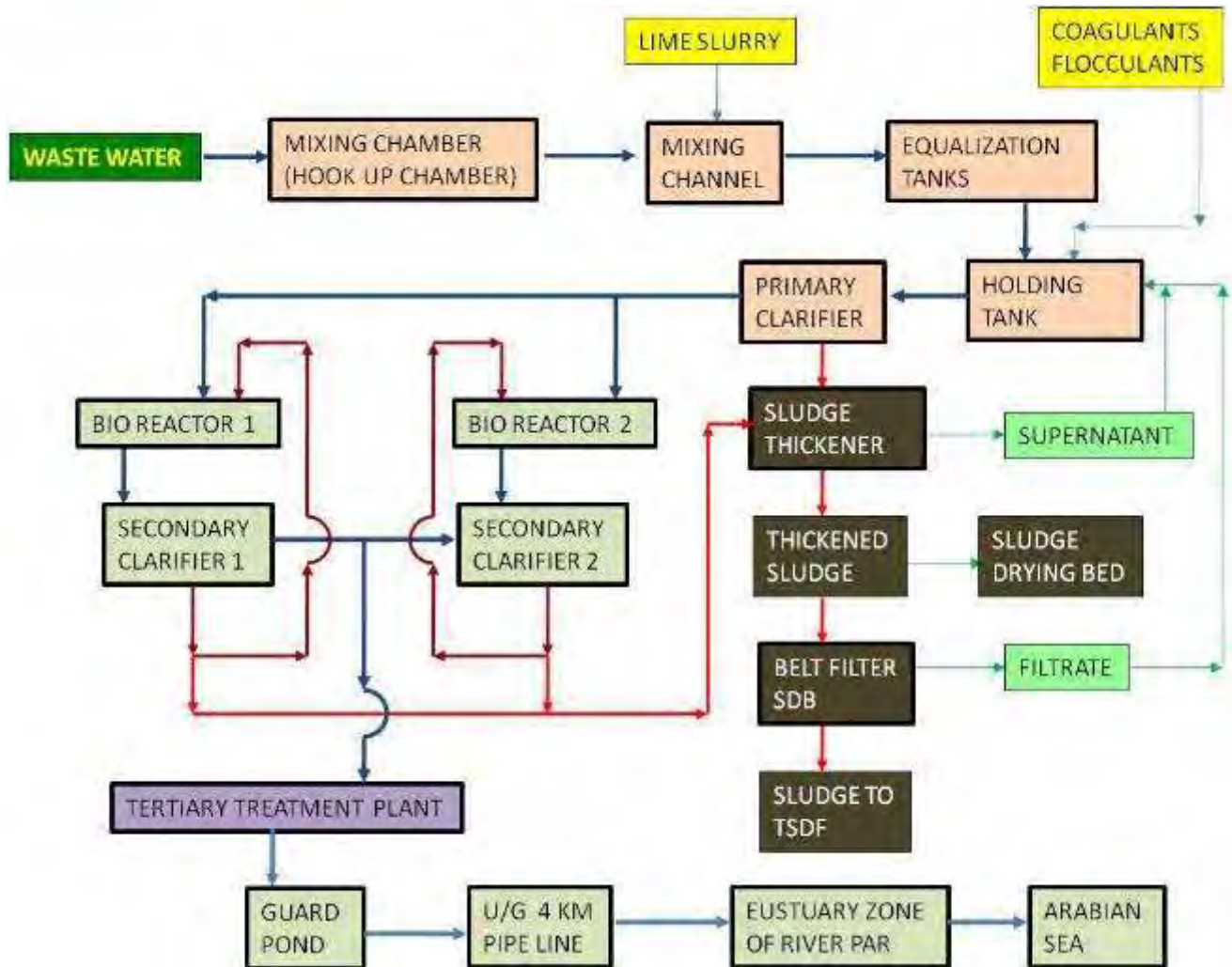
- **Effluent Treatment:**

The total existing wastewater generated (Process plant + existing CPP) is 19,873 KLD, which is treated in full-fledged existing Effluent Treatment Plant (ETP) of 20 MLD capacity. The ETP consists of conventional primary, secondary and tertiary stage treatment units. The schematic flow diagram of existing ETP is mentioned in **Figure No. – 2.6**. The final treated effluent from the ETP confirming the GPCB norms is collected in guard pond and then discharged through closed pipeline to estuary zone of River Par via diffuser. The location of discharge point of treated effluent through pipeline is mentioned in **Figure No. – 2.7**.

After proposed expansion, additional wastewater generated from pretreatment plant for water, blow down from boilers & cooling tower, condensate from turbine etc. will be having TDS in range 400-500 ppm. This wastewater will be used for ash quenching, dust suppression & fire hydrant make up. Hence there will be no additional load of effluent on the existing 20 MLD ETP. All the additional wastewater generated from the proposed CPP will be utilized for ash quenching, dust suppression & fire hydrant make up, hence the proposed plant shall achieve zero discharge norms.



Figure No. 2.6 – Flow Diagram of Existing ETP



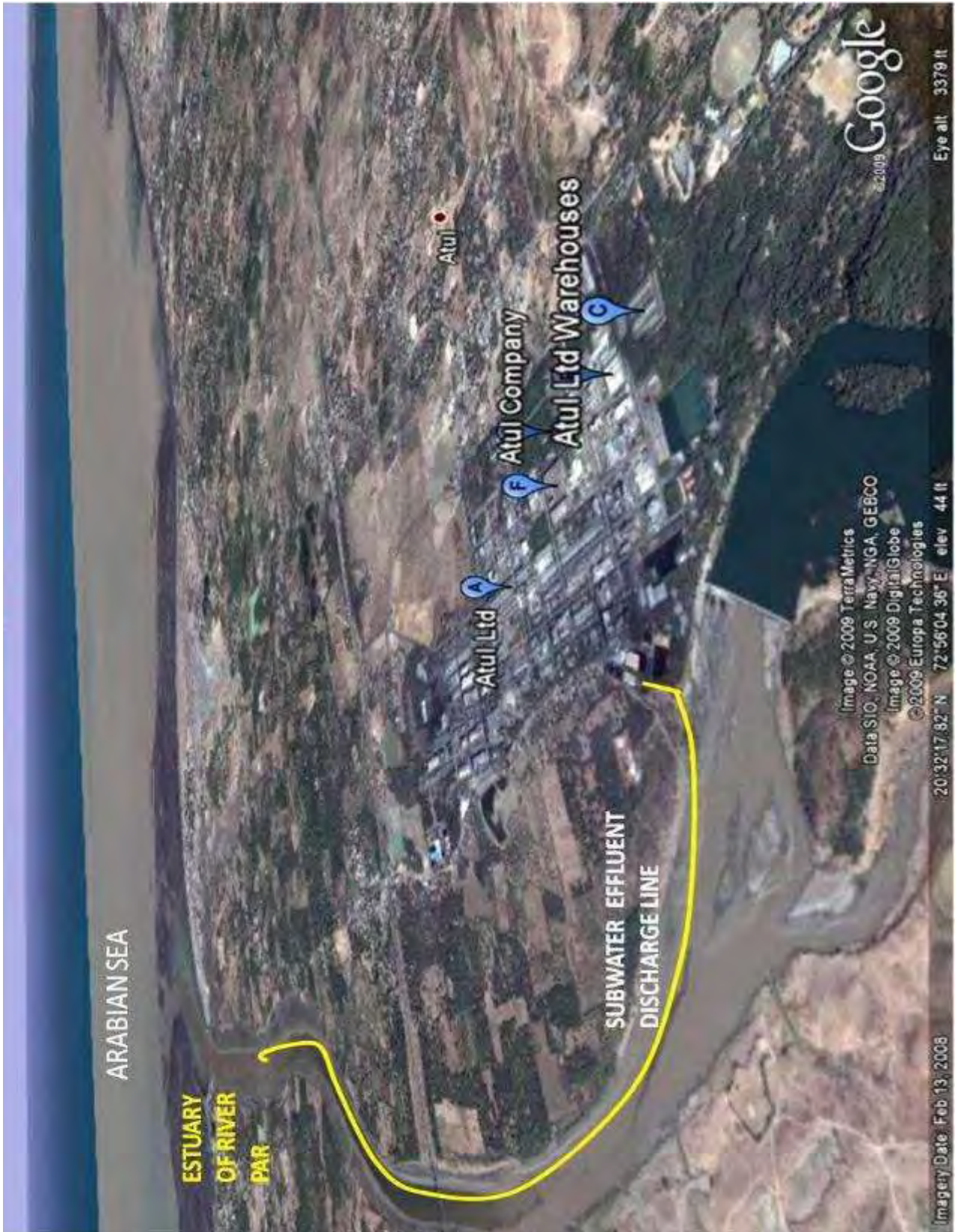


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Figure No. 2.7 – Discharge point location of existing treated effluent





2.8.2 Air Environment

The Indian/Imported coal and/or Lignite will be used as fuel for the proposed expansion CPP. It is proposed to use these fuels in five different options and height of the stack has been calculated for these different options are mentioned below:

Table No. 2.12 – Summary of fuel consumption with different option and stack height

Sr. No.	Type of Fuel	Option No.	Fuel Consumption (TPH)	Stack Height (m)
1.	100 % Imported coal	I	14.12	61.81
2.	100 % Indian coal	II	23.23	58.30
3.	50 % Indian coal + 50 % Imported coal	III	18.95	61.93
4.	100 % Lignite (By adding limestone)	IV	20.00	74.58
5.	70 % Indian Coal + 30 % Lignite (By adding limestone)	V	22.15	49.98

From the above table, it can be seen that the maximum stack height required for the proposed expansion of CPP is 74.58 m when the 100 % Lignite (By adding limestone) will be used as fuel. So it is decided to build an 106 m stack height for the proposed expansion of CPP. The details of existing and proposed flue gas emission, nature of emitted pollutants and air pollution control system provided are mentioned in the below table

Table No. 2.13 – Flue gas emissions and air pollution control measures for existing and proposed scenario

Sr. No.	Stack attached to	Capacity (TPH)	Type of fuel	Stack Height (m)	Permissible Limit	Air Pollution Control system
EXISTING						
EAST SITE						
1.	FBC boiler E1	34	Coal & lignite	56	PM < 150 mg/m ³ SO ₂ < 100 ppm NO _x < 50 ppm	ESP
2.	FBC boiler E2	34		56		ESP
3.	FBC boiler E3	50		80.3		ESP
4.	Hot oil Unit (Resorcinol Plant)	32.5	FO	32.5		---



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Sr. No.	Stack attached to	Capacity (TPH)	Type of fuel	Stack Height (m)	Permissible Limit	Air Pollution Control system
WEST SITE						
5.	FBC boiler W1	45	Coal	70	PM < 150 mg/m ³ SO ₂ < 100 ppm NO _x < 50 ppm	ESP
6.	Coal fired boiler W1	18.18		35		Scrubber
7.	Coal fired boiler W2	19.18		35		Scrubber
8.	Hot Oil Plant Shed B	19	FO	19		---
9.	Oil Burner Shed B (stand by)	17	LDO	17		---
NORTH SITE						
10.	Thermic Fluid Heater of DCO/DAP Plant	12	LDO	12	PM < 150 mg/m ³ SO ₂ < 100 ppm NO _x < 50 ppm	---
PROPOSED						
11.	AFBC boiler (2 Nos.)	50	Coal & lignite	106	PM < 150 mg/m ³ SO ₂ < 100 ppm NO _x < 50 ppm	ESP with Sulphur capture system

Note: Two number of coal fired boilers (i.e Coal fired boiler W1 & W2) will be discontinued after commissioning of proposed 2 nos. of AFBC boilers with 50 TPH (each) capacity.

The ESP shall be operated efficiently to ensure that particulate matter emission does not exceed the GPCB norms. The outlet dust concentration of ESP will be maintained well within the prescribed limits.

The technical Specification of the Existing and proposed ESP is as follows:



EXPANSION IN EXISTING CAPTIVE POWER PLANT

Table No. 2.14– Technical Specification of existing & proposed ESP

Sr. No.	Particulars	Units	Details
A.	Existing		
1.	Type of ESP	---	Horizontal dry
2.	Number of gas fields in series in direction of gas flow	Nos.	three
3.	Number of electrical fields per boiler	Nos.	three
4.	Type of Discharge Electrode	---	spiral
5.	Type of Rapping	---	Tumbling hammer
6.	Total no. of high voltage rectifier units installed	Nos.	three
7.	Pressure drop across ESP (flange to flange)	mmwc	10 to 15
8.	Ash hopper outlet flange elevation	---	3.0
9.	No. of hoppers in ESP	Nos.	3
B.	Proposed		
1.	Make	---	CETHAR
2.	Fuels		
2.1	Fuel combinations - 1	---	100 % Imported coal
2.2	Fuel combinations - 2	---	100 % Indian coal
2.3	Fuel combinations - 3	---	50 % Indian coal + 50 % Imported coal
2.4	Fuel combinations - 4	---	100 % Lignite (By adding limestone)
2.5	Fuel combinations - 5	---	70 % Indian Coal + 30 % Lignite (By adding limestone)
3.	Gas flow rate to ESP		
3.1	Fuel combinations - 1	m^3/s	
3.2	Fuel combinations - 2		21.60
3.3	Fuel combinations - 3		24.25
3.4	Fuel combinations - 4		23.25



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Sr. No.	Particulars	Units	Details
3.5	Fuel combinations - 5		22.60
4.	Gas temperature at inlet of ESP		
4.1	Fuel combinations - 1	°C	140
4.2	Fuel combinations - 2		
4.3	Fuel combinations - 3		
4.4	Fuel combinations - 4		
4.5	Fuel combinations - 5		
5.	Inlet dust concentration		
5.1	Fuel combinations - 1	gm/nm ³	22.15
5.2	Fuel combinations - 2		56.40
5.3	Fuel combinations - 3		32.30
5.4	Fuel combinations - 4		52.40
5.5	Fuel combinations - 5		54.30
6.	Outlet dust concentration with all fields in service	mg/nm ³	50
7.	General Data of ESP		
7.1	Type of ESP	---	Horizontal flow dry type
7.2	Number of precipitators for boiler	No.	1
7.3	Number of gas paths per Precipitator		1
7.4	Number of gas fields in series in direction of gas flow		4
7.5	Number of electrical fields per boiler		4
7.6	Type of Discharge Electrode	---	spiral
7.7	Type of Rapping	---	Tumbling hammer
7.8	Total Collecting Area	m ²	3822
7.9	Total no. of high voltage rectifier	Nos.	4
7.10	Pressure drop across ESP (flange to flange)	mmwc	30
7.11	Ash hopper outlet flange elevation	---	3
7.12	No. of hoppers in ESP	Nos.	4



2.8.3 Solid/Hazardous Waste

The entire quantity of solid/hazardous waste will be handled and disposed as per Hazardous Waste (Management, Handling and Trans boundary Movement) Rules - 2008. After expansion, the source of solid/hazardous waste generation from plant will be Fly ash and Bed ash only.

The ash handling plant shall be designed to meet the following requirements and takes into consideration to develop plan for utilization of 100% ash progressively over a period of 10 years. Also ash handling plant shall be designed for 45% of ash content in fuel.

Table No. 2.15 – Calculation of Ash collected per day

Sr. No.	Description	Quantity
1.	Coal consumption at full load	23.23 TPH
2.	Ash content in coal	45 %
3.	Total ash produced	10.45 TPH OR 250.88 TPD
4.	Ash distribution rates in percentage of total ash	
a.	Bottom Ash	20 %
b.	Fly Ash	80 %
5.	Ash collected per day	
a.	Bottom Ash	50.18 TPD
b.	Fly Ash	200.70 TPD

The Flow Diagram of Ash handling system is given in the **Annexure – 8**.



Table No. 2.16 – Details of solid/hazardous waste

Sr. No.	Name of Waste	Quantity			Waste Disposal & Management
		Existing	Proposed	Total	
Hazardous Waste					
1.	Used Oil	20 lit/year	10 lit/year	30 lit/yr	Collection, Storage, Transportation & Disposal by selling to registered recyclers
2.	Discarded Containers	2 nos./year	1 Nos./year	3 nos./yr	Collection, Storage, Transportation & Disposal by selling to GPCB approved scrap dealers
Solid Waste					
3.	Fly Ash	7,108.00 MT/Month	6,019.20 MT/Month	13,127.20 MT/Month	Collection, Storage, Transportation & Disposal at cement Manufacturing & company's own brick manufacturing
4.	Bottom Ash	1,403.00 MT/Month	1,504.00 MT/Month	2,907.00 MT/Month	Collection, Storage, Transportation & Disposal at cement Manufacturing & company's own brick manufacturing

In hazardous waste Used oil and discarded containers will be generated from proposed expansion, which will be sold to registered recycler and GPCB approved scrap dealer respectively.

Due to proposed expansion additional fly ash will generated, which will be collected and stored in silo. From the silo, fly ash could be dispatched to trucks. A vent bag filter will be mounted on the silo to reduce the environment pollution. The complete system control will be fully automated and controlled by PLC and same system will be used after proposed expansion. Generated fly ash will be utilized in own brick manufacturing unit and/or send to cement manufacturing unit. (MOU with Ambuja cement is attached as **Annexure-10**)



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2.9 PROJECT COST

The project cost for the proposed expansion project is Rs. 96.82 Crores. The estimated project cost with breakup is shown below:

Table No. 2.17 – Project Cost break up

Sr. No.	Description	Rs. (Lacs)
1.	Site Development	61.94
2.	Civil Work	595.52
3.	Plant & Machinery	7469.77
4.	Environment Management System	555.00
5.	Greenbelt Development	5.00
6.	Other Assests/Contingency	173.74
7.	Establishment charges and preoperative expenses	15.00
8.	Project Management and Consultancy Charges	100.00
9.	IDC & Financial Charges	706.18
	Total	9682.15



2.10 GREEN BELT DEVELOPMENT

Greenbelts are an effective for control of air pollution, where green plants form a surface capable of absorbing air pollutants and forming a sink of pollutants. The importance of green belt is that the plants are living organism with their varied tolerance limit towards the air pollutants. A green belt is effective as a pollutant sink only within the tolerance limit of constituent plants. In this unit the major source of air pollutions are Boilers. Mitigation measures are suggested so that impact reduces significantly with proper plantation provided in different areas.

Proponent has already developed 300 acres of greenbelt in and around the Atul complex. Unit is developed 16,500 m² greenbelt area around the existing CPP area. In addition to this, afforestation and plantation activities shall be undertaken in all available spaces within the main plant. Additionally, the proponent has proposed 1420 m² of greenbelt around the proposed CPP area. Afforestation at the proposed CPP area will be undertaken, which will not only act as lung space in the area but will also improve aesthetics.

Multi-layered plantation comprising of medium height trees (7 m to 10 m) and shrubs (5 m height) are proposed for the green belt. In addition to this in future creepers will be planted along the boundary wall to enhance its insulation capacity.

Atul Limited has already developed a greenbelt around the plant within the existing premises. Further, an additional green belt with the following objectives is also envisaged to be developed for the proposed expansion project.

- Reduce air pollution.
- Attenuate noise generated
- Improve the general environment and aesthetics of the area
- Provide suitable habitat for fauna
- Control soil erosion
- Obscure the proposed facilities from general view



CHAPTER – 3 BASELINE ENVIRONMENTAL STATUS

3.1 INTRODUCTION

The EIA process makes sure that environmental issues are raised when a project or plan is first discussed and that all concerns are addressed as a project gains momentum through to implementation. To be of most benefit it is essential that an environmental assessment is carried out to determine significant impacts early in the project cycle so that recommendations can be built into the design and cost-benefit analysis without causing major delays or increased design costs.

The base line data of existing environmental condition are very essential for Environmental Impact Assessment and Prediction of impact due to any proposed activities. The purpose of the study is to provide the information base against which to monitor and assess an activity progress and effectiveness during implementation and after the activity is completed as well as to determine project compliance with regulatory requirements, standard and government policies. This is an important intend of “Environmental Impact Assessment” Study. The base line data are collected from the study area to meet the need of this purpose.

Environmental monitoring is the systematic measurement of key environmental indicators over time within a particular geographic area. The baseline environmental quality is assessed through field studies within the impact zone for various components of the environment viz. air, noise, water, biological and socio-economic. The baseline environmental study has been conducted for the study area of 10 km radial distance from plant site for the period December 2014 to February 2015. Technical team was appointed after receiving the ToR for the survey, monitoring and sample collection for different environmental components in the study area. The current study includes base line status of environmental quality in the vicinity of the project, which further serves as the basis for identification, prediction and evaluation of impacts.

Baseline conditions were assessed by collecting samples from selected villages in the study region by technical team. Primary data were collected for different environmental components. Samples of ambient air, soil, surface water and ground water were analyzed to assess the baseline condition of study region. Primary survey was carried out to collect the data for assessing socio-economic and ecological condition of the study region. Primary data were compared with secondary data to verify the observations. Villages covered within study region are shown in **Figure No. 3**.

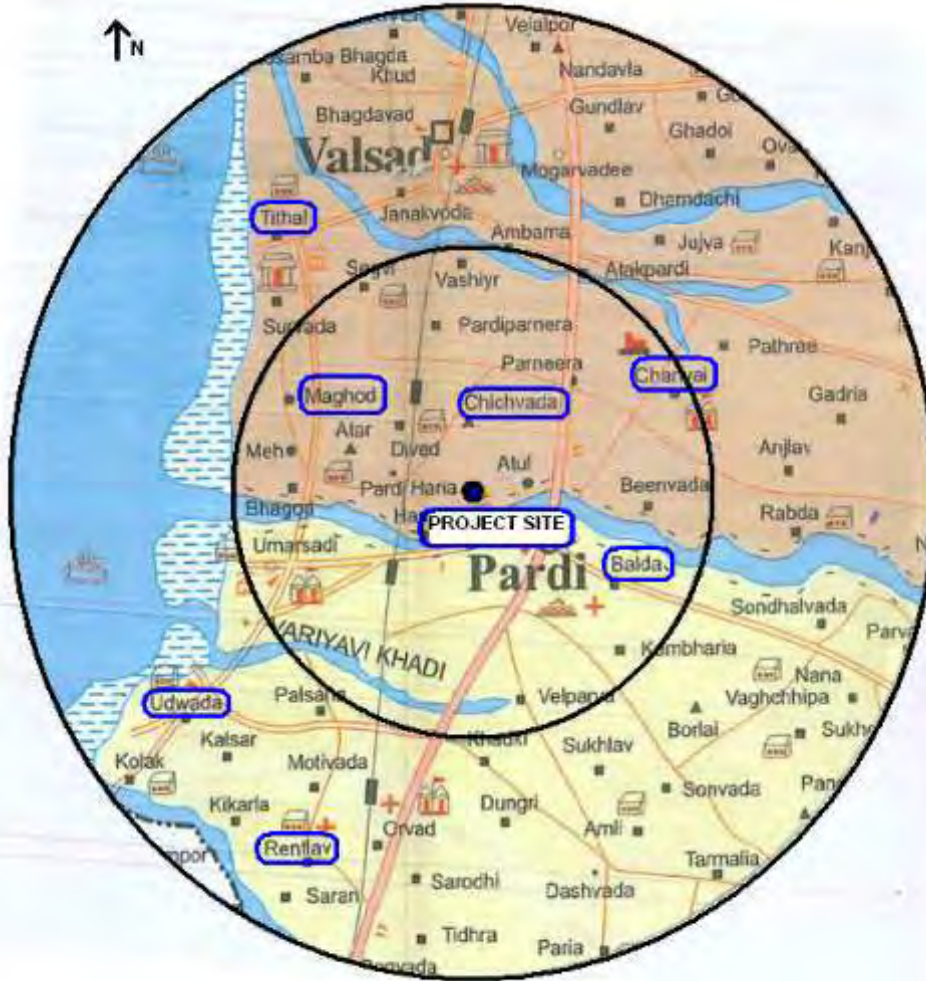


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Figure No. 3: Map showing the study region





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Table No.3.1.1 Environment Monitoring Locations in the study region

Sr. No.	Location	Distance	Direction
01.	Project Site	--	--
02.	Chichwada	Approx 2	N
03.	Balda	Approx 3	ES
04.	Magod	Approx 4	WN
05.	Chanvai	Approx 5	EN
06.	Tithal	Approx 6	NW
07.	Udvada	Approx 8	WS
08.	Rentlav	Approx 9	SW

The existing environmental setting has been considered to establish the baseline conditions which are described with respect to following.

- Land environment
- Water Environment
- Noise Environment
- Air Environment
- Meteorology
- Ecology
- Demography and Socio-economic Environment



Table 3: Environmental Setting

Sr. No.	Particulars	Details
1	Location	Please refer Chapter 2
2	Nearest Highway	National Highway No. 8: Appx. 2.0 km (EEN)
3	Nearest Railway Station	Atul Railway Station: Appx. 1.5 km (NW)
4	Nearest Airport	Daman Airport: Appx. 15.2 km (SW)
5	Nearest Village	Hariya: Appx. 2.1 km (NW)
6	Nearest Town/city	Valsad: Appx. 7 km (N)
7	River/ Water body	Par River: 700 m (SE)
8	Sea	Arabian Sea
9	Archaeologically Important Places	None within 10 km radial periphery
10	National Park	None within 10 km radial periphery

3.2 METHODOLOGY

The baseline environmental study has been conducted for 10 km radius by following the guidelines of MoEF. The details of the study period, frequency of sampling & method of environmental sampling & analysis are shown below in succeeding paragraphs under respective titles.

3.2.1 Study Period and Frequency of Sampling

The period of study was December 2014 to February 2015. Details of frequency of environmental sampling considered for the study are illustrated in **Table No. 3.2.1**.



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Table No 3.2.1: Frequency of Environmental Monitoring

Attributes	Sampling		
	Locations	Parameters	Frequency
A. Air Environment			
Meteorological	Nr. Project Site	Temperature, Relative Humidity, Precipitation Wind direction, Wind Speed	Hourly data from December 2014 to February 2015
Ambient Air Quality	8 locations in the study area of 10 km radius from Project site. [5 location with in 5 km]	PM _{2.5} , PM ₁₀ , SO ₂ , NO _x , CO	24 hourly, twice a week during study period
B. Noise	8 locations in the study area within 10 km radius from the project site	Noise Levels in dB(A)	Once in Study Period
C. Water			
Ground Water	Grab samples of 5 Locations within 10 km radius of Study region	Physical, Chemical, Microbiological and Heavy Metal	Twice in a Month during Study Period
Surface Water	Grab samples of 5 Locations within 10 km radius Study region	Physical, Chemical, Microbiological and Heavy Metal	Once in a Month during Study Period
D. Soil Quality	7 locations in the study area within 10 km radius from the project site	Physical, Chemical Characteristics, Soil Texture	Once in a Month during Study Period
E. Land Use & Land Cover	Within 10 km radius of study area	Existing Land use pattern	--
F. Ecological Data	Within 10 km radius of study area	Existing Flora & Fauna	Once in Study Period
G. Socioeconomic Data	Within 10 km radius of study area	Socio-economic characteristics of the affected area	Once in Study Period



3.2.2 Method of Environmental Sampling & Analysis

The methods adopted for environmental sampling & analysis are illustrated in following **Table No. 3.2.2.**

Table No. 3.2.2: Method of Environmental Sampling & Analysis

Attributes	Methods	
	Sampling/Preservation	Analysis
A. Air Environment Ambient air quality	As per IS: 5182 & AWMA. Instrument operated as per it's	As per IS:5182 & AWMA
B. Noise	Instrument : Noise level meter	Survey carried out as per EPA
C. Water		
Ground Water	Standard Methods for Examination of Water and Wastewater, 21 st edition, APHA 2005	IS 3025 & Standard Methods for Examination of Water and Wastewater, 21 st edition, APHA 2005
Surface Water		
D. Soil Quality	IS 2720	As per Laboratory SOP based on standard methods
E. Ecological Data	Primary data by site visit and verified by reviewing various literature, internet	Primary data by site visit and verified by reviewing various literature, internet
F. Socioeconomic Data	Primary Survey & Census of India 2011	Primary Survey & Census of India 2011

3.3 BASELINE ENVIRONMENTAL STATUS

The baseline environmental study was carried out for the Air, Water, Land, Noise & Socioeconomic environment. The study was conducted for the period December 2014 to February 2015. Locations have been selected within 10 km radius from the project site & environmental samples were collected from the selected locations of the study area. Primary data were verified by reviewing the secondary data. Sources of secondary data were various literatures published like Census of India – 2001 & 2011, Environment Information Centre-Delhi, Forest department, District & Village Panchayat, Internet etc. The scenario of environmental condition of the area revealed from the sample & data analysis is described below in subsequent paragraphs.



3.4 MICROMETEOROLOGY

The study of micro – meteorological conditions of a particular region is of utmost importance to understand the variations in the ambient air quality status in that region. The prevailing micrometeorology at project site plays a crucial role in transport and dispersion of air pollutants.

The persistence of the predominant wind direction and wind speed at the project site will decide the direction and extent of the air pollution impact zone.

The principal variables which affect the micrometeorology are horizontal transport and dispersion, convective transport and vertical mixing and topography of the area towards local influences.

3.4.1 Source of Meteorological Data

Micrometeorological data were collected by using the wind monitor as per CPCB guideline. Data were collected on hourly basis for the period December 2014 to February 2015. This weather station was installed at the project site.

3.4.2 Temperature

Temperature data were collected on hourly basis for the period December 2014 to February 2015 and daily average results are tabulated in **Table No.3.4.1**.

During the study period minimum temperature was recorded 13.4⁰C in the month of January, 2014 and maximum temperature was recorded 41.0⁰C in the month of February, 2015.

The variation in temperature is represented graphically in **Figure No. 3.4.1 to Figure No. 3.4.3** for the study period.



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Table No.3.4.1 Details of Temperature Nr. Project site (Dec'14 to Feb'15)

Date	Average Temperature (⁰ C)		
	Dec'14	Jan'15	Feb'15
01	27.3	21.7	25.5
02	29.6	22.8	24.2
03	29.0	23.7	25.3
04	29.3	26.5	27.2
05	28.7	27.3	28.2
06	29.2	27.3	26.6
07	28.7	25.1	25.9
08	28.0	24.1	24.2
09	27.2	26.4	30.6
10	26.1	25.2	28.9
11	23.4	26.3	26.6
12	25.0	25.6	26.0
13	25.8	23.0	26.0
14	24.8	23.8	24.7
15	24.1	24.4	26.6
16	24.5	23.4	25.9
17	24.4	25.0	27.4
18	25.2	25.8	25.6
19	26.2	24.8	26.8
20	26.3	23.9	27.3
21	25.6	24.8	30.6
22	26.8	24.5	30.2
23	23.2	25.1	29.2
24	23.5	25.9	28.3
25	22.9	24.2	27.0
26	25.8	25.2	24.4
27	24.6	24.2	24.7
28	25.1	25.4	22.9
29	24.6	26.0	--
30	23.7	27.2	--
31	21.3	26.8	--



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Figure No .3.4.1 Temperature Variation during December, 2014



Figure No 3.4.2 Temperature Variation during January, 2015

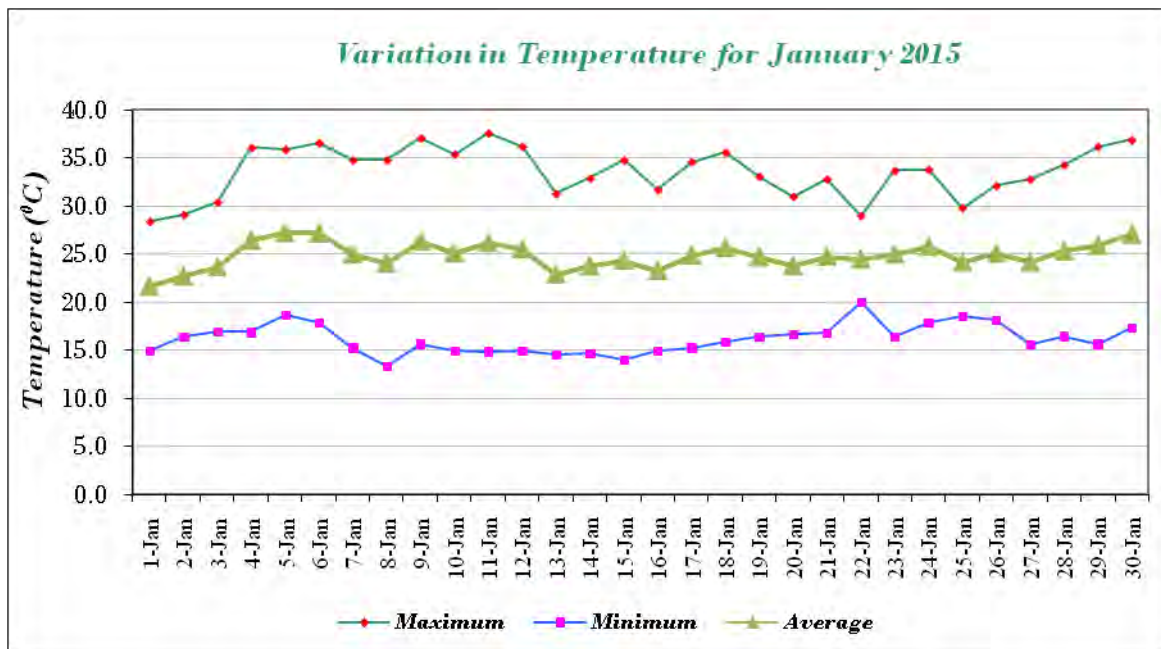
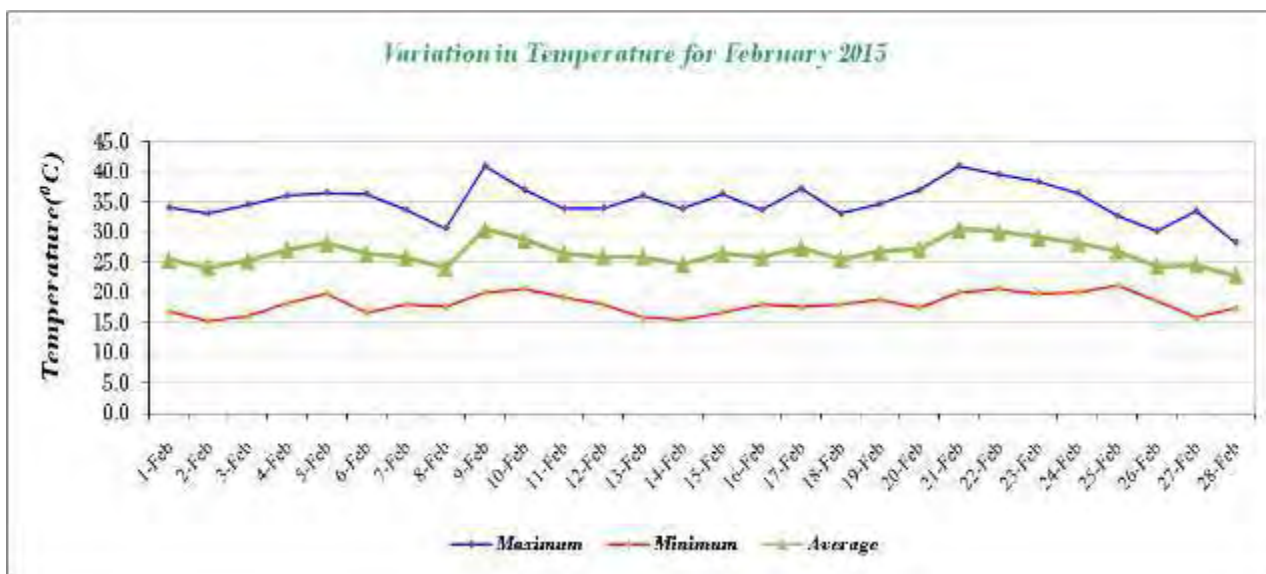




Figure No.3.4.3 Temperature Variation during February, 2015



3.4.3 Humidity

Humidity affects the nature and characteristics of pollutants in the atmosphere as it is the measure of amount of moisture in the atmosphere. Humidity helps suspended particulate matter to coalesce and grow in size to settle under the gaseous pollutants by providing them aqueous medium. Hourly data for humidity was collected for the period of December 2014 to February 2015. Humidity was observed between 08 to 93 %. Month-wise average data of humidity are tabulated in **Table No.3.4.2**. The variation in humidity is represented graphically in **Figure No.3.4.4** to **Figure No.3.4.6**.

Table No 3.4.2: Details of Humidity Nr. Project site (Dec'14-Feb'15)

Date	Average Humidity (%)		
	Dec'14	Jan'15	Feb'15
01	39.5	56.5	45.0
02	31.5	59.5	48.5
03	38.0	60.5	46.0
04	39.0	52.5	46.5
05	30.5	43.5	45.0
06	32.0	37.5	50.5
07	43.5	41.0	53.5
08	45.0	45.0	51.5
09	45.0	25.5	43.5
10	45.5	34.5	41.0



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11	49.5	37.0	50.5
12	44.5	35.0	50.0
13	41.0	36.0	48.0
14	45.5	43.5	48.5
15	28.0	47.0	50.5
16	30.5	49.5	53.5
17	32.0	44.5	48.0
18	28.5	41.0	55.0
19	23.0	45.5	59.0
20	37.0	52.5	52.0
21	42.5	46.0	43.5
22	35.5	57.0	30.5
23	41.0	52.0	39.0
24	53.5	45.0	45.5
25	44.0	56.5	50.5
26	43.5	45.0	48.5
27	26.5	43.0	40.5
28	28.0	51.0	58.0
29	33.0	37.0	--
30	38.5	31.5	--
31	53.0	40.0	--



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Figure No. 3.4.4 Month wise Humidity Variation in % (December, 2014)

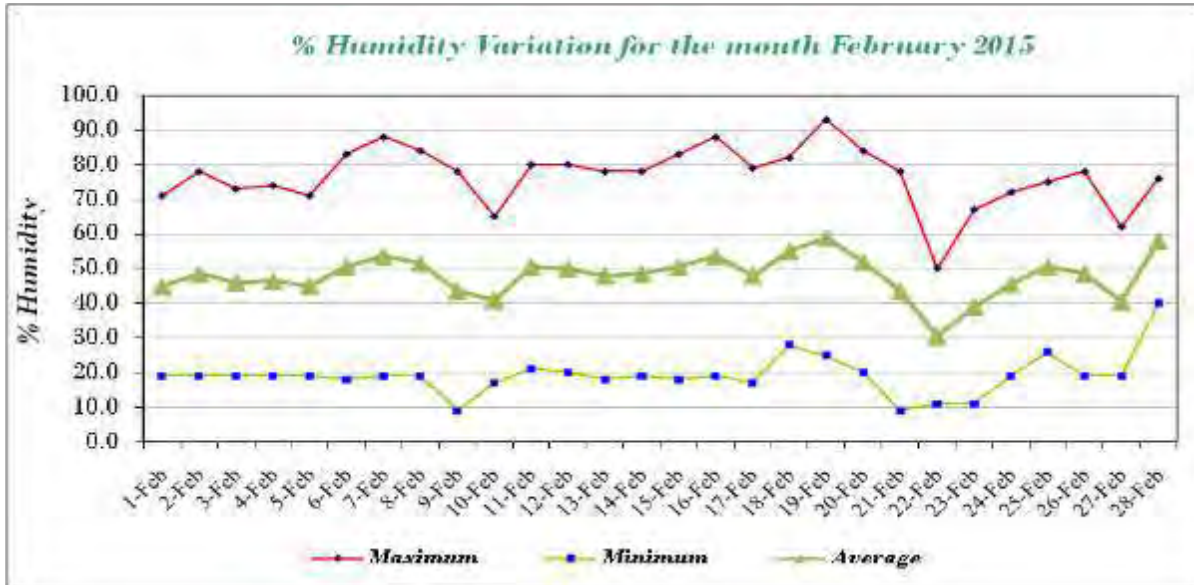


Figure No. 3.4.5 Month wise Humidity Variation in % (January, 2015)





Figure No 3.4.6: Month wise Humidity Variation in % (February, 2015)



3.4.4 Wind Velocity

The wind speed was measured by anemometer in km/hour. The rate of dispersion, diffusion and transportation of pollutants in the atmosphere mainly depend on wind speed and its direction. Wind direction and velocity data have been collected during the study for the preparation of Environmental Impact Assessment report. Data were collected for the Period of December 2014 to February 2015. The wind speed was in the range of 0 to 12.0 km/hr during study period. It was maximum in the month of December, 2015.

Table No. 3.4.3 Details of Wind speed Nr. Project site (Dec'14-Feb'15)

Date	Average Wind Speed (km/hr)		
	Dec'14	Jan'15	Feb'15
01	3.0	3.3	3.9
02	4.0	1.5	2.4
03	2.0	2.7	2.0
04	3.1	2.2	1.8
05	2.6	3.0	2.4
06	4.3	2.5	1.7
07	2.5	2.8	2.7
08	2.7	2.8	1.9
09	3.1	3.2	2.4



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10	1.8	1.8	2.8
11	2.5	2.4	2.1
12	1.3	2.3	2.2
13	2.2	3.5	2.3
14	2.9	2.5	2.3
15	4.3	1.8	1.7
16	4.1	2.5	2.7
17	4.2	1.3	2.4
18	6.0	2.2	2.3
19	3.8	2.9	2.0
20	2.4	2.7	1.7
21	3.2	3.5	2.4
22	2.4	2.3	2.5
23	1.9	2.0	2.7
24	2.0	1.4	1.9
25	3.0	2.5	3.1
26	3.2	2.4	1.8
27	4.0	0.6	5.4
28	2.5	2.6	3.0
29	2.8	2.7	--
30	2.9	3.5	--
31	3.3	3.5	--



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Figure No.3.4.7 Wind Speed Variation in km/hour (December, 2014)

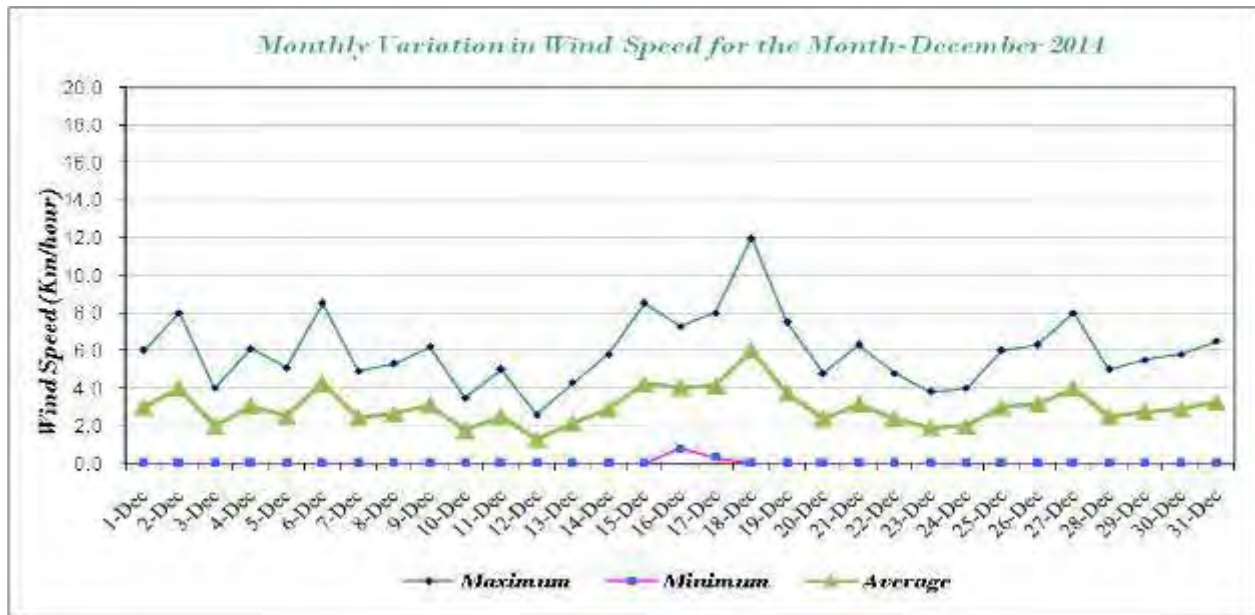


Figure No. 3.4.8 Wind Speed Variation in km/hour (January 2015)

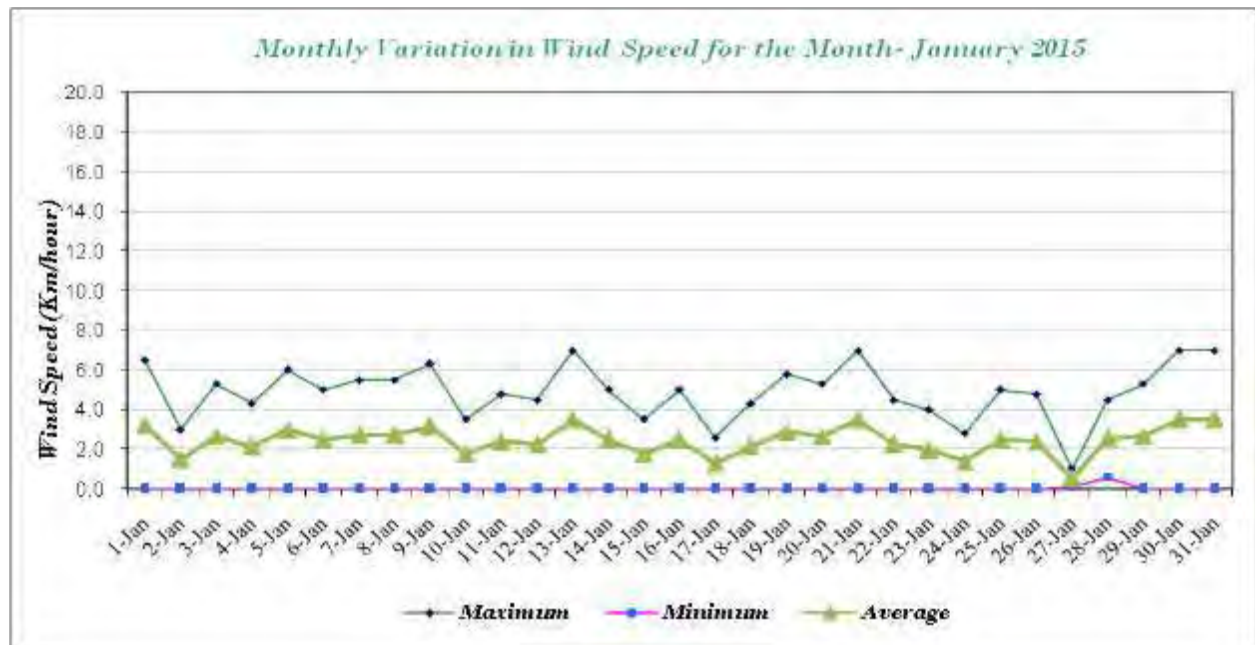
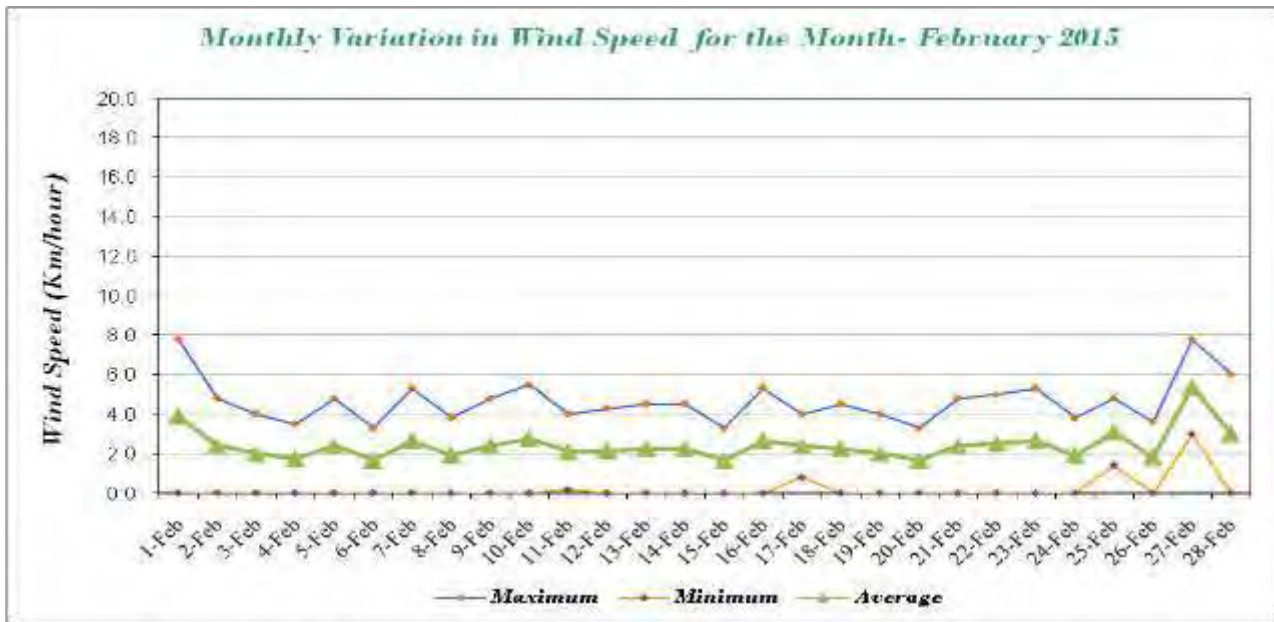




Figure No. 3.4.9: Wind Speed Variation in km/hour (February, 2015)



3.4.5 Wind Rose

Wind rose diagram is a graphical representation of the magnitude and direction of wind speed considering all the directions.

From the knowledge of wind rose diagram one can easily predict the direction and extent of spreading of the gaseous and particulate matter from the source. Wind rose diagram has been prepared by using daily average wind velocity and dominant wind direction. Wind rose diagrams have been prepared for the period of December 2014 to February 2015.

Wind rose diagrams and frequency Distribution are presented in **Figure No 3.4.10 to Figure No.3.4.15** Frequency Count Chart and Frequency Distribution chart are presented in **Table No. 3.4.4 to Table No.3.4.9.**



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Table No.3.4.4 Frequency Count Chart (December, 2014)

Sr. No.	Directions / Wind Classes (m/s)	1.0 - 1.5	1.5 - 2.0	2.0 - 2.5	2.5 - 3.0	>= 3.0	Total
1	N	1	0	0	0	0	1
2	NNE	0	0	0	0	0	0
3	NE	0	0	0	0	0	0
4	ENE	0	0	0	0	0	0
5	E	2	0	0	0	0	2
6	ESE	5	0	0	0	0	5
7	SE	10	6	0	0	0	16
8	SSE	2	0	0	0	0	2
9	S	3	0	0	0	0	3
10	SSW	0	1	0	0	0	1
11	SW	2	1	1	0	0	4
12	WSW	4	2	0	0	0	6
13	W	6	1	1	0	0	8
14	WNW	13	6	1	0	0	20
15	NW	50	26	10	0	1	87
16	NNW	4	1	0	0	0	5
	Sub-Total	102	44	13	0	1	160
	Calms						584
	Missing/Incomplete						0
	Total						744



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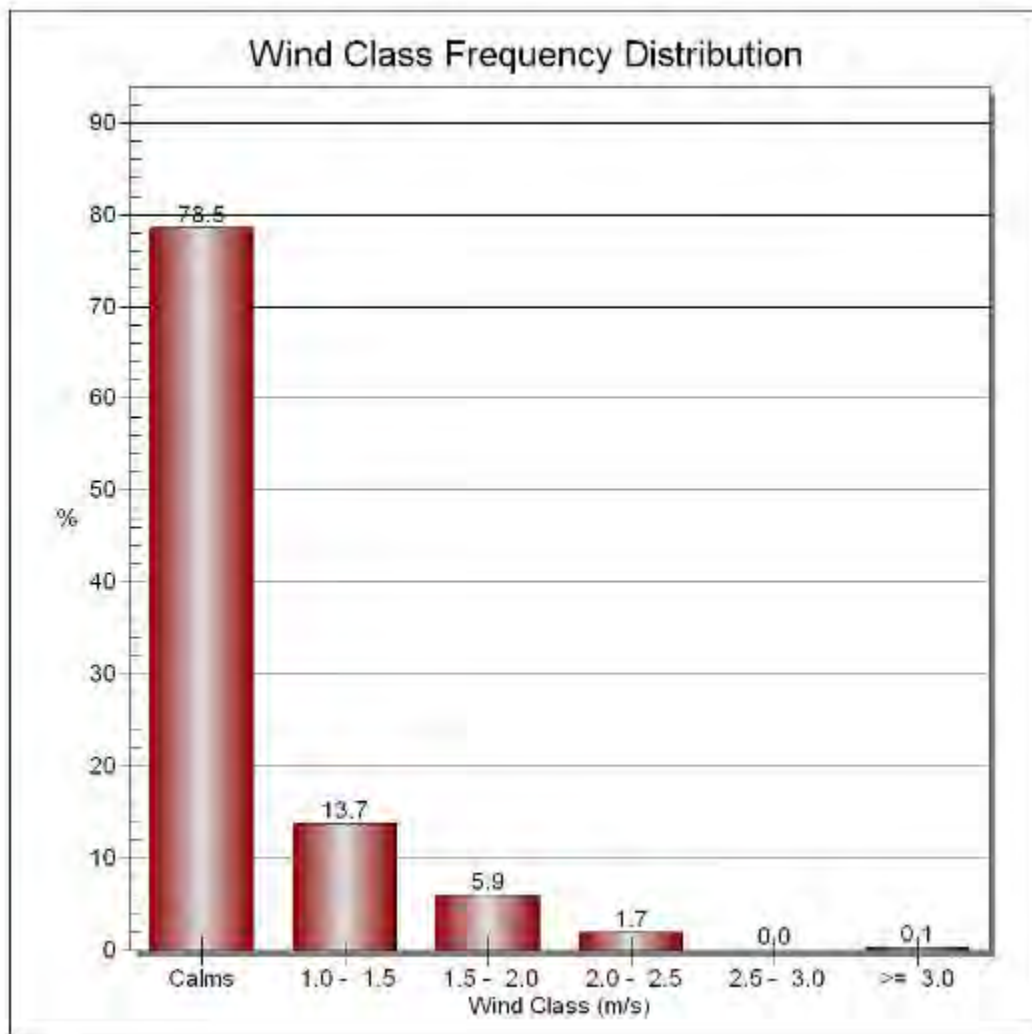
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Table No. 3.4.5 Frequency Distribution Chart (December, 2014)

Sr. No.	Directions / Wind Classes (m/s)	1.0 - 1.5	1.5 - 2.0	2.0 - 2.5	2.5 - 3.0	>= 3.0	Total
1	N	0.0	0.0	0.0	0.0	0.0	0.0
2	NNE	0.0	0.0	0.0	0.0	0.0	0.0
3	NE	0.0	0.0	0.0	0.0	0.000	0.000
4	ENE	0.0	0.0	0.0	0.0	0.0	0.0
5	E	0.0	0.0	0.000	0.000	0.0	0.003
6	ESE	0.0	0.0	0.0	0.000	0.0	0.007
7	SE	0.0	0.0	0.0	0.000	0.0	0.022
8	SSE	0.0	0.0	0.000	0.000	0.0	0.003
9	S	0.0	0.0	0.0	0.000	0.000	0.004
10	SSW	0.0	0.0	0.0	0.000	0.0	0.001
11	SW	0.0	0.0	0.001	0.000	0.000	0.005
12	WSW	0.0	0.0	0.000	0.000	0.000	0.008
13	W	0.0	0.0	0.0	0.0	0.0	0.0
14	WNW	0.0	0.0	0.0	0.0	0.0	0.0
15	NW	0.1	0.0	0.0	0.0	0.0	0.1
16	NNW	0.0	0.0	0.0	0.0	0.0	0.0
	Sub-Total	0.1	0.1	0.017	0.000	0.001	0.2
	Calms						0.78495
	Missing/Incomplete						0
	Total						1



Figure No.3.4.10 Wind class frequency distribution (December, 2014)



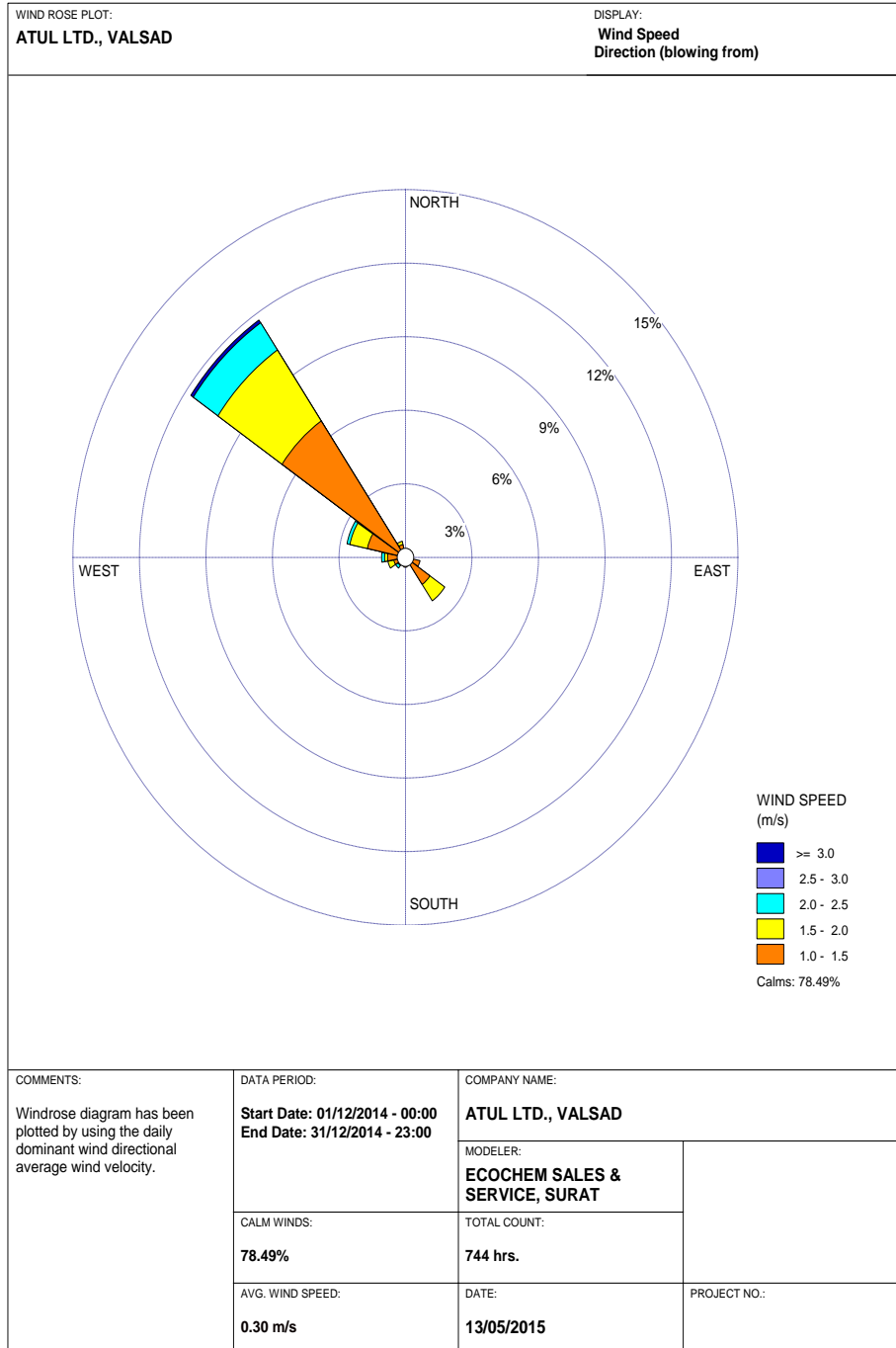


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Figure No. 3.4.6 Wind rose diagram for the month of December, 2014



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Table No. 3.4.7 Frequency Count Chart (January, 2015)

Sr. No.	Directions / Wind Classes (m/s)	1.0	2.0	3.0	>= 4.0	Total
1	N	0	0	0	0	0
2	NNE	0	0	0	0	0
3	NE	0	0	0	0	0
4	ENE	1	0	0	0	1
5	E	4	1	0	0	5
6	ESE	14	14	1	0	29
7	SE	25	14	6	0	45
8	SSE	5	5	1	0	11
9	S	6	1	1	0	8
10	SSW	3	1	0	0	4
11	SW	9	2	0	0	11
12	WSW	9	3	2	0	14
13	W	8	1	0	0	9
14	WNW	7	8	1	0	16
15	NW	47	25	4	0	76
16	NNW	8	1	0	0	9
	Sub-Total	146	76	16	0	238
	Calms					506
	Missing/Incomplete					0
	Total					744



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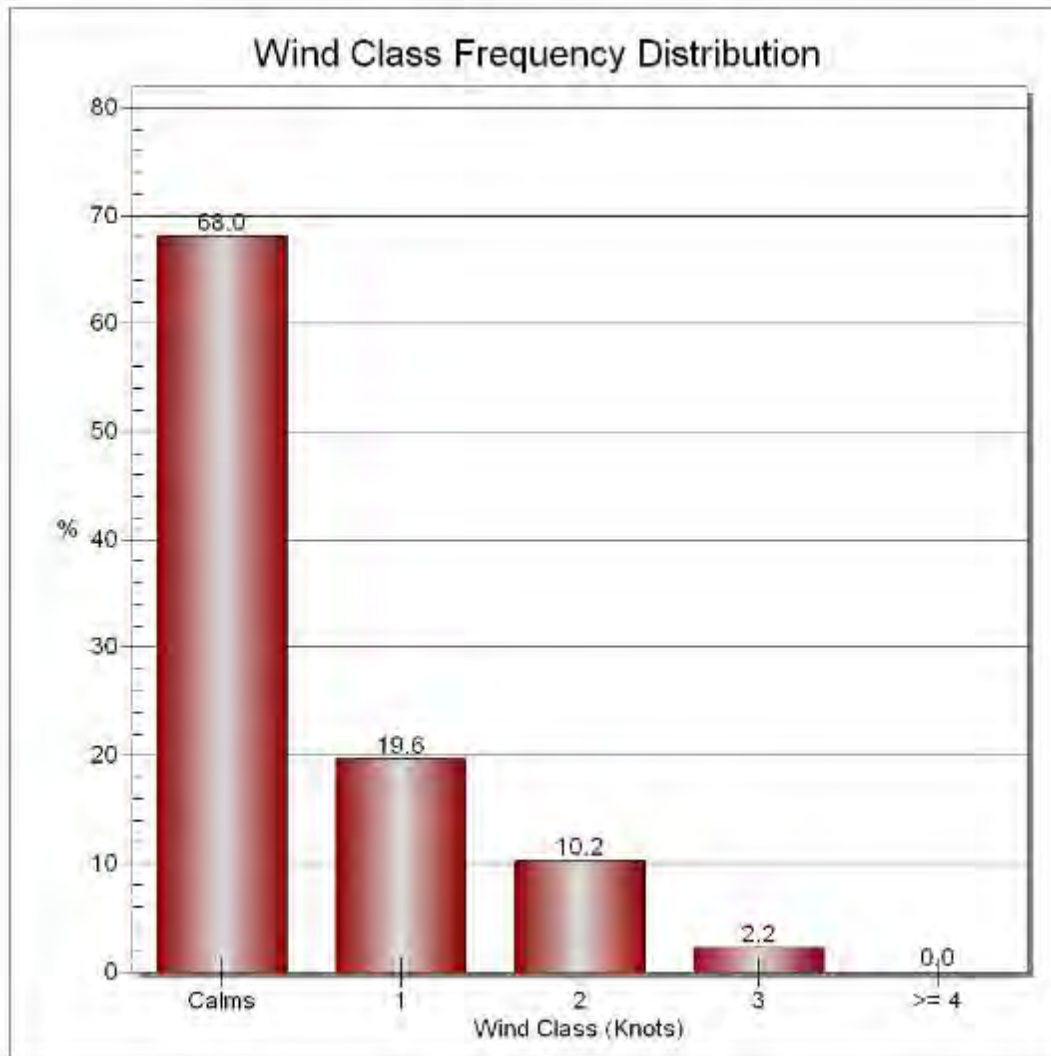


Table No. 3.4.8 Frequency Distribution Chart (January, 2015)

Sr. No.	Directions / Wind Classes (m/s)	1	2	3	>= 4	Total
1	N	0.0	0.0	0.0	0.0	0.0
2	NNE	0.0	0.0	0.0	0.0	0.0
3	NE	0.0	0.0	0.0	0.0	0.0
4	ENE	0.0	0.0	0.0	0.0	0.0
5	E	0.0	0.0	0.000	0.0	0.007
6	ESE	0.0	0.019	0.0	0.0	0.039
7	SE	0.0	0.0	0.0	0.0	0.060
8	SSE	0.0	0.0	0.001	0.0	0.015
9	S	0.0	0.0	0.001	0.0	0.011
10	SSW	0.0	0.0	0.0	0.0	0.005
11	SW	0.0	0.0	0.000	0.000	0.015
12	WSW	0.0	0.0	0.0	0.0	0.019
13	W	0.0	0.0	0.0	0.0	0.0
14	WNW	0.0	0.0	0.0	0.0	0.0
15	NW	0.1	0.0	0.0	0.0	0.1
16	NNW	0.0	0.0	0.0	0.0	0.0
	Sub-Total	0.2	0.102	0.022	0.000	0.320
	Calms					0.6801
	Missing/Incomplete					0
	Total					1



Figure No. 3.4.11 Wind class frequency distribution (January, 2015)



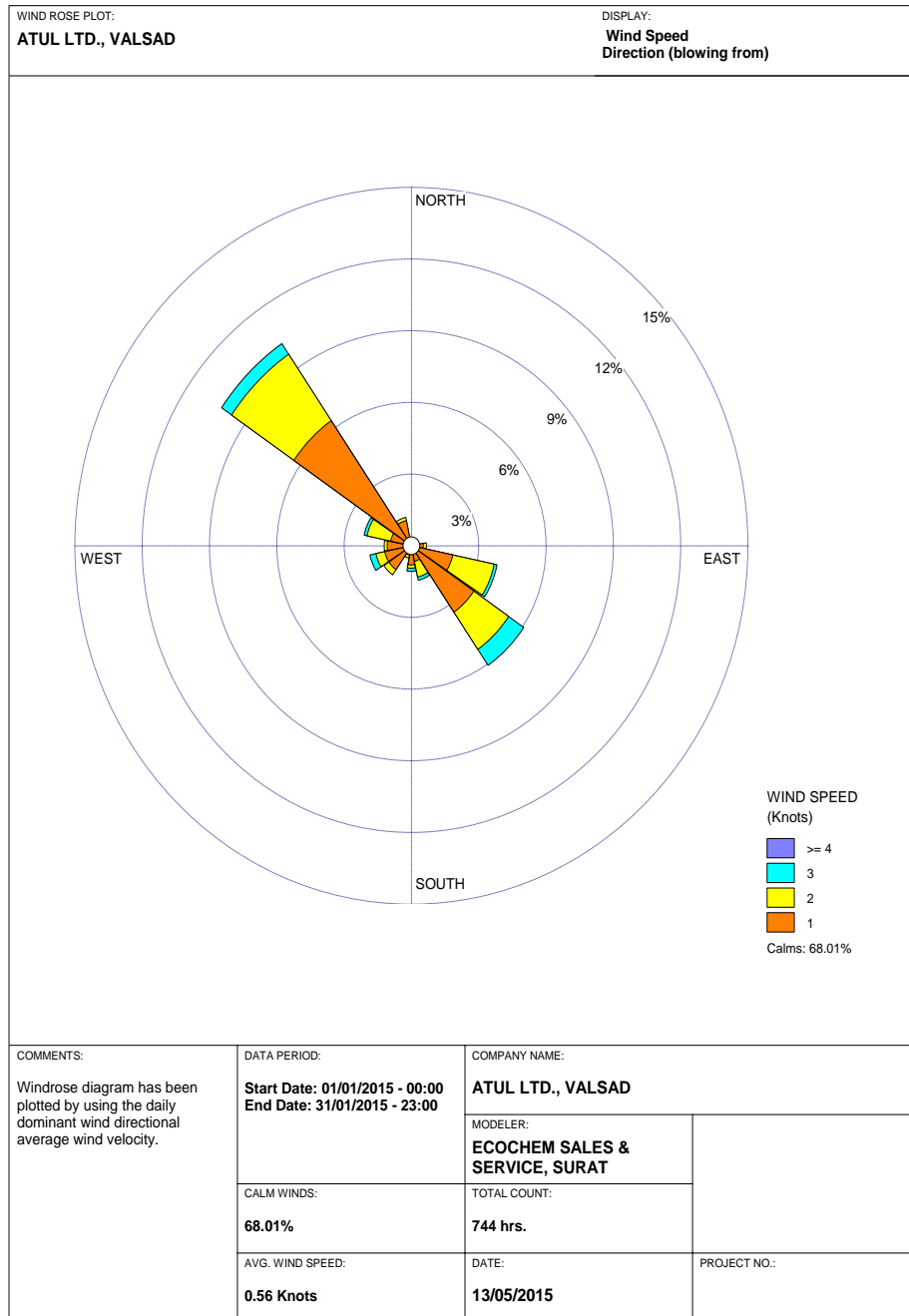


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Figure No. 3.4.12 Wind rose diagram for the month of January, 2015



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Table No. 3.4.11 Frequency Count Chart (February, 2015)

Sr. No.	Directions / Wind Classes (m/s)	1.0 - 1.5	1.5 - 2.0	2.0 - 2.5	>= 2.5	Total
1	N	0	0	0	0	0
2	NNE	0	0	0	0	0
3	NE	0	0	0	0	0
4	ENE	0	1	0	0	1
5	E	5	1	1	0	7
6	ESE	11	5	1	0	17
7	SE	17	2	1	0	20
8	SSE	4	0	0	0	4
9	S	3	0	0	0	3
10	SSW	0	0	0	0	0
11	SW	0	0	0	0	0
12	WSW	0	0	0	0	0
13	W	0	0	0	0	0
14	WNW	0	0	0	0	0
15	NW	5	0	0	0	5
16	NNW	0	0	0	0	0
	Sub-Total	45	9	3	0	57
	Calms					615
	Missing/Incomplete					0
	Total					672



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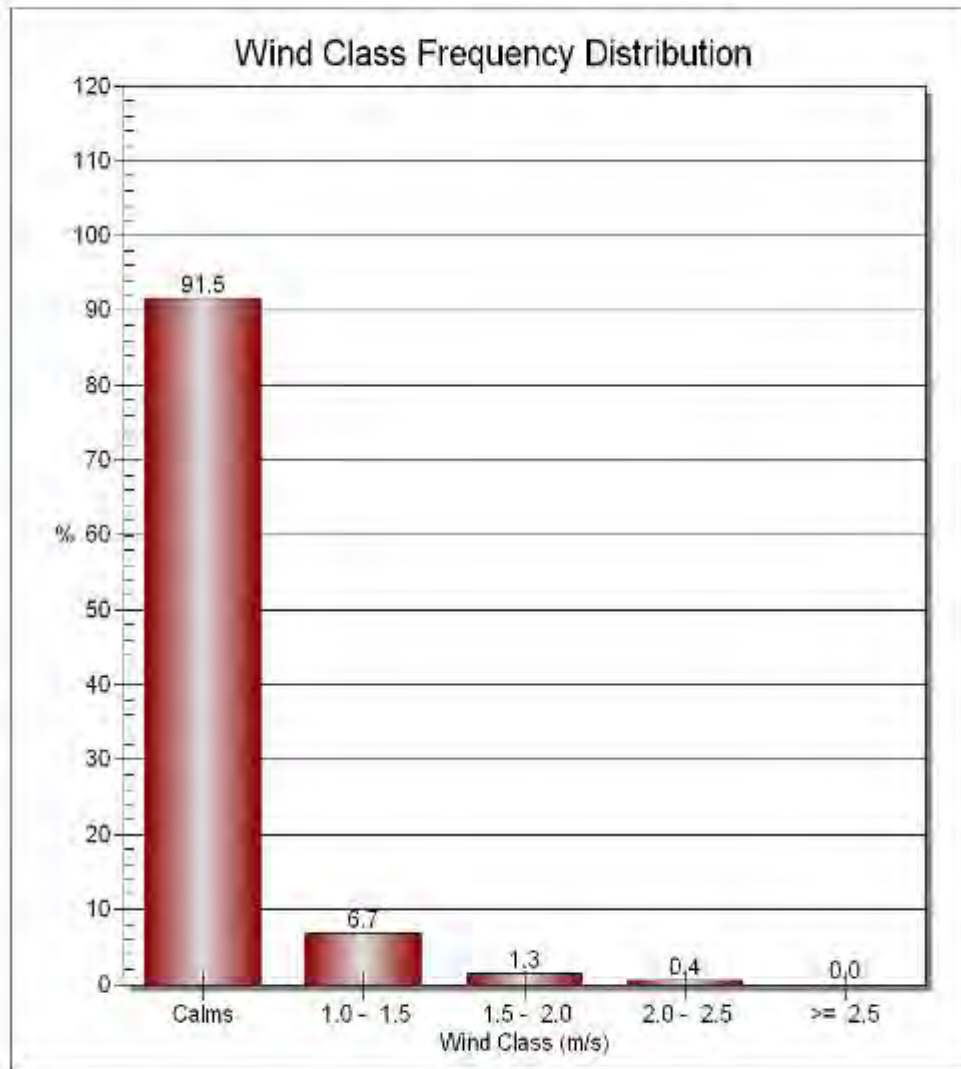


Table No. 3.4.12 Frequency Distribution Chart (February, 2015)

Sr. No.	Directions / Wind Classes (m/s)	1.0 - 1.5	1.5 - 2.0	2.0 - 2.5	>= 2.5	Total
1	N	0.0	0.0	0.0	0.0	0.0
2	NNE	0.0	0.0	0.0	0.0	0.0
3	NE	0.0	0.0	0.0	0.0	0.0
4	ENE	0.0	0.001	0.0	0.0	0.001
5	E	0.0	0.0	0.0	0.0	0.010
6	ESE	0.0	0.0	0.0	0.000	0.025
7	SE	0.0	0.0	0.0	0.0	0.030
8	SSE	0.0	0.000	0.000	0.000	0.006
9	S	0.0	0.0	0.000	0.0	0.004
10	SSW	0.0	0.000	0.000	0.000	0.000
11	SW	0.0	0.0	0.000	0.000	0.000
12	WSW	0.0	0.0	0.000	0.0	0.000
13	W	0.0	0.0	0.0	0.0	0.0
14	WNW	0.0	0.0	0.0	0.0	0.000
15	NW	0.0	0.0	0.0	0.0	0.0
16	NNW	0.0	0.0	0.0	0.0	0.0
	Sub-Total	0.1	0.013	0.004	0.000	0.085
	Calms					0.9151
	Missing/Incomple					0
	Total					1



Figure No. 3.4.13 Wind class frequency distribution (February, 2015)



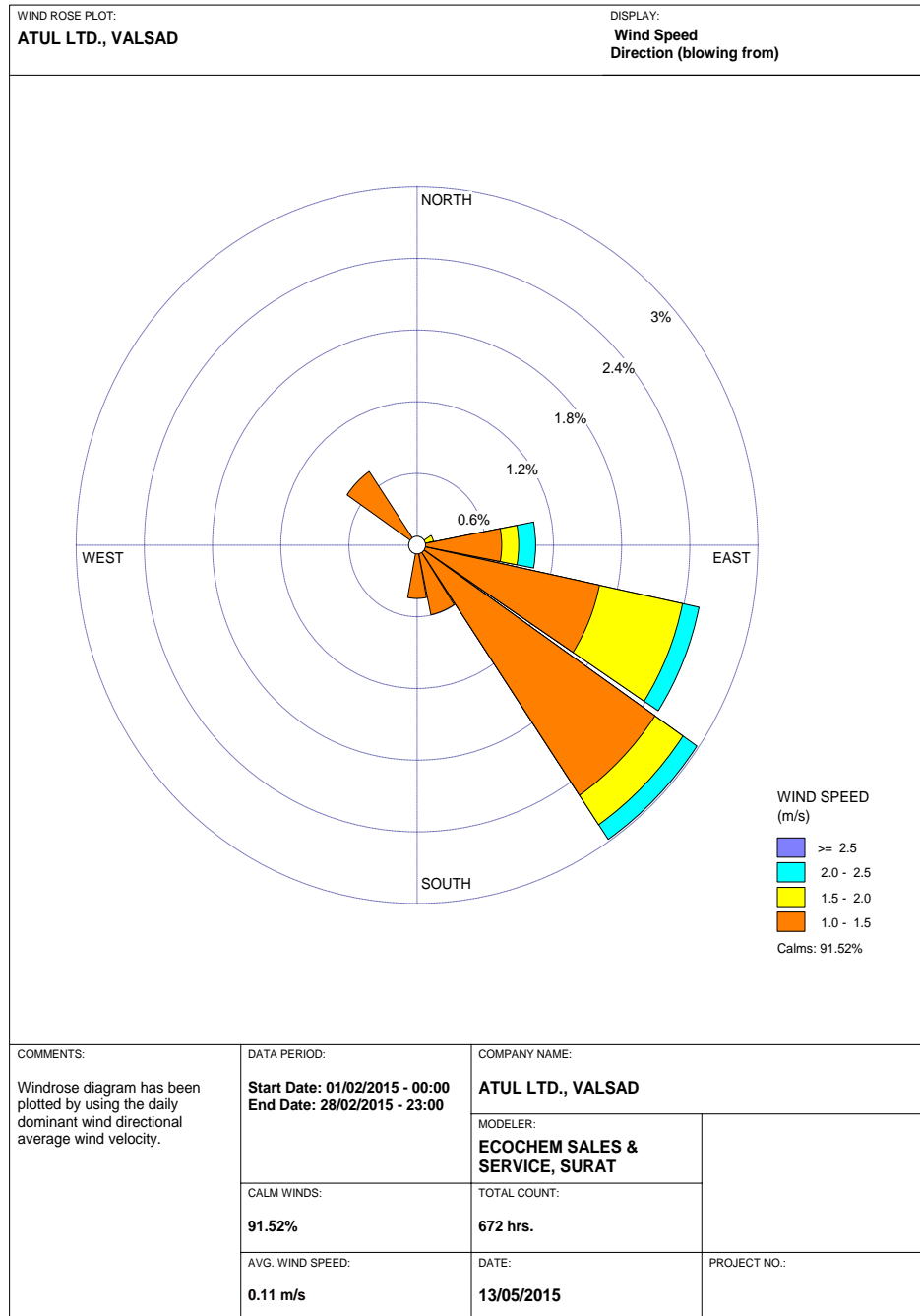


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Figure No. 3.4.14 Wind rose diagram for the month of February, 2015





3.5 AIR ENVIRONMENT

A clean air supply is essential for the health of living beings and that of the environment, but due to industrial revolution quality of air we breathe has deteriorated considerably – mainly as a result of human activities. Rising of industrial and energy production, the burning of fossil fuels and the dramatic rise in fossil fuels, all contribute to air pollution. Ambient air quality monitoring was carried out for the assessment of the existing status of background air quality in the study area. This will be useful for assessing the conformity of the ambient air quality to the standards even after commencement of the proposed project.

3.5.1 Selection of Sampling Locations

Following points were considered during the selection of Ambient Air Quality Monitoring locations.

- Topography/terrain of the study area
- Regional synoptic scale climatologically normal's
- Densely populated areas within the region
- Location of surrounding Industries
- Representation of regional background
- Facility for Ambient Air Monitoring
- Representation of valid cross – sectional distribution in downwind direction
- Avoidance of proximity of roads, construction activity or any other perturbing activity which may be temporary in nature, which may lead to some erroneous conclusions.
- Availability of manpower, electricity, approach, sturdy structure and protection of samplers.
- Dominant Wind Direction

To establish the baseline status around the project site of the study region monitoring was conducted for 8 locations within 5 km radius of study region during December 2014 to February 2015. At the time of location selection general wind pattern in the study region was considered for the selection of minimum one location in the downwind direction i.e. SW and one in upwind direction as control i.e. NE. Downwind locations were Rentlav and Udwada; and upwind location were considered as Chanvai and Chichvada at the time of location selection. However, ambient air monitoring locations were selected in all the directions looking towards the possibility of change in wind pattern during the study period. The



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sampling stations are highlighted in **Figure No. 3.5.1** and details of AAQM stations are tabulated in the **Table No.3.5.1.**

Table No 3.5.1 Air Quality Monitoring Location Details

Sr. No.	Location	Distance (km)	Direction
01.	Project Site	--	--
02.	Chichwada	Approx 2	N
03.	Balda	Approx 3	ES
04.	Magod	Approx 4	WN
05.	Chanvai	Approx 5	EN
06.	Tithal	Approx 6	NW
07.	Udvada	Approx 8	WS
08.	Rentlav	Approx 9	SW



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Figure No. 3.5.1 Ambient Air Monitoring locations





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Figure No.3.5.2 Ambient Air Monitoring Photographs



AAQM, Chichwada



AAQM, Balda



3.5.2 Frequency and Parameters for Sampling

Ambient Air Quality Monitoring was carried out for 8 locations within 10 km radius of the project as per AAQM specifications of CPCB for the parameters PM_{2.5}, PM₁₀, SO₂, NO_x and CO. Frequency of sampling was twice a week during study period and samples were collected as per the standard method adopted for sampling and analysis. Sampling and test methods are tabulated in **Table No. 3.5.2**.

3.5.3 Instrument for Sampling

Samples were collected by using the Respirable dust samplers & PM_{2.5} micron dust samplers at the height of approximately 3.5 m above the Ground Level. Methods were adopted as outlined by Central Pollution Control Board, Bureau of Indian Standard & National Environmental Engineering Research Institute. Monitoring was carried out as per the instructions of instrument's manual. Details of method are presented in **Table No.3.5.2**.

Table No 3.5.2 Details of Analysis Method

Sr. No.	Pollutant	Test Method
1	PM _{2.5}	CPCB Guideline
2	PM ₁₀	IS 5182 Part 23 2006
3	SO ₂	IS 5182 Part II 2001
4	NO _x	IS 5182 Part VI 2006
5	CO	Methods of Air Sampling & Analysis AWMA , EPA (Gas Chromatography)

3.5.4 Quality of Ambient Air

Ambient air quality monitoring was done at the above mentioned locations and analysis was carried out in the laboratory. Minimum, maximum and percentile value for the parameters PM_{2.5}, PM₁₀, SO₂, NO_x and CO are tabulated in **Table No.3.5.3 to Table No.3.5.5**.



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Table No.3.5.3 Percentile Value of PM₁₀ & PM_{2.5} (Dec'14 to Feb'15)

Sr. No.	Sampling Location	PM ₁₀						PM _{2.5}					
		Min. (µg/m ³)	Percentile				Max. (µg/m ³)	Min. (µg/m ³)	Percentile				Max. (µg/m ³)
			25	50	75	98			25	50	75	98	
1	Project Site	87.3	92.7	94.0	95.0	97.2	97.5	47.4	50.7	52.6	54.4	56.9	57.4
2	Chichwada	86.4	91.8	92.7	93.8	95.3	95.3	45.2	49.5	51.0	52.6	54.1	54.4
3	Magod	86.9	90.7	92.3	93.5	94.6	94.7	46.5	48.6	49.8	51.8	56.8	58.2
4	Chanvai	86.4	90.5	91.7	92.7	94.5	94.7	46.2	48.6	50.6	51.9	55.4	55.6
5	Balda	87.2	89.5	90.6	91.6	92.7	92.8	45.1	49.6	50.5	51.7	53.7	53.7
6	Udvada	86.4	89.3	89.7	90.9	92.4	92.4	44.2	48.3	49.4	50.3	52.2	52.7
7	Rentlav	86.8	88.2	89.4	90.4	91.6	91.7	44.3	47.3	48.6	49.8	53.3	53.8
8	Tithal	86.2	87.6	89.0	90.3	91.5	91.5	45.8	47.2	49.0	50.3	54.3	54.8

Table No. 3.5.4 Percentile Value for ambient air analysis (SO₂ & NO_x) (Dec'14 to Feb'15)

Sr. No.	Sampling Location	SO ₂						NO _x					
		Min. (µg/m ³)	Percentile				Max. (µg/m ³)	Min. (µg/m ³)	Percentile				Max. (µg/m ³)
			25	50	75	98			25	50	75	98	
1	Project Site	27.2	30.7	31.6	32.5	33.7	33.7	36.7	41.6	43.4	44.8	46.8	46.8
2	Chichwada	28.6	31.1	31.6	32.7	34.3	34.5	34.2	41.5	42.4	44.0	46.1	46.2
3	Magod	29.4	29.9	31.2	32.9	34.3	34.7	36.3	40.6	42.8	43.7	46.5	47.5
4	Chanvai	28.5	30.7	31.2	31.8	33.3	33.6	36.9	40.5	41.7	42.7	44.6	44.7
5	Balda	27.4	29.6	30.6	31.8	33.1	33.4	33.5	39.6	40.8	42.0	43.3	43.5
6	Udvada	27.3	28.5	29.7	30.2	31.9	31.9	34.2	38.8	39.6	40.9	42.8	42.8
7	Rentlav	26.7	27.9	28.8	30.1	31.3	31.4	34.7	37.6	38.8	40.0	41.5	41.8
8	Tithal	26.3	27.4	28.2	28.8	30.5	30.7	34.8	35.8	37.5	38.3	41.4	41.9



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Table No3.5.5 Results of CO (Dec'14 to Feb'15)

Sr. No.	Sampling Location	CO					Max. ($\mu\text{g}/\text{m}^3$)
		Min. ($\mu\text{g}/\text{m}^3$)	Percentile				
			25	50	75	98	
1	Project Site	975	1008	1018	1051	1074	1075
2	Chichwada	925	960	1005	1024	1060	1064
3	Magod	910	923	974	987	1012	1015
4	Chanvai	854	918	950	978	1009	1012
5	Balda	765	805	873	918	982	988
6	Udvada	684	740	775	814	869	875
7	Rentlav	645	686	728	754	785	788
8	Tithal	655	668	695	709	728	730

Figure No. 3.5.3 PM₁₀ Conc. Variation in study Area

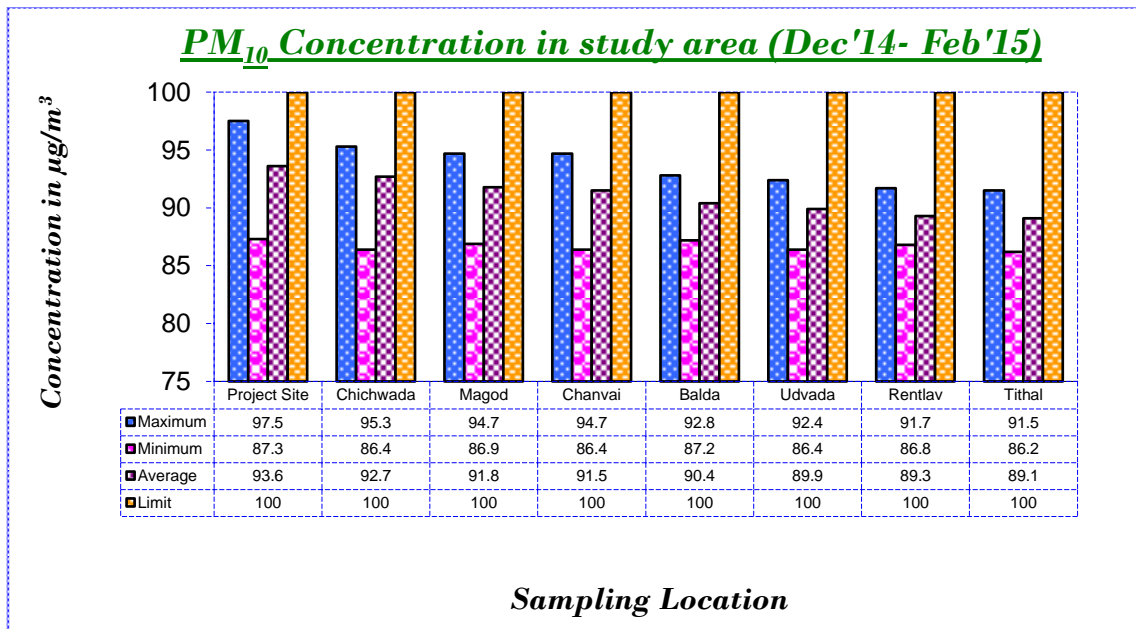




Figure No. 3.5.4 PM_{2.5} Conc. Variation in Study Area

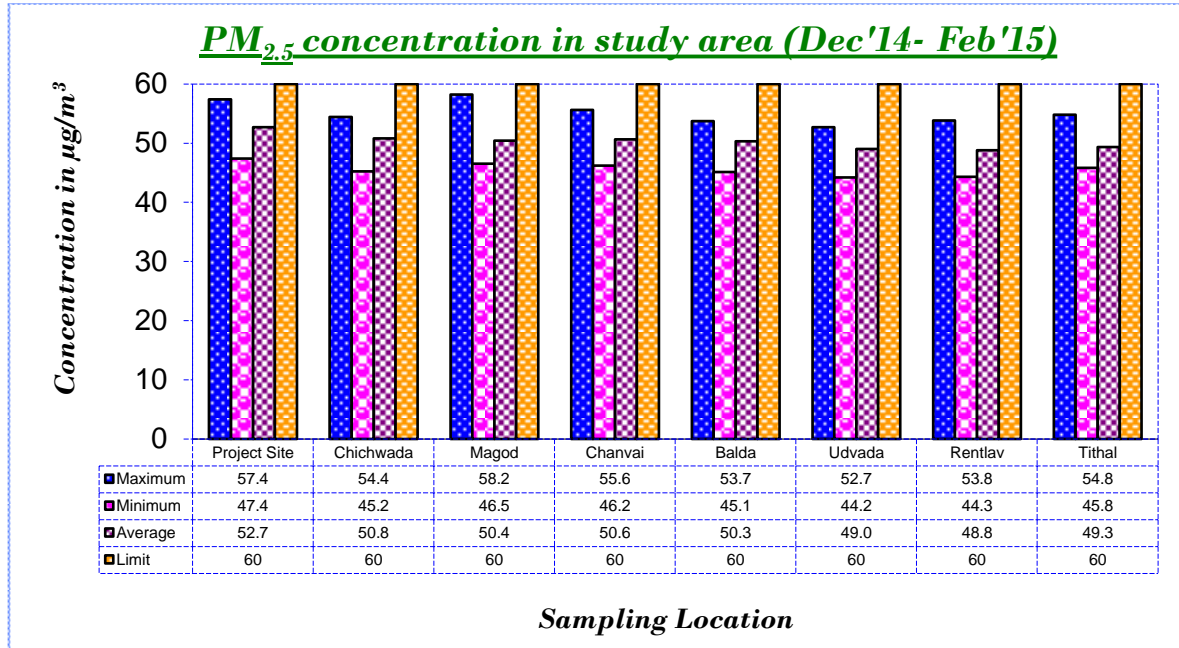


Figure No. 3.4.5 Variation in SO₂ Conc. In study area

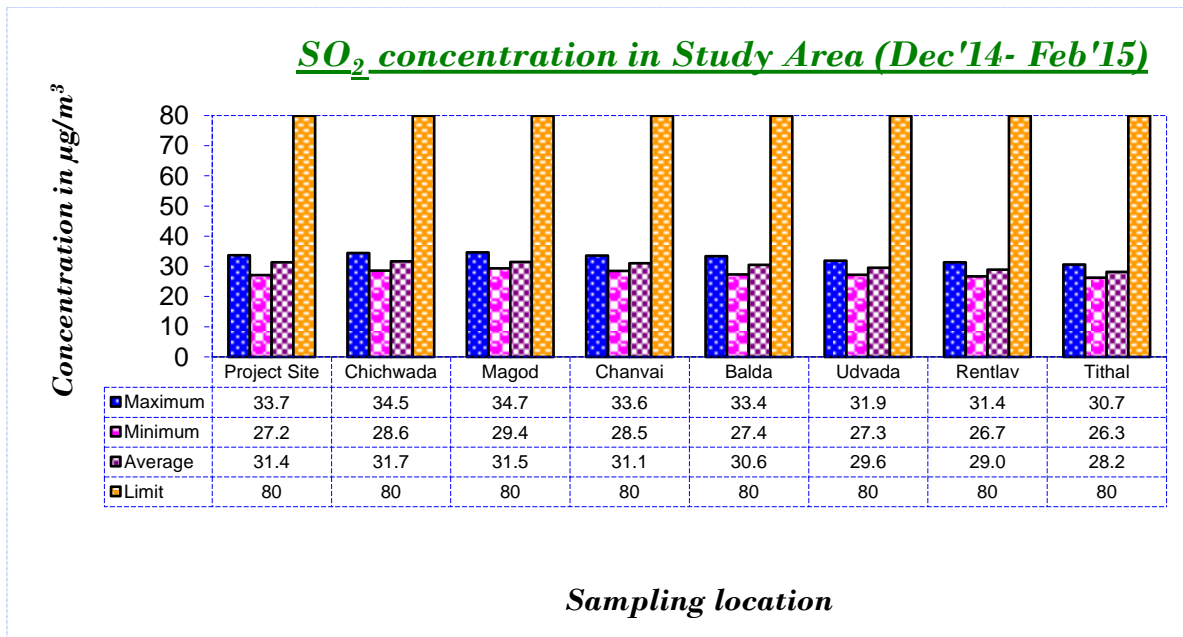




Figure No. 3.5.6 Variation in NO_x Conc. In study area

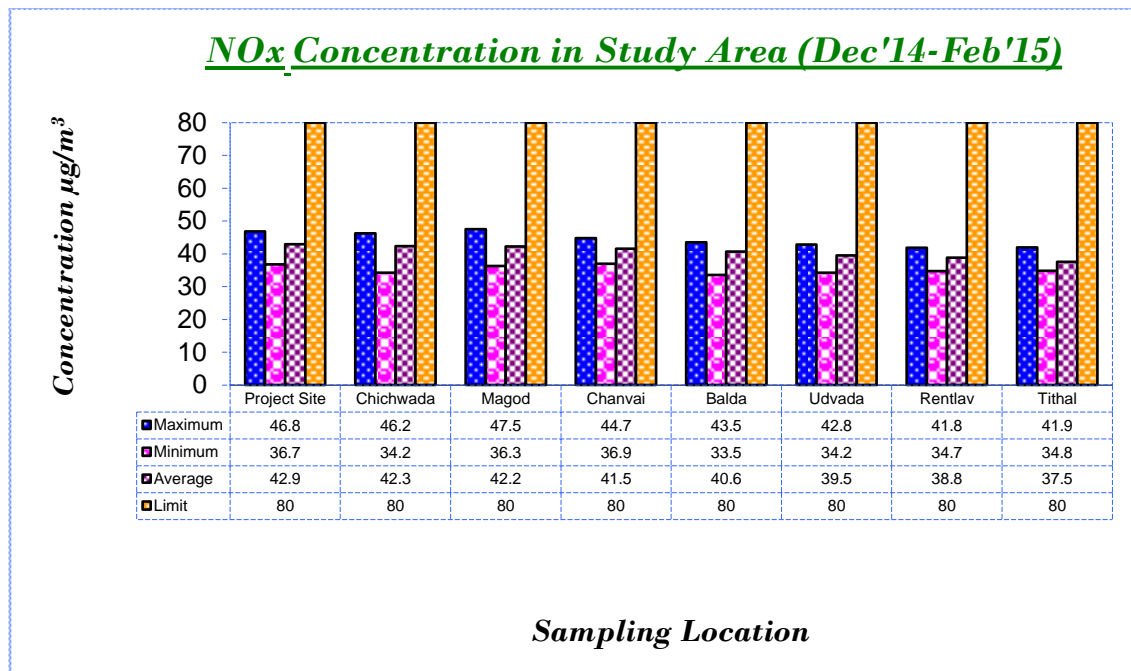


Table No. 3.5.7 Ambient Air Quality Standards

(Standard for Ambient Air Quality Monitoring as per Ministry of Environment & Forests (MoEF))

Sr. No.	Pollutant	Avg. on basis of Time	Industrial/Residential Area	Ecologically Sensitive Area
1.	SO ₂	Annual	50	20
		24 Hrs.	80	80
2.	NO ₂	Annual	40	30
		24 Hrs.	80	80
3.	PM ₁₀	Annual	60	60
		24 Hrs.	100	100
4.	PM _{2.5}	Annual	40	40
		24 Hrs.	60	60
6.	CO	8 Hrs.	02	02
		1 Hr	04	04

- Publication: November 16, 2009
- unit: µg/m³



3.5.5 Summary of Ambient Air Quality

Results were compared with the standard for ambient air quality monitoring as per the Ministry of Environment & Forests (MoEF).

- During the study PM_{2.5} was observed between 44.2 – 58.2 µg/m³. Maximum concentration of PM_{2.5} was found at Magod village. Results of PM_{2.5} for all locations are well within the CPCB norms.
- PM₁₀ was observed in the range of 86.2 – 97.5 µg/m³. Results found during the study period for PM₁₀ were well within the limit given by Ministry of Environment & Forests.
- SO₂ concentration was observed in the range of 26.3 to 34.7 µg/m³, which is well within the standard limit.
- NO_x concentration in Ambient Air quality was between 33.5-47.5 µg/m³, which is well within the standard limit.
- Monitoring and analysis was also carried out for CO. Maximum Concentration of CO was found to be 1075 µg/m³ near project site.
- On the basis of test results found during the survey it can be concluded that the ambient air quality of the study region is quite good as all the results are well within the limit.

3.6 NOISE ENVIRONMENT

Various noise scales have been introduced to describe in a single number the response of an average human being to a complex sound made up of various frequencies at different loudness levels. The most common and widely accepted is the weighted decibel dB (A) scale.

The objective of the baseline noise survey was to identify existing noise sources and to measure background noise levels at the sensitive receptors within the study area.

Peoples' perception of noise varies depending on number of factors including their natural sensitivity and hearing ability, past experience of sound, cultural factors and the time of day at which sound is experienced. Continuous sound is perceived quite differently from intermittent sound at the same level. High or continuous noise levels may cause permanent loss of hearing ranging from reduced perception at certain frequencies to total deafness. At comparatively lower levels noise may have psychological effects including disturbance of sleep, annoyance and irritation.



3.6.1 Source of Noise Pollution

The sources of noise pollution in the study area are industrial noise, noise due to commercial activities, noise generated by Community, vehicular traffic, etc.

3.6.2 Noise Level in the Study Area

The noise level was monitored at different villages in study area and nearer to industrial area. Details of locations are given in **Table No. 3.6** & **Figure No. 3.6**. Results are tabulated in **Table No. 3.6.1** and **Figure No. 3.6.1** & **Figure No. 3.6.2**.

Table No. 3.6.1 Noise Sampling Locations

Sr. No.	Location	Distance (km)	Direction
01	Project Site	--	--
02	Chichwada	Approx 2	N
03	Balda	Approx 3	ES
04	Magod	Approx 4	WN
05	Chanvai	Approx 5	EN
06	Tithal	Approx 6	NW
07	Udvada	Approx 8	WS
08	Rentlav	Approx 9	SW

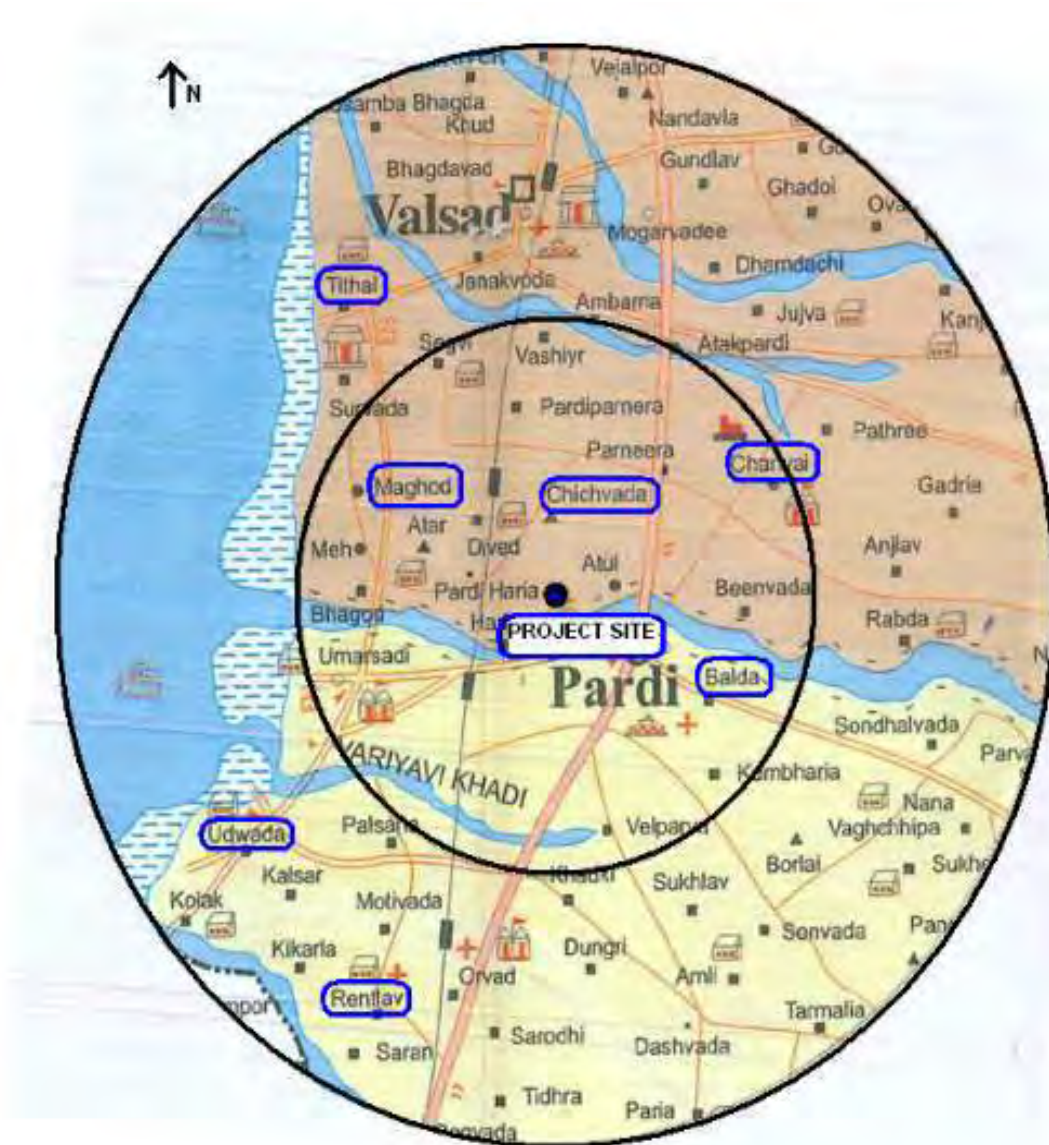


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Figure No. 3.6.1 Map Showing the Noise Sampling Locations





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Figure No. 3.6.2 Noise Monitoring Photographs



Noise, Tithal



Noise, Chichwada



Noise, Magod



Noise, Balda



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Table 3.6.2 Noise Analysis Report (Dec'14 to Feb'15)

Sr. No.	Location	Noise Level in dB (A)	
		Day Time	Night Time
1.	Project Site	68	59
2.	Tithal	52	43
3.	Chanvai	54	46
4.	Chichwada	56	45
5.	Magod	51	42
6.	Balda	55	44
7.	Udvada	59	48
8.	Rentlav	57	46

Note: Day time –6.00 am to 10.00 pm, Night time – 10.00 pm to 6.00 am

Figure No. 3.6.3 Variation in Noise Level during day time

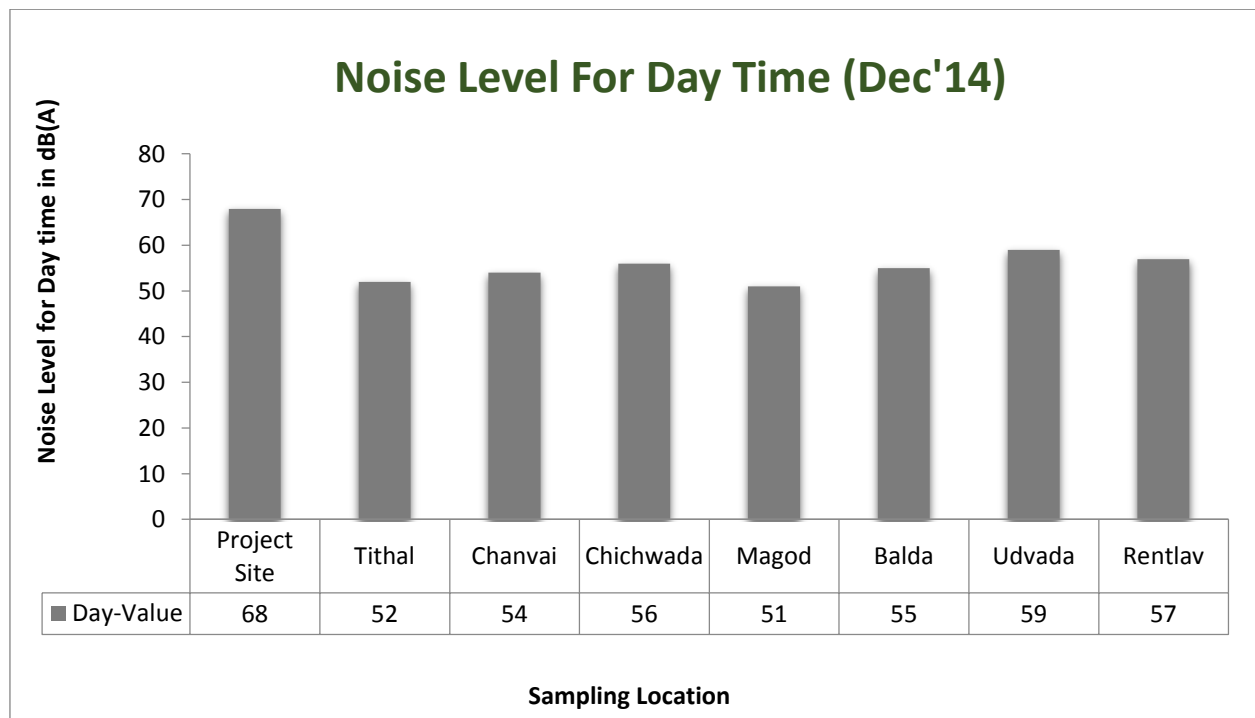
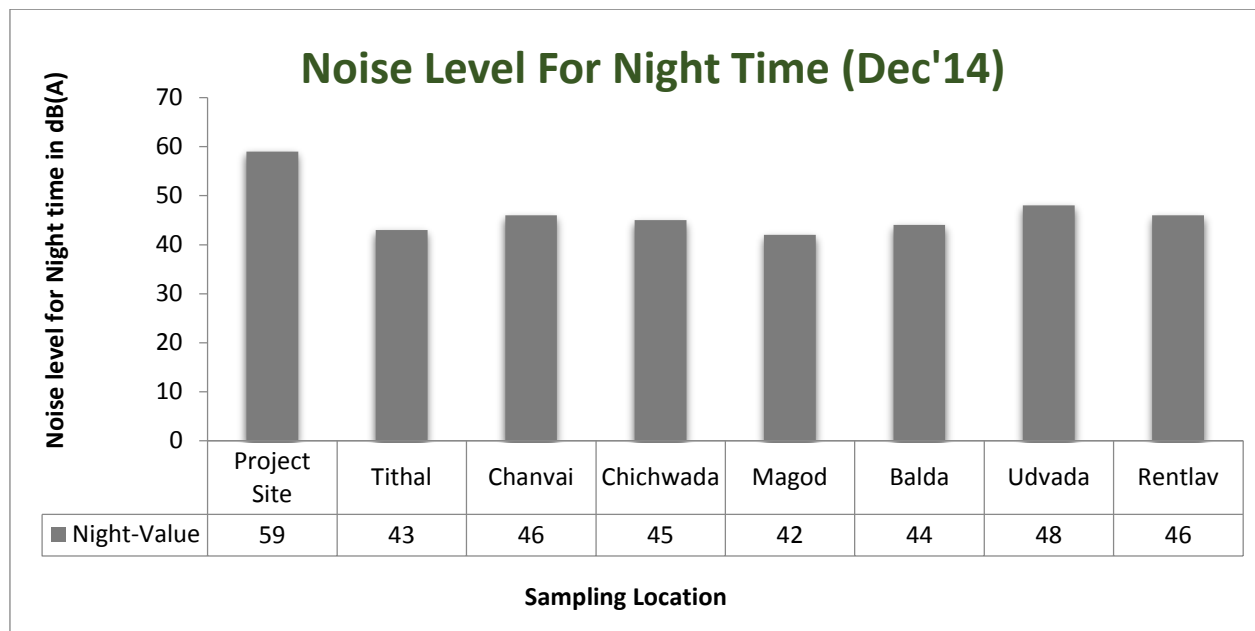




Figure No. 3.6.4 Variation in Noise Level during night time



Noise standards have been designated for different types of land use i.e. residential, commercial, industrial areas and silence zones, as per 'The Noise Pollution (Regulation and Control) Rules, 2000, Notified by Ministry of Environment and Forests, New Delhi, February 14, 2000. Different standards have been stipulated for day (6 am to 10 pm) and night (10 pm to 6 am). The noise levels of the study area are compared with the noise level standards as shown in **Table No. 3.6.2**.

Table No 3.6.2: Noise Level Standards

Sr. No.	Category of Area	Limits in dB	
		Day time 6.00 a.m. to 10.00 p.m.	Night time 10.00 p.m. to 6.00 a.m.
1.	Industrial Area	75	70
2.	Commercial Area	65	55
3.	Residential Area	55	45
4.	Silence Zone i.e. Hospital, Educational institute, etc.	50	40

The noise level study shows that the noise levels are meeting the acceptable norms.



3.7 LAND ENVIRONMENT

Studies on land use aspects of eco system play an important role in identifying sensitive issues and to take appropriate action to maintain ecological homeostasis in the region. The main objective of this section is to provide a baseline status of the area, so that temporal changes due to the proposed port on the surroundings can be assessed in future.

3.7.1 Land Use Pattern

The land use and land cover information is very vital for any kind of management of land. Good and correct compilation of this information helps in deciding the proper use of the land. Optimum economic use in accordance with minimal disturbance of the present ecology should be the prime objective of any industrial activity.

The study of mapping land use and land cover for the area covering 10 km radial distance from site was conducted using Geocoded False Colour Composite scene of IRS-IC LISS III / LISS IV images along with Survey of India (SOI) Toposheets.

There are few ponds/lakes present within 10 km radius of the industry. The nearest is at eastern and south-eastern side of the industry close to railway track and road. Valsad railway station falls within the study area and near to it is railway colony and suki talavadi. Industrial area/study area also has club, helipad area, colony along with other amenities. The cultivable land at present is 36.2 % in the study area while the uncultivated land is around 22.78 % both together covering more than 59 % of the total area under study. The uncultivated/fallow lands are the lands, which are left free without cultivation currently for various reasons such as replenishment of nutrient, water scarcity, etc. Quarrying activities have also been found in small amount. Since the area is close to the coast there are presence of mudflats (nearly 2.5%), salt work activities (nearly 0.1%) and a very small amount of mangroves in scattered forms. Total built-up areas are around 11% out of which nearly 1.5% comprises of industrial area while the rest of it is settlement. There is no reserved forest or protected forest found within the study area. Land Use details are shown in **Table no. 3.7.1 and Figure no. 3.7.1.**



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Table 3.7.1: Land use Statistics (10 km)

(Source: Land use mapping and primary survey of the area)

Legends	Area (Sqkm)	Percentage
Canal	0.306766291	0.08%
Cultivated Lands	137.0511881	36.20%
Flood Plains	0.683065356	0.18%
Industries	5.632957463	1.49%
Major Roads	3.423271578	0.90%
Mangroves	0.232830098	0.06%
Mudflats	9.336407719	2.47%
National HW	0.615649709	0.16%
Open Land	6.049810932	1.60%
Quarries	0.57164869	0.15%
Railway	0.460630288	0.12%
Rivers	9.578620179	2.53%
Salt pans	0.341591696	0.09%
Sea	70.89387095	18.72%
Settlements	36.5256353	9.65%
State HW	0.889830378	0.24%
Treeclad Areas	6.711023516	1.77%
Uncultivated Lands	86.26207951	22.78%
Wastelands	0.285165933	0.08%
Waterbodies	2.783769679	0.74%
Grand Total	378.6358134	100.00%

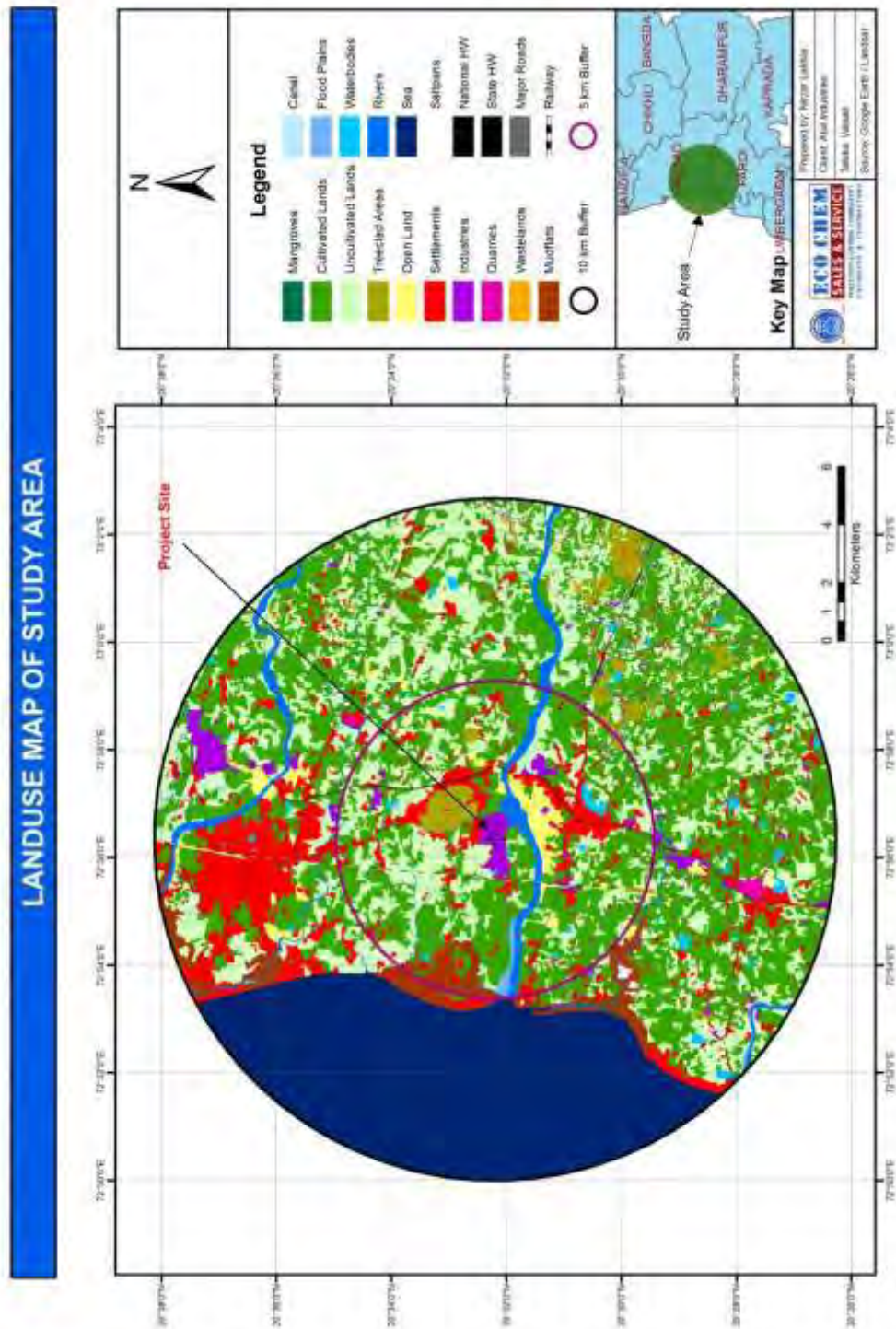


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Figure 3.7.1: Land use Map





3.8 SOIL QUALITY

7 samples were collected from different locations within 10 km radius to assess the base line status of soil. Analysis was also carried out for physico-chemical parameters as well as the parameters to define the texture class. Soil samples were collected by using core cutter and brought to the laboratory in polythene bags. Standard procedures have been followed for soil sampling and analysis. Soil sampling locations are presented in **Figure No. 3.8.1** and tabulated in **Table No. 3.8.1**.

The soil in this region mainly comprises of sandy clay loam soil having hard texture. Maximum and minimum value for tested parameters is presented in **Table No. 3.8.2** to **Table No. 3.8.4**.

Table No.3.8.1: Sampling Locations

Sr. No.	Location	Distance from project site, km	Direction from project site
1	Project Site	--	--
2	Chichwada	Approx 2	N
3	Balda	Approx 3	ES
4	Magod	Approx 4	WN
5	Chanvai	Approx 5	EN
6	Tithal	Approx 6	NW
7	Udvada	Approx 8	WS



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Figure No.3.8.1: Soil Sampling Locations





Figure No.3.8.2: Soil Sampling Photographs



Soil Samples, Tithal



Soil Sample, Magod

Soil Sample, Chichwada



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Table No.3.8.2: Average Results of Soil Samples (Dec'14 to Feb'15)

Sr. No.	Parameter	Unit	Average Results						
			Project Site	Tithal	Chanvai	Chichwada	Magod	Balda	Udvada
1	pH	--	6.94	6.98	7.29	8.05	8.05	7.51	7.72
2	Moisture	%	11.0	10.6	10.1	9.8	9.8	5.5	5.6
3	Organic (Loss on ignition)	%	0.4	0.4	0.5	0.6	0.5	0.3	0.3
4	Calcium	meq/100g	34.3	28.3	31.5	37.1	36.6	34.3	36.7
5	Magnesium	meq/100g	27.7	30.8	30.0	26.8	25.7	29.5	28.7
6	Sodium	meq/100g	4.5	5.2	6.6	4.0	3.7	3.6	3.6
7	Potassium	meq/100g	2.3	1.6	1.7	1.8	1.6	1.3	1.3
8	ESP	%	6.49	7.76	9.42	5.79	5.48	5.31	5.10
9	Total Phosphorus	mg/100g	8.67	5.51	8.57	8.10	9.71	6.82	3.87
10	Total Nitrogen	mg/100g	6.27	2.57	2.23	2.73	3.87	9.83	9.77
11	Nitrate	mg/100g	2.67	4.23	5.20	3.10	2.57	4.30	2.77
12	Zinc	mg/100g	5.2	4.4	3.9	4.5	2.2	2.4	2.5
13	Copper	mg/100g	4.6	4.2	4.1	3.1	1.1	3.6	0.8
14	Iron	mg/100g	81.6	100.9	97.4	85.5	96.4	98.9	96.7
15	Chromium	mg/100g	3.8	2.5	3.7	3.5	1.2	2.5	1.6
16	Boron	mg/100g	2.8	2.6	2.9	3.8	1.7	1.4	1.2
17	Electrical Conductivity	µmhos/cm	1.5	2.3	1.9	1.4	1.6	1.6	1.3
18	Bulk Density	gm/cc	1.5	1.5	1.7	1.4	1.6	2.1	2.1



Table No.3.8.3: Soil Texture analysis (Dec'14 to Feb'15)

Sr. No.	Parameter	Project Site	Tithal	Chanvai	Chichwada	Magod	Balda	Udvada
1	Texture	Silty Clay Loam	Silty Clay	Silty Clay Loam	Silty Clay	Silty Clay Loam	Silty Clay Loam	Clay Loam
2	Sand%	12	18	16	14	20	18	22
3	Silt %	53	42	46	44	45	46	43
4	Clay%	35	40	38	42	35	36	35
5	Colour	Black	Black	Black	Black	Black	Black	Black

3.8.1 Summary of Soil Quality

The following interpretation is made based on visual observation & the average test results found during the study period.

- Results of pH were varying in narrow range for one location to other location from 6.94 to 8.05 during the study period .Overall the pH of all the soil samples were found almost neutral.
- Loss on ignition test was also carried out to know the probability of Organic matter in the soil samples. Concentration of organic matter was found in the range of 0.3 to 0.6 %. Minimum Value was observed in the soil samples of Balda and Udvada.
- During analysis total Nitrogen was found in the range of 2.23-9.83 mg/100 gm. Minimum value was observed in the soil sample of Chanvai.
- Total Phosphorous content was found in the range of 3.87 to 9.71 mg/100 gm.
- Calcium content ranged from 28.3 to 37.1 meq/100 gm and magnesium content ranged from 25.7 to 30.8 meq/100 gm.

As a micronutrient analysis of Iron, Chromium, copper & Boron was also carried out for all the soil samples & its presence was found lower than the desired value. Soil texture was found to be silt clay and silt clay loam in most of the villages of study region.



3.9 WATER ENVIRONMENT

Water is vital for all known forms of life. It is a precondition for human, animal and plant life as well as an indispensable resource for the economy. Water plays a fundamental role in climate regulation cycle. Current scenario shows that large population is deprived of access to water and if they might have this access, the water may be polluted with many contaminants. In the future, we will probably find that clean water will be a rare and high price commodity.

Most water resources are being influenced by human activities. Among these, industrial activities are the major pressure on water environment. The growing population and industrial demands for development and welfare or improvement further increases the pressure on these resources. As a result water resources are getting contaminated and making the adverse impact on aquatic life. Ensuring a sustained use and avoiding closure of development options requires in depth knowledge of physical, chemical and biological responses to human interference and robust prediction tools for the evaluation and optimization of proposed development and abatement schemes.

Physical, chemical and biological factors influencing water quality are so interrelated that a change in any water quality parameter may trigger other changes in a complete network of interrelated variables. Selected water quality parameters for surface and ground water resources along with biological indicators within study region have been used for water environment and assessing the impact on it by proposed project. A study on water environment aspects of ecosystem plays an important role in environmental assessment to identify water related sensitive issues.

3.9.1 Reconnaissance

As a significant part of predefined framework of the present study water samples were collected from selected locations. The Reconnaissance survey was undertaken and monitoring locations were finalized based on:

- Presence, Location and uses of major water bodies in the region
- Type and Location of Industrial/residential areas, their intake and effluent disposal locations
- Likely area that can represent baseline conditions



3.9.2 Water Quality

With the start of water quality study, the water resources in the study area were divided into two categories for getting ideal upshot of baseline status of water quality of the region. These two major categories as determined are:

- Ground Water resources (tube well, open well, springs etc.)
- Surface water resources including streams, nalas, ponds ,river, canals, estuary

3.9.3 Sampling & Analysis

All the water samples were collected and analyzed as per “Standard Methods for Examination of Water & Wastewater”, APHA 21st edition, 2005. Water Samples for the analysis of physico-chemical parameters were collected in plastic carboy and parameter wise preserved onsite as per the technique defined in the book of APHA, 21st edition. Temperature, pH and DO were analyzed onsite and samples were brought to the laboratory for the analysis of remaining parameters.

3.9.4 Ground Water Resources

To assess the quality of ground water, samples were collected from 5 locations for the analysis of physico-chemical and microbiological parameters. Frequency of sampling was twice in a month during the study period.

Sampling locations are tabulated in **Table No.3.9.1** and **Figure No.3.9.1** and its analysis report is presented in **Table No 3.9.1** to **Table No.3.9.2**.

Table No.3.9 Sampling Locations

Sr. No.	Location	Distance from project site, km	Direction from project site
01	Chichwada	Approx 2	N
02	Balda	Approx 3	ES
03	Magod	Approx 4	WN
04	Chanvai	Approx 5	EN
05	Tithal	Approx 6	NW

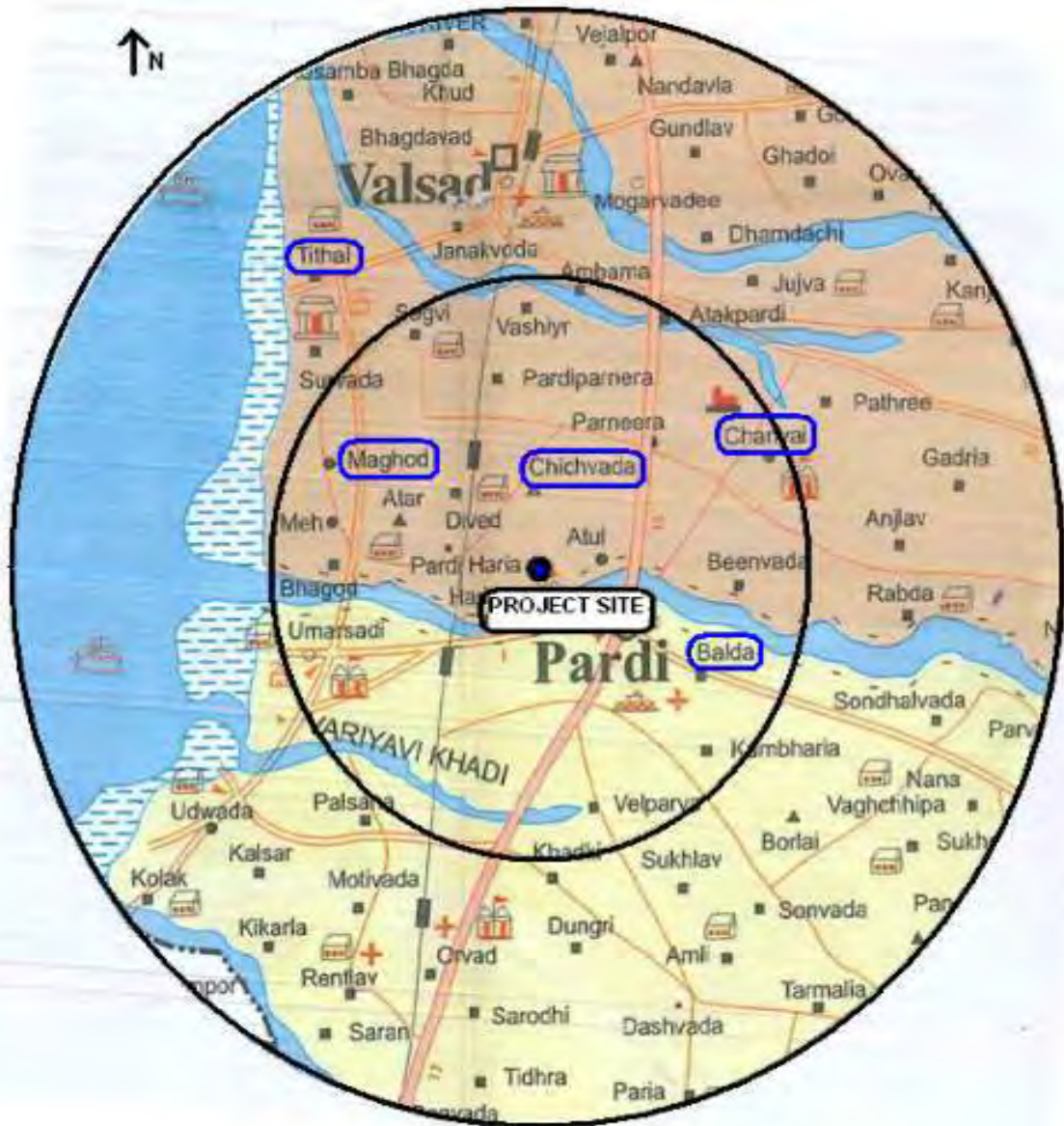


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Figure No 3.9.1 Map Showing Ground Water Sampling Locations





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Figure No 3.9.2 Ground Water Sampling Photographs



Ground Water sample, Chanvai



Ground Water sample, Magod



Ground Water sample, Balda



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Table No. 3.9.1 Ground water analysis Report (Dec'14 – Feb'15)

Sr. No.	Parameter	Unit	Tithal		Chanvai		Chichwada	
			Minimum	Maximum	Minimum	Maximum	Minimum	Maximum
1.	Temperature	⁰ C	22.5	24.5	22.5	24.5	22.5	25.0
2.	pH	pH Unit	6.5	7.33	6.9	7.4	5.9	7.15
3.	Colour	Pt.Co.scale	<05	<05	<05	<05	<05	<05
4.	Odour	--	Odourless	Odourless	Agreeable	Agreeable	Agreeable	Agreeable
5.	TDS	mg/L	1438	1515	325	359	364	407
6.	Turbidity	NTU	0.6	0.8	0.5	0.8	0.6	0.78
7.	Total Hardness	mg/L	785	910	255	305	290	335
8.	Calcium	mg/L	190	228	48	54	52	64
9.	Total Alkalinity	mg/L	368	424	212	232	218	240
10.	Chloride	mg/L	600	765	204	236	69	94
11.	Magnesium	mg/L	69	84	33	40	35	72
12.	Sulphate	mg/L	5	8	2	6	3	4
13.	Phosphate	mg/L	0.5	0.9	0.6	1.1	0.1	0.8
14.	Sodium	mg/L	125	234	27	39	25	33
15.	Potassium	mg/L	72	91	8	15	11	18
16.	Fluoride	mg/L	0.5	0.7	0.6	0.8	0.6	0.9
17.	Phenolic Comp.	mg/L	NIL	NIL	NIL	NIL	NIL	NIL
18.	Oil & Grease	mg/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
19.	Dissolved oxygen	mg/L	5.6	6.4	5.6	6.4	5.5	6.5
20.	COD	mg/L	14	22	9	16	8	14
21.	BOD(3daysat27 ⁰ C)	mg/L	4.5	8	<4	<4	<4	<4
22.	Nitrate	mg/L	0.2	0.3	0.2	0.4	0.9	1.4
23.	Iron	mg/L	0.18	0.33	0.28	0.47	0.21	0.34
24.	Copper	mg/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
25.	Boron	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
26.	Chromium	mg/L	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
27.	Zinc	mg/L	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
28.	MPN	No./100ml	NIL	NIL	NIL	NIL	NIL	NIL
29.	Silica	mg/L	3.6	4.6	3.7	6.0	3.8	4.2



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Table No. 3.9.2 Ground water analysis Report (Dec'14 to Feb'15)

Sr. No.	Parameter	Unit	Magod		Balda	
			Minimum	Maximum	Minimum	Maximum
1.	Temperature	⁰ C	22.5	24.5	22.0	25.0
2.	pH	pH Unit	7.0	7.28	6.6	7.06
3.	Colour	Pt.Co.scale	<05	<05	<05	<05
4.	Odour	--	Agreeable	Agreeable	Odourless	Odourless
5.	TDS	mg/L	510	547	412	439
6.	Turbidity	NTU	0.8	1.1	0.5	0.8
7.	Total Hardness	mg/L	260	305	220	280
8.	Calcium	mg/L	48	64	48	62
9.	Total Alkalinity	mg/L	312	344	316	348
10.	Chloride	mg/L	134	150	52	65
11.	Magnesium	mg/L	28	38	19	32
12.	Sulphate	mg/L	2.7	4.9	3.2	4.3
13.	Phosphate	mg/L	0.2	0.28	0.6	0.9
14.	Sodium	mg/L	69	82	46	69
15.	Potassium	mg/L	22	29	15	22
16.	Fluoride	mg/L	0.2	0.3	0.5	0.7
17.	Phenolic Comp.	mg/L	NIL	NIL	NIL	NIL
18.	Oil & Grease	mg/L	<1.0	<1.0	<1.0	<1.0
19.	Dissolved oxygen	mg/L	5.7	6.6	5.5	6.7
20.	COD	mg/L	3	13	13	22
21.	BOD(3daysat27 ⁰ C)	mg/L	<4	<4	<4	<4
22.	Nitrate	mg/L	0.1	0.2	0.2	0.4
23.	Iron	mg/L	0.27	0.5	0.10	0.18
24.	Copper	mg/L	<0.05	<0.05	<0.05	<0.05
25.	Boron	mg/L	<0.01	<0.01	<0.01	<0.01
26.	Chromium	mg/L	<0.03	<0.03	<0.03	<0.03
27.	Zinc	mg/L	<0.02	<0.02	<0.02	<0.02
28.	MPN	No./100 ml	NIL	NIL	NIL	NIL
29.	Silica	mg/L	2.7	3.9	2.9	3.8



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Table No.3.9.3 Drinking Water Specification: IS: 10500, 1992

(Reaffirmed 2012)

Sr. No.	Parameter	Unit	Desirable Limit	Permissible Limit
1	Temperature	⁰ C	--	--
2	pH	pH Unit	6.5 – 8.5	No Relaxation
3	Colour	Pt.Co.scale	5	15
4	Odour	--	Agreeable	--
5	TDS	mg/L	500	2000
6	Turbidity	NTU	5	10
7	Total Hardness	mg/L	200	600
8	Calcium	mg/L	75	200
9	Total Alkalinity	mg/L	200	600
10	Chloride	mg/L	250	1000
11	Magnesium	mg/L	30	100
12	Sulphate	mg/L	200	400
13	Phosphate	mg/L	--	--
14	Sodium	mg/L	--	--
15	Potassium	mg/L	--	--
16	Fluoride	mg/L	1.0	1.5
17	Phenolic Comp.	mg/L	0.001	0.002
18	Oil & Grease	mg/L	--	--
19	Dissolved oxygen	mg/L	--	--
20	COD	mg/L	--	--
21	BOD(3 days at 27 ⁰ C)	mg/L	--	--
22	Iron	mg/L	0.3	No Relaxation
23	Nitrate	mg/L	45	No Relaxation
24	Copper	mg/L	0.05	1.5
25	Boron	mg/L	0.5	1.0
26	Total Chromium	mg/L	0.05	No Relaxation
27	MPN	No./100 ml	Nil	Nil



3.9.5 Summary of Ground Water Quality

The test results were compared with the Drinking Water Specification: IS: 10500, 1992 (Reaffirmed 2012) & it is summarized as under.

- pH range was observed between 5.9 – 7.38.
- Total dissolved solids were recorded in the range of 325 - 1515 mg/L. Total Dissolved solids concentration was found acceptable. The concentration was high in the samples of Tithal.
- Total hardness was in the range of 220 - 910 mg/L with minimum at Balda & maximum at Tithal. Hardness results were found within the permissible limit except for the samples of Tithal.
- Results of Alkalinity, Calcium, Magnesium were also found within the permissible limit except for the samples of Tithal village.
- All the heavy metals were found well within the range of prescribed standards. Any of toxic metals were not found in any village during analysis. Fluoride was also within the range of prescribed limit in all the samples.
- As microbiological parameters MPN analysis was also carried out and it was found NIL.
- On the basis of test results it is summarized that water quality for studied locations is as per IS 10500 – 2012. Water can be used for drinking purpose after primary treatment and can also be used for domestic purposes. Water of Tithal village should not be used for drinking purpose without proper treatment.

3.9.6 Surface Water

To assess the quality of Surface water, samples were collected from 05 locations for the analysis of physico-chemical, microbiological as well as for biological parameters. Frequency of sampling was once in a month during the study period for the analysis of physico-chemical parameters and once during the study period for the testing of biological parameters.

Sampling and analysis was carried out as per “Standard Methods for Examination of Water and Wastewater, APHA 21st edition, 2005. Sampling locations are tabulated in the **Table No.3.9.4** and **Figure No.3.9.3** and analysis report is presented in **Table No.3.9.5**.



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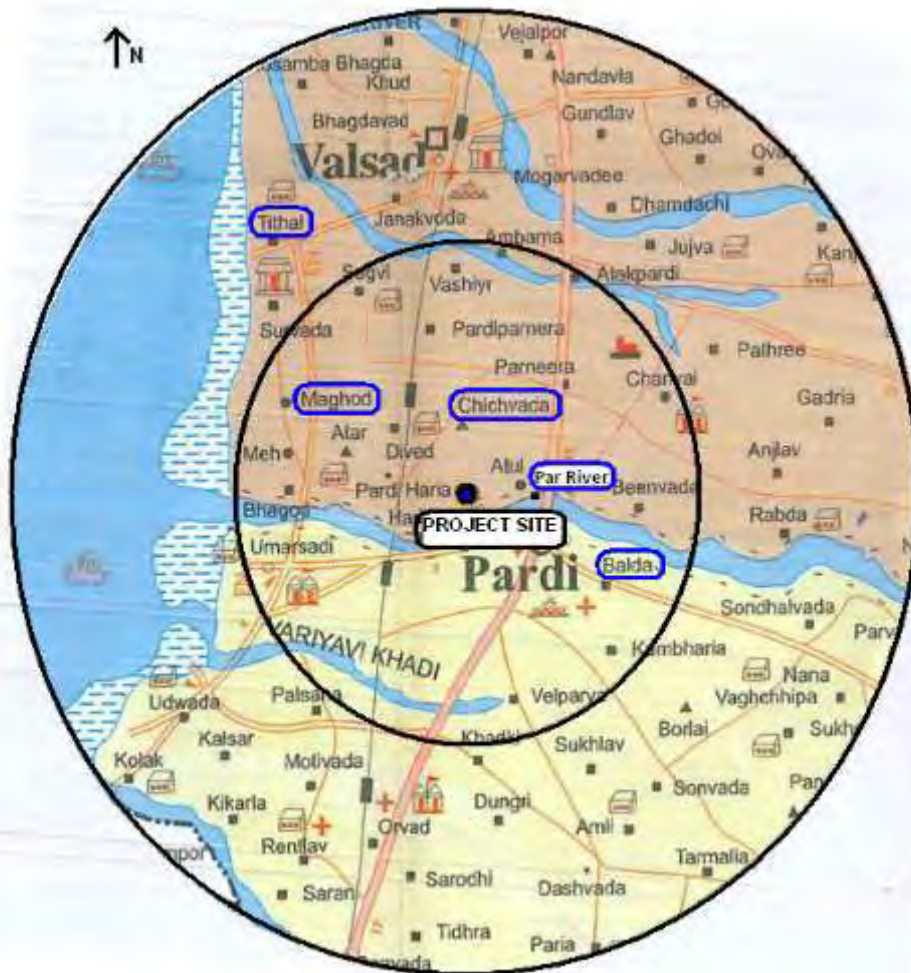


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Table No. 3.9.4 Details of Surface Water Sampling Locations

Sr. No.	Location	Source of water	Distance from the project Site (km)	Direction from the Project Site
01	Chichwada	Pond	Approx 2	N
02	Balda	Pond	Approx 3	ES
03	Magod	Pond	Approx 4	WN
04	Tithal	Pond	Approx 6	NW
05	Par River	River	Approx 1	E

Figure No.3.9.3 Map showing the locations for Surface water





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Figure No.3.9.4 Surface water sampling Photographs



Surface Water sample, Tithal



Surface Water sample, Chichwada



Surface Water sample, Balda



Surface Water Samples, Par River



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Table No. 3.9.5 Surface water Analysis Report (Dec'14 to Feb'15)

Sr. No.	Parameter	Unit	Tithal		Chichwada		Magod	
			Minimum	Maximum	Minimum	Maximum	Minimum	Maximum
1.	Temperature	⁰ C	22.0	24.0	22.5	25.0	22.5	24.5
2.	pH	pH Unit	6.80	7.12	7.18	7.35	7.42	7.54
3.	Colour	Pt.Co.scale	<05	<05	<05	<05	<05	<05
4.	Odour	--	Agreeable	Agreeable	Agreeable	Agreeable	Odourless	Odourless
5.	TDS	mg/L	154	178	75	786	235	246
6.	Turbidity	NTU	4.6	5.4	4.0	5.2	4.9	6.8
7.	Total Hardness	mg/L	75	110	25	35	170	180
8.	Calcium	mg/L	50	60	15	25	43	52
9.	Total Alkalinity	mg/L	72	96	48	60	128	148
10.	Chloride	mg/L	44	53	22	26	42	54
11.	Magnesium	mg/L	5	12	2	2	12	15
12.	Sulphate	mg/L	2.2	4.3	1.0	2.7	2.7	3.8
13.	Phosphate	mg/L	0.9	1.1	1.1	1.3	1.3	1.5
14.	Sodium	mg/L	18	23	19	26	22	27
15.	Potassium	mg/L	5	8	5	8	4	7
16.	Fluoride	mg/L	0.7	0.9	0.6	0.8	0.6	0.85
17.	Phenolic Comp.	mg/L	Nil	Nil	Nil	Nil	Nil	Nil
18.	Oil & Grease	mg/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
19.	Dissolved oxygen	mg/L	5.4	6.5	5.7	6.6	5.1	6.5
20.	COD	mg/L	2	4	10	14	16	20
21.	BOD(3daysat27 ⁰ C)	mg/L	<4	<4	<4	<4	6.5	7
22.	Nitrate	mg/L	0.2	0.2	0.1	0.2	1.1	1.8
23.	Iron	mg/L	0.08	0.11	0.40	0.58	0.73	0.76
24.	Copper	mg/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
25.	Boron	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
26.	Chromium	mg/L	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
27.	Zinc	mg/L	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
28.	Silica	mg/L	5.7	6.8	6.2	6.5	6.1	6.5



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Table No. 3.9.6 Surface water Analysis Report (Dec'14 to Feb'15)

Sr. No.	Parameter	Unit	Balda		Par River	
			Minimum	Maximum	Minimum	Maximum
1.	Temperature	⁰ C	22.5	23.5	22.0	25.0
2.	pH	pH Unit	6.62	6.86	7.52	7.71
3.	Colour	Pt.Co.scale	<05	<05	<05	<05
4.	Odour	--	Odourless	Odourless	Agreeable	Agreeable
5.	TDS	mg/L	74	92	302	324
6.	Turbidity	NTU	6.2	6.8	2.2	3.1
7.	Total Hardness	mg/L	50	60	195	215
8.	Calcium	mg/L	8	12	68	76
9.	Total Alkalinity	mg/L	44	52	184	196
10.	Chloride	mg/L	16	23	59	64
11.	Magnesium	mg/L	7	8	5	7
12.	Sulphate	mg/L	3.2	4.0	10.8	14.1
13.	Phosphate	mg/L	1.4	1.6	1.4	1.6
14.	Sodium	mg/L	15	20	31	39
15.	Potassium	mg/L	4	6	4	7
16.	Fluoride	mg/L	0.5	0.7	0.6	0.7
17.	Phenolic Comp.	mg/L	Nil	Nil	Nil	Nil
18.	Oil & Grease	mg/L	<1.0	<1.0	<1.0	<1.0
19.	Dissolved oxygen	mg/L	5.3	6.6	5.2	6.6
20.	COD	mg/L	16	20	16	20
21.	BOD(3daysat27 ⁰ C)	mg/L	6.0	6.5	5.0	7.5
22.	Nitrate	mg/L	0.1	0.2	0.1	0.3
23.	Iron	mg/L	0.12	0.15	<0.05	<0.05
24.	Copper	mg/L	<0.05	<0.05	<0.05	<0.05
25.	Boron	mg/L	<0.01	<0.01	<0.01	<0.01
26.	Chromium	mg/L	<0.03	<0.03	<0.03	<0.03
27.	Zinc	mg/L	<0.02	<0.02	<0.02	<0.02
28.	Silica	mg/L	5.4	6.1	4.9	5.2



Table No.3.9.7 Bacteriological Analysis of surface Water (Dec'14 to Feb'15)

Sr. No.	Sampling Location	Total Coliforms	F.Coliform	E.coli	F.Streptococci
		Most Probable No (MPN): No/100 ml			
1.	Tithal	38	15	13	8
2.	Chichwada	49	20	12	10
3.	Magod	37	22	14	9
4.	Balda	36	24	11	8
5.	Par River	33	18	11	10

Table No.3.9.8 Inland Surface Water Classification (CPCB Standards)

Sr. No.	Characteristics	Class				
		A	B	C	D	E
1.	Dissolved Oxygen, mg/L, Min	6	5	4	4	-
2.	Biochemical Oxygen Demand, mg/ L Max	2	3	3	-	-
3.	Total Coliform Organisms* MPN/100 ml, Max	50	500	5000	-	-
4.	Total Dissolved Solids mg/L Max	500	-	1500	-	2100
5.	Chlorides (as CL), mg/L, Max	250	-	600	-	600
6.	Colour, Hazen Units, Max	10	300	300	-	-
7.	Sodium Absorption Ratio, Max	-	-	-	-	26
8.	Boron (as B) mg/L Max	-	-	-	-	2
9.	Sulphates (as SO ₄), mg/L Max	400	-	400	-	1000
10.	Nitrates (as NO ₃), mg/L Max	20	-	50	-	-
11.	Free Ammonia (as N), mg/L Max	-	-	-	12	-
12.	Conductivity at 25 ⁰ C, micromhos/cm, Max	-	-	-	1000	2250
13.	pH value	6.5-8.5	6.5-8.5	6.5-8.5	6.5-8.5	6.5-8.5
14.	Iron (as Fe), mg/l, Max	0.3	-	50	-	-
15.	Fluorides (as F), mg/L, Max	1.5	1.5	1.5	-	-
16.	Copper (as Cu), mg/L, Max	1.5	-	1.5	-	-



* If the coliform is found to be more than the prescribed tolerance limits, the criteria for coliform shall be satisfied if not more than 20 percent of samples show more than the tolerance limits specified, and not more than 5 percent of samples show values more than 4 times the tolerance limits. Further, the faecal coliform should not be more than 20 percent of the coliform.

Source: Indian Standard (IS: 2296 – 1982).

A' Drinking water surface without conventional treatment but after disinfection

B' Outdoor bathing (organized)

C' Drinking water source with conventional treatment followed by disinfection

D' Propagation of wild life, fisheries

E' Irrigation, industrial, cooling, controlled waste disposal

3.9.7 Summary of Surface Water Quality

The following description is based on the analysis of the samples:

- During the analysis pH of the samples was found ranging from 6.80 to 7.71.
- TDS analysis was also carried out for surface water sample of the various locations. Minimum TDS was found 74 mg/L in the sample of Balda & maximum TDS was found 324 mg/L for the sample of Par river.
- Turbidity was found between 2.2 to 6.8 NTU.
- DO measured during analysis was ranging between 5.1 to 6.6 mg/L. Almost all the samples of surface water are having similar concentration of DO. DO levels was found more than 4.0 mg/L for all the samples, it means condition of the water resources are favourable to aquatic life.
- It was found that Total Hardness in the sample of Chichwada was minimum i.e. 25 mg/L & maximum was 215 mg/L in the sample of Par River.

Test results comparison study with Inland Surface Water Classification (CPCB Standards) reveals that water cannot be used directly for drinking purpose as MPN test is positive for almost all the locations. Surface water for these locations can be used for various domestic purposes but it cannot be used for drinking purpose. Before taking it for drinking purpose it should be passed through various stages of conventional treatment.



3.10 ECOLOGY

Ecology is the scientific study of the relations that living organisms have with respect to each other and their natural environment. Producer, consumer and decomposer govern whole cycle of ecology. Plant and animal both are interdependent to each other. Producer is necessary for each consumer. Plant plays their role in ecology as producer. Plant, animals and microorganism together with the environment in which they live make an independent unit called the Ecosystem.

Mainly two types of Vegetation cover are on the earth surface. One is self-growing and another is cultivated. Plants are renewable resource and useful to living organism in many ways. It is therefore the role of man in manipulating and changing vegetation population. Due to lack of awareness deforestation is occurring which in turn is responsible for imbalance of ecosystem.

The main objective of the ecological survey is aimed to find out baseline status of flora and fauna of the study region. An ecological survey of the study area was conducted particularly with reference to listing of species and assessment of the existing baseline ecological (terrestrial and marine ecosystem) conditions in the study area.

3.10.1 Methodology Adopted for the Study of Flora & Fauna

The importance of primary data collection in all ecological work cannot be over-emphasized as without good survey data the quality of an ecological assessment, mitigation and compensation proposals will be compromised. The data of flora & fauna were collected on visual observation during our site visit and by reviewing various literatures. Authenticity of the primary data was checked by reviewing the data collected from Forest Department, EIC and different Taxonomy books. Previous EIA reports of Valsad region were also referred during the finalization of floral and faunal data. The detail of different species of fishes collected by Department of Fisheries, Valsad (2011) is tabulated in **Table No.3.10.4**.

Data Collection: Following steps were considered for the collection of secondary data and generation of primary data while carrying out ecological survey of the study area.

Step 1: Defining the study area

The study area was larger than the development site as it included adjacent areas that might be directly or indirectly affected by the proposal.



Step 2: Stratifying the site

When designing a field survey, the study area was stratified (i.e. divide the area into relatively homogenous units - often referred to as 'environmental sampling units' or 'stratification units'). Stratified sampling provides a logical, objective and efficient method of undertaking surveys and ensures that the full range of potential habitats and vegetation types will be systematically sampled.

Step 3: Visiting the site

A preliminary site visit was conducted to refine the initial stratification units, determine the vegetation types present at the site, assess the vegetation condition and conduct a habitat assessment.

Observations:

The ecology of the study region is categorized as following:

✓ FLORA

Kharif and Rabi crops are grown in the study region. Following plants are also found around the human settlements which are described in **Table No. 3.10.1**.

Table No. 3.10.1 Details of Flora

Scientific name	Common Name	Scientific name	Common Name
Trees		Shrubs	
Acacia auriculiformis	Bengali Baval	Hibiscus rosa-sinensis	Jasud
Acacia catechu	Khair	Hibiscus vitifolius	Van Kapas
Acacia nilotica	Desi Baval	Jathorpha gossypifolia	Ratanjot Black
Aegle marmelos	Bili	Jatropha curcas	Ratanjot
Ailanthas excels	Ardusa	Lawsonia inermis	Mendi
Albizzia procera	Killai (kevlo)	Leea edgeworthii	Dussorudi
Azadirachta indica	Limdo	Nerium indicum	Karen
Bauhinia purpurea	Kachnar	Nyctanthus arbortristis	Parijatak
Bauhinia racemosa	Ashitro	Tephrosia purpurea	Sartankho
Bombax ceiba	Shimdo	Thespesia populnea	Paras Piplo
Carica papaya	Papaya	Vitex negundo	Nagod
Cassia fistula	Garmalo	Zizyphus oenoplia	Boydino velo
Casuarina equisetifolia	Sharu	Herbs	
Cocos nucifera	Nariel	Argemone mexicana	Darudi
Cordia gharaf	Gundi	Aerva sanguinolenta	Karadia



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Calotropis procera	Akdo	Brassica juncea	Rai
Capparis grandis	Thikari	Bothriochloa pertusa	Zenzvo
Carissa conjesta	Karmada	Catharanthus roseus	Barmasi
Cassia auriculata	Aval	Cassia tora	Kunvandio
Cirtus limon	Limbu	Capsicum annum	Marchi
Clerodendron incerne	Vilayati Mendi	Centella asiatica	Bhrami
Dalbergia paniculata	Patrali	Datura metel	Ganthovalo
Dalbergia sissoo	Sissoo	Hibiscus lobatus	Tali
Datura metel	Dhanturo	Indigofera linnaei	Fatakiya
Dendrophthoe falcate	Vando	Launaea procumbens	Bhonyadandi
Emblica officinalis	Amla	Lavandula bipinnata	Roth
Eucalyptus species	Nilgiri	Leucas aspera	Kubi
Ficus bengalensis	Vad	Ipomoea aquatica Forsk	Mali Ni Bhaji
Ficus glomerata	Umero	Melilotus Jangli	Methi
Ficus religiosa	Pipdo	Musa paradisiacal	Kela
Garuga pinnata	Kakad	Ocimum sanctum	Tulsi
Madhuca indica	Mahudo	Phyllanthus fraternus	Bhonya Amla
Mangifera indica	Amba	Sesamum indicum	Fal
Melia azaderach	Bakam Limdo	Setaria italica	Chano
Morus alba	Shetur	Sida cordata	Bhoya bala
Phoenix sylvestris	Khajuri	Tribulus terrestris	Bethu Gokhru
Pongomia pinnata	Karanj	Trichodesma amplexicaule	Undhafuli
Prosopis juliflora	Gando Bavali	Climbers	
Samanea saman	Rato Sarasdo	Ampelocissus latifolia	Jungli
Syzygium rubecundum	Tamun	Asparagus racemosus	Satavai
Tamarindus indica	Amla	Bongainvillea spectabilis	Boganvel
Tecomella undulate	Ragat Rohido	Cucurbita maxima	Kolu
Terminalia bellerica	Behdo	Passiflora edulis	Krishna Kamal
Terminalia chebula	Herde	Quisqualis indica	Madhu Malti
Terminalia cranulata	Sadad	Grass	
Terminalia catappa	Badam	Bothriochloa pertusa	Zenzvo
Zizyphus mauritiana	Bor	Cynodon dactylon	Darb
Zizyphus xylopyrus	Ghat Bor	Heteropogon contortus	Dabhsuliu



✓ FAUNA

During the site visit some migratory birds have also been seen in the company premises. Study area is rich with respect to fauna. Faunal detail is based on visual observation, literature published by Gujarat government and forest department and local people. Presence of sensitive migratory birds in company premises indicate that the environment of company is good.

Table No. 3.10.2 Details of Wild Life

Common Name	Scientific Name	Vernacular Name
A. Mammals		
Buffalo	B. bubalus	Buffalo
Cow	Bus indica	Cow
Dog	Canis famiaris	Dog
Goat	Capra hiscus	Goat
Common langur	Semnopithecus entellus	Vandra
Common mongoose	Herpestes edwardsi	Nurulia, Noria
Grey musk shrew	Suncus murinus	Chhuchhundar
Fivestriped palm squirrel	Funambulus penanti	Khiskoli
B. Birds		
Indian pond heron	Ardeola grayii	-
Cattle egret	Bubulcus ibis	-
Little egret	Egretta garzetta	-
Common pariah kite	Milvus migrans	govinda Samadi
Scavenger vulture	Neophron percnopterus	-
Common peafowl	Pavo cristatus	Mor
Red-wattled lapwing	Vanellus indicus	Titodi
Indian river tern	Sterna aurantia	-
Blue rock pigeon	Columba livia	Parevun
Indian ring dove	Streptopelia decaocto	Dhol
Roseringed parakeet	Psittacula krameri	Sudo, Popat
Indian cuckoo	Cuculus micropterus	-
Koel	Eudynamys scolopacea	Koyal
Jungle owlet	Glaucidium radiatum	Ghubad
Common Indian nightjar	Caprimulgus asiaticus	Deshi chhapo
Common kingfisher	Alcedo atthis	Lagothi
Green bee-eater	Merops orientalis	Nano patrangiyoo
Common swallow	Hirundo rustica	-
Golden oriole	Oriolus oriolus	Peelak
Blackheaded oriole	Oriolus xanthornus	-
Black drongo	Dicrurus adsimilis	Kalo koshi
Brahminy myna	Sturnus pagodarum	-
Indian myna	Acridotheres tristis	Kabar
Jungle myna	Acridotheres fuscus	Vana kabar
House crow	Corvus splendens	Kagdo
Jungle crow	Corvus macrorhynchos	Girnari kagdo



Redvented bulbul	<i>Pycnonotus cafer</i>	Bulbul
Common babbler	<i>Turdoides caudatus</i>	Sheradi
Jungle babbler	<i>Turdoides striatus</i>	Vana laledo
Redbreasted flycatcher	<i>Muscicapa parva</i>	-
Jungle wren-warbler	<i>Prinia sylvatica</i>	-
Tailor bird	<i>Orthotomus sutorius</i>	Darjido
Magpie robin	<i>Copsychus saularis</i>	Daiyad
Indian robin	<i>Saxicoloides fulicata</i>	Deoli
Yellowcheeked tit	<i>Parus xanthogenys</i>	-
Yellow wagtail	<i>Motacilla flava</i>	Matano pilakya
Purple sunbird	<i>Nectarinia asiatica</i>	Phul chakli
Yellowbacked sunbird	<i>Aethopyga siparaja</i>	-
House sparrow	<i>Passer domesticus</i>	Chakli
Baya	<i>Ploceus philippinus</i>	Sughari
C. Reptiles		
Northern house gecko	<i>Hemidactylus flaviviridis</i>	Garoli
Common garden lizard	<i>Calotes versicolor</i>	Kachindo
Forest calotes	<i>Calotes rouxi</i>	Kachindo
Southern green calotes	<i>Calotes calotes</i>	Kachindo
Fan-throated lizard	<i>Sitana ponticeriana</i>	-
Indian chameleon	<i>Chameleon zeylanicus</i>	Sarado
Common skink	<i>Mabuya carinata</i>	Sani mashi
Common worm snake	<i>Ramphotyphlops braminus</i>	An-sap
Common ratsnake	<i>Ptyas mucosus</i>	Dhaman
Checkered keelback	<i>Xenochrophis piscator</i>	Dendu
Indian cobra	<i>Naja naja</i>	Nag
Sawscaled viper	<i>Echis carinata</i>	Tarachha
D. Invertebrates		
Leech	<i>Hirudinaria granulose</i>	Leech
Earth Worm	<i>Megascolex mauripii</i>	Earth Worm
The garden spider	<i>Araneus diadematus</i>	The garden spider
Sand Worm	<i>Nereis bumerilii</i>	Sand Worm
Millipede	<i>Seolopendra marsidens</i>	Millipede
House Cricket	<i>Acheta domestica</i>	House Cricket
Dragon Fly	<i>Anax janius</i>	Dragon Fly
Grass Hopper	<i>Bacillus rossii</i>	Grass Hopper
Fly	<i>Glossina palpalis</i>	Fly
Ant	<i>Myrmecocytus setipes</i>	Ant
Cockroach	<i>Periplaneta americana</i>	Cockroach
Mosquito	<i>Anopheles maculipennis</i>	Mosquito
Honey bee	<i>Apis mellificia</i>	Honey bee



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PEACOCK & MIGRATORY BIRDS IN ATUL PREMISES

Table No. 3.10.3 Details of Fishes

Sr. No.	Species	Sr.	Species
Marine Fishes			
1	White Pomfret	13	Indian Salmon
2	Blach Pomfret	14	Ribbon Fish
3	Bombay Duck	15	Silverbar
4	Thread Fin	16	Perch
5	Jew Fish	17	Smallscineldies
6	Hilsa	18	Shrimp
7	Clupeids	19	Prawans (M)
8	Coilia	20	Prawns (J)
9	Shark	21	Lobster
10	Mullet	22	Crab
11	Cat Fish	23	Levta
12	Eel	24	Leather Jacket
Inland Fishes			
1	Catla	11	Mullet
2	Rohu	12	Fel
3	Mrigal	13	Shrimps
4	Kalbasu	14	Prawns (M)
5	Minor Crap	15	Prawns (J)
6	Vallagoattu	16	Bekti
7	Scorpion	17	Crab
8	Murrel	18	Levta
9	Cut Fish	19	Mahseer
10	Bombay Duck	20	Hilsa



3.11 SOCIO-ECONOMIC ENVIRONMENT

Socioeconomics (also known as **socio-economics** or **social economics**) is the social science that studies how economic activity affects social processes. In general it analyzes how societies progress, stagnate, or regress because of their local or regional economy, or the global economy.

In order to assess and evaluate the likely impacts arising out of any new or existing projects in Socio-economic environment, it is necessary to gauge the apprehension of the people in the surrounding areas. Socio-economic survey serves as an effective tool for fulfilling this requirement.

The rapid industrialization of the study region has greatly influenced the socio economic and health environment in the villages. Increasing industrialization and population density has increased pressure on resources, civic amenities and public infrastructure. Economic conditions of the local people have improved with the increasing industrialization and greater employment opportunities.

The Socio Economic environment includes demography structure, Population density, literacy Level, and employment levels. The data establish a baseline for the prediction of likely impacts of the proposed activity on the socio economic environment. Secondary information pertaining to the study area villages was collected from Government Agencies, Census data for the year 2001 & 2011, and statistical abstracts to compile the socio economic data.

3.11.1 Socio-Economic Survey Methodology

Socio-economic survey tools provide a means of improving understanding of local resource management systems, resource use and the relative importance of resources for households and villages. They can also be used to elicit insights on interaction with government decision-making systems, community perceptions of trends and priority issues, and community-based institutions and their role in the sustainable use and conservation of natural resources.

Data Collection: Following steps were considered for the collection of secondary data and generation of primary data while carrying out ecological survey of the study area.

1. Identification of Study Area: The study area was identified before carrying out the survey. All the related information which could affect the prosperity, development & literacy were also collected.

2. Site Visit: Location wise survey plan & format for data collection were prepared for site visit. Data regarding Land Characteristics, Population, Literacy, Workers and Amenities were collected during the survey.



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Analysis of Data: The data collected by primary survey were verified with secondary data collected from sources like Government Agencies, Census data for the year 2001 and 2011, and statistical abstracts.

Figure 3.11.1 Socio-economic survey Photographs



Gram Panchayat Office, Chanvai



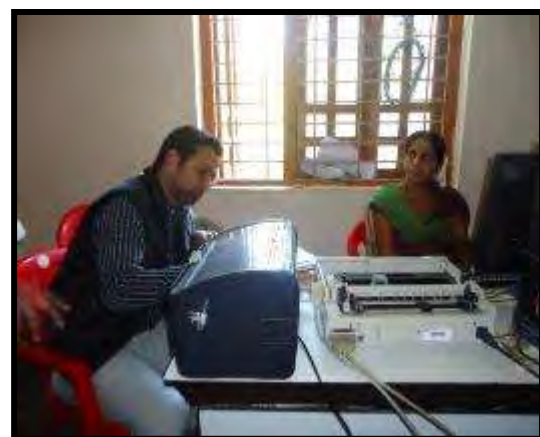
Sarpanch's House, Chanvai



Discussion with Sarpanch and Villagers, Chichwada



Gram Panchayat Office, Magod



Gram Panchayat Office, Tithal



3.11.2 Demography

Almost all Villages in the Study Area are experiencing a rapid growth of population due to industrialization. The total Population of study region is summarized in **Table No. 3.11.1**.

3.11.3 Population Density

Population density in the study area varies from 383 - 2586 person/sq. km. Details of the same are tabulated in **Table No. 3.11.1**.

Table No. 3.11.1 Details of Population in Study Area

Villages	No. of Household	Total population	Total area Hector	Population density Person/sq.km
Umbergaon	63205	296964	--	--
Fansa	2963	14459	1720.4	840.44
Kalai	673	3191	481.66	662.50
Pali Karambeli	475	2356	426.04	553.00
Mohan	1334	6225	933.74	666.67
Jamburi	392	1868	264.96	705.01
Pali	451	2241	583.9	383.80
Kalgam	2182	10687	2148.02	497.53
Punat	530	2621	578.52	453.05
Eklahare	345	1696	232.74	728.71
Nahuli	352	1644	315.62	520.88
Valwada	876	3922	602.79	650.64
Achchhari	404	2047	455.18	449.71
Bhathi Karambeli	445	2056	327.99	626.85
Angam	528	2477	402.14	615.95
Maroli	3081	15678	1870.28	838.27
Tadgam	513	2514	460.63	545.77
Sarai	429	2391	302.02	791.67
Manda	1165	6022	1064.07	565.94
Boralai	634	3193	622.41	513.01
Borigam	659	3233	747.68	432.40



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Kachigam	755	3375	596.1	566.18
Dhanoli	544	2826	383.45	736.99
Mamakwada	328	1515	233.25	649.52
Seronda	646	2978	719.71	413.78
Manekpur	589	2919	464.71	628.13
Talwada	229	1223	201.73	606.26
Nagwas	333	1743	336.39	518.15
Zaroli	1093	5469	936.84	583.77
Nandigam	372	1971	339.63	580.34
Malav	535	2788	567.83	490.99
Vankas	462	2472	473.5	522.07
Khattalwada	4018	21036	3455.24	608.81
Ahu	301	1490	319.29	466.66
Nargol	1775	8045	938.89	856.86
Tumb	641	3539	690.4	512.60
Sarigam (CT)	4647	19903	1312.35	1516.59
Bhilad (CT)	1998	9022	747.1	1207.60
Daheli (CT)	2188	10475	961.01	1090.00
Sanjan (CT)	3253	15544	600.92	2586.70
Dehari (CT)	1793	7892	1078.25	731.93
Namdha	456	1938	211.62	915.79
Chandor	538	2389	405.01	589.86

3.11.4 Sex Ratio

The sex ratio i.e. the number of females per 1000 males is in range of 819 - 1070 with lowest in Sarigam and highest in Bhathi Karambeli. The Sex ratio i.e. the number of females per 1000 males indirectly reveals certain sociological aspect in relation to female births, infant mortality among female children. Details of the same are tabulated in **Table No. 3.11.2**.



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Table No. 3.11.2: Details of Sex Ratio in Study Area

Zone of Study	Male Population	Female Population	Total Population	Sex Ratio (Female to 1000 Male)
Umbergaon	154630	142334	296964	920
Fansa	7324	7135	14459	974
Kalai	1637	1554	3191	949
Pali Karambeli	1223	1133	2356	926
Mohan	3160	3065	6225	970
Jamburi	936	932	1868	996
Pali	1130	1111	2241	983
Kalgam	5335	5352	10687	1003
Punat	1312	1309	2621	998
Eklahare	890	806	1696	906
Nahuli	838	806	1644	962
Valwada	2041	1881	3922	922
Achchhari	1064	983	2047	924
Bhathi Karambeli	993	1063	2056	1070
Angam	1254	1223	2477	975
Maroli	8029	7649	15678	953
Tadgam	1307	1207	2514	923
Sarai	1220	1171	2391	960
Manda	3001	3021	6022	1007
Boralai	1656	1537	3193	928
Borigam	1624	1609	3233	991
Kachigam	1799	1576	3375	876
Dhanoli	1424	1402	2826	985
Mamakwada	784	731	1515	932
Seronda	1479	1499	2978	1014
Manekpur	1465	1454	2919	992
Talwada	605	618	1223	1021
Nagwas	869	874	1743	1006
Zaroli	2744	2725	5469	993
Nandigam	960	1011	1971	1053
Malav	1402	1386	2788	989
Vankas	1271	1201	2472	945
Khattalwada	10538	10498	21036	996
Ahu	750	740	1490	987
Nargol	4069	3976	8045	977
Tumb	1743	1796	3539	1030



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Sarigam (CT)	10943	8960	19903	819
Bhilad (CT)	4803	4219	9022	878
Daheli (CT)	5398	5077	10475	941
Sanjan (CT)	7922	7622	15544	962
Dehari (CT)	4124	3768	7892	914
Namdha	1036	902	1938	871
Chandor	1215	1174	2389	966

3.11.5 Literacy Rate

The literacy level of the study area is summarized in **Table No. 3.11.4** and graphically presented in **Figure No.3.11.1**.

Table No. 3.11.4 Details of Literacy Rate in Study Area

Village	Literate			Literacy (%)		
	Male	Female	Total	Male	Female	Total
Umbergaon	118312	90668	208980	76.5	63.7	70.4
Fansa	5830	5169	10999	79.6	72.4	76.1
Kalai	1287	1022	2309	78.6	65.8	72.4
Pali Karambeli	994	838	1832	81.3	74.0	77.8
Mohan	2554	2202	4756	80.8	71.8	76.4
Jamburi	709	607	1316	75.7	65.1	70.4
Pali	830	637	1467	73.5	57.3	65.5
Kalgam	4310	3824	8134	80.8	71.4	76.1
Punat	1040	841	1881	79.3	64.2	71.8
Eklahare	767	625	1392	86.2	77.5	82.1
Nahuli	667	558	1225	79.6	69.2	74.5
Valwada	1614	1305	2919	79.1	69.4	74.4
Achchhari	813	608	1421	76.4	61.9	69.4
Bhathi Karambeli	748	618	1366	75.3	58.1	66.4
Angam	839	639	1478	66.9	52.2	59.7
Maroli	6293	5085	11378	78.4	66.5	72.6
Tadgam	1069	853	1922	81.8	70.7	76.5
Sarai	873	599	1472	71.6	51.2	61.6



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Manda	1998	1507	3505	66.6	49.9	58.2
Boralai	1127	793	1920	68.1	51.6	60.1
Borigam	1330	1049	2379	81.9	65.2	73.6
Kachigam	1459	1025	2484	81.1	65.0	73.6
Dhanoli	940	717	1657	66.0	51.1	58.6
Mamakwada	627	470	1097	80.0	64.3	72.4
Seronda	1121	920	2041	75.8	61.4	68.5
Manekpur	915	663	1578	62.5	45.6	54.1
Talwada	398	268	666	65.8	43.4	54.5
Nagwas	640	444	1084	73.6	50.8	62.2
Zaroli	1974	1489	3463	71.9	54.6	63.3
Nandigam	617	479	1096	64.3	47.4	55.6
Malav	928	645	1573	66.2	46.5	56.4
Vankas	976	669	1645	76.8	55.7	66.5
Khattalwada	7531	5805	13336	71.5	55.3	63.4
Ahu	523	429	952	69.7	58.0	63.9
Nargol	3442	3059	6501	84.6	76.9	80.8
Tumb	1012	693	1705	58.1	38.6	48.2
Sarigam (CT)	8261	5592	13853	75.5	62.4	69.6
Bhilad (CT)	3713	2681	6394	77.3	63.5	70.9
Daheli (CT)	3838	3063	6901	71.1	60.3	65.9
Sanjan (CT)	6096	4983	11079	77.0	65.4	71.3
Dehari (CT)	3435	2687	6122	83.3	71.3	77.6
Namdha	879	616	1495	97.5	68.3	77.1
Chandor	945	790	1735	80.5	67.3	72.6

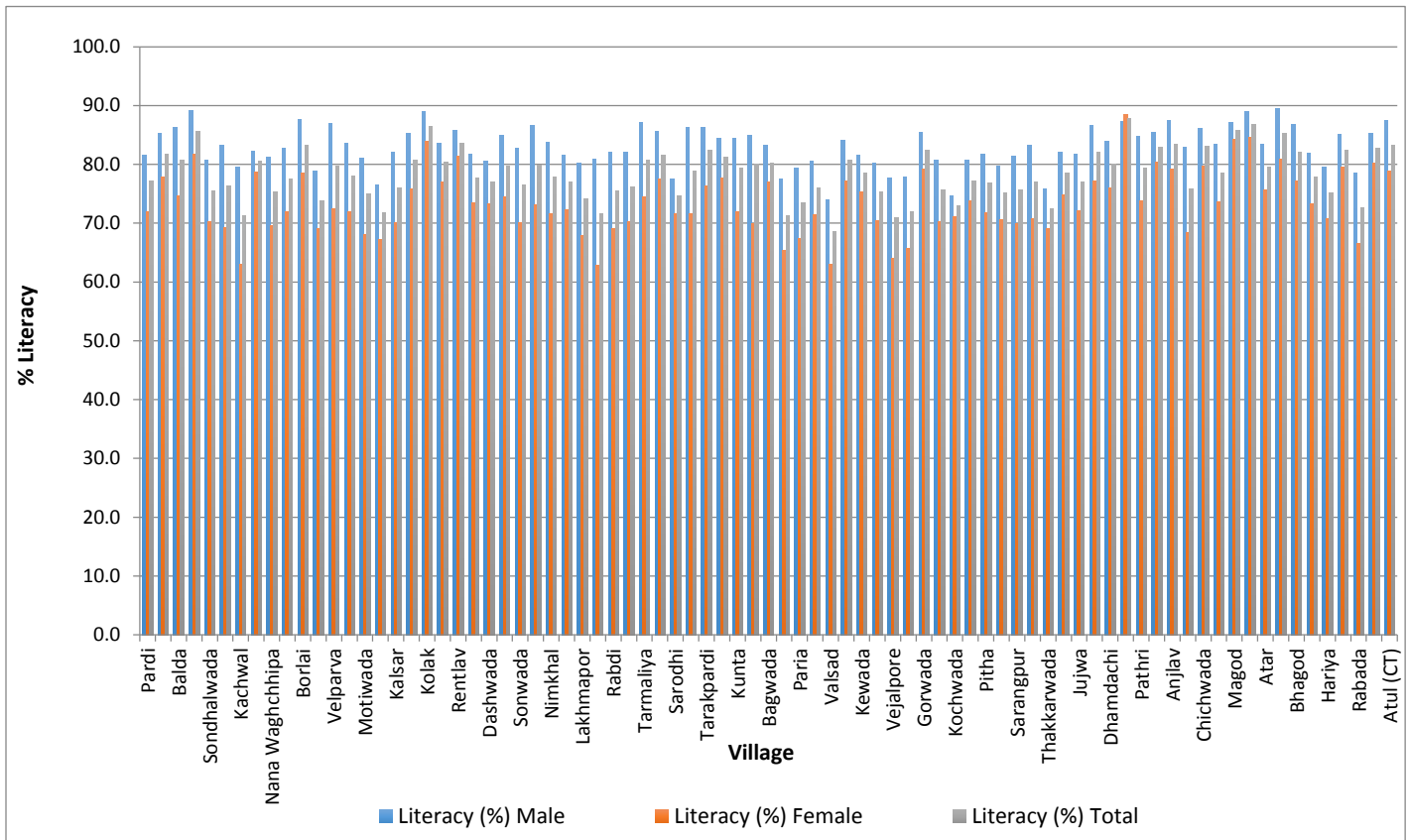


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Figure No. 3.11.2: Graph of Literacy Rate



Among all the villages of study area Eklahare is having high literacy rate i.e. 82.08 %. There is not much difference between female literacy rate and male literacy rate in the study region. Female literacy rate is an important indicator for social change.

3.11.6 Economic Aspects

Economic aspects of the study area include the economical structure of the people of the surrounding area. It can be predicted that economic structure of the study area will be improved with time, because it consists large industrial estate and hence there are more employment opportunities.

According to working status, whole population of the study area is divided into,

- Marginal workers
- Non workers
- Main workers

Census department has defined 10 categories of workers in Main workers. It consists of cultivators, agricultural, labourer those engaged in livestock, forestry, fishing, mining and quarrying, manufacturing,



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processing and repairs in household industries and other services. Workers engaged in the work for a period less than 6 month during the reference year falls under marginal workers. Workers engaged in unpaid household duties e.g. students, retired person, dependents etc. falls under non-workers. Detail of occupational structure is shown in **Table No. 3.11.5**.

Table No. 3.11.5 Details of Occupational Structure

Zone of Study	Non-Workers (%)	Total Workers	
		Main Workers (%)	Marginal Workers (%)
Umbergaon	59.6	35.3	5.0
Fansa	57.8	33.2	9.0
Kalai	60.5	34.2	5.3
Pali Karambeli	42.1	57.0	0.8
Mohan	51.0	39.6	9.5
Jamburi	59.9	34.4	5.7
Pali	62.0	36.6	1.4
Kalgam	58.2	36.2	5.6
Punat	59.1	37.0	3.9
Eklahare	56.0	36.2	7.8
Nahuli	59.9	38.9	1.2
Valwada	55.8	39.3	4.9
Achchhari	61.7	35.9	2.5
Bhathi			
Karambeli	59.4	33.4	7.2
Angam	53.7	38.9	7.4
Maroli	64.3	33.1	2.6
Tadgam	51.8	31.6	16.6
Sarai	58.2	34.4	7.4
Manda	58.2	37.7	4.1
Boralai	48.9	32.0	19.1
Borigam	61.9	31.4	6.7
Kachigam	43.9	42.5	13.7
Dhanoli	65.7	29.0	5.2



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Mamakwada	56.9	38.9	4.2
Seronda	58.0	39.7	2.4
Manekpur	67.6	29.2	3.2
Talwada	58.2	35.2	6.5
Nagwas	47.3	27.6	25.1
Zaroli	62.9	32.9	4.2
Nandigam	58.4	29.8	11.8
Malav	53.7	38.3	8.0
Vankas	49.3	43.3	7.4
Khattalwada	63.2	32.7	4.0
Ahu	51.4	46.7	1.9
Nargol	62.3	35.8	1.9
Tumb	71.0	25.2	3.8
Sarigam (CT)	57.5	39.0	3.5
Bhilad (CT)	63.8	33.2	3.0
Daheli (CT)	64.6	33.9	1.5
Sanjan (CT)	62.4	33.7	3.9
Dehari (CT)	56.9	39.1	4.1
Namdha	53.0	38.1	8.9
Chandor	59.3	37.2	3.6

Pali Karambeli has significant employment i.e. 57.0 % as main workers, while the lowest employment as main workers in Tumb i.e. 25.2%. Almost all the villages have more than 50 % people as non-workers. Rapid industrialization in the last two decades has resulted in significant changes in the occupational profile of the local people. There is an overall trend among the youth to opt for employment in service sector and move away from traditional occupation.



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Figure No. 3.11.3 Occupational Structure of Study Area

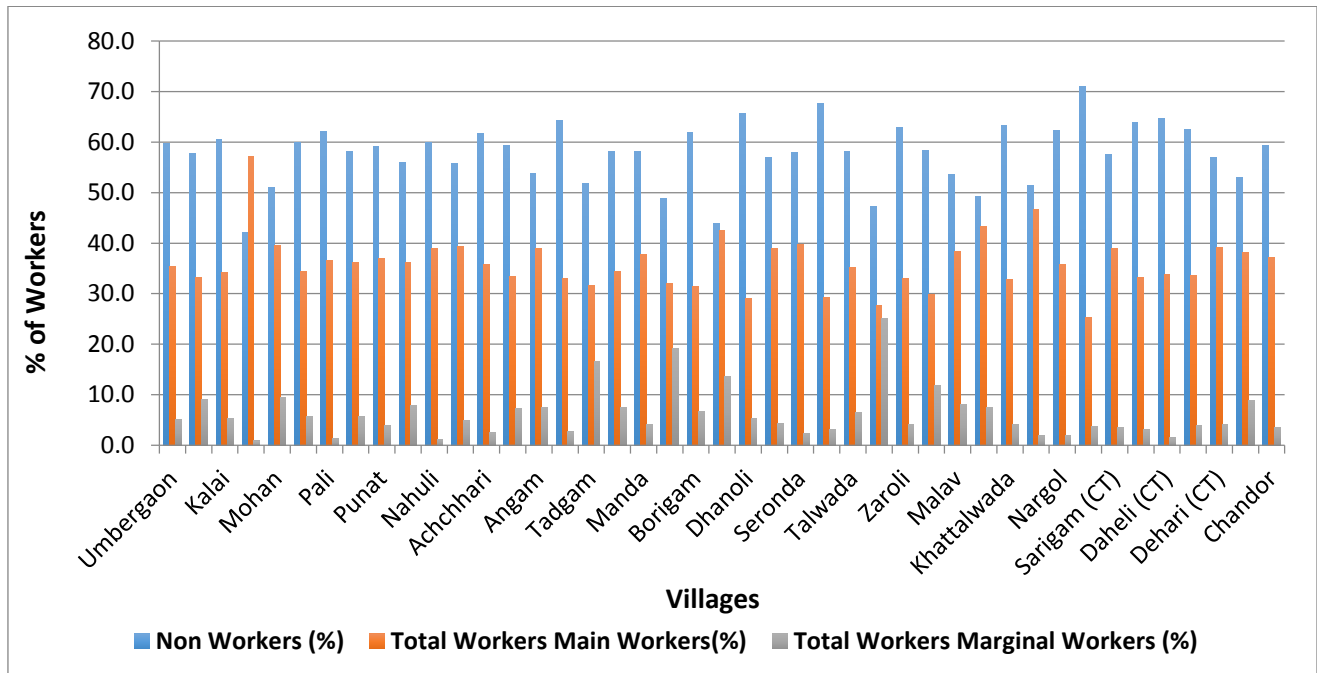


Table No.3.11.6 Key infrastructure available

No.	Description	Available around the project
1	Marine Sanctuary	No
2	Airports	Daman Airport: Appx. 15.2 km (SW)
3	Railway station	Atul Railway Station: Appx. 1.5 km (NW)
4	Bus Station	Yes
5	National Highways	National Highway No. 8: Appx. 2.0 km (EEN)
6	School/College	In Valsad, there are primary, secondary, Higher Secondary and CBSE schools as well as Arts, Commerce & Science colleges.
7	Hospital	In the study area villages have either primary health centers or sub centers. Some villages have medical facilities within distance of 3-5 Km. Civil Hospital and private experts of every medicine are available in Vapi & Valsad.



CHAPTER – 4 PROBABLE IMPACT & MITIGATION MEASURES

4.1 INTRODUCTION

The preliminary importance of preparing this chapter is to disclose the environmental consequences of the proposed expansion. After review of these consequences, an exhaustive EMP has been prepared to ensure that it minimizes the adverse impacts of the proposed expansion project on any of the environmental attributes. This chapter presents identification and prediction of impacts of the proposed expansion project on the study region. Predictions are then superimposed over the baseline (pre-project) status of environmental quality and the ultimate scenario (post project) of environmental conditions is obtained. On the basis of this study, the EMP is prepared and implemented in such a way that the deterioration of the environmental quality will be minimized.

As a part of present EIA study, anticipated environmental impacts associated with the proposed expansion project activity of the unit have been identified. Various activities during the construction & operation phase of the project, which are likely to cause an impact on various environmental components, have been listed. For evaluation of impacts due to proposed expansion, the baseline data generated for environmental parameters presented in chapter-3 of this report has been utilized. For the purpose of identification, prediction and quantification of the impacts due to the proposed expansion project, assessment task is performed for both Construction as well as Operation stage. All possible care to maximum extent is taken for assessment of temporary, short term, long term, direct, indirect as well as reversible and irreversible impacts. It is also borne in mind that the impact caused by activities of the construction phase will be temporary and restricted to a period of construction of the project.

With the very inception of the EIA study, details regarding the project components, processes, materials and allied factors are necessary to be collected along with the base line environmental status. These all need to be considered individually and collectively with each other for better identification, prediction and quantification. These all together helps in identification and quantification of the impacts to be posed by the proposed expansion project. Further, it also helps in determination of the proper mitigation measures for the identified adverse impacts.



For the purpose of impact assessment with above consideration, all possible stages of impact assessment are narrated with broad vision of sustainable development. In this chapter the effect due to Construction & Operational activity of the proposed project is explained. Finally the description is illustrated in tabular form which is commonly known as “Impact matrix”.

4.2 IDENTIFICATION OF ENVIRONMENTAL ATTRIBUTES

Before EIA, it is necessary to focus on environmental parameters. The major concern of selecting the environmental parameters is for impact identification, prediction and quantification. These parameters may be independent or inter-related with each other as well as related with the proposed expansion project. The selected parameters for the EIA are illustrated below:

- **Physico-Chemical Parameters:** Surface water quality, Ground water quality, Air quality & Climate, Soil Quality and Land use.
- **Ecological Parameters:** Floral Communities, Faunal Communities.
- **Socio-Economic Environment:** Aesthetic Conditions, Public Services, Health & Safety, Socio-Economic activities, Employment.

4.3 IDENTIFICATION OF IMPACT ACTIVITY

Environmental impacts due to proposed expansion project during construction and operation phase activity are identified as under:

4.3.1 Construction phase

During the construction phase, the following activities are considered to be important towards development of impacts:

- Site preparation
- Excavation and backfilling
- Transportation of construction materials, equipments & machineries
- Erection of concrete structures
- Road construction
- Clean up operations



4.3.2 Operation phase

During the operation phase, the following activities are considered to be important towards development of impacts:

- Plant Operation
- Fuel storage & handling
- Hazardous/Solid waste storage and handling
- Utilities & services
- Landscaping and Green belt development

4.4 ENVIRONMENTAL FACETS & PARAMETERS

For the purpose of assessment of anticipated environmental impacts, some environmental facets/regimes were selected considering the probable impacts. Further, for in-depth study for assessment of impacts various parameters were selected. The environmental facets/regimes along with the parameters selected for the study are as below:

1. Air Environment

- Emission Sources & Quantity
- Emission Control Measures/Technology
- Environment, Health & Safety Management Strategies
- Emission & Ambient Air Quality

2. Water Environment

- Water Consumption & Wastewater generation
- Water and Wastewater Management System & Technology
- Water & Wastewater Quality
- Environment, Health & Safety Management Strategies

3. Land Environment

- Potential of land use & Land cover change
- Potential of Land Contamination Sources & Control Measures
- Potential change in Soil Quality



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4. Ecology

- Biotic Components (Flora & Fauna) of the area
- Change in Habitat and Vegetation
- Control Measures and Ecological & Environment Management Strategies

5. Socio Economic Environment

- Demographic Characteristics
- Employment Potential & Allied Issues
- Amenities & Infrastructure
- Management Strategies & Social/Community Welfare Plan
- Occupational/Community, Health & Safety Management Plan

6. Noise Environment

- Ambient Noise Condition
- Major Sources of Noise from Project
- Control Measures for high noise area
- Environment, Health & Safety Management Strategies/Plan

7. Occupational Health & Safety

- Nature & Type of Operation works
- Raw Material and its management (Handling, Storage, Transportation)
- Operation hazards & Control Measures (Precaution & Prevention Measures)
- Management Strategies & Planning for Employee Safety, Welfare & Health
- Occupational Health & Safety Plan,
- Emergency Measures & Action Plan
- Disaster Management Plan



4.5 TYPES & NATURE OF IMPACTS CONSIDERED

The impact can be classified in various categories depending upon various aspects. Typical types of impacts considered for the present study are described below:

A. Direct (Primary) and Indirect (Secondary) Impacts

Direct impacts occur through direct interaction of an activity with an environmental, social or economic component. These effects are generally associated with the construction, operation, or maintenance of a facility or activity and are obvious as well as quantifiable. Indirect impacts on the environment are those which are not a direct result of the project involving a number of factors, often produced as a result of a complex impact pathway. The indirect impacts are also known as secondary or even tertiary level impacts. These are generally induced changes in the environment, population, economic growth and land use.

B. Short-Term (Temporary) and Long-Term (Permanent) Impacts

Impacts can be short-term or long-term depending upon the persistence or duration of the impacts. The duration of impacts have a lot to do with the project phase in which they occur: pre-operational (e.g., construction), operational, or post-operational (e.g., after project completion or commissioning).

C. Positive (Beneficial) and Negative (Adverse) Impacts

Even though the term "environmental impact" has come to be interpreted in the negative meaning, many actions have significant positive effects that should be clearly defined and discussed. This is particularly appropriate for redevelopment or corrective actions whose specific purpose and need is to mitigate any undesirable condition.

D. Cumulative Impacts

Cumulative impacts are those environmental impacts that result from the incremental impact of the proposed action on a common resource when added to other past, present, and reasonably foreseeable future actions. The assessment of cumulative impacts is difficult in part due to the exploratory nature of the possible future actions and in part due to the complex interactions that need to be evaluated when considering collective effects. Air quality modeling provides a means to study effects of cumulative impacts.



4.6 ANTICIPATED ENVIRONMENTAL IMPACTS & MITIGATION MEASURES

4.6.1 Air Environment

A. Construction phase

The only major impacts on air environment are predicted to be caused due to airborne dust arising from the construction activities. The dust may also arise during the activities of storage and handling of construction materials. The airborne cement particles can have significant impacts on environment.

For control of the airborne particles from construction materials, storage facility shall be covered with tarpaulin sheets throughout the construction phase. Personnel Protective Equipments (PPEs) shall be provided to the construction workers. Sprinkling of water would be undertaken at the construction sites for the suppression of fugitive dust. Hence there will be no significant impacts due to the dust particle.

Further, the air pollutants like PM, SO_x, NO_x, HC and CO will be emitted from the exhaust of transport vehicles and construction machineries. During transportation, trucks may be passing through kachcha roads which may primarily cause some dust pollution to the ambient air thereby causing temporal disturbance to the population residing nearby. For control of emission from the exhaust of transport vehicles and construction machineries, Regular maintenance/inspection of vehicles used at site shall be done. Vehicles having PUC certificate shall only be allowed to enter the site. Trucks used for transportation of construction materials shall be covered with tarpaulin sheet to avoid dust dispersion at site. Proponent shall develop pacca road up to the CPP area for the movement of trucks for transportation of fuel.

The impacts on the air environment generated during construction phase will be limited to the construction tenure and will be local. Hence looking to the overall facts described above, it can be concluded that the impacts on air due to the construction activities will be minimum or negligible. It is also concluded that by implementing the proper mitigation measures, the adverse impacts will be almost eliminated or minimized to the lowest extent of damage.

B. Operation Phase

To determine the significance of impacts of proposed expansion projects with reference to the baseline air quality, detailed study has been carried out for various emissions from the proposed expansion project which is described below:



1. Fugitive Emission:

The operational activities will have considerable sources of stationary & fugitive emissions. There is no use of any solvent or volatile material in the process, hence impacts due to the same are ruled out. Main source of air pollution will be fugitive dust arising from the handling of coal &/or lignite as well as handling of fly-ash. The following mitigation measures are practiced in the existing facility and shall be carried out for the proposed expansion also.

- Coal & lignite are stored in covered/closed storage yard with natural ventilation. The proponent will construct additional coal storage yard of 5400 m² to store additional quantity of fuel due to proposed expansion.
- As per existing practice, proponent has constructed additional concrete silos for storage of fly ash for the proposed expansion.
- Water is/shall be regularly sprinkled on coal & lignite stock, to minimize the dust emission.
- 60 nos. of sprinkler with pipeline network are provided in the existing CPP area. For additional quantity of fuel, additional numbers of sprinklers will be installed at the proposed storage yard and CPP area.
- Coal is/shall be transferred through closed conveyors belt with dust extraction system to reduce the chances of fugitive emission.
- The generated ash is/shall be transferred directly from the ESP and Dust collection system to storage silos through a closed 'dense phase pneumatic conveying system' to prevent/minimize fugitive particulate emissions.
- The existing coverage of greenbelt around the plant also acts as a natural barrier to stop the carryover of dust along with the wind current outside the plant premises. Moreover proponent shall develop additional greenbelt of 1420 m² around the proposed CPP area.
- Regular cleaning & maintenance of the air pollution control system is also carried out. The same shall be continued after proposed expansion.

The above mentioned mitigation measures are effective in minimizing the impacts on the air environment occurring due to the operation of the proposed expansion plant.



2. Utility Emissions:

In the proposed expansion, two new of additional boilers with 50 TPH capacity will be installed. Thus the stationary emissions from the proposed new boiler shall be significant and hence adequate mitigation needs to be provided. To evaluate the probable impacts of emission on the air quality, modeling of expected Ground Level Concentration (GLC) of pollution parameters is required. Details of flue gas emissions and air pollution control measures at existing and proposed scenario are mentioned in below table:

Table No: 4.1 Flue gas emissions and air pollution control measures at existing and proposed scenario

Sr. No.	Stack attached to	Capacity (TPH)	Type of fuel	Stack Height (m)	Permissible Limit	Air Pollution Control system
EXISTING						
EAST SITE						
1.	FBC boiler E1	34	Coal & lignite	56	PM < 150 mg/m ³ SO ₂ < 100 ppm NO _x < 50 ppm	ESP
2.	FBC boiler E2	34		56		ESP
3.	FBC boiler E3	50		80.3		ESP
4.	Hot oil Unit (Resorcinol Plant)	32.5	FO	32.5		
WEST SITE						
5.	FBC boiler W1	45	Coal	70	PM < 150 mg/m ³ SO ₂ < 100 ppm NO _x < 50 ppm	ESP
6.	Coal fired boiler W1	18.18		35		Scrubber
7.	Coal fired boiler W2	19.18		35		Scrubber
8.	Hot Oil Plant Shed B	19	FO	19		
9.	Oil Burner Shed B (stand by)	17	LDO	17		
NORTH SITE						
10.	Thermic Fluid Heater of DCO/DAP Plant	12	LDO	12	PM < 150 mg/m ³ SO ₂ < 100 ppm NO _x < 50 ppm	



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PROPOSED						
11.	AFBC boiler (2 Nos.)	50	Coal & lignite	106	PM < 150 mg/m ³ SO ₂ < 100 ppm NO _x < 50 ppm	Sulphur capture system with ESP

Note: Two number of coal fired boilers (i.e Coal fired boiler W1 & W2) will be discontinued after commissioning of proposed 2 nos. of AFBC boilers with 50 TPH (each) capacity.

In order to predict the impacts of air pollutants on ambient air quality, the incremental GLC has been computed using Industrial Source Complex – Short Term dispersion model (ISCST3) which is a steady-state Gaussian plume model. The guidelines and methodology prescribed by CPCB have been followed for the measurement of the Incremental GLC.

Modeling Concept:

Upon discharge to atmosphere, the emissions from stationary sources are subjected to the following physical and chemical processes:

- An initial vertical rise, called plume rise, due to initial buoyancy and momentum of discharge.
- Transport by wind in its direction.
- Diffusion by turbulence, and
- Gravitational settling, chemical transformations, deposition, washout and other complex reactions.

Stack Emission Details:

Values of all parameters related to emission characteristics include:

- Exit gas temperature and velocity (7-8 m/sec).
- Stack top dia meter and height from ground level.
- Site specific and monitored details considered for input data

The dispersion modeling for prediction of GLC was carried out based on the following considerations:



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For the existing scenario:

1. East Site

- a. Stack attached to 34 TPH FBC boiler E1
- b. Stack attached to 34 TPH FBC boiler E2
- c. Stack attached to 50 TPH FBC boiler E3

2. West Site

- a. Stack attached to 45 TPH FBC boiler W1
- b. Stack attached to 18.18 TPH coal fired boiler W1 – not considered for modeling as it is replaced by proposed boilers.
- c. Stack attached to 19.18 TPH coal fired boiler W2 – not considered for modeling as it is replaced by proposed boilers.

For the proposed scenario:

- a. Stack attached to 50 TPH two nos. AFBC Boilers
- The GLC have been predicted for 3 parameters, namely SPM, NO_x & SO₂.

Emission rates for PM have been calculated on the basis of following considerations:

- A mixture of fuels has been considered for each of the Boiler.
- An ash content of 45% has been considered for Indian coal, for estimating the PM emissions based on the analysis reports.
- It has also been assumed that 20% of the ash is retained in bed and 80% is generated as the fly ash.

Furthermore, the % efficiency of control system based on the USEPA– AP42 document for each of the particle size is considered as below:

- Efficiency for ESP: 99.9 % for PM>10, 99.5 % for PM_{2.5} to 10 and 95 % for PM_{2.5}.

Emission rates for Sulphur Dioxide have been calculated on the basis of following considerations:

- A mixture of fuels has been considered for each of the Boiler.
- Sulphur content of 0.5% and 0.66% has been considered for Imported Coal and Lignite (By adding limestone) respectively for estimating the emissions for Sulphur Dioxide, based on the analysis reports.



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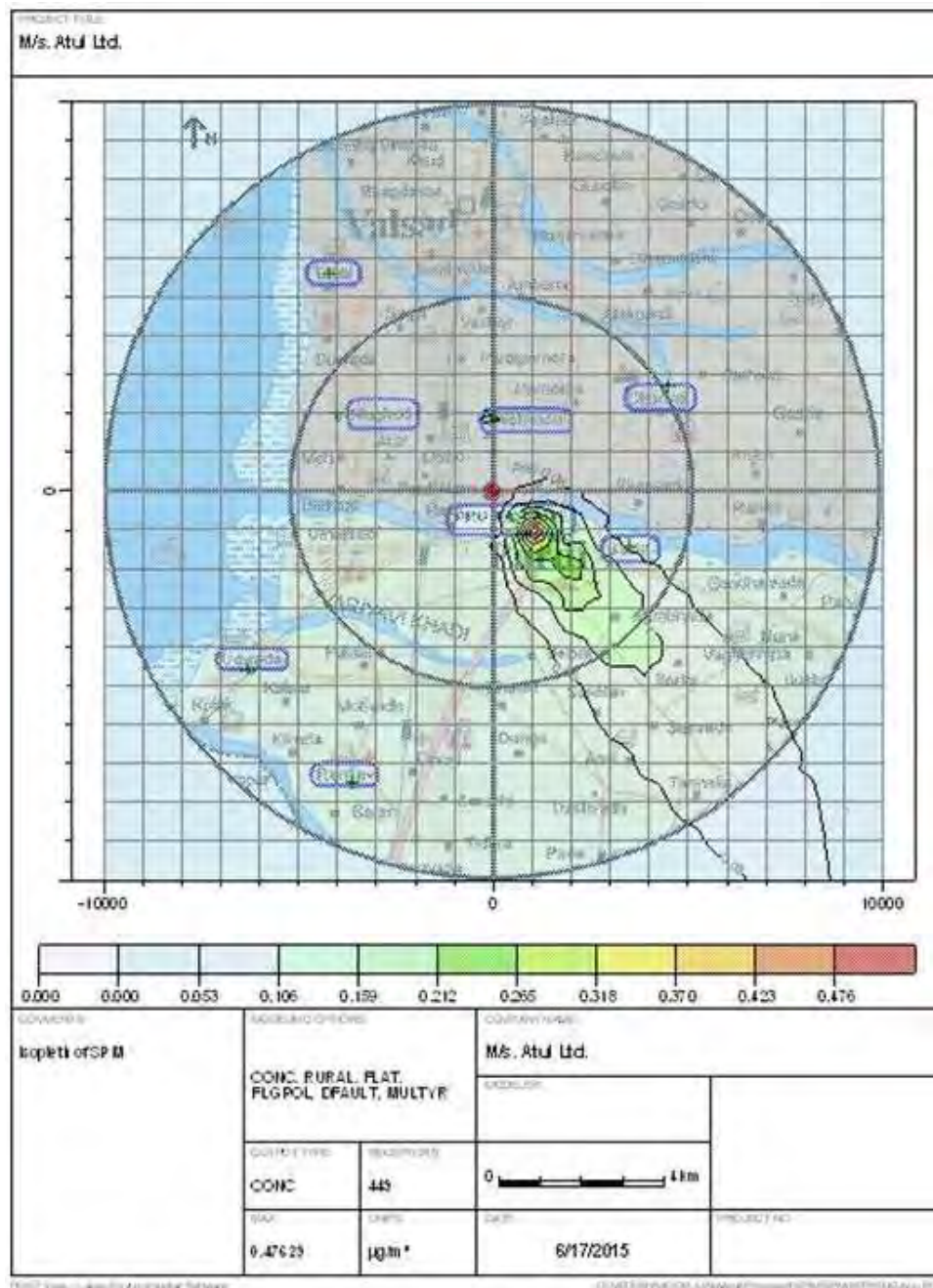


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- It has also been assumed that 85% of the Sulphur in the fuel is converted to Sulphur Dioxide.

Furthermore, an efficiency of 90% has been considered for Sulphur capture system i.e. lime dosing/blending.

SUMMARY OF ISCST3 MODEL OUTPUT FOR PM



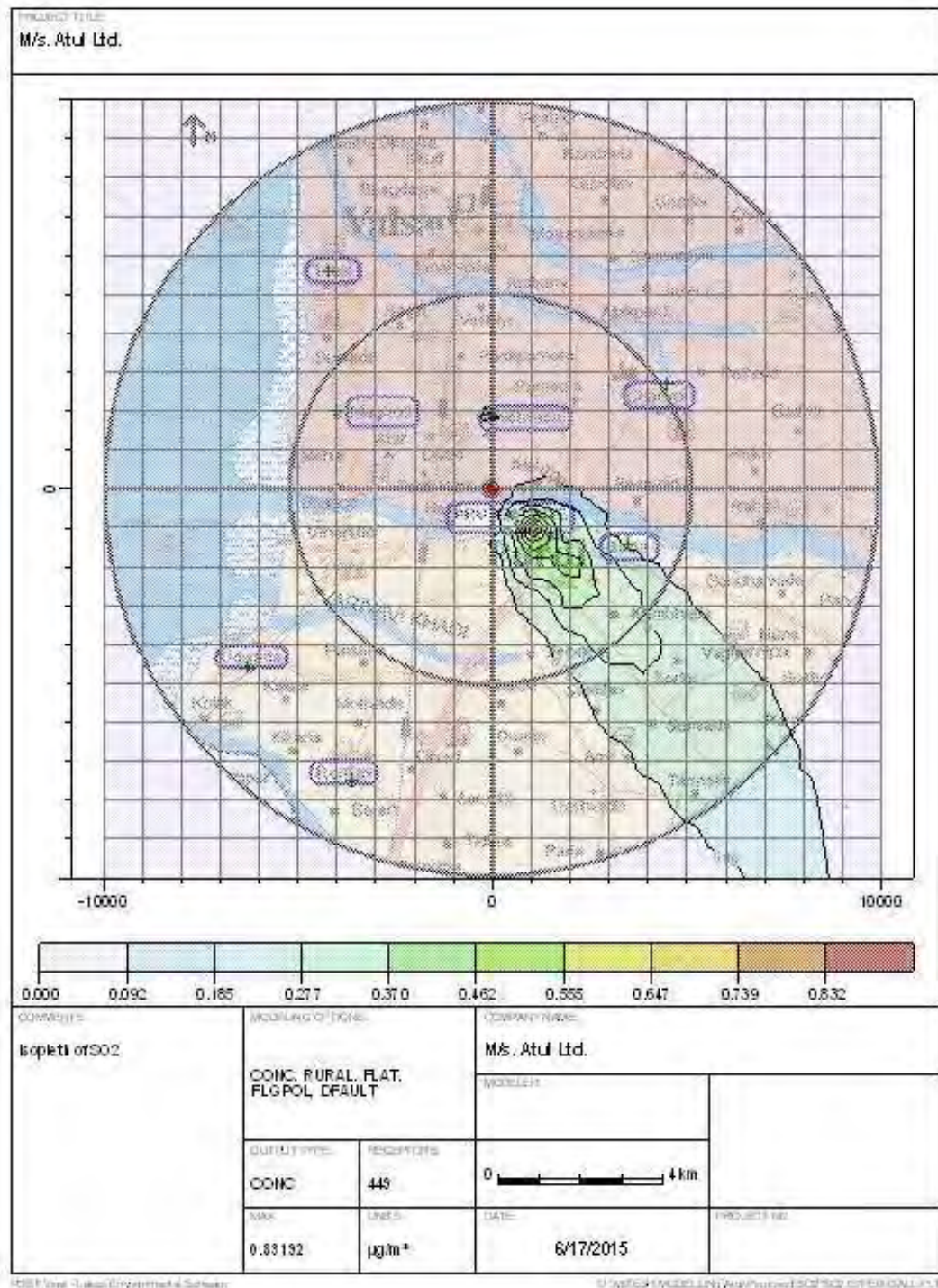


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SUMMARY OF ISCST3 MODEL OUTPUT FOR SO_x



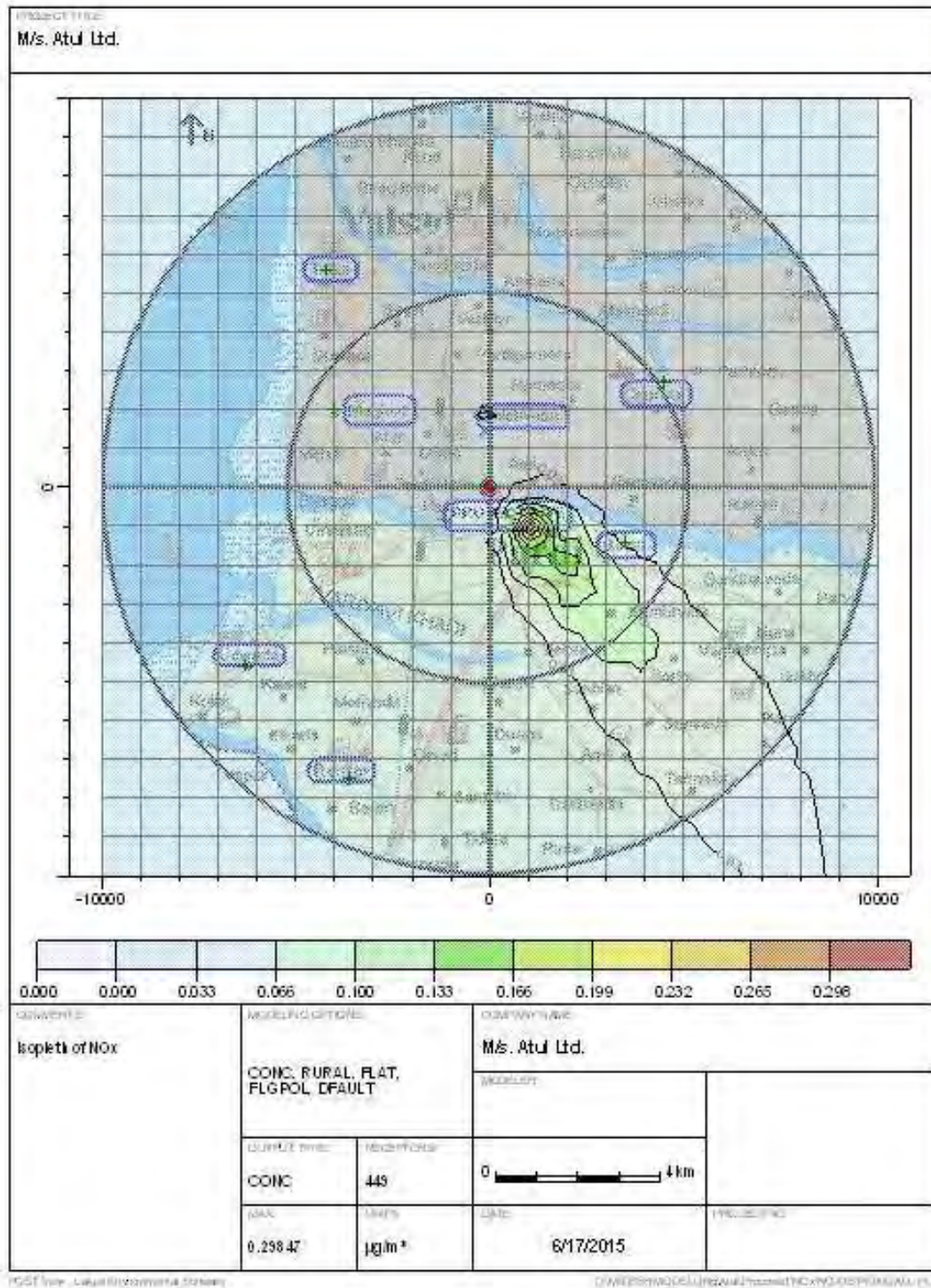


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SUMMARY OF ISCST3 MODEL OUTPUT FOR NO_x





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Maximum Probable Resultant Concentration

No	Pollutant	Max. Baseline conc. (ug/m ³)	Incremental Conc. (ug/m ³)	Resultant Conc. (ug/m ³)	GPCB limit (ug/m ³)
1	PM ₁₀	97.5	0.0561	97.5561	100
	PM _{2.5}	57.4	0.0561	57.4561	60
2	SO ₂	34.3	0.0981	34.3981	80
3	NO _x	47.5	0.0352	47.5355	80

Conclusion of air quality model study

The modeling study has proved that the air emissions from the proposed expansion would not affect the ambient air quality of the region in any significant manner. Moreover, proponent will provide highly efficient air pollution control equipment to control the emissions. Ambient air quality around the project site will remain within the national ambient air quality standards (NAAQS) meant for residential area.



4.6.2 Water Environment

A. Construction Phase

During the construction phase, water will be required only for civil works and domestic activities. Water will mainly require for preparation & mixing of concrete, cooling of construction equipment, usage in spray and sprinklers for dust suppression etc. The water will be sourced from the Par River. The unit already has obtained the permission for withdrawal of water from Par River. Moreover, groundwater will not be drawn for the construction activities; hence no impacts on groundwater resources are anticipated. The water requirement during construction work will be temporary requirement and the quantity will not be significant as construction works will be moderate in size.

Sewage generated during the construction phase will be treated in Soak pit/Septic system. Existing sanitation facilities will be made available for construction workers. Thus, there will be no considerable impacts due to disposal of sewage. The labour force employed will be provided potable water to avoid any waterborne diseases. There would not be any kind of effluent generation during the construction phase; hence issue of effluent disposal & impacts due to the same shall not arise.

Due care shall be taken to see that the construction equipments are washed properly only at designated washing area. Construction activity may also cause formation of stagnant pools of water, due care shall be taken to avoid such conditions as it may lead to unhygienic conditions.

Water conservation actions shall be taken during the construction phase by associated workforce & officials. Curing water shall be sprayed on concrete structures. After liberal curing on the first day, all concrete structures shall be painted with curing chemical to save water. This shall stop daily water curing hence save water. Concrete structures shall be covered with thick cloth/gunny bags and then water should be sprayed on them. This shall ensure sustained and complete curing.

These impacts will be temporary in nature and limited to the construction phase only. In addition to this, proper and effective Environment Management Planning will be implemented to minimize these temporary effects.



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B. Operation Phase

Effluent generated shall have an adverse effect on the final discharge source if not treated adequately. Existing source of water is Par River and same shall be used for additional water after proposed expansion. As mentioned in earlier Chapter-2, the total water consumption of Atul limited including existing process plant and CPP is 22,569 KLD (21,632 KLD Industrial + 937 KLD Domestic) and the wastewater generation is 20,810 KLD (19,873 KLD Industrial + 937 KLD Domestic). For Existing CPP water requirement is 3,905 KLD and wastewater generation is 2,749 KLD.

The total existing wastewater (including process plant and existing CPP) is treated in full-fledged ETP of 20 MLD capacity. The ETP consists of conventional primary, secondary and tertiary treatment units. The final treated effluent from the ETP confirming the GPCB norms is collected in guard pond and then discharged through closed pipeline to estuary zone of river Par via a diffuser.

In addition to the existing water requirement additional 2,095 KLD (2,094 KLD Industrial + 1 KLD Domestic) water will be required for the proposed expansion. Additional 271 KLD (270 KLD Industrial + 1 KLD Domestic) will be generated due to proposed expansion.

Domestic sewage is treated in Septic tank/soak pit system for existing unit and same system shall be followed after proposed expansion.

Wastewater generation after proposed expansion will be from utilities i. e. Pretreatment plant for water, blow down from boilers and cooling tower, condensate from turbine etc. will be collected in a collection sump of 1500 KL capacity. This wastewater will be having TDS in range 400-500 ppm and will be same as raw water. This waste water will be used for ash quenching, fire hydrant make up and dust suppression. Hence, there will be no additional effluent load due to proposed expansion on the existing 20 MLD ETP.

Details of water requirement, Wastewater/Sewage generation & Management for the proposed expansion project, water balance diagram of existing and after proposed expansion are illustrated in Chapter-2.

Ground water will not be extracted to meet the water requirement for the proposed expansion. Hence, there will be no impacts on ground water due to water consumption. Moreover, rainwater harvesting is carried out in existing unit and collected water will be utilized in process water. There will not be any toxic material release in the sub soil region, hence no adverse impacts on ground water are envisaged.



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Looking to the overall scenario of wastewater management, the proposed expansion project does not have the potential of impacting the ground water quality and quantity. There will not be any toxic material release in sub soil region, hence no adverse impacts on ground water are envisaged. Also there shall be no impact on drainage pattern and total recycling of additional wastewater generated from proposed expansion shall be done to achieve zero discharge goal. Hence, no significant impact on water environment during the operation phase.



4.6.3 Land Environment

A. Construction Phase

As the proposed project is an expansion project, impacts due to the change in land use or land cover are not envisaged as the proposed expansion will be carried out in existing premises. On the contrary, no requirement of additional land and the utilization of existing spare land for the proposed expansion can be considered as a beneficial impact in terms of resource maximization.

Some minor impacts on land environment are likely to occur due to site preparation activities like construction and erection of the different units of the CPP, foundation works for the shed and silos, which are expected to be of short duration and not much significant. Excavated earth shall be stored in stockpiles and covered with plastic/tarpaulin sheets or stored in closed room and reused for landscape development along the corridor.

Some minor impacts are envisaged due to spillage & leakage of fuel as well as contamination of land due to construction material. However, the impacts are not significant as the land impacted by the temporary construction material shall be cleared off immediately. Further, the proponent has planned to prevent any kind contamination of spillage & leakage by providing well lined/paved area for the works having potential of leakage/spillage of fuel or any other material. Hence, issue of contamination of land will not arise.

Other impacts on land are likely to occur because of disposal of sewage & garbage generated during the construction works from domestic activities of engineers, official & other workers. Hence, considering the probable impacts, the proponent has planned to provide sanitation facilities in the existing unit for the staff engaged in construction work. Thus, it shall prevent the impacts due to waste dumping on land. The sewage shall be disposed of through the existing septic tank/soak pit system. Thus, impacts on land due to sewage or domestic waste are least envisaged.

Clearance of vegetation is not required for the proposed expansion. Further, it is also noteworthy that the existing unit has developed a green belt cover within the existing premises and it is also planned to develop additional 1420 m² greenbelt for the proposed expansion, which shall lead to beneficial changes in land use & land cover. The greenbelt development will also result in many beneficial secondary & tertiary impacts like improvement in ecological condition, prevention of air pollution, abatement of noise, etc.



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Thus looking to the overall scenario the proposed expansion project would have considerable beneficial impacts as well as significant green belt development within the premises.

B. Operation Phase

The proposed project is expansion within the existing unit. The details of the land requirement and planning for development of the proposed expansion projects have already been described in chapter -2 along with the layout showing details of land utilization.

There will not be any considerable source of impacts on land. However, the land contamination due to leakage/ spillage of material or contaminated water or hazardous waste may cause impacts on land/ soil. Currently the material handling, storage and transportation is being done carefully & designated storage area for fuels, solid waste and hazardous waste etc. is provided. Coal is stored in yard & the total area of the coal yard is 2700 m² and additional 5400 m² will be provided for storage of additional quantity of fuel. The area is equipped with water sprinkling and pipeline system for control of fugitive emission. Additional numbers of water sprinklers shall be provided for proposed coal yard and CPP area. Ash is conveyed and stored in a silos and additional ash after proposed expansion will be stored in additional 2 nos. of silos. Hence, the potential of soil contamination due to the materials is not visualized to be considerable.

Due to the proposed expansion, Used oil and Discarded Containers will be generated as hazardous waste. As a solid waste additional fly ash and bed ash shall be generated due to proposed expansion. Detailed hazardous/solid waste generation is mentioned in the **table no. 4.2**



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Table No. 4.2 – Hazardous/Solid Waste Generation Details

Sr. No.	Name of Waste	Existing	Proposed	Total	Waste Disposal & Management
Hazardous Waste					
1.	Used Oil lit/year	--	20	10	Collection, Storage, Transportation & Disposal by selling to registered recyclers
2.	Discarded Containers Nos./year	--	2	1	Collection, Storage, Transportation & Disposal by selling to GPCB approved scrap dealers
Solid Waste					
3.	Fly Ash MT/Month	7,108.00	6,019.20	13,127.20	Collection, Storage, Transportation & Disposal at cement Manufacturing & company's own brick manufacturing
4.	Bottom Ash MT/Month	1,403.00	1,504.00	2,907.00	Collection, Storage, Transportation & Disposal at cement Manufacturing & company's own brick manufacturing

Note: Fly ash & Bottom ash generation have been calculated on the basis of worst case scenario of 100% Indian coal.

Used oil will be sold to registered refiners approved by GPCB/MoEF and discarded containers are/will be sold to registered dealer approved by GPCB/MoEF. The collection, storage and disposal of solid/hazardous waste shall be carried out as per Hazardous Waste Management & Handling Rules, 1989. Separate hazardous/solid waste storage area shall be developed for the storage of above mentioned hazardous/solid waste.

A well planned ash handling system is in place, where the ash is collected in silo and send to cement manufacturer industries. Also industry has own brick manufacturing plant located within premises for the reuse of ash. Same practice will be followed after the proposed expansion. Thus considering the above probable impacts, waste generation and planned mitigation measures it is envisaged that there will not be any major impacts on the Land Environment during the operation phase.



4.6.4 Noise Environment

A. Construction Phase

The average construction noise level generated during day time will depend on the number & type of equipments deployed and their workings such as “on-time” percentages and distances from receiver locations. The noise and vibration generating machines are Earth moving machines like roller, tractors, trucks, etc., Material handling machines like concrete mixers, cranes, etc; and Stationary machines like pump, generator and compressor.

During the construction phase, noise will be generated due to movement of vehicles and operation of light & heavy construction machineries, which are expected to emit sounds with moderate to high decibel value. Noise levels can affect the local residents both during transportation and construction. Hence, transportation activities will be restricted during daytime only. The noise impact will be relatively more on construction workers during their duty hours. Occupational health issues associated with high noise level may be observed.

Considering the adverse impacts on personnel engaged in construction works and due to construction equipments, efficient mitigation measures shall be planned & implemented. The most efficient mitigation shall include provision of PPEs like earmuffs/earplug to avoid adverse effects of noise on health and hearing capacity of workers as well as planning of working hours and shift of workers as per Factory Act. The machinery used for construction shall be of high standard of reputed make and shall adhere to Standard requirements. These Standards itself take care of noise pollution control, vibration control and air emission control. The noise level of the machineries/equipments shall be minimized by proper lubrication, modernization, maintenance, muffling and provision of silencers wherever possible.

Further to minimize the above potential impacts, major construction activities would be scheduled during normal daylight working hours and would be implemented consistent with the applicable standards. Vibration control damped tools shall be used and the number of hours that a worker uses them must be limited. It is also understood that the impacts caused by the increase in noise level would not be considerable.



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B. Operation Phase

Noise anticipated from the proposed expansion project shall be confined only within the plant boundary and more precisely within the source area. The main sources of noise within the plants are steam turbine, boiler, air compressor and transferring pumps.

For abatement of noise arising from equipments/machineries, acoustic enclosures, silencers or mufflers, anti-vibrating pads shall be provided, wherever possible. The issue of impacts of noise levels on personnel employed in high noise generating areas shall be controlled by providing PPEs like earmuffs/earplug in order to mitigate the adverse health effects. The adequate greenbelt developed in and around the plants and additional green belt shall greatly serve as an efficient barrier for prevention of noise propagation outside the plant premises.

4.6.5 Ecological Environment

A. Construction Phase

The site of proposed expansion is within the existing premises of Atul Limited. Thus the site preparation will not involve the clearance of any vegetation. As mentioned in earlier sections, the construction work shall be moderate and not have much pollution potential. Also the impacts of construction are most likely to be restricted within the site. Hence, issue of impacts on ecology during the construction phase are least envisaged.

However, it is suggested to provide some standard mitigation measures like sprinkling of water on stock piles & unlined land area, prevention of runoff from the site and storage of construction materials like cement in enclosed storage area. Such mitigation measures shall ensure that there is no carry-over of air borne particulate matter on the nearby area. Also it is planned to transport the construction materials in covered trucks to prevent the air borne particulates during the transportation activities. It is also recommended to avoid night traffic & loud noise in trucks to prevent any kind of considerable impacts on nearby area especially on the fauna of the area falling in the route of the transportation.

B. Operation Phase

With respect to the local terrestrial ecological component, it has been noticed that the impacts due to proposed expansion project would not be considerable as there would be no major source of pollution to have impact on ecology of the area. Even the most considerable source of pollution-emission, is not



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likely to cause any harm to the local agricultural & terrestrial ecological components as the incremental GLC values are found almost negligible for all the pollutants. Besides this, the issue of deposition of particulates emitted from the project is also found to be insignificant to cause any damage to the nearby area as the proponent has planned efficient control measures by creating a green belt to serve as a barrier for preventing the escape of particulates outside the plant boundary. Thus considering the present situation of the ecology in the area, it is envisaged that there will not be any adverse impacts on ecology but the Greenbelt developed in the premises of proposed expansion project will have significant beneficial impacts on ecology.



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4.6.6 Socio-Economic Environment

A. Construction Phase

The construction phase will generate around 500 employment opportunity in the skilled as well as unskilled categories. Although the workforce requirement will be temporary in nature, it will be met from the local populace as far as possible hence there will be positive impact in terms of local resource utilization. They will require essential basic infrastructure facilities viz. safe drinking water, adequate sanitation, etc. The contractor will provide all required facilities to the workers to reduce the impact on the existing facilities in the study area. Local businessmen will get opportunity to supply construction materials. Demands generated from the employees working at site for basic facilities will increase the local business activity of the area. Any development, either temporary or permanent will support the family of many villagers. Thus, positive impacts on socio-economic environment are envisaged during construction phase.

B. Operation Phase

The operation phase will provide significant opportunities for employment in different categories. This would multiply economic opportunities, and henceforth enhance the livelihood patterns of this region. The proposed expansion project would require 10-20 employments. The maximum of the human resource requirement will be met by local employment. Thus the proposed expansion project would be considerably beneficial to the socioeconomic conditions of local area. Thus looking to the overall scenario of activities and probable impacts of the proposed expansion project, it has been envisaged that there will be an overall improvement in socioeconomic layout of project area which will be the key benefit of the proposed expansion project.



4.7 RENEWABLE RESOURCES DURING CONSTRUCTION & OPERATION PHASE

Potential adverse effects from the use of renewable resources are associated with the construction of the project components that will require the use of renewable and non-renewable resources including wood, gravel, sand, steel, concrete and paper products.

Electricity will be used during construction to provide power to construction equipment, in operation for lighting of buildings and running utilities equipments. Electricity consumption will be kept at a minimum when possible by adopting electricity conservation measures.

The project proponent will ensure that the contractor selected to construct the project will implement best management practices to conserve renewable resources.

For conservation of energy, following measures shall be adopted:

- Construction will be done during day time only.
- Purchase of energy efficient appliances.
- Promoting use of renewable energy, wherever possible and viable.
- Adjusting the settings and illumination levels to ensure minimum energy used for desired comfort levels.
- Use of CFL and low voltage lighting.
- Sunscreen films on windows to reduce heating inside the office/admin buildings.
- Promoting awareness on energy conservation within the premises.
- Usage of Solar lights in roads and landscape area.
- Training staff on methods of energy conservation and to be vigilant to such opportunities.



4.8 IMPACT DUE TO INCREASE IN TRAFFIC DENSITY

Traffic to the site during construction will be more intensive. The present road conditions are good and presently, the traffic on the connecting road is very limited to the company and used basically by the villagers only. Hence, it can cater the load of traffic during the construction phase.

During the operation phase, the traffic density will be raised due to the increase in industrial activities as well as commercial activities shall be done as per the requirement. The project site is at @ 2.00 km away from the NH No. 8. The road connected to NH No. 8 is in good condition and having width of 10 m. There will be no requirement of additional road development for the proposed expansion project. The existing road is capable to cater additional load of the traffic after proposed expansion.

4.9 IMPACT ANALYSIS BY MATRIX METHOD

The impacts of the man-made activities, unlike its type, can be assessed by matrix analysis, which is very well known as LeoPold Matrix System among the environmentalists of the world. For the purpose of the impacts of the proposed expansion project, it was assessed by method adapted from the LeoPold method and the outcomes of the analysis are tabulated on subsequent pages.

The environmental indices identified in Chapter 3 can further be classified into the following:

- Physical Parameters** : Surface water quality
- : Ground water quality
- : Air quality & Climate
- : Soil Quality

Land use pattern & Topography

- Ecological Parameters** : Flora & Fauna
- Social Parameters** : Aesthetics
- : Local Housing structure
- : Services
- : Health & Safety
- Economic Parameters** : Industries
- : Employment



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The impact assessment of the general impacting activities on the above parameters of environmental indices can be done by establishing a co-relation by “Cause and effect relationship” with the help of impact matrices. The matrices for both the construction and operation phase are presented. The environmental impact matrices can be prepared for two conditions:

1. Without mitigation/control measures.
2. With proposed mitigation measures for adverse / beneficial effects.

The criteria for evaluation of qualitative matrix are presented herewith:

1. **No Impact (0):** This indicates that the project activity is unlikely to have any impact on an environmental attribute.
2. **Negligible Adverse Impact (-1)/Negligible Beneficial Impact (+1):** It signifies that the actions have minor effect, adverse or beneficial, on the environmental parameters concerned.
3. **Significant Adverse Impact (-2)/Significant Beneficial Impact (+2):** The activities and their environmental Impacts are judged to be significant if they create, or have the potential to create concern in the public or professional community.
4. **High Adverse Impact (-3)/High Beneficial Impact (+3):** The action that can create or have a potential to create controversy in the public or professional community due to its long-term effect. They may be at times irreversible.

The environmental Impact matrix without mitigation/control measures during the construction phase is given in **Table 4.3**, while the matrix with proposed mitigation measures during the construction phase is given in **Table 4.4**. The environmental Impact matrix without mitigation/control measures during the operation phase is given in **Table 4.5**, while the matrix with proposed mitigation measures during the operation phase is given in **Table 4.6**.



**Table No. 4.3 – Environmental Impact Assessment Matrix without Mitigation Measures
(Construction Phase)**

No.	Parameters	Project Activities											
		Excavation	Water Requirement	Civil Works	Mechanical Works	Equipment & Machine Operation	Landscaping	Filling	Surface Paving	isc. Human Activities	ansportation activities	Demands of Public facilities	TOTAL
A.	PHYSICO-CHEMICAL PARAMETERS												
1.	Surface Water Quality	0	-1	0	0	0	0	0	0	-1	0	0	-2
2.	Ground Water Quality	0	-1	-1	0	0	0	0	0	-1	0	0	-3
3.	Air Quality & Noise	-2	0	-2	-2	-2	2	0	-1	-1	-2	0	-10
4.	Soil Quality	-1	0	-2	-1	0	1	0	-1	-2	-1	0	-7
5.	Land use /Land cover	-1	0	-2	-1	0	1	0	0	-1	0	0	-4
B.	ECOLOGICAL PARAMETERS												
1.	Flora & Fauna	-1	0	-1	0	-2	2	0	-1	-1	-2	0	-6
2.	Marine Ecosystem	0	0	0	0	0	0	0	0	0	0	0	0
C.	SOCIAL PARAMETERS												
1.	Aesthetics	-1	0	0	-1	-1	0	0	0	-1	-1	0	-5
2.	Local housing structure	0	0	0	0	0	0	0	0	-1	-1	0	-2
3.	Services	0	0	0	0	0	0	0	0	-1	-1	-1	-3
4.	Health & Safety	-2	0	-2	-2	-2	2	-1	-1	-1	-2	0	-11
D.	ECONOMIC PARAMETERS												
1.	Agriculture	0	0	0	0	0	0	0	0	0	0	0	0
2.	Industries	0	0	0	0	0	0	0	0	0	0	0	0
3.	Employment	1	-1	2	2	1	1	0	0	0	1	0	7
	TOTAL	-7	-3	-8	-5	-6	9	-1	-4	-11	-9	-1	-46



**Table No. 4.4 – Environmental Impact Assessment Matrix with Mitigation Measures
(Construction Phase)**

No.	Parameters	Project Activities											
		Excavation	Water Requirement	Civil Works	Mechanical Works	Equipment & Machine Operation	Landscaping	Filling	Surface Paving	Misc. Human Activities	Transportation activities	Demands of Public facilities	TOTAL
A.	PHYSICO-CHEMICAL PARAMETERS												
1.	Surface Water Quality	0	0	0	0	0	0	0	0	0	0	0	0
2.	Ground Water Quality	0	-1	0	0	0	0	0	0	0	0	0	-1
3.	Air Quality & Noise	-1	0	-1	-1	-1	1	-1	0	0	-1	0	-5
4.	Soil Quality	0	0	0	0	0	1	0	0	0	0	0	1
5.	Land use /Land cover	0	0	0	0	0	1	0	0	0	0	0	1
B.	ECOLOGICAL PARAMETERS												
1.	Flora & Fauna	0	0	0	0	-1	2	0	0	0	0	0	1
2.	Marine Ecosystem	0	0	0	0	0	0	0	0	0	0	0	0
C.	SOCIAL PARAMETERS												
1.	Aesthetics	0	0	0	0	0	1	0	0	0	0	0	1
2.	Local housing structure	0	0	0	0	0	0	0	0	0	0	0	0
3.	Services	0	0	0	0	0	0	0	0	0	0	0	0
4.	Health & Safety	1	1	-1	-1	-1	0	0	0	0	-1	0	-2
D.	ECONOMIC PARAMETERS												
1.	Agriculture	0	0	0	0	0	0	0	0	0	0	0	0
2.	Industries	0	0	0	0	0	0	0	0	0	0	0	0
3.	Employment	1	0	2	2	1	1	0	0	0	1	0	8
	TOTAL	1	0	0	0	-2	7	-1	0	0	-1	0	4



**Table No. 4.5 – Environmental Impact Assessment Matrix without Mitigation Measures
(Operation Phase)**

No.	Parameters	Project Activities												
		Commissioning & Operational Activities	Water Requirement	Domestic activities & Wastes disposal	Air Emissions	Fugitive Emissions	Noise	Hazardous Waste generation	Material Storage & Handling	Hazards from operations & Activities	Breakdown of Control Equipments	Transportation Activities	End use of Products	TOTAL
A.		PHYSICO-CHEMICAL PARAMETERS												
1.	Surface Water Quality	0	-1	-1	0	-1	0	0	-1	-1	-1	0	0	-6
2.	Ground Water Quality	0	0	-2	0	0	0	0	0	-1	0	0	0	-3
3.	Air Quality & Noise	-2	0	-1	-2	-2	-1	-1	-2	-2	-2	-2	0	-17
4.	Soil Quality	0	0	-2	-1	-1	0	-2	0	-2	0	0	0	-6
5.	Land use /Land cover	1	-1	0	0	0	0	0	0	0	0	0	0	0
B.		ECOLOGICAL PARAMETERS												
1.	Flora & Fauna	-1	0	-1	-1	-1	-2	-1	-1	-1	-1	-1	0	-11
2.	Marine Ecosystem	0	0	0	0	0	0	0	0	0	0	0	0	0
C.		SOCIAL PARAMETERS												
1.	Aesthetics	-1	0	-1	-1	-1	-1	-1	-1	-2	-1	-1	0	-11
2.	Local housing structure	-1	-1	-2	-1	-1	-1	-2	-1	-1	0	-2	0	-13
3.	Services	0	0	0	0	0	0	0	0	-1	0	-1	0	-2
4.	Health & Safety	-1	-1	-2	-3	-2	-3	-3	-3	-2	-2	-2	0	-24
D.		ECONOMIC PARAMETERS												
1.	Agriculture	0	0	0	0	0	0	0	0	0	0	0	0	0
2.	Industries	0	0	0	0	0	0	0	0	0	0	0	2	2
3.	Employment	3	0	0	0	0	0	0	1	0	0	2	1	7
	TOTAL	-2	-4	-12	-9	-9	-8	-10	-8	-13	-6	-7	3	-84



Table No. 4.6 – Environmental Impact Assessment Matrix with Mitigation Measures (Operation Phase)

No.	Parameters	Project Activities												
		Commissioning & Operational Activities	Water Requirement	Domestic activities & Wastes disposal	Air Emissions	Fugitive Emissions	Noise	Hazardous Waste generation	Material Storage & Handling	hazards from operations & Activities	Breakdown of Control Equipments	Transportation Activities	End use of Products	TOTAL
A.	PHYSICO-CHEMICAL PARAMETERS													
1.	Surface Water Quality	0	0	0	0	0	0	0	0	0	0	0	0	0
2.	Ground Water Quality	0	0	0	0	0	0	0	0	0	0	0	0	0
3.	Air Quality & Noise	0	0	0	-1	-1	-1	-1	-1	-1	-1	1	0	-6
4.	Soil Quality	0	0	0	0	0	0	0	0	0	0	0	0	0
5.	Land use /Land cover	0	0	0	0	0	0	0	0	0	0	0	0	0
B.	ECOLOGICAL PARAMETERS													
1.	Flora & Fauna	2	0	0	0	0	0	0	-1	-1	0	1	0	1
2.	Marine Ecosystem	0	0	0	0	0	0	0	0	0	0	0	0	0
C.	SOCIAL PARAMETERS													
1.	Aesthetics	0	0	0	0	0	0	0	0	0	0	0	0	0
2.	Local housing structure	1	0	0	0	0	0	0	0	0	0	0	0	1
3.	Services	1	0	0	0	0	0	0	0	0	0	0	0	1
4.	Health & Safety	2	1	0	0	0	0	0	-1	-1	0	-1	0	0
D.	ECONOMIC PARAMETERS													
1.	Agriculture	0	0	0	0	0	0	0	0	0	0	0	0	0
2.	Industries	0	0	0	0	0	0	0	0	0	0	0	2	2
3.	Employment	3	0	2	0	0	0	0	2	1	0	3	3	14
	TOTAL	9	1	2	-1	-1	-1	-1	-1	-2	-1	4	5	13



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From overall study and evaluation of impacts, it can be concluded that the overall negative impact from various activities on different environmental parameters is negligible with proper EMP in place. Even the negative impacts can be converted into positive beneficial impact with proper and timely implementation of EMP. Hence, project can be considered environmentally safe & fit.



CHAPTER – 5 ENVIRONMENTAL MONITORING PLAN

5.1 GENERAL

Environmental Monitoring is an essential tool for sustainable development & ensuring effective implementation of Environmental Management Plan & Mitigation Measures adopted. It also updates the environmental management system for effective conservation of environment in-line with the ongoing project activities/operation. A periodic Environment Monitoring Plan enables environmental management system with early forecasts for additional action required and modification of ongoing actions for environment management, improvement & conservation. It provides the exact idea for mitigation measures to be implemented as it is linked with actual distraction of environmental quality due to the project activities. Hence, monitoring of critical parameters of environmental quality is very essential in the routine activity schedule of the project operation. Thus, a well implemented Environmental Monitoring Plan enables the proponent to identify the deviation of environmental quality due to the proposed expansion project activities.

5.2 ENVIRONMENTAL MONITORING PLAN

An Environmental Monitoring Programme shall be scheduled for the following major objectives:

- To verify the result of the impact assessment study in particular with regards to existing as well as proposed expansion developments.
- To follow the trend of parameters which have been identified as critical.
- To check or assess the efficiency of controlling measures.
- To ensure that new parameters, other than those identified in the impact assessment study, do not become critical through the commissioning of the expansion.
- To monitor effectiveness of control measures.
- Regular monitoring of environmental parameters will be done to find out any deterioration in environmental quality.
- Monitoring of the existing as well as proposed expansion project area will be regularly conducted.



5.3 ENVIRONMENTAL ASPECTS TO BE MONITORED

Since the project is an expansion project, the unit has a well-established environmental and safety department which undertakes measures for environmental protection and mitigation of environmental impacts. Several measures have been proposed in the environmental mitigation measures for minimizing the adverse impacts of the proposed expansion. These shall be implemented as per the proposal and monitored regularly to ensure compliance with environmental regulations and also to maintain healthy environmental conditions around the unit.

A major part of the sampling and measurement activity shall be concerned with long term monitoring aimed at providing an early warning of any undesirable changes or trends in the natural environment that could be associated with the plant activity. This is essential to determine whether the changes are in response to a cycle of climatic conditions or are due to impact of the plant activities. In particular, a monitoring strategy shall ensure that all environmental resources which may be subject to contamination are kept under review and hence monitoring of the individual elements of the environment shall be done.

During the operation phase, Environmental Management Department shall undertake all the monitoring work to ensure the effectiveness of environmental mitigation measures. The suggestions given in the Environmental Monitoring Programme shall be implemented by the Environmental Management Department by following an implementation schedule.

In case of any alarming variation in ground level concentration of ambient air, stack emissions, work zone air and noise levels, performance of effluent treatment facilities etc. and the same shall be discussed in the Environmental Management Department and the variance from norms shall be reported for immediate rectification action at higher management level. In addition to the monitoring programme, the following shall also be done to further ensure the effectiveness of mitigation measures:

- Internal environmental audits shall be carried out to check the compliance with standards/applicable norms by in-house experts.
- In addition to the above, all necessary steps shall be taken to implement the measures suggested by CPCB in the Charter on Corporate Responsibility for Environmental Protection (CREP) for power plant. These measures have already been included in the plant design, for example:



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- Hazardous wastes to be handled and disposed off strictly in accordance with Hazardous Wastes (Management, Handling and Trans boundary Movement) Rules, 2008.
- Promotion of Energy Optimization Technology including periodic energy audits.
- All new stacks installed after proposed expansion shall be provided with stack monitoring facilities like port hole, ladder, etc.

The environmental aspects to be monitored for proper implementation and effectiveness of various mitigative measures envisaged/adopted during the design and commissioning stage of the proposed expansion plan are described here under:

5.3.1 Ambient Air Quality

Monitoring of ambient air quality at 10 locations within and around the plant premises is already being carried out and same shall be considered for proposed expansion. Ambient air monitoring is carried out by Atul Limited at different location are mentioned in the **Table No. – 5.1**. Monitoring shall be carried out for Respirable Suspended Particulate Matter (RSPM), Suspended Particulate Matter (SPM), Sulphur Dioxide (SO₂) and Oxides of Nitrogen (NO_x) & shall be regularly monitored for the compliance of prescribed limits of CPCB / GPCB.



Table No. 5.1 – Locations of Ambient air monitoring carried out by Atul Limited

Sr. No.	Sampling Location	Parameters	Sample Size	No. of samples / Month	Responsibility
1.	Near Main guest house	SPM, SO ₂ , NO _x	24 hrs	1	Plant In-charge
2.	At Wyeth Colony				
3.	Gram Panchayat Hall				
4.	Near Main Office North site				
5.	Near 66KVA substation				
6.	Water tank Haria road				
7.	Opposite shed D				
8.	ETP North site				
9.	Near TSDF				
10.	ETP west site				

5.3.2 Stack Emissions Monitoring

Unit already carries out periodical monitoring for existing stacks and same shall be carried out for additional stacks after proposed expansion. PM₁₀, PM_{2.5}, SO₂, NO_x in flue gas stacks shall be analyzed to assess the performance of pollution control facilities installed for the unit. In case emissions are found to exceed the norms, the on duty personnel shall check the relevant parameters and take appropriate corrective actions. Along with the performance test of main plant, equipment performance test of pollution control equipment shall be made on a regular basis. Environmental Management Department shall also be a part in the preliminary and final acceptance tests. A detailed maintenance schedule shall be drawn for all pollution control systems. The maintenance shall be done strictly as per the schedule.

5.3.3 Solid / Hazardous Waste Generation & Utilization

Maximum re-cycling and utilization of generated solid waste shall be done as per the guidelines. Unit has already prepared Hazardous waste disposal plan as per applicable statutory conditions under the Hazardous Wastes Act, 2008 and same shall be implemented after the proposed expansion.

The cell will monitor and keep a record of the following:

- Generation of solid wastes
- Disposal of balance solid/hazardous materials to a proper disposal facility.



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- Prepare a site manual on the total program and activities of solid/hazardous waste management.
- Keep record of all hazardous waste disposal data and update regularly on GPCB website.

5.3.4 Green Belt Development

Unit has already developed 16,500 m² greenbelt near the existing CPP area and additional 1420 m² greenbelt shall be developed during the proposed expansion. The following plan has been made for implementation:

- Annual program for tree plantation with specific number of trees to be planted every year is/shall be made. The implementation of the plan is/shall be monitored by the Environmental Management Department every six months.
- A plan for post plantation care will be reviewed in every month's meeting.
- Watering of the plants, manuring, weeding & hoeing will be carried out as a part of post plantation care.

5.3.5 House Keeping

The Safety Department is keeping/shall keep a very close monitoring of house-keeping activities and organize regular meetings of joint forum at the shop level (monthly), zonal level – (once in two months) and apex level (half yearly). The individual area concerned is/will be taking care for the house keeping of area.

5.3.6 Occupational Health and Safety

Unit has already prepared key safety measures implemented in the existing plant and same shall be implemented for the proposed expansion. Routine medical examination of personnel shall be carried out. A systematic programme for medical check-up at regular intervals is already carried out, which is attached as **Annexure-9** and same shall be followed for newly employed workers to ascertain any changes in health condition due to the working conditions.



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5.3.7 Socio-Economic Development

Expansion in existing CPP will improve the infra-structure & economic conditions of the locality thereby, uplifting the social development of the same. It is suggested that the plant management should have structured interactions with the community to disseminate the measures taken by the industry and also to elicit suggestions for overall improvement for the development of the area.

5.3.8 Effluent Quality

The additional sewage generated from the plant shall be treated in existing Septic tank/Soak pit system. Additional effluent after proposed expansion shall be utilized for suppression of ash quenching, dust suppression and fire hydrant make up. Hence the same will not increase ETP load.

5.3.9 Work Zone Air Quality & Noise

Work zone air quality is/shall be monitored as per the directives of GPCB to assess the levels of Particulate matter, NO_x and SO₂ in the work zone. Noise levels is/shall be measured at the source of generation.

Various noise attenuation measures have been taken at the design stage of expansion. However in case of high noise generating equipment which are not frequented by the plant personnel, the area shall be cleanly marked as High Noise area and the employees shall be provided with PPEs like ear plugs/ear muffs before entering such areas.

The Noise level monitoring is carried out once in a month for existing unit at selected ambient air locations and same shall be implemented after the proposed expansion. Data obtained after noise monitoring shall be carefully evaluated to identify changes, if any. Gross deviation from the baseline will require a thorough review of operations at the proposed project to identify the reasons of high noise generation.



5.4 FREQUENCY OF MONITORING PARAMETERS

The Frequency of monitoring parameters shall be as follows:

Table No. 5.2 – Frequency of Environmental Monitoring Parameters

Sr. No.	Item	Parameters	Frequency
1.	Ambient Air quality	PM ₁₀ , PM _{2.5} , SO ₂ and NO _x	Monthly
2.	Stack emissions quality	PM, SO ₂ , NO _x ,	Monthly
3.	Treated Effluent	pH, TDS, TSS, BOD, COD, Oil & Grease, Color, etc.	Monthly
4.	Ground & Surface water	pH, TDS, TSS, Sulphate, Hardness, metal analysis, etc.	Half Yearly
5.	Noise	Equivalent noise level - dB (A) (min. 10 locations)	Monthly
6.	Greenbelt	Number of trees planted, Number of Survived Plants/Trees, Number of Poor Plant/Trees	Yearly
7.	Haz. Waste management	Maintaining records of generation, receipt & disposal in Form 3	Routine
		Filing of Annual Returns in Form 4 for Haz. Waste handling	Yearly by 30 th June
		Submission of returns of used oil in Form 13	Yearly by 30 th June
8.	Overall Environmental Audit	As per Direction of Honorary High Court, Gujarat	Yearly
9.	Renewal of Consents and Authorization	Renewing consent to operate under applicable acts	90 days before expiry of validity
10.	Compliance of EC conditions	Submission of 6 monthly compliance reports	Half yearly
11.	Water cess	Filing of annual returns for cess incurred on water consumption.	Yearly by 30 th Sept
12.	Medical surveillance program	The health status of all the workers in respect of occupational health hazards.	Half Yearly



5.5 MONITORING METHODOLOGIES

Monitoring of environmental components shall be done as per the guidelines provide by MoEF/CPCB/ GPCB. The following methods are recommended/standard method approved/recommended by MoEF/CPCB.

Table No. 5.3 – Method of Environmental Sampling & Analysis

Sr. No.	Attributes	Method	
		Sampling / Preservation	Analysis
1.	Ambient Air Quality	As per IS: 5182, ASTM & Instruments Manual	As per IS: 5182 & ASTM
2.	Water & Waste Water I. Ground Water II. Surface Water III. Effluent Sample	Standard Methods for Examination of Water and Wastewater Analysis, 21 st edition APHA, 2005	IS: 3025 & Standard Methods for Examination of Water and Wastewater Analysis, 21 st edition APHA, 2005
3.	Noise	Instrument: Noise level meter	EPA
4.	Soil Quality	IS: 2720 & Laboratory Standard Methods	IS: 2720 & Laboratory Standard Methods

5.6 LABORATORY FACILITIES

Existing laboratory with adequate manpower and facilities for self-monitoring of pollutants generated in the industry carries out the waste analysis. The laboratory is equipped with instruments and chemicals required for monitoring following pollution parameters. Hence, self-monitoring of the pollution parameters for the proposed expansion shall be carried out in the existing laboratory of Atul Limited.

Water: pH, Temp, BOD, SS etc.

Ambient Air: PM₁₀, PM_{2.5}, SO₂, NO_x.

Meteorology: Wind speed and direction, temperature, relative humidity and rainfall



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5.7 DOCUMENTATION & RECORDS

The environment department which is responsible for operation of pollution control facility will maintain following records:

- Instruction manual for operation and maintenance of pollution control devices/equipment/facilities.
- Log sheet for self-monitoring of pollution control.
- Instruction manual for monitoring of Water, Solid and Gaseous parameter discharged from the company and also for various parameters of pollution control facilities.
- Stationary records as per the Environmental Acts.
- Monthly and annual progress reports.



5.8 BUDGETARY PROVISION FOR ENVIRONMENTAL MANAGEMENT SYSTEM

On regular basis, environment management cell shall inspect the necessity & availability of the materials, technologies, services, maintenance works and make appropriate budget for the purpose. Regular record review for change in financial requirement of environment management shall be done and appropriate budgetary provisions shall be made. With other budget, budget for environment management shall be prepared and revised regularly on requirement.

Table No. 5.4 – Budgetary Provision for Environment Management System

Sr. No.	Description	Amount (Lacs)
1.	Environment Management System (For APC and Hazardous waste Management)	555.00
2.	Green belt development	5.00
TOTAL		560

Recurring cost for Environmental management system will be 55.00 Lacs/Annum

The above budget shall include for the provisions of:

- Environmental Monitoring Program
- Operation & Maintenance of Environmental Technologies/Equipments
- Laboratory works for Environmental management activities
- Emergency Purchase of necessary material, equipments, tools, services, etc.
- Greenbelt development.
- Social & Environmental Welfare and Awareness programs/training.
- Annual Environmental Audit.



CHAPTER – 6 ADDITIONAL STUDIES

6.0 GENERAL

An additional study including Risk Assessment (RA), Disaster Management Plan and Occupational, Health & Safety Management System has been carried out for the proposed expansion project to identify main hazards, to review the effectiveness of selected safety measures and to expand the safety measures in order to achieve a zero risk culture at the company. The study has been incorporated in the Environmental Impact Assessment (EIA) report to support the Environmental Management Plan. The study for the project has been further divided into the following sections:

- Risk assessment (Part - 01)
- Disaster Management Plan (Part - 02)
- Occupational Health and Safety Management System (Part - 03)

6.1 SCOPE OF THIS STUDY

The Qualitative Risk Assessment (QRA) study for proposed expansion has specifically been conducted considering the Terms of References (TORs) given by the State Expert Appraisal Committee for Environment Clearance (EC).

The study has been carried out with a view to comply the following TORs:

- Objectives and methodology of risk assessment
- Details of storage facilities
- Process safety, fire-fighting systems, safety features and emergency capabilities to be adopted.
- Identification of hazards
- Consequences analysis
- Recommendations on the basis of risk assessment done
- Disaster Management Plan



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PART - 01

RISK ASSESSMENT



6.2 GENERAL

The company shall deal with fuels such as Imported Coal, Indian Coal & Lignite only. Fire, explosion, combustion or combinations of them are the hazards associated with the unit. Comprehensive, systematic and sophisticated methods of Safety Engineering, such as, Hazard Analysis and Quantitative Risk Assessment have been developed to improve upon the integrity, reliability and safety of the industrial plant.

6.3 OBJECTIVES OF RISK ASSESSMENT

Risk analysis involves an extensive hazard analysis. It involves the identification and assessment of risks to which the plant personnel, neighboring populations and the surrounding environment are exposed as a result of the hazards present. This requires a thorough knowledge of failure probability, credible accident scenario, vulnerability of population etc. Much of this information is difficult to get or generate. Consequently, the risk analysis is often confined to maximum credible accident studies. It provides basis for what should be type and capacity of its on-site and off-site emergency plan and the types of safety measures to be required for the same.

Objectives of risk assessment are:

- To identify hazard and risks resulting from the hazards
- To study and foresee the effects of such risks on the workers, public, property and the environment
- To find out necessary control measures to prevent or minimize risk
- To comply the legal requirement by various safety and environment laws of the country.
- To get the necessary information for Emergency planning and evacuation.

The Risk Assessment presented in this report has been conducted with a view to cover risks arising from the following:

1. Storage and handling of combustible materials like fuels i.e. diesel, lignite & coal.
2. Operation of DG Set, Boiler & Utility section.



6.4 METHODOLOGY ADOPTED

As a conservative approach, the risk has been analyzed qualitatively. In **Qualitative Risk Assessment**, risk has been analyzed using the Hazards Identification & Risk Assessment (HIRA) methodology. In HIRA, major manual activities carried out by the plant personnel as well as contract labors have been considered. For Qualitative Risk Assessment, the Risk Matrix given in 6.3 has been used.

The comprehensive methodology adopted for various kinds of risks is summarized below:

Risk Source	Methodology Adopted for Risk Assessment	Clause no. in Report
Storage and handling of combustible materials	Hazards Identification and Risk Assessment based on Risk Matrix	Clause no.: 6.5.6
Operation of DG Set, Boiler & Utility section	Hazards Identification and Risk Assessment based on Risk Matrix	Clause no.: 6.5



6.5 RISK MATRIX

LIKEHOOD/ PROBABILITY		SEVERITY				
		Catastrophic (Death/System Loss)	Major/ Critical (Serious injury/Illness)	Moderate (Less Serious Injury/Illness)	Minor/Marginal (Minor Injury/Illness)	Insignificant/Negligible (No injury/illness)
		1	2	3	4	5
Almost Certain	E					
Likely	D					
Possible	C					
Unlikely	B					
Impossible	A					

Risk Range	Risk Acceptability Criteria	Remarks
	Unacceptable/ High	Management's Decision/Action Plan Required. Potential off-site Impact.
	Medium	Generally Minor off-site Impact. Acceptable with Management's Review. Specific monitoring or SOP to be followed.
	Low	Acceptable without Review. Manage through Routine Procedure.

6.6 DETAILS OF STORAGE FACILITIES

The storage locations have been marked on layout map (Figure-6.2). Details of the same have been given in the table no 6.1-A.

1. Coal/Lignite Storage, 2. Solid/Hazardous waste storage area



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Figure No: 6.2 Firefighting Layout



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Table 6.1-A: Storage Details of Raw Material

Sr. No	Item	Monthly additional requirement	Max. Storage capacity at site	Mode of Storage	Storage Location	Hazards	Mode of transfer from storage to process plant	Safety Features/Fire Fighting arrangements
1	Indian Coal and/or Imported Coal and/or Lignite	Max. 16,725 tons/Month	7,000 tons	-	Coal Storage Yard	Combustible	Closed Conveyor belt system	Water sprinklers shall be used to control the dusts. Firefighting network shall be provided. Greenbelt shall be provided in and around the coal stack.
2	HSD	300 Lit/hr	10 kl	Drum		Spillage of HSD leading to fire due to: <ul style="list-style-type: none">• Tanker Leakage• Hose Failure• Improper connections• Transfer line leak		Firefighting network shall be provided. Diesel storage tank shall be earthed. Dyke wall shall be provided. Flame proof electrical fittings to be used.



Table 6.1-B: Raw Materials Consumption details

No.	Type of Fuel	Fuel Consumption (TPM)	Suppliers	Mode of Transport
1.	100 % Imported coal	10,166	Local & Overseas	By Rail & Road
2.	100 % Indian coal	16,725	Local	By Rail & Road
3.	50 % Indian coal + 50 % Imported coal	13,644	Local & Overseas	By Rail & Road
4.	100 % Lignite (By adding limestone)	14,400	Local	By Rail & Road
5.	70 % Indian Coal + 30 % Lignite (By adding limestone)	15,948	Local	By Rail & Road
6.	HSD	3,00 Lit/Hr	Local	By Road

Table 6.1-C: Products details

Sr. No.	Product Name	Existing MW	Proposed MW	Total MW
1	Captive Power Plant (CPP)	34	22	56



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6.7 QUALITATIVE RISK ASSESSMENT AND MITIGATION MEASURES

Risks involved in various process equipments and some processes cannot be addressed by consequence analysis. As a conservative approach, these risks have been considered separately under this topic. The approach is to identify hazards associated in the operation of equipments as well as processes & utilities, assessing its impacts, ranking the risk posed by it and finally to propose remedial actions/mitigation measures such that risk is minimized to tolerable level. The Risk Matrix presented under the clause no.: 6.3 should be referred in evaluating this assessment.

6.7.1 Boilers

[√] Risks and Recommendations:

Sr. No.	PROCESS OR ACTIVITY	ASSOCIATED HAZARDS	HEALTH & SAFETY IMPACT (RISK)	SEVERITY	LIKELIHOOD	RISK	PROPOSED MITIGATION MEASURES
1.	Boiler feed pump, Suction Strainer cleaning	Water spillage Pressurized water	Personnel injury	2	C		Only after doing proper Isolation, draining shall be carried out.
2.	Working near Boiler	High noise	Noise induced hearing loss	3	D		Use of proper PPEs shall be ensured. Periodic Noise Survey and medical examination of employees.



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3.	Monitoring of rotary equipment	Noise Ash Rotating Parts	Hearing loss Dust exposure Cuts/Severe bodily injury, may be fatal.	3	D		Use of proper PPEs shall be ensured. Personal vigilance shall be carried out strictly. Proper guarding of the rotating parts shall be ensured.
4.	Boiler maintenance (cleaning, Repairing Greasing)	Mechanical Hazard	Body injury	5	D		Use of proper PPEs shall be ensured.
		Hot surfaces /Substances	Possible severe bodily injury due to burns to skin or scalding from ill fitted joints, hot surfaces and substances	3	D		Proper training shall be imparted to the workers. Check for leaks/hotness of the body parts shall be ensured before starting work. Work permit system shall be followed.
5.	Leakage, spillage, maintenance work etc.	Fire/Explosion	Risk of severe bodily injury Possible fatality Building/equipment damage	4	D		It shall be ensured that full pre commissioning checks including dry run tests have been carried out. Care shall be taken that the work is carried out by fully qualified and highly trained engineers only. Leak detection equipment shall be used. Liquid spills shall be cleaned immediately.
6.	Incomplete Combustion	Asphyxiation from carbon monoxide	Possible fatality	3	D		Ventilation and flue gases shall be checked / tested for the presence of carbon monoxide within the installation before commencing work. Flue gases shall be passed through Electrostatic



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							Precipitator to collect the fly ash associated with flue gases and there by discharging the clean flue gases in to an open atmosphere through the Chimney.
7.	Maintenance work	Slips, Trips and Falls	Possible severe bodily injury	3	C		It shall be ensured that access to and from the site is gained via designated routes only. Spillages shall be treated immediately and cleaned up. It shall be made mandatory for engineers/operators to wear suitable safety footwear at all times.
8.	Operator vigilance for feeding.	Noise Dust	Hearing loss Dust exposure	4	B		Use of proper PPEs shall be ensured.
9.	Electrical maintenance work	Electricity	Possible fatality due to Electric shock Possible burns	3	D		No cables shall be unplugged with running unit. Flameproof and water proof fittings shall be used. Access to such unit under maintenance shall be restricted. Use of proper PPEs shall be ensured. Earthing shall be provided to all the required equipments.



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10.	Maintenance of burner.	Withdrawal of pressure jet burner body on guide rails to access burner head.	Possible severe bodily injury if stop pins are not in place and boiler body comes off rails	3	D		<p>It shall be ensured that the guide rails stop pins are in place prior to withdrawing the burner body.</p> <p>Burner information shall be made available to the concerned persons and shall be referred before starting the work.</p>
11.	Boiler Operation (Over pressure in the boiler, Water level indicator not working. Temperature indicator fails.)	Burning, Physical injury, Explosion	Minor Injury Loss of human life Loss of property	4	C		<p>Level/Temperature Indicators shall be checked regularly for proper functioning.</p> <p>Good quality water shall be used.</p> <p>Inter locking systems shall be provided on pumps, FD fan, ID fan.</p> <p>Periodical checking & inspection shall be carried out.</p>



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6.7.2 DG Set

[√] Risks and Recommendations:

Sr. No.	PROCESS OR ACTIVITY	ASSOCIATED HAZARDS	HEALTH & SAFETY IMPACT (RISK)	SEVERITY	LIKELIHOOD	RISK	PROPOSED MITIGATION MEASURES
1.	Working near DG room	Apparently High noise	Noise induced hearing impairment or hearing loss	3	D		Use of proper PPE's like ear plugs, ear muffs etc. shall be made mandatory. Acoustic enclosures shall be provided.
2.	Maintenance work	Electrocution	Death, burns, serious injury	3	D		Units shall be regularly tested for electrocution; care shall be taken not to plug any item with power on. No cables shall be unplugged with running unit. Flameproof and water proof fittings shall be used. Access to unit under maintenance shall be restricted. Earthing and flange-to-flange bonding shall be provided at required places.
		Slips, Trips and Falls	Possible severe bodily injury	4	B		Access to and from the site shall be gained via designated routes only. It shall be made mandatory for



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							<p>engineers/operators to wear suitable safety footwear at all the times.</p> <p>Proper Housekeeping shall be ensured.</p>
3.	Charging of Hot Oil / Hot Fumes/Diesel.	Fire	<p>Risk of severe bodily injury</p> <p>Possible fatality</p> <p>Building/equipment damage</p>	3	D		<p>Fuels shall be stored in sealed containers, away from the source of ignition and generator.</p> <p>Filling of generator shall be done using funnel or spout when generator is off and cold to touch.</p> <p>It shall be ensured that generators are placed on firm ground, in well-ventilated areas free from obstructions, away from heat and ignition sources.</p> <p>Fire extinguishers shall be made available in close proximity to the re-fueling activity;</p> <p>Only fully qualified and highly trained engineers shall be allowed to do the work.</p>
		Hot Parts of Generator. Inhalation of exhaust fumes	Severe burns, Injury, asphyxiation	4	D		<p>Proper insulation and guards shall be provided.</p> <p>Exhaust shall be pointed away from public.</p> <p>Leak detection systems shall be installed.</p>
		Dermatitis from diesel and lube oil.		4	D		<p>Proper PPEs shall be used.</p> <p>Spillages shall be treated immediately and practice shall be made to minimize the same by using funnels.</p>
4.	DG set maintenance	Mechanical Hazard.	Body injury.	5	D		<p>Use of PPEs like - gloves, eye protection and possible FR clothing for refueling jobs shall be</p>



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	(cleaning, Repairing Greasing)	Hot surfaces /Substances	Possible severe bodily injury due to burns to skin or scalding from ill fitting joints, hot surfaces and substances	3	D		ensured. Personal vigilance shall be carried out. Proper training shall be imparted to the workers. Temperature check shall be done before opening. Hot parts shall be labeled as "HOT". All joints shall be checked for leaks before starting work. Adequate fire fighting equipment and First aid kit shall be made easily available. Area shall be identified as 'No Smoking' Zone.
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6.7.3 Material Handling/Transportation

[√] Risks and Recommendations:

Sr. No.	PROCESS OR ACTIVITY	ASSOCIATED HAZARDS	HEALTH & SAFETY IMPACT (RISK)	SEVERITY	LIKELIHOOD	RISK	PROPOSED MITIGATION MEASURES
1.	Loading /Unloading of goods	Dust exposure, Fire	Damage to internal body parts/skin irritation etc. Risk of severe bodily injury Possible fatality Building/equipment damage.	3	C		Closed conveyor belt system shall be provided. House-keeping shall be maintained properly and surrounding area shall be made free from obstructions, heat and ignition sources. Fire extinguishers shall be made available in close proximity. Coal wetting shall be done before unloading from truck to reduce the dust levels significantly.
2.	Storage & Transportation of coal/solid/hazardous waste	Dust exposure Fire	Injury to body. Health damage, impairment to internal body parts etc.	4	C		Dust suppression system shall be provided over storage of coal. Use of proper PPEs like face mask, hand gloves, chemical resistant clothing and safety goggles shall be ensured. Asphalt road network shall be provided in the whole area for truck movement to prevent dust emission. Trucks used for transporting the goods shall be totally enclosed/covered by the tarpaulin and overloading in truck shall be avoided to prevent the dusting and spillage of goods from the truck.



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6.7.4 Storage of Combustible Material (HSD & Coal & lignite)

[√] Risks and Recommendations:

Sr. No.	PROCESS OR ACTIVITY	ASSOCIATED HAZARDS	HEALTH & SAFETY IMPACT (RISK)	SEVERITY	LIKELIHOOD	RISK	PROPOSED MITIGATION MEASURES
1.	Fuel (Like Diesel, Coal lignite etc.) Storage Area	Spontaneous combustion in the stored fuel	Severe body injury Possible fatality	3	C		Sprinkler system shall be employed in storage area. Fire extinguishers and fire hydrant shall be made available in close proximity. Fire/smoke detectors shall be made available to detect small fire so as to take immediate action. Housekeeping shall be taken care. Air monitoring shall be carried out to check for any dust/fume emissions.



6.8 RECOMMENDATIONS

Recommendations for the proposed project based on Risk Assessment are summarized as below along with other safety measures.

6.8.1 For Boilers

- Only after doing proper Isolation, draining shall be carried out.
- Proper guarding of the rotating parts shall be ensured.
- Proper training shall be imparted to the workers.
- Check for leaks/hotness of the body parts shall be done properly before starting work.
- It shall be ensured that full pre commissioning checks including dry run tests have been carried out.
- Care shall be taken that the work is carried out by fully qualified and highly trained engineers only.
- Leak detection equipment shall be used.
- Liquid spills shall be cleaned immediately.
- Ventilation and flue gases shall be checked / tested for the presence of carbon monoxide within the installation before commencing work.
- It shall be ensured that access to and from the site is gained via designated routes only.
- Spillages shall be treated immediately.
- It shall be made mandatory for engineers/operators to wear suitable safety footwear at all times.
- Personal vigilance shall be carried out strictly.
- No cables shall be unplugged with running unit. Flameproof and water proof fittings shall be used.
- Access to such unit shall be restricted.
- Use of proper PPEs shall be ensured.
- Earthing shall be provided to all the required equipments.
- It shall be ensured that the guide rails stop pins are in place prior to withdrawing the burner body.
- Burner information shall be made available to be referred before starting the work.
- Regular testing & certification of safety valve, rupture disc shall be done.



6.8.2 For DG Set

- Acoustic enclosures shall be provided for DG room (OR) generator shall be installed in open area away from the work site, for dispersal of noise.
- Units shall be regularly tested for electrocution; care shall be taken not to plug any item with power on.
- No cables shall be unplugged with running unit. Flameproof and water proof fittings shall be used.
- Access to the maintenance unit shall be restricted.
- Earthing and flange-to-flange bonding shall be provided at required places.
- Access to and from the site shall be gained via designated routes only.
- Proper Housekeeping shall be ensured.
- Fuels shall be stored in sealed containers, away from the source of ignition and generator.
- Filling of generator shall be done using funnel or spout when generator is off and cold to touch.
- It shall be ensured that generators are placed on firm ground, in well-ventilated areas free from obstructions, away from heat and ignition sources.
- Only fully qualified and highly trained engineers shall be allowed to do the work.
- Proper insulation and guards shall be provided.
- Exhaust shall be pointed away from public.
- Leak detection systems shall be installed.
- Spillages shall be treated immediately and practice shall be made to minimize the same by using funnels.
- Use of PPEs like - gloves, safety footwear, eye protection and possible FR clothing for refueling jobs shall be ensured strictly.
- Personal vigilance shall be carried out.
- Proper training needs shall be imparted to the workers.
- Temperature check shall be done before opening any equipment for maintenance.
- Hot parts left unattended shall be labeled as “HOT”.
- All joints shall be checked for leaks before starting work.
- Adequate firefighting equipment and First aid kit shall be made available easily.
- Area shall be identified as ‘No Smoking Zone’.



6.8.3 for Material Handling/Transportation/Storage

- Closed conveyor belt system shall be provided.
- Housekeeping shall be maintained properly and surrounding area shall be made free from obstructions, heat and ignition sources.
- Coal wetting shall be done before unloading from truck to reduce the dust levels significantly.
- Use of proper PPEs like face mask, hand gloves, chemical resistant clothing, safety goggles shall be ensured.
- Asphalt road network shall be provided in the whole area for truck movement to prevent dust emission.
- Trucks used for transporting the goods shall be covered by the tarpaulin and overloading in truck shall be avoided to prevent the dusting and spillage of goods from the truck.
- Sprinkler system shall be employed in storage area.
- Fire extinguishers and fire hydrants shall be made available in close proximity.
- Fire/smoke detectors shall be made available to detect small fires so as to take immediate action.
- Air monitoring shall be carried out to check for any dust/fume emissions.

OTHER SAFETY MEASURES TO BE EMPLOYED DURING THE PROPOSED PROJECT:

To maintain high standards in Health, Safety and Environment, various activities shall be undertaken at the site.

The following key safety measures shall be a part of the proposed project to be implemented by the proponent:

6.8.4 Personnel Safety Measures:

- Safety Training shall be regularly provided to the employees.
- Safety Sirens with Alarm System in case of emergency shall be provided.
- Emergency Control Room shall be established.
- Assembly point shall be predetermined and provided as per the requirement.
- Sprinkler Systems shall be provided as per the need.
- Fire Hydrant System shall be installed.
- Fire Extinguishers are also proposed to be provided.
- Mock drills shall be periodically conducted and factors like response time to be evaluated.
- Fire squad team shall be formed for handling any emergency situation.



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- First Aid Facility and training shall be regularly provided.
- Personal protective gears and equipments shall be provided to the employees.
- Health checkups shall be organized at regular intervals.
- Safety / Health records and MSDS shall be maintained.

6.8.5 Noise Environment:

- Use of PPE like ear plugs and ear muffs shall be made compulsory near the high noise generating machines.
- Moreover, the personnel shall be provided breaks in their working hours with the continuous exposure not increasing more than three (3) hours.
- The plant and equipments are designed with a view to minimize noise pollution.
- To reduce noise, pipe lines shall be liberally sized for low velocities.
- Safety blow off valves, discharge pipes, relief valves, etc. shall be equipped with silencers. Hearing Conservation program shall be imparted where noise level exceeds 90dB(A).

6.8.6 Coal Handling System:

- A standard Coal handling system with screening, coal crushing and conveying system shall be installed for the CPP.
- Water sprinklers shall be used to control the fugitive dusts.
- All necessary equipments/machineries shall be maintained in good condition for proper operation.
- Enclosure for transport vehicles /storage vessel, spraying of water on road & ground shall be provided to control the coal dust problem. During the operation phase, proper EMP shall be in place for handling of Coal and/or Lignite.
- Asphalt Road Network shall be provided in the whole premises for truck movement in order to prevent dust emissions.
- Greenbelt shall be provided in and around the premises area, around the coal stack yard and along the roads to minimize the generation of fugitive coal dust.
- For transportation, loading & unloading of goods, closed conveyor belt system shall be provided.
- To control the fugitive dusts from coal and/or Lignite handling, adequate moisture content shall be provided.



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- Enclosures for transport vehicles/storage vessel, spraying of water on road & ground shall be effectively implemented to control the coal dust problem. During the operation phase proper EMP shall be in place for handling of Coal and/or Lignite.
- Overloading in trucks shall not be allowed, to prevent the dusting and spillage of goods from the truck.
- A fire hydrant system line shall be provided for immediate response to the unlikely spontaneous combustion in the stored fuel.
- For the proposed plant, a water spraying system shall be provided for coal wetting before unloading from truck to reduce the dust levels significantly.
- Employees shall be given proper training as well as display of the summarized Environmental Management & Safety Procedures shall be made available at the site through signboard.
- Regular Air monitoring and inspection of the environmental management practices shall be carried out and the necessary documents/records shall also be maintained.

SAFETY MEASURES TO CONTROL ENVIRONMENTAL POLLUTION FOR THE PROPOSED PROJECT:

- For the proposed project, the flue gases from the boiler shall be continuously removed through Chimney through appropriate APC and the fly ash shall be collected.
- Domestic effluent shall be treated in the proposed septic tank/soak pit system.
- Air pollution control devices shall be provided to achieve regulatory norms of GPCB.
- The disposal of solid/hazardous waste for collection, storage and disposal shall be carried out as per the Hazardous Waste Management Rules, 2008.
- A separate chamber provision shall be provided for online dosing of good quality lime stone in the TPH boiler, for control of Sulphur Dioxide emissions.
- Necessary green belt shall be developed in & around the proposed plot for abatement of air and noise pollution.



6.9 SYSTEMS FOR FIRE FIGHTING:

In a CPP, management of risk arising from fire hazards is a critical part. Coal i.e the raw material is a combustible material. High-temperature steam pipes can also be a cause of fire, if not properly insulated.

The risk to people after a fire has started shall largely depends on the adequacy and maintenance of means to escape, the alarm system, training of the workforce in fire routine and evacuation procedures. At Atul Ltd. management has proposed to employ well-resourced and adequate fire fighting network. Details regarding the firefighting capacity of the unit are given below:

Type of Fire Extinguishers	Number of Fire extinguishers	Fire water Reservoir Capacity	Fire pump capacity	Hydrant Pressure	Details Deluge valve arrangements	Foam type and quantity	Other relevant details
1) CO ₂ 2) ABC 3) Foam 4) Water CO ₂	145	45000 m ³	275 m ³ /hr	7 Kg/m ²	04	Mechanical Foam Concentrate 200 lit	Fire hydrant system covering Raw material storage, fuel & finish good storage area



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FIRE HYDRANT LAYOUT



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FIRE FIGHTING TRAINING & FIRE HYDRANT

Additional firefighting measures for proposed expansion are as follows:

- Safety Sirens with Alarm System in case of emergency shall be provided.
- Emergency Control Room shall be established.
- Assembly points shall be identified.
- First Aid Facility and training shall be provided for the proposed project.
- Personal protective gears and equipments shall be provided for the proposed project.
- Health checkups shall be organized at regular intervals.
- Safety Training shall be provided to the employees.
- Sprinkler Systems shall be provided as and when needed.
- Mock drills shall be periodically conducted and factors like response time shall be evaluated.
- Fire squad team shall be formed for handling any emergency situation.
- Fire Hydrant System shall be installed which shall be used for the proposed project.
- Fire Extinguishers shall be provided.



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PART - 02

DISASTER MANAGEMENT PLAN



The proponent shall develop an emergency management system to tackle the emergency situations (if any) arising at any stage of the proposed project. The details of Disaster Management System are discussed in the following sections.

6.10 NATURE OF THE EMERGENCY

Level of emergency can be classified into three categories:

LEVEL - 1:

The leakage or emergency, which is confined within the plant premises.

It may be due to -

- a) Small fire in the plant
- b) Low toxic gas release for short duration.
- c) Collapsing of equipment that do not affect outside the premises.

LEVEL - 2:

The emergency, which is confined within the factory premises. It may arise due to -

- a) Major fire inside the factory premises.
- b) Medium scale explosion confined to the factory premises.
- c) Heavy toxic / flammable gas leakage for short duration.

LEVEL - 3:

The emergency, which is not confined within the factory premises and general public in the vicinity are likely to be affected. It may arise due to -

- a) Explosion of high magnitude affecting the adjacent area
- b) Natural Calamities like Tsunami/Cyclones/Storm Surges/Earthquakes
- c) Heavy / Profuse leakage of toxic / flammable gases for a long duration.



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6.10.1 Objectives of Emergency Management System

The objectives of the emergency management system are summarized as under:

- To identify and assess type of emergencies arising due to different types of hazards.
- To work out plan with all provisions to handle emergencies and safeguard employees, people and the environment in the vicinity of the factory.
- To provide for emergency preparedness and the periodical rehearsal of the plan.
- To plan mode of proper communication and actions to be followed in the event of an emergency.
- To keep all necessary information with respect to hazard/accident control and emergency contacts in one document for easy and speedy reference.
- To inform employees, general public and the authorities about the hazards/risks (if any) and the role to be played by them in the event of an emergency.
- To control and contain the accident.
- To effect rescue and treatment of casualties.
- To inform and help relatives of the casualties.
- To secure rehabilitation of affected area and restore normalcy within a short period.
- To provide information to media and government agencies.
- To preserve records and equipments for investigating the cause of emergency.
- To be ready for “mutual aid” if need arises to help the neighboring units.



6.11 ONSITE EMERGENCY PLAN

The existing unit has an Onsite Emergency Plan to deal with any emergencies arising within the plant. Responsible personnel for the same have also been defined and the same shall be responsible for the proposed expansion.

6.11.1 Purpose:

This plan is prepared to cope up with any emergency, which could occur during operation. The purpose of this plan is to protect the employees, people residing in the neighboring areas, the company's properties and environment to the maximum possible extent in the event of fire, explosion, toxic spillage's / releases due to our own operations, or operations of neighboring companies or natural calamities like flood, cyclone earthquake etc.

6.11.2 Types of Emergencies:

FIRE: In ATUL– East & West Sites flammable fuel are stored. These substances can catch fire by source of ignitions like sparks, static electricity, welding and cutting operations, electrical short circuits, smoking in non-smoking area etc.

INJURY TO PERSONNEL: Hazards of unsafe actions or condition caused by poor housekeeping may result into minor major physical injury. The splashes of chemicals, release of gases may also cause injury to personnel working in the nearby.

6.11.3 Control Room

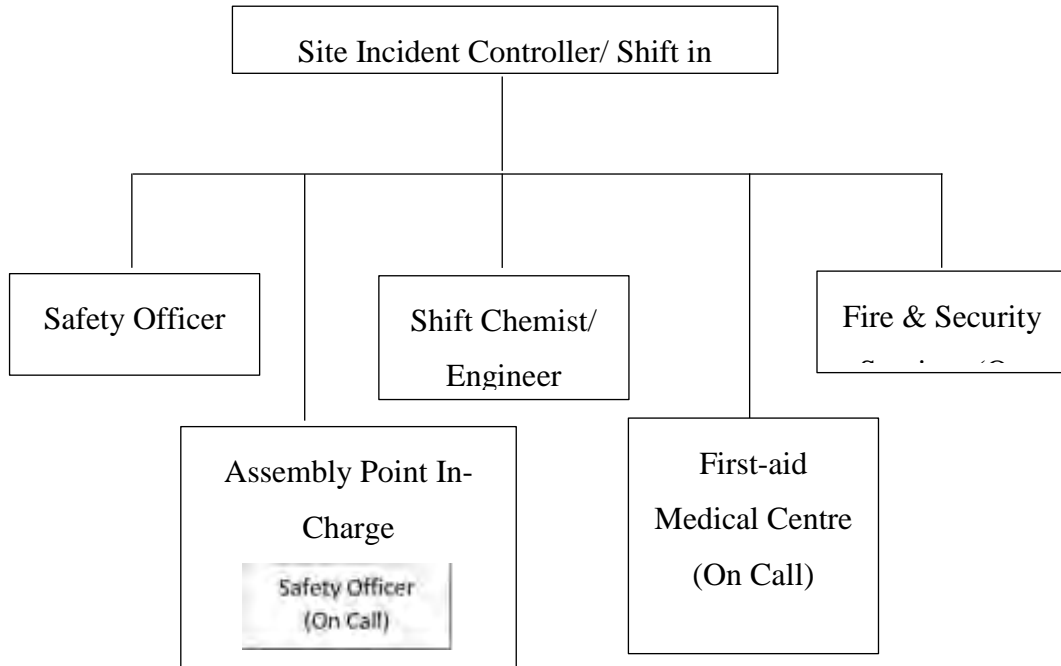
SHE Office phone 5265 / 5246 shall be converted into a Control Room for any emergency and the Site Main Controller according to situation shall operate from this place. If situation demands then Occupier / Directors office phone 5800 shall be converted in to a Control Room.

6.11.4 Organisation for Tackling Emergency:

During normal working hours and except on holidays, the Site Main Controllers, Incident Controllers, Deputy Incident Controllers, key personnel, essential workers, Security Officer, Fire officer and Safety Officer are available at factory premises. On hearing the emergency siren they will start emergency procedure as laid down in the following part. After normal working hours and on holidays Security Officer, Fire Officer, Safety Officer, Incident Controllers/Deputy incident Controllers (See annexure 14,15,33) site main controllers (see Annexure 18) will be called to attend emergency by shift chemist with the help of Security personnel. Duty schedule of incident controllers for any day is available at Security office / Control Room.



Organogram for Plant Emergency Response



Duties of persons responsible for combating Emergency

i.) Site Incident Controller / Shift In-Charge:

1. Raise the emergency alarm, if it is not already sounding.
2. Arrange to secure all ignition sources.
3. Assign specific duties to the staff / workmen to bring the critical of the emergency.
4. Assess the severity of the incident and the likely extent of the emergency.
5. Determine actions necessary to overcome the course of the incident and limit the extent of its effects.
6. Advise plant personnel on how to combat the emergency with due care for personal safety.
7. Provide guidance to firefighting personnel on –
 - Type of fire extinguishers, and
 - Type of personal protective to be used



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8. Ask for evacuation of the plant, if necessary.
9. Nominate someone to act as Assembly Point In-Charge and to obtain head count.
10. Provide information to and seek guidance from the safety Officer and Departmental Heads on their arrival.
11. Along with Plant In-Charge, Safety Officer and Manufacturing Head decide whether nearby Plants are likely to be affected and whether on-site emergency should be declared or not.

Once the emergency is attended to and the incident is under control, arrange to give all clear siren.

ii.) Safety Officer:

1. On hearing Siren, reach the incident site immediately.
2. Find out about the type emergency, whether it is due to toxic gas leak, fire or explosion.
3. Provide advice on use of appropriate personal protective equipment by personnel assigned to tackle the emergency.
4. Check wind direction and inform the nearby Plants.
5. Guide the Security staff for cordoning off affected area, if such isolation is required
6. Send persons for medical treatment, if required.
7. Depending on the severity, take joint decision with the Site Incident Controller whether senior management should be alerted and whether Main Centre Controller should be called.

iii.) Shift Chemical / Engineer.

1. On hearing siren receiving message on telephone proceed to the incident site immediately.
2. Assist the Site Incident Controller.
3. Make arrangement to obtain help and resources (men, materials and machinery from other Plants, if necessary
4. If plant evacuation is necessary then after shutting down plant to safe condition, ask the plant personnel to proceed to assembly point. Nominate someone as assembly point In charge to take attendance and receive further instructions.



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iv.) Fire & Security Personnel:

1. On hearing siren reach the incident site immediately.
2. Seek information from Shift Chemist / Safety Officer about the nature of the emergency and precaution to be taken in tackling the emergency.
3. Ensure use of proper personal protective equipment while operating in dangerous area or zone.
4. Limit use of fire hydrant to permissible areas only.
5. Help to cordon the area of incident and do not allow any unauthorised persons to go near the affected area.
6. If required carry out search and rescue operation the control of Fire Officer / Shift / Chemist.

v.) Trained / Experiences worker:

He will start combating emergency and call for help if emergency is in area. Otherwise he shall give charge of his work to the supervisor and go to the site of emergency and help in combating emergency. Each plant will nominate at least one such worker per shift.

vi.) Assembly – point In-charge:

1. As soon as the siren is heard, take charge of the assembly point nearest to the plant giving due consideration to the wind direction and severity of fumes or fire in the plant (as seen from outside)
2. Take head count in case shed evacuation is ordered. Record the names and identity of persons reaching the assembly point.
3. Communicate the data to the Site Incident Controller and Safety Officer (highlight the names of persons who may be missing).
4. Check and record if anyone is injured or affected by chemicals.
5. Send affected persons to the First-aid Centre or Atul Medical Centre, as required.
6. Inform the Medical Centre the name of chemical causing the emergency.

vii.) First-aid Centre :

1. The male nurse provide first-aid treatment to any casualties sent from the plant.
2. The male nurse or Ambulance attendant will liaise with Transport Section for transporting the victims from the incident site to Atul Medical Centre.



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viii.) Atul Medical Centre :

On hearing the siren for on-site emergency, the Doctor on duty should come to the Atul Medical Centre immediately to treatment casualties, if any.

If any required, the Doctor must inform the Civil Hospital, Valsad or other hospital in Valsad. Asking for readiness to handle casualties, giving information on nature of injuries, chemicals involved and number of affected persons who may be referred.

ix.) Duties & Responsibilities:

The person is assigned with the duties under this plant. Any person failing to perform his duties shall be properly dealt with.

x.) Emergency Alarm System

Though out factory area of Atul Limited switches are installed and housed in a small box with glass cover / push buttons.

In case fire / accident / emergency the glass of housing should be broken with hammer provided or by passing electric push button switches. The fire siren will be actuated automatically. There will be audio visual indication of location at respective fire stations of Atul.



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6.11.5 Telephone Communication Guide Line

KEY PERSONNEL OF THE ORGANIZATION WHO WILL ASSUME RESPONSIBILITIES IN CASE OF AN EMERGENCY:

INCIDENT CONTROLLERS

Concern divisional GM (Mfg) will act as Incident Controller. He will be responsible for physically tackling the emergency at site. He will judge the situation and brief SMC (Site Main Controller) to take decision for on-site emergency. Division wise list of Incident Controller and their alternatives are as under

In absence of incident controller alternative incident controller will take charge of incident controller. In normal case, second incident controller (Runner) will remain available for helping incident controller to control the emergency.

If both the persons i.e. incident controller and alternative (Deputy) incident controller are not available in campus, they have to ensure that second incident controller is available in campus / colony area on call, to act as incident controller.

Sr. No.	Incident controller's							Runners		
	Name	Designation	Division	Place of availability		Phone No.		Name & Designation	Place of availability	Phone No.
				In the factory	Residence address	In the factory	Residence			
1	Mr. Parag Shah	GM-Mfg	BI	East Site/BI Office	Down Colony	5645		Dr. D. V. Doshi	Old Reso Plant Office	5119 233170(P&T)



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2	Mr. R. K. Arora	GM-Mfg	Color	West Site	Down Colony	4215	234310	Mr. H. S. Prajapati	Maint. Office West Site	4255/6484 233228(P&T)
3	Mr. Ravishankar Sharma	GM-Mfg	PI	North Site	Wyeth Colony	3446	230194	Dr. H. A. Naik	North Site Admin Bldg	3502/6212 233816(P&T)
4	Mr. N. S. Daga	GM-Mfg	PO	North Site	O type colony	3880	7485/2334 48	Mr. H. R. Patel	Office of Epoxy Plant	3454/6221 233087
5	Mr. Sujoy M	GM-Mfg	CP	Production Office/	Down Colony	5572/ 2265	7055	Mr. Nilesh Doshi	Engineering Office-CP	5283/7425 234267
6	Mr. S. J. Hansoti	G.M.	Infra	Production Office/ East	Down Colony	5334	7031/ 233389 P&T	Mr. Dipak C. Patel	Power Plant Office – East	5317/ 230388



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DEPUTY INCIDENT CONTROLLERS				
Sr. No	Division	Name & Designation	Place of availability	Contact No.
1.	BI	Mr. Ashish Gandhi	TE Office	9824106258
2.	COLOR	Mr. Vrajesh Parikh	TE Office	4245/9824136657
3.	PI	Mr. H R Patel	TE Office	4278 9925149538
4.	PO	Mr. M. R. Simpi	TE Office	4471/9723551353
5.	CP	Mr. Prashant Sonawane	TE Office	
6.	IN	Dr. D. V. Doshi	TE Office	9924143624



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6.11.6 Fire:

- a. The person noticing the emergency should the alarm from the nearest fire alarm switch. He shouts or help calling 'Fire-Fire' and workmen working in the affected area who are trained in firefighting immediately start combating the fire, with fire extinguishers.
- b. Shift chemist should rush to the site and take charge emergency operation and should arrange to inform Fire/ Security and he should instruct workmen for shut down procedure in the nearby area.
- c. Other workmen of the section also the persons who are combating emergency by bringing firefighting equipment, removing flammable combustible material from nearby area clearing the passage for firefighting personnel, under instructions of shift chemist.
- d. Fire / Security Officer & Fireman :
 - They rush to the emergency with fire tender and help combating fire.
 - One of the Firemen immediately rushes to the fire pump room and starts the fire pump and wait there for further instruction.
- e. Security Officer/main gate Watchman informs Safety Officer Incident Controllers and site Main Controller according to duty / Schedule given, regarding emergency.

The watchman at the main gate shall direct any outside person e.g. members of mutual aid team, representative of govt. From district authorities or a press representative, to the SHE office.

6.11.8 Injury:

- a. Workman at the site help the injured person to go into open area and take him to the Ambulance Room for first aid, by Ambulance.
- b. Male nurse at ambulance room arranges to send the injures person to Atul
- c. Medical centre or company's Doctor.
- d. As advised by doctor, the injured person is taken to Valsad or Pardi Hospital.



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- e. Responsible man is deputed by Plant Manager or Factory Manager to accompany the injured person along with company's Medical Officer's report when sending to Valsad or Pardi Hospital.

6.11.9 Declaration of Major Emergency

The persons on emergency duty along with concerned G. M. Mfg. / Plant Incharge in consultation with Safety Manager decide about the gravity of the situation and inform the control room to declare on site emergency. In this case continuous is sounded for 4 minutes.

6.11.10 Giving all clear signal:

After the Emergency is brought under control G.M. MFG. / Occupier / Factory Manager will decided and give instructions for all clear siren (i.e. One minute continuous siren)



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6.12 OFF SITE EMERGENCY:

If nearby colonies / villages required then off site emergency is declared by sounding 10 minutes continuous siren of all 3 companies. In case of offsite emergency separate procedure ACDCP (Atul Complex Disaster Control Plan) is when and that document must be used.

6.12.1 Communication In Case Of Major Emergency

On declaration of major emergency, the Atul complex Disaster Control Plant becomes operative. The GM Corporate-SHE/Factory Manager who are members of the Main Control sub Committee of ACDCP will inform the following persons about the disaster and ask for help to combat the situation. They remain in touch with Director / Occupier for guidance if needed.

Name	Designation	Telephone No.	Represent
District Collector, Valsad	Chairman D.C.C. of	O-0262-253613,	Government
Occupier / Director, Atul	Vice Chairman DCC of	O-233261	Atul Ltd.
Dy. Director ISH Valsad	Secretary DCC of	O-253612,	Government
District Supdt. of Police, Valsad	Chairman P&G Sub	O-254222,	Government
Atul Police Station, Atul		233515	Government
Atul Gram Panchayat,		O-234562	Government
G.P.C.B. Vapi	Regional Office	O-0260-2432089	Government

D.C.C. = Disaster Control Committee, P & G:

The District Collector Valsad shall arrange help from Valsad Municipality, Zilla Panchayat, and other Government and non-Government Organizations. The District authorities shall inform nearby villages for evacuation and / or other measures in case of emergency arose.

6.12.2 MUTUAL AID

We have arrangements with the neighboring sites situated in the campus namely Atul

– (East, PP Site & West Site), to help each other in case of any emergency. The transport facilities, firefighting facilities/ equipment, personal protective equipment and other emergency equipment is available for mutual aid.



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6.13 GENERAL

- a. Shift Chemist Control the people of their section ensure that people who are trained in the fire fighting and first aid are relieved to go to the spot of emergency.
- b. Incident controller, safety Officer and Fire / Security Officer shall check the spot after fire is extinguished (or emergency is over) and declare the area safe for cleaning or putting back to operation and blow siren for all clear. This all clear SIGNAL is continuous siren for 1 minute.

6.13.1 Accident Investigation A\and Reporting*

Every accident that has resulted in personal injury, likely danger to human life or property damage shall be investigated thoroughly departmentally.

Departmental head may take help of safety Department and / or other experts from outside for the investigation. A report shall be mode indicating the root cause of the incident and proposed remedial measures.

- a. Preliminary written report from Department Manager is sent to safety, Health and Environment Department, Director, Vice President and GM mfg. within 24 hours (even if oral information is given) after the incident. This is being discussed in safety committee meeting.
- b. Factory manager will inform the Factory inspector and/or other Government authorities as required.

6.13.2 Public Relation

The occurrence of a serious disaster in only factory would be a matter of public interest. Misunderstanding of Reporters has sometimes led to distorted and exaggerated stories, which reflect unfavorably upon the company. Speed and frankness in supplying accurate of the company. Factory Manager or in his absence person appointed by Director will provide the facts and accurate picture of the situation to the following:

He will inform :

1. Personnel Managers Factory Managers of the neighboring companies.
2. Sarpanches of villages likely to be affected by the emergency.



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3. Dy. Director ISH
4. Collector at Valsad
5. M.L.A's at Valsad and Pardi and M.P. Valsad only if the accident leads to off site emergency
6. News correspondents at Valsad

Person responsible for giving Information ensure the following:

1. Do not try to hide the facts. They will come out later any way.
2. Do not release estimates of damage without consulting occupier.
3. Do not speculate, stick to the facts.
4. Do not attempt to blame anybody.

6.13.3 Plant Evacuation Procedure:

It may be necessary to evacuate the building and / or surrounding buildings where emergency has occurred. The evacuation instructions are given by Site Main Controller after assessing the situation in emergency.

6.13.4 Personal Protective / Emergency Equipments

Personal protective equipments / Emergency equipments are to be used according to the nature of emergency such as fire, toxic spill gas leakage etc. List of personal protective equipment /Emergency equipment with its location is circulated separately to all departments. The responsibility for maintenance of such equipment is as under:

- | | |
|---------------------------------------|--|
| 1. Fire Fighting Equipment | : Security & Fire Department |
| 2. Personal protective equipments | : Plant Incharge / concerned department |
| 3. Communication & Other instrumental | : Electrical & Instruments Dept. equipment |

Safety Devices *

The safety devices provided to safe guard against hazard are maintained in upto date working condition and tested for their performance from time as per the preventive maintenance schedule prepared in advance.



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6.13.5 Revision & Updating:

The plan is subject to revision due to the following reasons.

1. To fulfill new statutory requirements if any.
2. To incorporate additional Hazards and risk identified on the basis of risk analysis.
3. Organizational changes, in the company if any.
4. Introduction of new / additional facilities in the form of equipment, mutual aid etc to combat emergencies of fire, toxic release / spill or physical injury.

6.13.6 MOCK DRILLS & TRAINING.

The success of this plan will depend upon the education of all concerned and practice of the same at regular intervals. The periodic drill is carried out to check performance of the men and equipments. Regular training programs or firefighting, Use of gas masks and first aid are conducted. This training also include tabletop and functional drill of the plan. The full-scale drill is carried out in presence of statutory authorities, press, and police for handling situation effectively.



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PART - 03

OCCUPATIONAL HEALTH AND SAFETY



6.14 GENERAL

For large industries, where various activities are involved during construction, erection, testing, commissioning, operation and maintenance; the men, materials and machines are the basic inputs. Along with its boons, industrialization generally brings several problems like occupational health and safety.

The proponent therefore has properly planned and taken steps to minimize the impacts of industrialization and to ensure appropriate occupational health and safety including fire plans.

The key safety measures mentioned under shall be a part of proposed expansion project.

6.15 OCCUPATIONAL HEALTH

Occupational health needs attention both during construction/erection and operation/maintenance phases. However, the problem varies both in magnitude and variety in the above phases.

6.15.1 Construction and Erection

The occupational health problems envisaged at this stage can mainly be due to constructional accidents and noise generation. To overcome these hazards, in addition to arrangements to reduce it within the Threshold Limit Values (TLVs), necessary protective equipments shall be supplied to the workers.

6.15.2 Operation and Maintenance

The problem of occupational health in the operation and maintenance phase is primarily due to noise which could affect consultation. The necessary personal protective equipments shall be given to all the workers exposed to high noise. The working personnel shall be given the following **appropriate personnel** protective equipments.

- Industrial Safety Helmet;
- Welders equipment for eye and face protection;
- Cylindrical type earplug;
- Ear muffs;
- Safety belt/line man's safety belt;
- Leather hand gloves;
- Asbestos hand gloves;
- Electrically tested electrical resistance hand gloves; and
- Industrial safety shoes with steel toe.



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Atul also has a **Department of Health (DoH)** for regularly checking health of the employees and providing medical aid in case of injury to the personnel. The DoH is responsible for Occupational Health & Safety of the employees at Atul Ltd.

A) DEPARTMENT OF HEALTH (DOH) at ATUL LTD

1. Medical Centres:

- DoH Main (Department of Health) within Atul complex
- OHC (Occupational Health Centre, 24x7) within Factory premises.

2. Scope of Services:

- Primary healthcare for employee & family
- Occupational healthcare
- Health monitoring
- Employee health check-ups
- EMS (Emergency) 24x7
- AOD (Accident on duty) management 24x7
- OHC services 24x7
- Medical Laboratory
- Referrals

3. Systems & facilities available:

- HMIS (Hospital management & information systems)
- Office automation
- ECG machine (two)
- Multipara Monitor with O2 Saturation (one)
- Finger pulse oximeter (one)
- Glucometer (two)
- Otoscope cum Ophthalmoscope (one)
- AED (automated external defibrillator) (one)
- Suction machine (two)
- Fully automated biochemistry analyzer (one)
- Fully automated hematology analyzer (5-part) (one)
- Automated Centrifuge (two)
- Microscopes (two)
- Blood Roller Mixers (two), Pipettes & Other Lab accessories
- Needle cutters (three)



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- Oxygen cylinders (ten)
- Ambulance van with stretcher (two)
- Emergency observation beds (five)
- Medical assistance/aid visit bag (two)
- Dr Consultation equipment
- Antidotes as applicable
- First aid boxes as required

4. Manpower:

- Full-time Drs – Three (residing in campus)
- Contract Dr – One (Medical Advisor)(residing at Valsad)
- Lab Technician – One
- Nurse – One (Male)
- Medical Assistants – Five (Male)

5. Software Use:

- On line software for health monitoring and medical history for all employees

EMP for the Occupational Safety & Health hazards so that such exposure can be kept within Permissible Exposure Level (PEL)/Threshold Level Value (TLV) so as to protect health of workers.

1. An EMP for Occupational Safety and Health shall be proposed to implement with the following objectives:

- To keep air-borne concentration of toxic and hazardous chemicals below PEL and TLV.
- Protect general health of the workers likely to be exposed to such chemicals.
- Providing training, guidelines, resources and facilities to the concerned department for occupational health hazards.
- Permanent changes to workplace procedures or work location to be done, if it is found necessary on the basis of findings from the Workplace Monitoring Plan.
- It is proposed that this EMP be formulated on the guidelines issued by the Bureau of Indian Standards on OH&S Management Systems: IS 18001:2000 Occupational Health and Safety Management Systems
- Proposed EMP shall be incorporated in Standard Operating Procedure also.
- The proposed EMP shall also include measures to keep air-borne concentration of toxic and hazardous chemicals below its PEL and TLV, like...



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- Leak Surveys
- Separate storage for toxic chemicals
- Exhaust Ventilation
- Proper illumination
- Close processes to avoid spills and exposures
- Atomization of process operations to hazards of manual handling of chemicals
- Supply of proper PPEs like Air mask, Berating canisters, SCBA sets, On-line breathing apparatus at the places where there is possibility of presence of toxic chemicals
- Regular maintenance program for pumps, equipment, instruments handling toxic and corrosive chemicals
- Display of warning boards
- Training to persons handling toxic and combustible materials/chemicals.

Workplace Monitoring Plan

- It is proposed that a Workplace Monitoring Plan shall be prepared & implemented in consultation with FMO.
- Each workplace must be evaluated to identify potential hazards from toxic substances or harmful physical agents. Air-borne concentration of combustible material shall be measured and record shall be kept.

Health Evaluation of Workers

- It is proposed that management shall device a plan to check and evaluate the exposure specific health status evaluation of the workers.
- Workers shall be checked for physical fitness with special reference to the possible health hazards likely to be present where he/she is being expected to work before being employed for that purpose. Basic examinations/tests like Liver Function tests, chest x ray, Audiometry, Spirometry, Vision testing (Far & Near vision, color vision and any other ocular defects) ECG, etc. shall be carried out. However, the parameters and frequency of such examination shall be decided in consultation with Factory Medical Officer.
- While in work, all the workers shall be periodically examined for the health with specific reference to the hazards which they are likely to be exposed to during work. Health evaluation shall be carried out considering the bodily functions likely to be affected during work. The parameters and frequency of such examination shall be decided in consultation with Factory Medical Officer and



Industrial Hygienists. Plan of monthly and yearly report of the health status of workers with special reference to Occupational Health and Safety.

6.16 SAFETY PLAN DURING PROJECT EXECUTION STAGE (CONSTRUCTION & COMMISSIONING)

Safety of both men and materials during construction and operation phases is of concern. Safety plan shall be prepared and implemented in the proposed project activity. The preparedness of an industry for the occurrence of possible disasters is known as emergency plan. The disaster in the plant is possible due to collapse of structures and fire/explosion etc. The proposed project would formulate safety policy keeping in view the safety requirement during the construction, operation and maintenance phases, with the following regulations:

- To allocate sufficient resources to maintain safe and healthy conditions of work;
- To take steps to ensure that all known safety factors are taken into account in the design, construction, operation and maintenance of plants, machinery and equipment;
- To ensure that adequate safety instructions are given to all employees;
- To provide wherever necessary protective equipment, safety appliances and clothing and to ensure their proper use;
- To inform employees about materials, equipment or processes used in their work which are known to be potentially hazardous to health or safety;
- To keep all operations and methods of work under regular review for making necessary changes from the point of view of safety in the light of experience and up to date knowledge;
- To provide appropriate facilities for first aid and prompt treatment of injuries and illness at work;
- To provide appropriate instruction, training, retraining and supervision to employees in health and safety, first aid and to ensure that adequate publicity is given to these matters;
- To ensure proper implementation of fire prevention methods and an appropriate fire fighting service together with training facilities for personnel involved in this service;
- To organize collection, analysis and presentation of data on accident, sickness and incident involving people injury or injury to health with a view to take corrective, remedial and preventive action;
- To promote through the established machinery, joint consultation in health and safety matters to ensure effective participation by all employees;
- To publish/notify regulations, instructions and notices in the common language of employees;



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- To prepare separate safety rules for each type of occupation/processes involved in a plant; and
- To ensure regular safety inspection by a competent person at suitable intervals of all buildings, equipments, work places and operations.



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CHAPTER – 7 PROJECT BENEFITS

7.1 GENERAL

The proposed project is an expansion project proposed by Atul Ltd, which is an integrated chemical company manufacturing about 1350 products and formulations serving about 4000 customers across the globe. The proposed expansion envisages a new 22 MW CPP to meet the power and steam requirements of the additional production capacity of Atul. Atul Limited is a member of Lalbhai Group, one of the oldest business houses of India, with interests mainly in textiles and chemicals. Atul's registered office is in Ahmedabad whereas its corporate headquarters are located in Atul, Gujarat. Atul has grown into a diversified chemical conglomerate, with about 1,350 products and formulations with 13 subsidiary and associate companies.

The Group is strongly committed to serve the society in the fields of education, health as well as culture. Atul foundation is serving the society in fields of conservation, education, empowerment, infrastructure, health and relief.

7.2 IMPROVEMENTS IN THE PHYSICAL & SOCIAL INFRASTRUCTURE

Atul has always engaged its efforts in social welfare activities & programs. It directly organizes various programs for social welfare & upliftment or indirectly contributes in such activities conducted by other organizations by providing financial & other aid. It is committed to contribute in social welfare & upliftment activities on regular basis. Atul will continue such activities to fulfill the requirements of its social responsibility under CSR Programs. The proponent is committed to fostering sustainable socio-economic upliftment in the lives of the under privileged through relevant interventions mainly through six programs namely: education, empowerment, health, relief, conservation and infrastructure.

For the past year 2014-2015, the proponent had allocated a budget of Rs. 3.94 crores for CSR activities and spent the same for activities identified under the following areas:

- **Education**
- **Empowerment**
- **Health**
- **Relief**
- **Conservation**
- **Infrastructure**



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The following activities were carried out by the proponent for upliftment of the surrounding community:

Program	Projects I Activities	Village/Town/City	Amount (Rs. Crores)
Education	Institutionalizing best in class education practices in <i>Kalyani Shala</i>	Atul	0.50
	Enhancing quality of education in <i>Ashramshala</i>	Balda	0.03
Empowerment	Bringing disadvantaged communities into mainstream by skill development through <i>Atul Institute of Vocational Excellence (AIVE)</i>	Dharampur	0.21
Health	Providing quality health care through Atul Medical Diagnostic Centre	Atul	2.29
	Constructing amenity blocks	6 villages	0.10
Conservation	Supporting biogas project	Mount Abu	0.03
Infrastructure	Supporting gas based cremation facilities	Atul	0.05
Others	Rural development Sports promotion	23 villages Valsad, Mumbai	0.65
Total expenditure			3.86
Administrative overheads			0.09
Total (Direct + Overheads)			3.95



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7.2.1 Education: Activities related to educational infrastructure were carried out in the following institutes:

- **Schools**
 - Atul Vidyalaya
 - Atul Vidyamandir
 - Kalyani Shala
- **Ashramshalas**

No	Institute	No of beneficiaries	
		2014-15 (currently on rolls)	Cumulative (passed out)
1	Atul Vidyalaya	1,112	1,288
2	Atul Vidyamandir	299	351
3	Kalyani Shala	1,750	9,490
No of beneficiaries		3,161	11,129



Atul Vidyalaya



Atul Vidyamandir



Chatralaya, Mama Bhacha



Kalyani Shala



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7.2.2 Empowerment:

- Vocational training- I (<1 year)
 - Atul Institute of Vocational Excellence
 - Atul Rural Development Fund
- Vocational training- II (>1 year)
 - Atul ITI, Khergam
 - Atul ITI, Sagbara

No	Course	No of beneficiaries	
		2014-15	Cumulative
01	Sewing and stitching (W)	349	1,784
02	Data entry operation	353	1,239
03	Soft toys making (W)	56	656
04	Chemical (Process I Instruments)	30	159
05	Electrical	57	124
06	Hardware maintenance	40	114
07	Food and nutrition (W)	86	86
08	Welding	33	80
09	Mobile repairing	19	52
10	Micro entrepreneurship development (W)	46	46
11	Plumbing I Masonry	0	46
12	Beauty and styling (W)	12	12
No of beneficiaries		1,081	4,398

***W: women empowerment course**



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Atul ITI, Khergam



Self help groups



Sewing and stitching



Soft toys making



Computer repairing



Masonry



Safety



Sewing and stitching



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7.2.3 Health:

- Eye camps
- Blood donation camps
- Medical camps
- Atul Club
- Atul Medical Diagnostic Centre (under construction)

No	Particulars	No of camps		No of beneficiaries	
		2014-15	Cumulative	2014-15	Cumulative
1	Eye camps*	8	138	2,890	50,890
2	Blood donation camps*	11	191	1,492	35,492
3	Mega medical camps*	1	21	2,000	22,000
4	Medical camps*	2	22	667	7,667
No of beneficiaries				7,049	1,16,049

* in collaboration with different NGOs





7.2.4 Conservation:

- Floras
 - Plantation of trees (70,000 in 2014-15)
- Bio-diversity
 - Migratory birds
- Other initiatives
 - Biogas plant



Diverse Flora | Fauna



Greening the deserts



Water recharging



Tree plantation



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7.2.5 Infrastructure:

- Amenity blocks
- Community assets
- Electrification
- Roads

Construction of amenity blocks was carried out in 6 villages. Construction, repairing of schools and building up of civic amenities in nearby villages. For improvement in domestic spheres and communal bonding, community kitchen sheds were constructed. For economic assistance to the farmer community, farm kit and subsidized fertilizers were distributed to the farmers. Supporting/financial aid for gas based cremation facilities. Improvement in dining facility for home for differently abled children.



Amenity block



Community shed



Paver block road



Prayer hall



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CSR ACTIVITIES CARRIED OUT IN THE YEAR 2014-15:

- Construction of individual toilets for families in Atul, Haria village and Atar village (26 nos).
- Making paver block based roads in Umersadi Machhivad village.
- Supply of drinking water to Atul and Haria village.
- Project partner in construction of a gas based cremation facilities at Atul. This will substantially reduce use of wood for cremation.
- Infrastructure development work in Kalyani School.
- Facilitating bio gas project at Bhamahakumaris at Mount Abu.
- Skill development programme/vocational training in 12 different courses. This is for empowerment of rural youth and women.
- Promoting sports in surrounding area.
- Various rural development programme in health, education and infrastructure development in 23 villages.
- Plantation of 70000 trees during the year.

CSR ACTIVITIES CARRIED OUT IN THE YEAR 2015-16:

- Construction of approximately 600 no of toilets in 6 surrounding villages.
- Construction of a medical diagnostic centre in Atul village for providing quality health care.
- Making paver based roads in Haria and Bhagod Village
- Constructing a prayer room in Haria village.
- Installing railing over 3 culverts in Haria village.
- Constructing one Aaganvadi and major repairs to Gram Panchayat building in Bhagod village.
- Providing street light fittings in Bhagod village.
- Substantially improving educational facilities in Kalyani School.
- Continuing existing skill development programme and expanding the same on completion of a full fledged vocational excellence centre at Dharampur. Also adopting ITI at Khergam and Sagbara



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FUTURE PLAN:

After the proposed expansion, the company has allocated some budget for CSR activities, which shall lead to improved social infrastructure has decided to allocate Rs. 6.35 crores towards the Social welfare program based on locals need. Moreover, employment to approx. 10-20 additional people is directly benefited.

The future CSR Plan prepared by the company is as follows:

Program	Projects/Activities	Budget* (` cr)	Implementing Agency	Timeline
Education	Institutionalizing best in class education practices in <i>Kalyani Shala</i>	1.00	AKM**	Dec 15
Empowerment	Bringing disadvantaged communities into mainstream by skill development through Atul Institute of Vocational Excellence	1.00	ARDF***	Dec 15
Health	Constructing amenity blocks	0.90	ARDF	Sep 15
	Providing quality health care through Atul Medical Diagnostic Centre	2.00	ARDF	Feb 16
Infrastructure	Rural development	0.75	ARDF	Feb 16
Others	Projects specified by Govt I PPP I seed money for incubating innovative ideas I upgradation of skills	0.50	--	--
Others	Overheads	0.20	--	--
Total		6.35		

* subject to revision

** *Atul Kelavani Mandal*

*** **Atul Rural Development Fund**



CHAPTER-8 ENVIRONMENTAL MANAGEMENT PLAN

8.1 ENVIRONMENTAL MANAGEMENT SYSTEMS (EMS)

The Environmental Management Plan (EMP) constitutes an important part of the EIA report. The main purpose of the Environmental Management Plan (EMP) is to identify project specific actions that will be undertaken by the project authority for mitigation of the specific impacts identified for the proposed expansion project. EMP ensures an effective implementation methodology and alternatives for mitigation measures planned / recommended to reduce or eliminate the adverse impacts to maximum possible extent during the operation of the project. These actions will be incorporated into project management system and integrated into the implementation at various stages of project development. The EMP describes both generic good practice measures and site specific measures, the implementation of which is aimed at mitigating potential impacts associated with the expansion activity.

A. OBJECTIVES AND TARGETS:

An effective EMP ensures that these environmental requirements and objectives are satisfied during all phases of project. The long-term objectives of the EMP for all the environmental attributes are as under;

- To comply with all the regulations / applicable laws stipulated by Central & State Pollution Control Boards.
- To remediate wastewater, hazardous waste and air emissions posing adverse impacts on the environment by installing adequate pollution control technology and equipments.
- To create good working conditions for employees by implementing mitigation/control measures for Occupational Health and Safety and by improving condition of workplace environment.
- To streamline environmental activities to add value in efficiency and effectiveness.
- To encourage and achieve highest performance and response from individual employees and contractors.
- To plan out the complete strategy to take care of stakeholder engagement.
- To make budgetary provision and allocate funds for environment management system and to ensure timely revision of budgetary provisions.
- To encourage, support and conduct developmental works for the purpose of achieving environmental standards and to improve methods of environment management.



- To implement and ensure effective implementation of Planned Mitigations including R&D program for innovative technologies for better environment, resource conservation/recovery/recycling/reuse especially to promote waste utilization and wastewater recycling/reuse.
- Continuous development and search for innovative technologies for a cleaner and better environment.
- To contribute significantly for sustainable development.

8.2 SUMMARY OF ANTICIPATED ENVIRONMENTAL IMPACTS

A detailed study for the identification & prediction of anticipated environmental impacts of the proposed expansion project was carried out and the outcomes of the study are described in earlier Chapter-4. The major impacts which require mitigation measures to protect the environmental health are further considered for formulation of this “Environmental Management Plan (EMP)”. The summarized list of the major impacts considered for EMP is illustrated below.

Impacts on Land Environment

- Land use/ Land cover change due to construction activity and clearance of vegetation at the project site.
- Disposal of construction waste.
- Contamination of land due to Solid waste/Hazardous waste during the construction phase as well as the operation phase.
- Contamination of land due to disposal of untreated effluent and sewage during the construction & operation phase.

Impacts on Air Environment

- Air pollution due to site preparation works as well as air borne construction materials during construction phase.
- Air pollution from transportation vehicles during the construction & operation Phase.
- Air pollution due to stationary emissions from stacks and fugitive emissions from coal/lignite & fly ash handling during the operation phase.



Impacts on Water Environment

- Water pollution due to runoff from construction site containing soil particles & construction materials.
- Impacts on water resources due to abstraction to meet the water requirement of the proposed expansion.
- Water pollution due to disposal of untreated sewage during the construction & operation phase.
- Water pollution due to disposal of untreated effluent during the construction & operation phase.

Impacts on Noise Environment

- Impacts due to noise generation by transportation activities during construction & operation phase.
- Noise generation from construction works.
- Noise generation during operation phase due to working of boiler and auxiliary equipments.

Impacts on Ecological Environment

- Impacts due to site preparation activities.
- Impacts on flora & fauna of the nearby area.
- Direct & Indirect impacts on vegetation due to disposal of untreated sewage/effluent as well as process and flue gas emissions

8.3 ENVIRONMENTAL MANAGEMENT PLAN

8.3.1 Air Environment

a. Construction Phase

Potential sources of air pollution during the construction phase are (i) dust emissions from vehicle movement on unpaved roads, and (ii) exhaust emissions from diesel generators, heavy construction equipments and vehicles (iii) Air borne construction material. These impacts on air quality will be minimized through following mitigation measures:

- Dust suppression by regularly spraying water on roads and work sites shall be practiced.
- Wetting or covering stockpiles, the proper location of material stockpiles and enclosed trucks during transportation of material shall be ensured.



- Use of low-emission vehicles and wherever feasible, construction equipments powered by electricity shall be preferred.
- Maintenance of engines and use of vehicles with PUC Certificates. Contractors will be required to strictly implement these measures.
- Engines of idle vehicle machineries/equipments shall be turned off.
- Regular inspection for efficient implementation of mitigation measures shall be done.

b. Operation Phase

Fugitive emissions will be generated due to the handling of coal and fly ash during operation. On-going emissions from Hot oil Unit, Coal fired boilers & Thermic Fluid Heater are the main source of air pollution. In addition to these existing sources, emissions from proposed utilities will also be considerable. The proponent has already provided necessary mitigation measures in existing stacks as a part of its existing environmental management system. Appropriate EMP shall also be provided with proposed additional stacks.

EMP for Stationary Emission:

- Stacks of adequate height & internal diameter are provided for efficient dispersion of emission from existing & shall be provided for the proposed CPP also.
- Sampling port & monitoring point are provided at all stacks and shall be provided at the proposed boiler stacks also.
- Sulphur capture system with ESP will be used as air pollution control device for 50 TPH boilers. After commissioning of 22 MW CPP, existing Coal fired boilers (W1&W2) shall be discontinued.
- Sulphur capture system with high efficiency ESP will be used as air pollution control device for controlling fly ash generated from proposed boilers.
- Optimum air-fuel ratio (AFR) in the CPP shall be ensured throughout operation period.
- In order to carry out efficient dispersion of gaseous pollutants, desired velocity of emission shall be ensured through proper functioning of FD/ID fans.
- Regular monitoring shall be done as per the Environmental Monitoring Plan for checking the efficiency of control equipments.
- Provision for adequate process safety controls,
- Additional greenbelt of 1420 m² coverage around the proposed CPP
- Provision of online monitoring system with proposed stacks.



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EMP for Fugitive Emission for dust suppression:

- After proposed expansion, additional quantity of coal and lignite shall be stored in closed storage area.
- Adequate additional sprinkling system, firefighting arrangements & adequate ventilation shall be provided.
- Dust collection system, Magnetic separator and dust ventilation is being/will be provided to control of fugitive dust emissions during screening & coal crushing.
- Coal shall be conveyed through closed conveyor belt.
- The ash will be transferred directly from the ESP to storage silos through a closed conveying system and controlled by PLC system.
- Internal approach roads up till the new CPP area shall be constructed from concrete/asphalt for prevention of dust during vehicular movement.
- Work place monitoring for AAQM shall be done as per 'Post project monitoring plan' as well as regulatory requirement as per Factory Act.
- Proper implementation of safety procedures and efficient use of safety arrangements, facilities & equipments shall be ensured at all times to prevent accidental release of materials & fuels as well as to prevent fire hazard.
- Ash from silos shall be transferred in transport vehicles directly with efficient arrangement to prevent dusting or air borne particulates.
- Use of vehicles with PUC shall be made compulsory for transportation vehicles.

Existing water sprinkling facility:

1	No of sprinklers	60 nos. of sprinklers
2	Pipe Diameter	1" Diameter
3	Nozzle Diameter	0.3" Diameter
4	Quantity of water Consumption	10 m ³ /week

Additional numbers of sprinklers with adequate diameter shall be provided within proposed CPP area.



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8.3.2 Water Environment

The additional water requirement for proposed expansion will be fulfilled by existing source i.e. Par River during the construction as well as operation phase. The unit has already obtained permission from irrigation department, which accommodates additional water requirement for proposed CPP expansion.

a. Construction

- Water requirement during the construction phase will be fulfilled by the existing source. No extraction of water shall be done from the groundwater resources for the construction activity.
- Further the proponent shall ensure to implement good operation practices to minimize the use of water, so as to reduce the depletion of water resource to maximum possible extent.
- Proper drinking water facility of existing plant & existing sanitation facility of unit will be made available to the construction workers.
- Due care shall be taken to avoid formation of stagnant pools, which may cause damage to the aesthetic condition as well as other environmental & socioeconomic factors.

b. Operation Phase

During the operation phase, total water requirement on 100% existing production load is 22,569 KLD (21,632 KLD for Industrial purpose + 937 KLD for domestic purpose). Water requirement for existing CPP is 3,905 KLD and additional 2,094 KLD water will be required for proposed expansion. Additional 1 KLD water will be required for additional man power generated due to proposed expansion.

Existing wastewater generated from process and existing CPP is 19,873 KLD, which is treated in full-fledged existing Effluent Treatment Plant (ETP) of 20 MLD capacity. The final treated effluent from the ETP confirming the GPCB norms is collected in guard pond and then discharged through closed pipeline to estuary zone of River Par via diffuser system.

Additional water requirement for proposed expansion will be 2,095 KLD (2,094 KLD industrial + 1 KLD domestic). Additional wastewater generated from proposed expansion will be 270 KLD and sewage generation will be 1 KLD.

Additional sewage will be treated in existing septic tank/ soak pit system. After the proposed expansion, wastewater generation from utilities i. e. Pretreatment plant for water, blow down from boilers & cooling tower, condensate from turbine etc will be collected in a collection sump of 1,500 KL capacity & having



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TDS in range 400-500 ppm and it will be same as raw water. This wastewater will be used for ash quenching & dust suppression and fire hydrant make up.

Hence, no additional load will be generated to existing ETP from proposed expansion.

Further, water conservation through rainwater harvesting is already carried out by proponent, which helps to reduce fresh water demand from supply sources during monsoon.

Quality of Raw water:

No.	Parameters	Unit	Raw water	Final collected water
1.	pH	pH unit	7.0 – 7.5	6.5-8.5
2.	Color	Pt.Co, Scale	<5	<5
3.	Total Suspended Solids	mg/L	10-20	15-25
4	Total Dissolved Solids	mg/L	192-300	350-500
5	COD	mg/L	4-10	18-24
6	BOD	mg/L	2-4	4-6
7	Oil and Grease	mg/L	<1.0	<1.0
8	Phenolic compound	mg/L	<0.001	<0.001
9	Ammoniacal Nitrogen	mg/L	1-5	3-10
10	Hexavalent Chromium	mg/L	<0.003	<0.003
11	Sulphide	mg/L	<0.1	<0.1
12	Chloride	mg/L	20-50	35-50
13	Sulphate	mg/L	8-15	20-40
14	Iron	mg/L	0.05-0.2	0.1-0.3
15	Total Chromium	mg/L	0.003-0.01	0.01-0.03
16	Zinc	mg/L	<0.022	<0.1

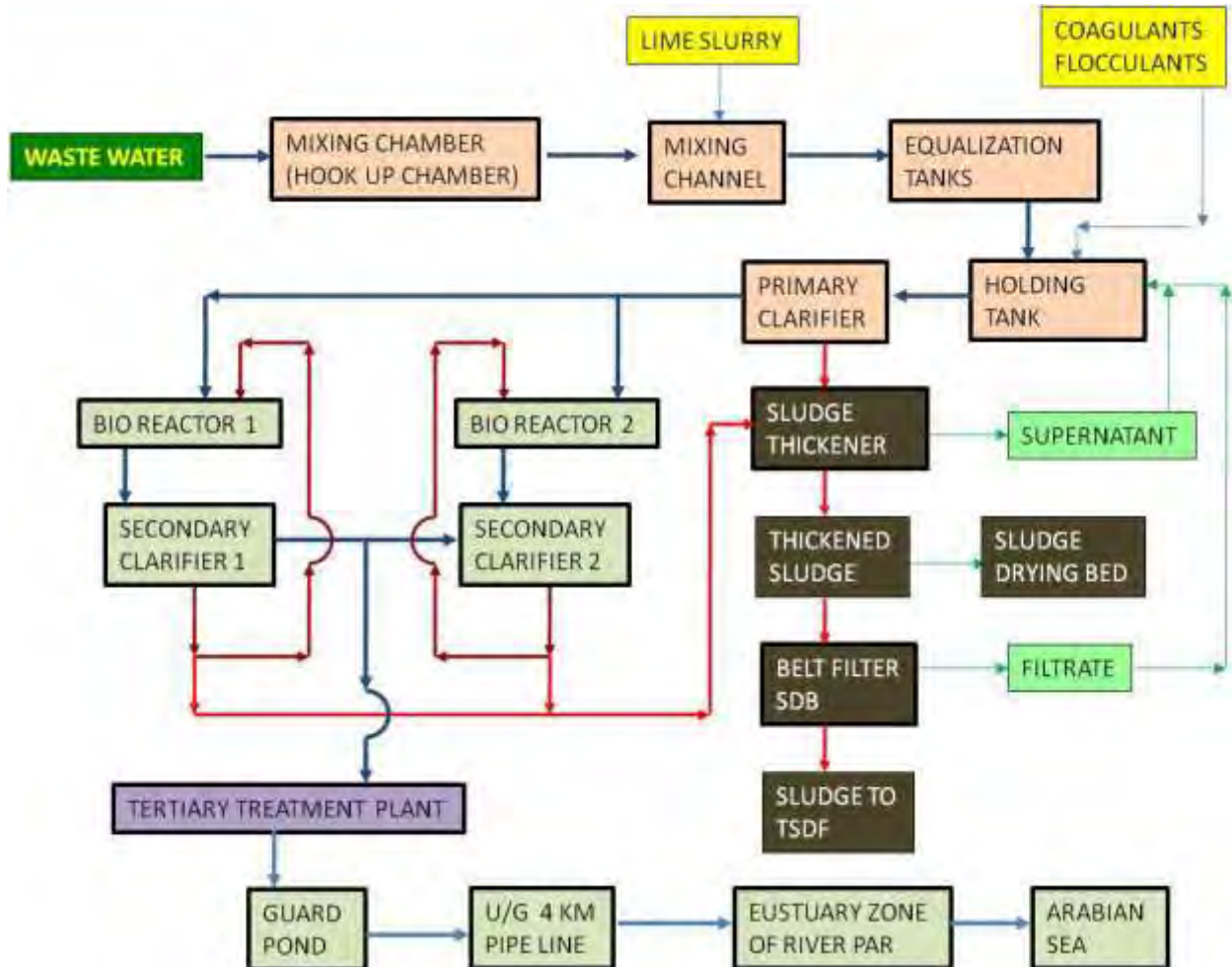


Existing Effluent Treatment Plant Units:

Sr. No.	Description	Dimension (m)	Capacity (m ³)	Retention Time (hr)
1.	Lime House	NA	400 MT	---
2.	Hook-up Chamber	---	28	---
3.	Equalization tank (P1)	20.00 x 42.05 x 2.05 SWD	1725	2.07
4.	Equalization tank (P3)	20.03 x 42.00 x 2.05 SWD	1680	2.02
5.	Equalization tank (P4)	(69.95 x 42.05 x 2.00) - (41.0 x 28.2 x 2.0) SWD	3200	3.84
6.	Guard Pond (P2)	70.05 x 42.00 x 4.00 SWD	10000	12.00
7.	C-4 pit	8 x 6 x 1.7 SWD 10 x 8 x 2.0 SWD	160	11.52 min
8.	Turbocirculator	dia. 25 x 4.0 SWD	1964	2.35
9.	Secondary pump pit (C-5)	6 x 5.5 x 4.75 SWD	156	11.23 min
10.	Old Aeration tank (C-6)	20 x 40 x 4.5 SWD	3600	4.40
11.	New Aeration tank	41.0 x 28.2 x 4.5	5000	6.00
12.	Secondary Clarifier (C-7 A)	dia. 26 x 3.05 SWD	1620	1.94
13.	Secondary Clarifier (C-7 B)	dia. 26 x 3.05 SWD	1620	1.94
14.	Pulsator	dia. 22 x 3.85 SWD	1464	1.76
15.	Biosludge pit	4.45 SWD	77	---
16.	Sludge thickener	dia.15 x 4 SWD	707	---



EXISTING ETP FLOW DIAGRAM



Equalization: Combined equalization cum neutralization lagoon is provided. A high capacity equalization tank is provided for avoiding shock variation due to large range of products made predominantly following batch processes. This also helps to avoid total plant stoppage in case of minor repairs on ETP.

- Neutralization: This is carried out in neutralization tanks using two stage automatic lime stone powder / lime dosing system with incorporation of pH control instruments.
- Turbo circulator: The equalized and neutralized effluent contains traces of floating oil and suspended matter. Removal of these impurities is essential before the bio treatment step and is carried out in the turbo circulator. Turbo circulator is an efficient settling and skimming device with racking arm and provision of continuous removal of suspended matter and oil & grease. Coagulants and flocculation aids are added to promote destabilization and agglomeration of colloidal particles.



EXISTING ETP UNITS PHOTOGRAPHS



- **Bio Treatment:** biological treatment with a capacity to treat 3,600 m³ of effluent based on Activated Sludge Process of Degremont. They have installed new bio reactor of 5,000 m³ capacity in the system. Both the bio reactors incorporate nutrient dosing and high-speed aeration with efficient “Degremont Activator” type surface aerator. Overflow from aeration tank is transferred by gravity to two static circular clarifiers of capacity 1,620 m³ with bottom sludge racking as well as surface skimming device. Sludge is pumped for recirculation of biomass to aeration tank and removal of excess sludge for de-watering, in thickener.
- **Tertiary Physico Chemical Treatment:** Bio treated effluent can be subjected to tertiary Physico chemical treatment comprising of a sludge blanket clarifier of specially designed “Degremont Pulsator”. Coagulants and flocculation aids are added to promote destabilization and agglomeration of colloidal particles. This helps in further reduction of BOD/COD values by separating additional sludge and polishing the effluent. The sludge separated in Pulsator also goes to thickener by a pump.
- **Sludge disposal treatment:** Sludge separated at Turbocirculator, Bio-settling tank and Pulsator is fed to Degremont static Thickener equipped with sludge concentrating racking arm and then taken for de-watering to the Belt filter press in addition to the seven Sludge drying beds. This biological sludge is partly used for trials as a plant growth nutrient and the balance quantity is currently stored along with hazardous waste.
- **Guard pond:** Tertiary treated effluent from flow measuring Parshall Flume is received in a Guard Pond of capacity 10,000 m³. This can accommodate nearly 12 hr of treated effluent considering the industrial effluent.
- **Treated waste water discharge:** The 4 km long pipeline for discharge of treated effluent through a diffuser system into estuary zone of River Par.



General Measures for minimizing water impacts:

- Regular monitoring of water, wastewater shall be done as per the monitoring schedule planned as a part of Environmental Monitoring Plan.
- Optimization of COC in cooling system will be done
- Efficient arrangement & designing of recycling system for recycling/reuse of treated wastewater
- Reduction of water consumption by 100% utilization of wastewater for dust suppression, Ash quenching and gardening.
- Maintaining records of water consumption and wastewater generation records.
- Maintenance of good housekeeping to avoid contamination of storm water.

8.3.3 Land Environment & Solid/Hazardous Waste Management

a. Construction Phase

- The major problem will be disposal of excess excavated earth generated during construction phase which shall be well handled by landfills to level the low lying areas.
- Reuse of construction waste for PCC works, development of roads and misc. filling for construction works.
- Use of excavated soil for landscaping & gardening/greenbelt development
- Storage & handling of construction materials shall be done properly to avoid spillage or leakage.
- Vegetation clearance shall not be a major issue as the proposed expansion will be carried out in the existing premises using spare land.
- Further, the proponent has planned to develop additional Green Belt Area within the premises, which shall prove to be beneficial from all aspects and shall effectively compensate the minor impacts.

b. Operation Phase

- A separate designated storage area shall be provided with sign boards/labels for each category of hazardous waste.
- Handling & transportation facility for Hazardous waste shall be provided.
- Storage silos will be provided for fly ash.
- Closed conveyor belt shall be provided for coal transfer.



- Provision of well designed, properly lined and enclosed storage area for materials having direct or indirect potential of land contamination.
- Proper storage of hazardous waste in their designated storage area. Used oil in well labelled drums, discarded containers in storage room etc.
- Transportation of hazardous waste to the own landfill site as per the guidelines.
- Regular training of employees engaged in solid waste management works.
- 100% utilization of ash by own brick manufacturing unit /cement manufacturing industry.(MOU is enclosed)

8.3.4 Biological Environment

a. Construction phase

As discussed earlier, the proposed expansion will be carried out within the existing premises of Atul and there is no ecological sensitive area within 10 km radius of the project site. Hence, the proposed project would not have any direct impacts on the ecological environment during the construction phase. Therefore, no major mitigation measures are required for the construction phase. Besides, it is also planned to develop additional greenbelt area in & around the proposed CPP during the construction phase, which will slightly improve the ecological status of the project site.

The following measures shall be implemented during the construction phase:

- Proper arrangement for materials storage & handling to prevent emissions from construction site/operation area.
- Water sprinkling in the area under construction site.
- The construction workers shall be instructed to minimize the clearing area to the possible extent.
- All necessary structural mitigation measures suggested/planned for control of air & water pollution.

b. Operation phase

During the operation of the proposed expansion, no major harm will be caused to the ecology as there will be no major source of pollution after implementation of mitigation measures for pollution control using necessary technology/method/system, Moreover there is no ecologically sensitive area is found within 10 km radius.



Further, the additional greenbelt in the project area shall improve the existing ecological condition of the area. Thus no special mitigation measures are required for ecology conservation during the operation phase. However, as it is noticed that the greenbelt development will improve the ecological condition of the area, following care shall be taken as mitigation measures.

- Management shall ensure that all possible efforts are being made to maintain healthy greenbelt developed in & around the plot area.
- The management shall provide all necessary materials/requisites for development, maintenance & protection of the greenbelt.
- Regular irrigation, fertilization & pest control program shall be a part of routine activity during the operation phase.
- The upbringing of Green Belt will prove to be an ideal dwelling place for many avifauna and terrestrial fauna, hence care shall be taken to avoid any harm to the faunal community being settled in the greenbelt.
- Regular records of greenbelt development activities with necessary statistics shall be maintained.

8.3.5 Noise Environment

a. Construction phase

- Management shall ensure that no hazard is caused due to noise generation during the course of work. For this purpose the management shall ensure that the workers are provided with individual protective equipments like ear muffs or ear plugs in areas with high exposure to noise.
- Further, it shall also be ensured to carry out periodic and regular maintenance of the equipments machines and spare parts which shall include lubrication, replacement of defective parts etc. in order to bring down the decibel of noise to maximum possible extent.
- Noise generation due to movement/operation of vehicles & equipment/ machineries shall be well managed by restricting the movement/operation during night hours.
- Regular lubrication & preventive maintenance shall be done to reduce noise generation.

b. Operation phase

- Noise generating equipments like pumps, motors, compressors, blowers, turbine/engines, power generator sets/ engines etc. shall be mounted on sturdy concrete foundations with proper & suitable rubber padding to reduce vibrations & thereby noise generation.



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- The major noise producing equipments such as turbine will be provided with sound proof container. Pumps, fans, compressor, etc. will be statically and dynamically balanced.
- Acoustic enclosure for DG set and similar provision like noise attenuator wherever suitable/possible.
- Safety blow off valves, discharge pipes, relief valves, etc. will be equipped with silencers.
- Adequate greenbelt shall be developed and maintained around high noise generating area as well as plant premises to help in attenuation of noise.
- Silencers for Boilers & Turbine shall be provided &/or attached with various noise generating parts of boiler & turbine.
- Regular lubrication & preventive maintenance shall be done to reduce vibration & noise generation.
- Use of PPE like ear plugs and ear muffs is made compulsory near the high noise generating machines.
- Moreover, the personnel are provided breaks in their working hours, with the continuous exposure not increasing three (3) hours.
- All vehicles shall maintain speed limit inside the premises and unusual acceleration of engine & loud horns shall be prohibited.
- Periodic monitoring of noise levels as per post-project monitoring plan shall be done on regular basis.



8.3.6 Occupational Health, Safety & House Keeping

Construction Phase

Occupational health & safety of workers & employs will be the prime focus of the proponent. Occupational health & safety of the construction workers shall be ensured by implementing the following measures:

- The management shall ensure that all workers/employees are provided with basic Personnel Protective Equipments (PPEs) like ear plug/muff, safety helmet, face mask, safety gloves, safety goggles, safety shoes etc.
- The management shall also ensure that the quality of these PPEs is properly checked before providing to the workers. It shall also be ensured that all the safety equipments are placed properly and are available instantaneously when required.
- Management shall also ensure to have safety and first aid facility for the workers/employees engaged in the working of the plant in order to provide them with necessary treatments in case of accidental mishaps or their health breakdown.
- Necessary training shall be imparted to the required workers/ employees in various aspects, viz. handling of the materials, precautionary measures to be taken while working, how to use the safety equipments, etc. so as to make all the workers literate, thus minimizing the chances of any accidental mishaps.
- Proper care shall be taken to provide the migrant labourers with clean hygienic residence accompanied by basic amenities like drinking water, sanitation, etc.
- Arrangements for medical facilities shall also be made in case of any disturbance in health during the course of work.

Operation Phase

The company is very much concerned in terms of health, safety and environment protection. Atul's commitment towards safety can be reflected from its 'Health, Safety & Environment Policy' prepared for the existing project.

Atul also has a **Department of Health (DoH)** for regular checking health of the employee regular checking health of the employees and medical aid. Annual health check for employees is carried out and record is maintained. (Record are attached as **Annexure-9**) Regular training to plant personnel in safety



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firefighting and first aid is also provided. The following facilities are provided at the **Department of Health (DoH)** at ATUL LTD

Medical Centers:

- DoH Main (Department of Health) within Atul complex
- OHC (Occupational Health Centre, 24x7) within Factory premises.

Scope of Services:

- Primary healthcare for employee & family
- Occupational healthcare
- Health monitoring
- Employee health check-ups
- EMS (Emergency) 24x7
- AOD (Accident on duty) management 24x7
- OHC services 24x7
- Medical Laboratory
- Referrals

Systems & facilities available:

- HMIS (Hospital management & information systems)
- Office automation
- ECG machine (two)
- Multipara Monitor with O2 Saturation (one)
- Finger pulse oximeter (one)
- Glucometer (two)
- Otoscope cum Ophthalmoscope (one)
- AED (automated external defibrillator) (one)
- Suction machine (two)
- Fully automated biochemistry analyzer (one)
- Fully automated hematology analyzer (5-part) (one)
- Automated Centrifuge (two)
- Microscopes (two)
- Blood Roller Mixers (two), Pipettes & Other Lab accessories
- Needle cutters (three)
- Oxygen cylinders (ten)
- Ambulance van with stretcher (two)
- Emergency observation beds (five)
- Medical assistance/aid visit bag (two)
- Dr Consultation equipment
- Antidotes as applicable
- First aid boxes as required



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Manpower:

- Full-time Drs – Three (residing in campus)
- Contract Dr – One (Medical Advisor)(residing at Valsad)
- Lab Technician – One
- Nurse – One (Male)
- Medical Assistants – Five (Male)

Software Use:

- On line software for health monitoring and medical history for all employees



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PHOTOGRAPHS OF ONSITE MOCK DRILL





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Until now, no major accident has taken Place in the existing unit. Thus from the previous performance of the company, same dedication is to be continued for the proposed expansion project. To maintain high standards in Health, Safety and Environment; various activities are undertaken at the site. Similar practice will be followed after the proposed expansion.

The following key safety measures are implemented in the existing plant and the same shall be a part of proposed expansion project:

1. Safety Training is provided to the employees.
2. Safety Sirens with Alarm System in case of emergency are provided.
3. Emergency Control Room is established.
4. Assembly point are defined for safe gathering of the employees during the times of emergency.
5. Fire Hydrant System is installed.
6. Fire Extinguishers are provided.
7. Mock drills are periodically conducted and factors like response time are evaluated.
8. Fire squad team is formed for handling any emergency situation & regular training of squad team is conducted.
9. First Aid Facility and training are provided.
10. Personal protective gears and equipments are provided to employees.
11. Health checkups are organized at regular intervals.
12. Safety / Health records and MSDS are maintained.

Do's & Don'ts of preventive maintenance

Do's:

- Store fuel and hazardous waste in isolated space
- Self-breathing apparatus always keep ready to meet any emergency
- Always use personal protective apparatus
- Covered confine area by personnel enclosure,
- Immediately report leaks, spills or failures of the engineering controls.
- Post "NO SMOKING" signs in certain area



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Don'ts

- Without PPE, don't enter in hazard prone area.
- Do not take any flammable material inside the fuel storage area.
- Don't be hasty and careless. This causes many accidents
- Don't allow combustibles to accumulate in your work area

Housekeeping

Proper housekeeping is an essential part of sound environmental management. It will be rigorously seen that there is no accumulation of wastes, especially combustible wastes inside the plant area.

In summer, dry grasses & vegetation growing inside the plant area will be cut and removed. All firefighting equipments and warning devices will be kept in perfect working conditions at all the times. It will be seen that all personnel are aware of the implications of environmental pollution and simple practices to avoid pollution.



8.4 CLEANER PRODUCTION

8.4.1 Energy Conservation

The energy conservation action for the existing unit as well as the proposed project activity aims at reducing wastage of power as well as fuel. Proponent has already planned & implemented many comprehensively designed actions for energy conservation as their daily routine for the existing production & allied operations. Similar action for energy conservation is planned for the proposed expansion. The major actions planned for energy conservation are listed below.

- Atul shall train and educate employees in areas of energy conservation.
- Atul shall carry regular internal and external audits to identify areas for improvement. Energy audit shall be used as a tool for monitoring purpose.
- Energy efficient machineries will be used during the construction and operation phase as far as possible.
- Enough care will be taken to prevent/minimize energy losses at each stage.
- External lights shall be controlled through timers for auto on/off function based on timings.
- Automated day light control.
- Replacement of conventional lighting fixtures by more energy efficient fittings.
- Periodic monitoring of unit/plant/department wise for energy consumption.
- Preparing annual energy activity plan.

Company shall explore possibility of harnessing solar energy for various infrastructure operations. Unit will also use of Energy Efficient Lighting, Transformers, Use of Energy Efficient Motors, Electrical Appliances to minimize the energy consumption.

8.4.2 Resource Recycle/ Recovery

Recycling of all additional wastewater for dust suppression, ash quenching and fire hydrant make up purpose.

8.4.3 Waste Recycling & Reuse

In existing practices, the non-hazardous wastes like Fly Ash is being recycled by selling it to the brick manufacturers (Ambuja cement, Surat) or use in own brick manufacturing unit. Same practice shall be



followed after the proposed expansion. Hence, the existing & proposed plan for recycling/reuse of solid wastes is reducing /will reduce the overall impacts on environment.

8.5 TRAFFIC MANAGEMENT PLAN

For the proposed expansion, the only raw materials to be transported outside the factory premises are Coal, lignite & fly ash. These will be transported from railway siding of Atul through roadways by means of trucks. According to the proposed requirement of materials, average 38 trucks are envisaged on a daily basis. The material is transported through rail till Atul railway station which is at an approx. distance of 2 km from the project site. From here, the materials are brought to the site by means of roadways through trucks.

As, discussed earlier, Atul has a good network of internal peripheral roads in the plots for the safety and access requirements to various buildings and yards. Moreover, the project site is having all necessary infrastructure facilities. The access roads to the plant premises are well developed and maintained throughout the year. Valsad is the nearest city situated from the project site which is well connected by road, rail and air to rest of India.

The EMP for traffic management is presented in the following table:

Traffic Management Plan

Objective	To ensure that there is smooth traffic within and outside the facility for the duration of the construction phase and operation phase					
Concern	Trucks, tankers and other vehicles may cause traffic jam outside and within the premises.					
Impacting activity	Mitigation measures	Measures for management				Monitoring
		Location	Timing	Responsibility		
Vehicular movement	Controlled vehicular movement (preferably with clearly	Within and immediately outside the site	Construction & operation phase	Contractor/ Project Manager during construction phase. Security and concerned	Project and	Security-in charge and security team



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	demarcated entry/exit) with adequate supervision			departments during operation phase.	
	Demarcation of separate vehicular lanes and pedestrian routes	Within the site	Construction & operation phase	Contractor/ Project Manager during construction phase. Security and concerned departments during operation phase.	Security team
	Vehicle entry and exit scheduling so that traffic congestion is not created on the external road leading to the site	Within and immediately outside the side	Construction & operation phase	Contractor/ Project Manager during construction phase. Security and concerned head of department during operation phase.	Security-in charge and security team



8.6 GREENBELT DEVELOPMENT PLAN

The plan for attenuation of the noise and air pollutant level includes design for greenbelt/plantation around plant boundary, roadside, office buildings and stretches of open land. The vegetation for the attenuation of air pollution shall be most needed in the areas where ground level concentrations of the pollutant are likely to be high. The main objective of green belt development is to provide a barrier between the source of pollution and the surrounding area. The greenbelt helps to capture the fugitive emission and to attenuate the noise generated apart from improving the aesthetics. Development of green belt shall also prevent soil erosion and washing away of the topsoil besides helping in stabilizing the functional ecosystem, make the climate more conducive and restore water balance.

Area covers for green belt development:

Description	Total Area m ²
Existing Greenbelt for CPP area	16,500
Proposed greenbelt near CPP area	1,420
Total	17,920

In addition to this the proponent has carried out plantation of 3,48,300 trees within last five years. Summary of the same is as below:

Summary of Plantation	
Year	No. of Plantation
2010-11	59200
2011-12	68700
2012-13	63300
2013-14	75600
2014-15	81500
Grand Total	348300



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The proponent carries out regular plantation in and around the industrial premises and in the proposed expansion also the proponent has planned to carry out Greenbelt Development & Management.

Photographs of Existing Green belt Area:



Plantation work:

Proponent has already developed 300 acres of greenbelt in and around the Atul complex. Proponent has already developed 16,500 m² of greenbelt near CPP area and additional 1420 m² of greenbelt will be developed in proposed CPP area. In addition to this, afforestation and plantation activities shall be undertaken in all available spaces within the main plant. Afforestation at plant area will be undertaken which will not only act as lung space in the area but will also improve aesthetics.

Multi-layered plantation comprising of medium height trees (7 m to 10 m) and shrubs (5 m height) are proposed for the green belt. In addition to this in future creepers will be planted along the boundary wall to enhance its insulation capacity.

a) Plan for 2015-16

The work plan for the first year, after the start of the project:

- Identification of existing greenbelt species.
- Survey of the area to identify the locations for causality replacement
- Surveillance maintenance and irrigation of the saplings to achieve maximum survival.



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b) Plan for 2016-17

The work plan for the second year

- Identification of locations for planting of new saplings after replacing old dead ones.
- Digging of pits and soil conditioning.
- Planting of saplings (during monsoon season)
- Maintenance and irrigation of species planted earlier
- Plantation of saplings within the premises-around the ETP and along the roads
- Development of lawns and gardens in vacant areas within the premises
- Maintenance and irrigation to achieve a targeted survival rate of 80%.

c) Plan for 2017-18

The work plan for the third year

- Maintenance and irrigation of species planted earlier
- Identification of any remaining area within premises for afforestation and plantation of saplings.
- Development of lawns and gardens in vacant areas within the premises
- Maintenance and irrigation to achieve the targeted rate at 100%.

d) The work plan for subsequent years comprises

- Maintenance of plantation
- Clearing of afforested areas to remove undesirable species
- Replacement of dead and diseased/malformed species with new ones

One such measure to keep the air clean is by using the plants for absorbing and trapping the air pollutants. The hypothesis that trees are important particulate sinks is supported by evidence obtained from studies dealing with diverse particulate including pollen, salt, precipitation, dust and other unspecified particles. So far as gaseous pollutants are concerned, substantial evidence is available to support the fact that plants in general and trees in particular, function as sinks for gaseous pollutants and this is achieved through various physiological processes occurring within the plant system.

The gaseous pollutants are transferred from the atmosphere to the vegetation by the combined forces of diffusion and flowing air movement. Once the gaseous pollutants come in contact with the plants, they may be bound or dissolved on exterior surface or taken up by the plants via stomata. If the surface of the



plant is wet and if the gas is water soluble, the former process can be very important. As a matter of fact, plants act as bio filters for the air pollutants and play a major role in safeguarding the environment and controlling the increasing level of air and noise pollution.

List of local tree species for Green Belt Plantation

No.	Common Name
1.	Nilgiri
2.	Mango
3.	Sevin
4.	Khair
5.	Rambaval
6.	Gulmohar
7.	Petroform
8.	Kajalia
9.	Karanj
10.	Kachnar
11.	Saru
12.	Tulsi
13.	Sadado
14.	Imli
15.	Bamboo
16.	Neem
17.	Agothia
18.	Kaju
19.	Nilgiri
20.	Glaricedia + Croton



8.7 DRAINAGE & RAINWATER HARVESTING PLAN

The effectiveness of the drainage system depends on proper cleaning of drainage pipes/channels etc. Regular checking before & during the monsoon shall be done to see that none of the drains/drainage facilities are clogged and are efficient to collect the rainwater under rain water harvesting program. The clogged drains shall be cleaned up immediately on report of any clogging or blockage. This checking and cleaning shall be meticulous during the monsoon season, especially if heavy rains are forecasted.

Atul already carries out rain water harvesting in the existing premises. 128236 m³/year of rain water was collected in Rain water harvesting tank during this year 2013-14 monsoon season. The collected water was transferred to collection tank and reuse in process, which has resulted in decrease in fresh water intake.

Details of the Rainwater Harvesting Plan is described below:

The First rainwater is not allowed to be collected and is discharged as storm water. The second rainwater and subsequent rainwater is conveyed to the Rainwater Collection System. Rainwater falling on all the main shop roofs is transferred to an intermediate collection tank through closed pipes. The rain water is collected in the collection tank and collected water is reused in process. Same practice shall be continued after the proposed expansion.



EXISTING RAIN WATER HARVESTING FACILITY



Maintenance of the recharging system:

Periodic maintenance is required for reliable and higher quality water supply. During rainy season, the entire system is to be checked before and after rains; and cleaned after every dry period. Before first shower, storage tanks should be cleaned and flushed of all sediments and debris. For the groundwater recharging purpose, only roof top area runoff water will be used. Also, the roof top will be cleaned before monsoon and coarse mesh is used to prevent the debris on the entrance of the water at roof. The first shower should be flushed so that any sediment can be washed away.

8.8 BUDGETARY PROVISIONS FOR EMS:

The total project cost for the proposed expansion will be Rs. 96.82 Crores. The capital cost of environmental control measures, solid waste management facilities and greenbelt development would be Rs. 555 Lacs. The APC, safety measures and other components of the EMP shall be implemented alongwith the commissioning of the proposed expansion. For development of additional greenbelt 5 lacs will be spent. After proposed expansion recurring cost will be Rs. 55.0 Lacs. The Budgetary Provision made for environmental management is illustrated below:

Table 8.1: Budgetary Provision for Environmental Management

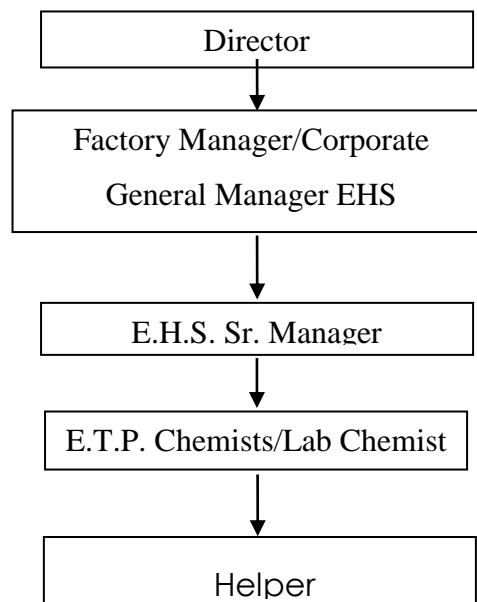
Sr. No.	Particulars	INR in Lakhs	
		Proposed	Recurring Cost
1	Environmental Management System (APC, Waste disposal, Environment & Safety training, Other assets/contingency etc)	555.00	55.00
2	Greenbelt development	5.00	--
TOTAL CAPITAL COST		560.00	55.00



8.9 ENVIRONMENTAL MANAGEMENT CELL

Atul has already formulated the Environmental Management Division for its existing unit which involves personnel of Plant Level as well as Corporate Level for interaction with technical & statutory bodies to deal with environmental requirements/issues at all level. The same cell shall be responsible for proposed expansion also. Executive Director/Engineer will head the Environmental Management Cell with subordinates involving Environmental Manager, Environmental Engineer, Chemist, Operators, etc. The EMC will be provided with well-equipped laboratory for carrying out analysis of the samples of the water, air etc. The EMC will carry out/oversee the monitoring of the stack emission, noise level, analysis of the water etc. and keep the regional/local statutory body informed about the status of pollution control. Proponent will arrange professional training for personnel of EMC at plant level which shall be provided in area of monitoring and continuous analysis of the pollutants, legal requirement and environmental management system. The EMC will also act to ensure efficient & proper implementation of EMP & mitigation measures suggested for control/prevention of pollution, recycling/reuse of waste & wastewater, conservation of environmental quality, greenbelt and occupational health & safety etc. Conceptually, the Environmental Management Cell has the following organizational structure:

EHS /SH&E Organization Chart





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8.10 UPDATING OF EMP

The periodicity of monitoring is being/will be governed by the directives from statutory authorities and prevailing regulations. The action plan of EMP is being/will be updated every year with respect to the results achieved and to plan activities for the next year.

8.11 IMPLEMENTATION OF EMP AND RESPONSIBILITY

Various measures have been suggested in the EMP for mitigation of impacts. These have to be implemented according to the suggestions and monitored regularly to prevent any lapse. A large part of the sampling and measurement activity will be concerned with long term monitoring aimed at providing an early warning of any undesirable changes or trends in the natural environment that could be associated with the plant facilities. It is the prime responsibility of Head of EMC to ensure that the EMP is implemented & operated efficiently to prevent/control pollution during operational phase of proposed project as well as to improve the environmental health of the area. The head of EMC shall be responsible for reporting any non-compliance to higher authority and stakeholders. It is the responsibility to each personnel of EMC & to ensure that the subordinates function efficiently as per their responsibility to proper implementation of EMP to practice ideal methodology/procedures for prevention /control of pollution as well as improvement of environmental health.

8.12 SOCIAL WELFARE & UPLIFTMENT PLAN

Atul has engaged its efforts in social welfare activities & programs from the very beginning. It directly organizes various programs for social welfare & upliftment or indirectly contributes in such activities conducted by other organizations by providing financial & other aid. Atul is committed to contribute in social welfare & upliftment activities on regular basis. Atul will continue such activities to fulfill the requirements of its social responsibility under CSR Programs.

For the past year 2014-2015, the proponent had allocated a budget of Rs. 3.94 crores for CSR activities and spent the same for activities identified under the following areas:

- Education
- Empowerment
- Health
- Relief
- Conservation
- Infrastructure



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BUDGETARY PROVISIONS FOR CSR:

As a part of the CSR policy, Atul has allocated a budget of Rs. 6.35 Crores towards the Social welfare program based on locals' need, which shall lead to improved social infrastructure.

The future CSR Plan prepared by the company is as follows:

Program	Projects/Activities	Budget* (` cr)	Implementing Agency	Timeline
Education	Institutionalizing best in class education practices in <i>Kalyani Shala</i>	1.00	AKM**	Dec 15
Empowerment	Bringing disadvantaged communities into mainstream by skill development through Atul Institute of Vocational Excellence	1.00	ARDF***	Dec 15
Health	Constructing amenity blocks	0.90	ARDF	Sep 15
	Providing quality health care through Atul Medical Diagnostic Centre	2.00	ARDF	Feb 16
Infrastructure	Rural development	0.75	ARDF	Feb 16
Others	Projects specified by Govt I PPP I seed money for incubating innovative ideas I upgradation of skills	0.50	--	--
Others	Overheads	0.20	--	--
Total		6.35		

* subject to revision

** *Atul Kelavani Mandal*

*** **Atul Rural Development Fund**



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CHAPTER – 9 SUMMARY & CONCLUSION

9.1 GENERAL

Atul was founded by a legendary Indian, Mr Kasturbhai Lalbhai, on September 15, 1947, exactly a month after India became independent with the dream to generate large-scale employment, create wealth in rural India and make the country self-sufficient in its requirements of chemicals.

Atul Limited became the first private sector company of India to be inaugurated by Jawaharlal Nehru, the first Prime Minister of the country. The Company thus commenced its business with just a few dyestuffs, the know-how of which was brought from foreign companies. Atul Limited is a member of Lalbhai Group, one of the oldest business houses of India, with interests mainly in textiles and chemicals. The Group is strongly committed to serve the society in the fields of education, health as well as culture.

Atul's registered office is in Ahmedabad whereas its corporate headquarters are located in Atul, Gujarat. The Company is listed on the NSE in India and has over 35,000 shareholders. Atul Limited is an improvement driven, integrated chemical company serving about 4,000 customers belonging to 27 industries across the world. The Company has established subsidiary companies in the USA (1994), the UK (1996), Germany (1998), China (2004) and Brazil (2012) to serve its customers and thus enhance breadth and depth of its business. From a small beginning (one dyestuff and one manufacturing plant), Atul has grown into a diversified chemical conglomerate, with about 1,350 products and formulations with 13 subsidiary and associate companies. The Company has taken small, but firm steps to grow its business with larger purpose.

Atul Limited holds Environmental Clearance (EC) from Ministry of Environment & Forests (MoEF), Delhi vide File No. J-11011/85/2009-IA II (I) dated 13th May, 2009 and also obtained valid Consolidated Consent & Authorization (CC&A) from Gujarat Pollution Control Board (GPCB) vide no. AWH-67717 dated 04/11/2014. Atul Limited is an existing chemical manufacturing complex with existing Captive Power Plant (CPP) of 34 MW and is now planning to expand their existing CPP by installing new 22 MW Coal based CPP with latest technology.



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NEED OF THE PROJECT

- Atul Limited is planning to expand the existing facilities & infrastructure in near future.
- Atul Limited is proposing expansion in current manufacturing capacity, which will increase the power and steam requirement.
- In the existing unit, two numbers of Stoker Fired Boilers (SFB) are provided with Scrubbers for dust collection. As, it is old technology and not feasible to provide ESP with these boilers, the SFBs will be replaced with higher efficiency boilers with adequate APC facility.
- Thus, Atul Ltd. is planning expansion in the unit and replacing the old low efficient SFBs boilers with highly efficient boilers which would be having ESP not only to maintain GPCB norms but also to cater future requirement of captive consumption.
- It is proposed to install 2 × 50 TPH Boilers of Atmospheric Fluidized Bed Combustion (AFBC) type and it will be having highly efficient ESP which can cater dust up to 99.9%.
- The proposed Boilers will be having Dust Extraction System in coal handling plant and pneumatic System for Bed Ash as well as for Fly Ash.

9.2 PROJECT LOCATION

9.2.1 Project Site:

The Atul limited is located at Survey No. 274,275 & 276, At & Post Atul. The project site falls in Valsad district of Gujarat. Atul is surrounded by Vapi in the south, Valsad in the north, Dharampur in the east and Atar village in the west. The project location is well connected with road, rail and air route for transportation activities. The salient features of the project site are mentioned in Table No. – 2.1. The location of the proposed project site on Google map is shown in Figure No. – 2.2. Layout plan showing the existing and expansion location is given in Figure No. – 2.3.

9.2.2 Salient Features of the Project Site

Valsad district is located between 20° 07” to 21° 05” North latitude and between 72° 43” to 73° 00” East longitude. The Geographical location of the plant site is approximately at latitude of 20°36’36” N, and longitude of 72°55’33” E. The nearest town Valsad is located about 7 kms away from the project site. Project site is well connected by Road and Rail line.



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The salient features mentioned below, indicate favorable conditions for industrial development at the project location.

Table No. 9.1 – Salient Features of the Project site

Sr. No.	Particulars	Name	Aerial distance from the Project Site
1.	Nearest village	Hariya	@ 2.10 km in NW direction.
2.	Nearest Town	Valsad	@ 7.00 km in N direction.
3.	Nearest River	Par River	@ 700.00 m in SE direction.
4.	Nearest National Highway	N. H. No. 8	@ 2.00 km in EEN direction.
5.	Nearest Railway station	Atul	@ 1.50 km in NW direction.
6.	Nearest Airport	Daman	@ 15.20 km in SW direction.
7.	Nearest Tourist Places	Tithal	@ 7.70 km in NW direction.
8.	Protected areas (National parks/ sanctuaries)	---	None within 10 km radial periphery
9.	Defense installations	---	None within 10 km radial periphery
10.	Sites of Historical / Archaeological Importance	---	None within 10 km radial periphery

Note: All the above – mentioned distance are the aerial distances from project site.



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9.3 RESOURCE REQUIREMENT

Resources	Requirements/ Source			
Land	Existing:	45,079 m ²	Existing land is in possession of Atul Ltd.	
	Proposed:	No additional land required	Existing spare land of 10,000 m ² shall be utilized for proposed expansion.	
Capital requirements	Cost of Proposed expansion :		Rs. 96.82 Crores	
Water	Existing CPP requirement :	3,910 KLD (Dom+Ind)	Par River	
	Proposed CPP requirement ::	2,095 KLD (Dom+Ind)	Par River	
Power		Existing	Proposed	Total
	CPP	34 MW	22 MW	56 MW
Manpower	Construction Phase	Appx. 500 nos.	New recruitment	
	Operation Phase	Appx. 10-20 nos.	New recruitment	



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9.4 RAW MATERIALS

To carry out the proposed expansion, fuel resources like coal & diesel will be utilized.

Sr. No.	Raw Material	Existing	Proposed	Total
1	Indian Coal and/or Imported coal and/or Lignite	20,200 MT/Month	Max. 16,725 MT/Month	36,925 MT/Month
2	Water Requirement	3,905 KL/Day	2,094 KL/Day	5,999 KL/Day

9.5 PRODUCTS & CAPACITY

Sr. No.	Product Name	Existing	Proposed	Total
1	Captive Power Plant (CPP)	34 MW	22 MW	56 MW



9.6 BASELINE ENVIRONMENTAL STATUS

The Base line environmental status for various components of environment like soil, Ground water, surface water, noise and ambient air quality is an important part of environmental impact assessment study. Base line data helps in the prediction and assessment of impacts due to the proposed p

roject. This study illustrates the description of existing environmental status of the study area with reference to the prominent environmental attributes.

The baseline environmental study of Atul Ltd. and its surrounding area was done by following the guidelines of MoEF&CC. The study was carried out according to the ToRs approved by the State Level Expert Appraisal Committee of Gandhinagar. The study area for the proposed project has been considered within the 10 km periphery of the project site. The period of study was December 2014 to February 2015. The secondary data were collected from secondary sources like Census of India- 2011, Environment Information Centre-Delhi, Forest department, District Panchayats etc.

Table No 9.2: Frequency of Environmental Monitoring

Attributes	Sampling		
	Locations	Parameters	Frequency
A. Air Environment			
Meteorological	Nr. Project Site	Temperature, Relative Humidity, Precipitation Wind direction, Wind Speed	Hourly data from December 2014 to February 2015
Ambient Air Quality	8 locations in the study area of 10 km radius from Project site. [5 location with in 5 km]	PM _{2.5} , PM ₁₀ , SO ₂ , NO _x , CO	24 hourly, twice a week during study period
B. Noise	8 locations in the study area within 10 km radius from the project site	Noise Levels in dB(A)	Once in Study Period



C. Water			
Ground Water	Grab samples of 5 Locations within 10 km radius of Study region	Physical, Chemical, Microbiological and Heavy Metal	Twice in a Month during Study Period
Surface Water	Grab samples of 5 Locations within 10 km radius Study region	Physical, Chemical, Microbiological and Heavy Metal	Once in a Month during Study Period
D. Soil Quality	7 locations in the study area within 10 km radius from the project site	Physical, Chemical Characteristics, Soil Texture	Once in a Month during Study Period
E. Land Use & Land Cover	Within 10 km radius of study area	Existing Land use pattern	--
F. Ecological Data	Within 10 km radius of study area	Existing Flora & Fauna	Once in Study Period
G. Socioeconomic Data	Within 10 km radius of study area	Socio-economic characteristics of the affected area	Once in Study Period

Table No 9.3: Method of Environmental Sampling & Analysis

Attributes	Methods	
	Sampling/Preservation	Analysis
A. Air Environment Ambient air quality	As per IS: 5182 & AWMA Instrument operated as per it's	As per IS:5182 & AWMA
B. Noise	Instrument : Noise level meter	Survey carried out as per EPA
C. Water		
Ground Water	Standard Methods for Examination of Water and Wastewater, 21st edition, APHA 2005	IS 3025 & Standard Methods for Examination of Water and Wastewater, 21st edition, APHA 2005
Surface Water		



D. Soil Quality	IS 2720	As per Laboratory SOP based on standard methods
E. Ecological Data	Primary data by site visit and verified by reviewing various literature, internet	Primary data by site visit and verified by reviewing various literature, internet
F. Socioeconomic Data	Primary Survey & Census of India 2011	Primary Survey & Census of India 2011

Table 9.4: Baseline Status of the study area

Physiography	<ul style="list-style-type: none">• The project site falls in Valsad district of Gujarat which is surrounded by Vapi in the south, Valsad in the north, Dharampur in the east and Atar village in the west.• The project location is well connected with road, rail and air route for transportation activities.• The nearest city/ town to the project site is Valsad.• River Par is passing through the vicinity of the project site at a distance of about 0.7 kms from the site and drains into Arabian sea.
Meteorology	<ul style="list-style-type: none">• Temperature: Mean daily max. = 41 °C, Mean daily min. =13.4 °C.• Humidity was observed between 08 to 93 %.• Rainfall: No rainfall recorded during the study period.• Wind pattern: Pre-dominant Direction: NW, Wind Speed was in the range of 0 to 12.0 km/hr
Ambient air quality	<ul style="list-style-type: none">• During the study PM_{2.5} was observed between 44.2 – 58.2 µg/m³. Maximum concentration of PM_{2.5} was found at Magod village. Results of PM_{2.5} for all locations are well within the CPCB norms.• PM₁₀ was observed in the range of 86.2 – 97.5 µg/m³. Results found during the study period for PM₁₀ were well within the limit given by Ministry of Environment & Forests.• SO₂ concentration was observed in the range of 26.3 to 34.7 µg/m³, which is well within the standard limit.• NO_x concentration in Ambient Air quality was between 33.5-47.5 µg/m³, which is well within the standard limit.• Monitoring and analysis was also carried out for CO. Maximum



	<p>Concentration of CO was found to be $1075 \mu\text{g}/\text{m}^3$ near project site.</p> <ul style="list-style-type: none">• On the basis of test results found during the survey it can be concluded that the ambient air quality of the study region is quite good as all the results are well within the limit.
Noise level	<ul style="list-style-type: none">• Day time: Noise range – 51 to 68 dB(A)• Night time: Noise range – 42 to 59 dB(A)
Water resources & quality	<p>GROUND WATER SOURCE</p> <ul style="list-style-type: none">• pH range was observed between 5.9 – 7.38.• Total dissolved solids were recorded in the range of 325 - 1515 mg/L. Total Dissolved solids concentration was found acceptable. The concentration was high in the samples of Tithal.• Total hardness was in the range of 220 - 910 mg/L with minimum at Balda & maximum at Tithal. Hardness results were found within the permissible limit except for the samples of Tithal.• Results of Alkalinity, Calcium, Magnesium were also found within the permissible limit except for the samples of Tithal village.• All the heavy metals were found well within the range of prescribed standards. Any of toxic metals were not found in any village during analysis. Fluoride was also within the range of prescribed limit in all the samples.• As microbiological parameters MPN analysis was also carried out and it was found NIL.• On the basis of test results it is summarized that water quality for studied locations is as per IS 10500 – 2012. Water can be used for drinking purpose after primary treatment and can also be used for domestic purposes. Water of Tithal village should not be used for drinking purpose without proper treatment. <p>SURFACE WATER SOURCE</p> <ul style="list-style-type: none">• During the analysis pH of the samples was found ranging from 6.80 to 7.71.• TDS analysis was also carried out for surface water sample of the various locations. Minimum TDS was found 74 mg/L in the sample of Balda & maximum TDS was found 324 mg/L for the sample of Par river.



	<ul style="list-style-type: none">• Turbidity was found between 2.2 to 6.8 NTU.• DO measured during analysis was ranging between 5.1 to 6.6 mg/L. Almost all the samples of surface water are having similar concentration of DO. DO levels was found more than 4.0 mg/L for all the samples, it means condition of the water resources are favourable to aquatic life.• It was found that Total Hardness in the sample of Chichwada was minimum i.e. 25 mg/L & maximum was 215 mg/L in the sample of Par River.• Test results comparison study with Inland Surface Water Classification (CPCB Standards) reveals that water can not be used directly for drinking purpose as MPN test is positive for almost all the locations. Surface water for these locations can be used for various domestic purposes but it cannot be used for drinking purpose. Before taking it for drinking purpose it should be passed through various stages of conventional treatment.
Soil quality	<ul style="list-style-type: none">• Results of pH were varying in narrow range for one location to other location from 6.94 to 8.05 during the study period .Overall the pH of all the soil samples were found almost neutral.• Loss on ignition test was also carried out to know the probability of Organic matter in the soil samples. Concentration of organic matter was found in the range of 0.3 to 0.6 %. Minimum Value was observed in the soil samples of Balda and Udvada.• During analysis total Nitrogen was found in the range of 2.23-9.83 mg/100 gm. Minimum value was observed in the soil sample of Chanvai.• Total Phosphorous content was found in the range of 3.87 to 9.71 mg/100 gm.• Calcium content ranged from 28.3 to 37.1 meq/100 gm and magnesium content ranged from 25.7 to 30.8 meq/100 gm.• As a micronutrient analysis of Iron, Chromium, copper & Boron was



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	<p>also carried out for all the soil samples & its presence was found lower than the desired value. Soil texture was found to be silt clay and silt clay loam in most of the villages of study region.</p>
Landuse/ Landcover pattern	<ul style="list-style-type: none">• There are few ponds/lakes present within 10 km radius of the industry. The nearest is at eastern and south-eastern side of the industry close to railway track and road.• Industrial area/study area also has club, helipad area, colony along with other amenities.• The cultivable land at present is 36.2 % in the study area while the uncultivated land is around 22.78 % both together covering more than 59 % of the total area under study.
Ecological Layout	<ul style="list-style-type: none">• The flora which occurs in the zone includes about approx. 96 species.• The fauna which occurs in the zone includes about approx. 72 species.



9.7 IMPACTING ACTIVITIES

Various activities involved in the proposed project are:

- A. Construction phase activities**
- B. Operation phase activities**

The activities identified for the proposed project under each phase are:

Construction phase

- Construction works for proposed CPP
- Erection and Installation of the proposed equipments/machineries
- Site development for additional Greenbelt & Landscaping

Operation phase

- Operation of Machineries & Equipment
- Handling & transportation of materials
- Combustion of fuel & Emission from Boilers
- Allied Operations (maintenance of machineries, equipments, etc.)
- Water Consumption & Wastewater Generation & Management
- Solid/Hazardous Waste Generation & Management
- Administrative, Domestic & Other Activities



9.8 IMPACT PREDICTION

Table 9.5 Major Activities & Associated Potential Impacts

No.	Activity of the Project	Potential Impacts without Mitigation
A. Construction Phase		
1.	Construction of necessary buildings, structures & shed	<ul style="list-style-type: none">• Transportation of construction materials, equipment and machineries.• Local temporary impacts because of air contamination due to dusting & emissions during loading/unloading of construction materials.• Noise generation due to construction activities.• Stress on water resource due to consumption of water in construction activity.• Construction waste generation & land contamination.• Occupational health hazards associated with construction works. Employment of local workers during construction phase.
2	Installation & commissioning of Machineries & Equipments for CPP	<ul style="list-style-type: none">• Local temporary impacts caused by noise generation & air contamination due to welding, cutting, etc. works.• Occupational health hazards due to mechanical, electrical and allied works.
3	Site development for Greenbelt & Landscaping	<ul style="list-style-type: none">• Major impacts are beneficial but will lead to negligible (almost Nil) adverse impacts during site preparation activity.
B. Operation Phase		
1	Operation of Machineries/ Equipment	<ul style="list-style-type: none">• Impacts on ambient noise due to Noise & vibrations• Occupation Health issues associated with operational hazards (mainly thermal/heat, mechanical, fire & electrical, noise, vibration)



No.	Activity of the Project	Potential Impacts without Mitigation
2	Handling & transportation of materials	<ul style="list-style-type: none">• Impacts on air due to airborne dust & fuel• Noise generation due to transportation vehicles• Fugitive emission due to coal, lignite and fly ash handling• Occupational health issues associated with operational hazards• Risk associated with Fire & Explosion Hazards due to coal storage.
3	Combustion of fuel & emissions from boilers	<ul style="list-style-type: none">• Impacts on air due to stationary & secondary (fugitive) emission mainly from boilers.• Generation of ash, flue gases due to operation of the boiler.• Stress on ecological structure due to change in Ground Level Concentration (GLC) of various pollutants in emissions
4	Allied operations (maintenance & services of machineries & equipments etc.)	<ul style="list-style-type: none">• Temporary local impacts on Air Environment due to fugitive emissions.• Temporary local impacts on Noise Environment due to noise generation.• Contamination of water due to wash down of contaminant from work site in storm water drainage.• Occupational health issues associated with operational hazards (mechanical, electrical, heat, fire, noise, vibration, etc.)
5	Water consumption & wastewater generation & management	<ul style="list-style-type: none">• Stresses on water resources due to water consumption.• Generation of industrial & domestic wastewater.• Potential for contamination of water or land caused by disposal of untreated /poorly treated effluent.
6	Solid/hazardous waste generation & management	<ul style="list-style-type: none">• Impacts on soil on contamination due to the solid/hazardous waste handling/storage/ leakage /dumping on land.• Impacts due to air borne materials from the solid/hazardous waste storage area.



No.	Activity of the Project	Potential Impacts without Mitigation
8	Administrative, domestic & other activities	<ul style="list-style-type: none">• Impacts on land environment due to sewage generation & disposal.

9.9 ENVIRONMENTAL MANAGEMENT PLAN

EMP for Water Management

Environmental Issue	Mitigation measure
Construction Phase	
Load on resources by consumption of water	<ul style="list-style-type: none">• Already obtained Permission for water withdrawal from Par river water supply system.• Optimization of water consumption by reducing unusual runoff from construction activity area.• Proper arrangement & maintenance and regular inspection of water supply line to prevent leak from pipes & taps/ valves.• No use of groundwater.• Further the proponent shall ensure to implement good operation practices to minimize the use of water, so as to reduce the depletion of water resource to maximum possible extent.• Due care shall be taken to avoid formation of stagnant pools, which may cause damage to the aesthetic condition as well as other environmental & socioeconomic factors.
Wastewater discharge	<ul style="list-style-type: none">• Proper sanitation facilities of Existing Plant is made available for construction workers.• Proper drinking water supply facility for construction workers is available at the Existing Plant.



Operation Phase	
Load on resources by consumption of water	<ul style="list-style-type: none"> • Already obtained Permission for water withdrawal from Par river water supply system. • In-house fresh water storage facility is already present in the existing premises. • Regular recording of water consumption using flow meter. • Regular inspection, control & necessary maintenance for reduction of evaporation losses and blow down from cooling system
Wastewater Treatment & discharge/reuse/ recycle	<ul style="list-style-type: none"> • Effluent generated from the proposed CPP will be utility waste only with very low amount of TDS, which will not require any treatment. • Utility water will be collected in collection sump and reuse for ash quenching, dust suppression and fire hydrant make up. • Storm water drainage lines are also provided for discharge of/runoff of rainwater from the plant. • Rain water harvesting is already carried out in existing unit and collected water is used in process plant. • Efficient arrangement & designing of recycling system for use of collected wastewater. • Hence, proposed CPP will achieve zero discharge.

EMP for Air Management

Environmental Issue	Mitigation measures
Construction Phase	
Temporary increased Emissions from construction & commissioning operations	<ul style="list-style-type: none"> • Adequately designed enclosed area/provision of barricading sheets for reduction of dusting during construction activity and materials storage & handling. • Provision of water sprinkling system in construction area for suppression of dust.



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	<ul style="list-style-type: none">• Water Sprinkling shall be done on earthen roads, stockpiles of excavated earthen materials and soil to prevent dusting.• All vehicles engaged in construction work shall be compulsorily PUC certified.• All construction equipments, machineries & utilities shall be maintained on regular basis to reduce emission.• Engines of idle machineries, equipments and vehicles to be turned off when not in use.• Provision of necessary PPEs for employees engaged in activities of storage, transportation & handling of materials as well as construction & commissioning operations.
Operation Phase	
Stationary emissions	<ul style="list-style-type: none">• Stacks of adequate height & internal diameter are provided for efficient dispersion of emission from existing & proposed installations.• Sampling port & monitoring point are/will be provided at all the stacks.• Provision of preventive maintenance facilities for Stacks, Utilities, Storage area, pipelines etc.• Safety arrangements, facilities & equipments to prevent accidental emissions.• Adequate greenbelt coverage around the plant and additional greenbelt will be developed near CPP area.• Proper implementation of safety procedures and efficient use of safety arrangements, facilities & equipments to prevent accidental emissions.• Provision for necessary PPEs for employee engaged with hazard prone area.
Fugitive Emissions	<ul style="list-style-type: none">• Coal and lignite shall be stored in closed storage area.• Regular water sprinkling shall be done during loading, unloading and storage of coal and lignite.



	<ul style="list-style-type: none"> • During the transportation, fuel shall be handled in closed trucks only. • Additional water sprinkling system with pipeline network shall be provided to handle additional fuel due to proposed expansion. • Coal and lignite shall be transferred through closed conveyer belt to reduce the fugitive emission. • Dust extraction system shall be provided with proposed CPP during the charging of fuel. • High efficient ESP shall be provided with proposed Boilers. • Silos for storage of fly ash shall be provided. • The ash shall be transferred directly from the boiler to storage silos through a closed 'dense phase pneumatic conveying system'. • SOPs for start-up, shut down, operation & maintenance procedures shall be established & maintained in all relevant area of works. • Work place monitoring for AAQM shall be done as per 'Post project monitoring plan' as well as regulatory requirement as per factory act.
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EMP for Waste Management

Environmental Issue	Mitigation measure
Construction Phase	
Construction waste management.	<ul style="list-style-type: none"> • Proper handling & transportation system for construction wastes & stock piles of earthen materials • Proper storage of construction & other waste and excavated earthen material/soil in their designated storage area. • Reuse of construction waste for PCC works, development of roads and misc. filling for construction works.



	<ul style="list-style-type: none">• Use of excavated soil for landscaping & gardening/greenbelt development.
Operation Phase	
Hazardous/Non-Hazardous Waste management	<ul style="list-style-type: none">• A separate designated storage area is already provided with sign boards/labels for each category of hazardous & solid wastes.• Handling & Transportation system/facilities for hazardous/solid wastes.• Proper storage of hazardous waste in their designated storage area viz.<ul style="list-style-type: none">- Used oil in well labelled drums in/near CPP area,- Discarded containers in designated waste storage area for sell to authorized scrap vendors or for return to supplier- Fly ash will be disposed off by consumption in own brick manufacturing unit of the proponent or/and Ambuja cement's unit for co processing.• Proper handling, loading & unloading of waste shall be monitored during waste handling, storage & transportation to avoid spillage/leak causing contamination of soil/environment.• 100% utilization of ash: through Bricks/Cement manufacturing industry for bricks or cement manufacturing unit.



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EMP for Noise Control

Environmental Issue	Mitigation measure
Construction Phase	
Noise	<ul style="list-style-type: none">• Noise generating & vibrating equipments like motors, pumps etc. shall be mounted on sturdy concrete foundations with rubber padding to reduce vibrations.• Adequate greenbelt shall be developed to help in attenuation of noise.• Regular lubrication & preventive maintenance shall be done to reduce noise generation.• Ear plugs/muff shall be provided to all construction workers/employees at place of high noise levels.• All vehicles shall maintain speed limit inside the premises & loud horns & unusual acceleration of engine shall be prohibited.
Operation Phase	
Noise	<ul style="list-style-type: none">• Noise generating equipments like pump, motors, compressors, Forklifts, Trailers etc. and power generator sets/ engines etc. shall be mounted on sturdy concrete foundations where ever possible & suitable rubber padding to reduce vibrations & thereby noise generation.• Adequate greenbelt shall be developed and maintained around high noise generating area as well as plant premises to help in attenuation of noise.• Regular lubrication & preventive maintenance shall be done to reduce vibration & noise generation.• Use of PPE like ear plugs and ear muffs shall be made compulsory near the high noise generating machines.• Periodic monitoring of noise levels as per post-project monitoring plan shall be done on regular basis.



9.10 ADDITIONAL STUDIES

9.10.1 Risk Assessment

A detailed Risk Assessment (RA) study was carried out for the proposed expansion. The following processes/units have been covered for the RA study of the proposed expansion project:

- Boiler
- DG Sets
- Material handling/transportation/storage
- Personnel safety measures
- Fly ash handling system
- Noise environment
- Coal handling system

9.10.2 Disaster Management System

Atul has well developed an emergency management system to tackle the emergency situation. The roles of the following personnel are described to tackle any such emergency situations;

- Site Main Controllers
- Safety Officer
- Shift Engineer
- Fire & Security Personnel
- Workers

The elements of Disaster Management Plan are:

- Onsite Emergency Plan
- Offsite Emergency Plan



9.11 OCCUPATIONAL HEALTH, SAFETY & HOUSEKEEPING

The company is very much concerned in terms of health, safety and environment protection. Atul's commitment towards safety can be reflected from its 'Health, Safety & Environment Policy' prepared for the existing project.

Atul also has a Department of Health (DoH) for regular checking health of the employee regular checking health of the employees and medical aid. Annual health check for employees is carried out and record is maintained. Regular training to plant personnel in safety firefighting and first aid is also provided.

9.12 GREENBELT DEVELOPMENT PLAN

The plan for attenuation of the noise and air pollutant level includes design for greenbelt/plantation around plant boundary, roadside, office buildings and stretches of open land. The vegetation for the attenuation of air pollution shall be most needed in the areas where ground level concentrations of the pollutant are likely to be high. The main objective of green belt development is to provide a barrier between the source of pollution and the surrounding area. The greenbelt helps to capture the fugitive emission and to attenuate the noise generated apart from improving the aesthetics. Development of green belt shall also prevent soil erosion and washing away of the topsoil besides helping in stabilizing the functional ecosystem, make the climate more conducive and restore water balance.

Area covers for green belt development:

Sr. No.	Total Area m ²
Existing Greenbelt for CPP area	16,500
Additional Greenbelt near proposed CPP	1420
Total	17,920

In addition to this, the proponent has carried out plantation of 3,48,300 trees within last five years. Summary of the same is as below:



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Summary of Plantation	
Year	No. of Plantation
2010-11	59200
2011-12	68700
2012-13	63300
2013-14	75600
2014-15	81500
Grand Total	348300

The proponent carries out regular plantation in and around the industrial premises and in the proposed expansion also the proponent has planned to carry out Greenbelt Development & Management.

9.13 RAIN WATER HARVESTING PLAN

Atul already carries out rain water harvesting in the existing premises. 128236 m³/year of rain water was collected in Rain water harvesting tank during this year 2013-14 monsoon season. The collected water was transferred to collection tank and reuse in process, which has resulted in decrease in fresh water intake.

The First rainwater is not allowed to be collected and is discharged as storm water. The second rainwater and subsequent rainwater is conveyed to the Rainwater Collection System. Rainwater falling on all the main shop roofs is transferred to an intermediate collection tank through closed pipes. The rain water is collected in the collection tank and collected water is reused in process. Same practice shall be continued after the proposed expansion.

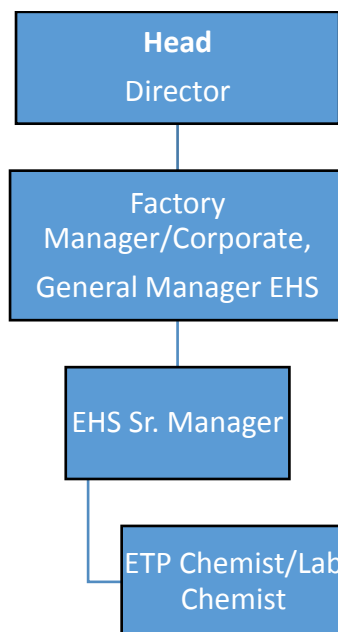
9.14 ENVIRONMENTAL MANAGEMENT CELL

Atul has already formulated the Environmental Management Division for its existing unit which involves personnel of Plant Level as well as Corporate Level for interaction with technical & statutory bodies to deal with environmental requirements/issues at all level. The same cell shall be responsible for proposed expansion also. Executive Director/Engineer will head the Environmental Management Cell with subordinates involving Environmental Manager, Environmental Engineer, Chemist, Operators, etc. The EMC will be provided with well-equipped laboratory for carrying out analysis of the samples of the



water, air etc. The EMC will carry out/oversee the monitoring of the stack emission, noise level, analysis of the water etc. and keep the regional/local statutory body informed about the status of pollution control. Proponent will arrange professional training for personnel of EMC at plant level which shall be provided in area of monitoring and continuous analysis of the pollutants, legal requirement and environmental management system. The EMC will also act to ensure efficient & proper implementation of EMP & mitigation measures suggested for control/prevention of pollution, recycling/reuse of waste & wastewater, conservation of environmental quality, greenbelt and occupational health & safety etc. Conceptually, the Environmental Management Cell has the following organizational structure:

EHS /SH&E Organization Chart



9.15 SOCIAL WELFARE AND UPLIFTMENT PLAN

Atul has engaged its efforts in social welfare activities & programs from the very beginning. It directly organizes various programs for social welfare & upliftment or indirectly contributes in such activities conducted by other organizations by providing financial & other aid. Atul is committed to contribute in social welfare & upliftment activities on regular basis. Atul will continue such activities to fulfill the requirements of its social responsibility under CSR Programs.

For the past year 2014-2015, the proponent had allocated a budget of Rs. 3.94 crores for CSR activities and spent the same for activities identified under the following areas:



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- Education
- Empowerment
- Health
- Relief
- Conservation
- Infrastructure

BUDGETARY PROVISIONS FOR CSR:

As a part of the CSR policy, Atul has allocated a budget of Rs. 6.35 Crores towards the Social welfare program based on locals' need, which shall lead to improved social infrastructure.

The future CSR Plan prepared by the company is as follows:

Program	Projects/Activities	Budget* (` cr)	Implementing Agency	Timeline
Education	Institutionalizing best in class education practices in <i>Kalyani Shala</i>	1.00	AKM**	Dec 15
Empowerment	Bringing disadvantaged communities into mainstream by skill development through Atul Institute of Vocational Excellence	1.00	ARDF***	Dec 15
Health	Constructing amenity blocks	0.90	ARDF	Sep 15
	Providing quality health care through Atul Medical Diagnostic Centre	2.00	ARDF	Feb 16
Infrastructure	Rural development	0.75	ARDF	Feb 16
Others	Projects specified by Govt I PPP I seed money for incubating innovative ideas I upgradation of skills	0.50	--	--
Others	Overheads	0.20	--	--
Total		6.35		

* subject to revision

** *Atul Kelavani Mandal*

*** **Atul Rural Development Fund**



ATUL LIMITED

EXPANSION IN EXISTING CAPTIVE POWER PLANT



9.16 PUBLIC HEARING

The public hearing for proposed expansion project was conducted on 09/10/2015 at 11 am at Gram Panchayat Hall, Atul. Advertisement/Information for the same has been given in three local news paper i.e Times of India, Gujarat Samachar and Sandesh on dted: 9/9/15 and 8/09/2015 respectively. During the public hearing, most of the local villages were in favor of the proposed project and also welcomed the project, as the proposed project will generate the employment for the local people. They expressed that due to the proposed project the economical growth of the surrounding area will increase. Moreover Sarpanch of village Hariya has also the welcome of the proposed expansion project. The copy of the same is enclosed along with Public Hearing MoM as Annexure-16. There was coverage in the news by the media supporting the said fact and in totality the project has been positively welcomed by one and all barring a set of negative people.

9.17 CONCLUSION

The proposed project of Atul Ltd. is an expansion project which intends to set up a 22 MW CPP, worth of Rs. 96.82 crores in the existing premises of Atul Ltd. in Valsad district.

The EIA study has been carried out with respect to the TORs awarded by SEAC, Gandhinagar. All the impacts likely to have an effect on the environment have been identified and efficient/adequate mitigation measures have been proposed for the same.

Considering the probability of likely impacts, the proponent has planned adequate mitigation measures and EMP. Further, the proponent also undertakes CSR activities which shall have beneficial impacts on the socio-economic environment. Measures like rainwater harvesting, energy conservation and greenbelt development are also noteworthy. Looking to the overall project scenario, employment potential and allied development plans; it has been noticed that the proposed project would significantly help in the improvement of the society and nation at large.

All the relevant safety norms with latest technology have been incorporated in the proposed expansion project. Hazards and associated risks, safety and security provision associated with the project activities appear to be acceptable. Hence the project in totality may be considered environmentally safe.



ATUL LIMITED

EXPANSION IN EXISTING CAPTIVE POWER PLANT



CHAPTER – 10 DISCLOSURE OF CONSULTANT ENGAGED



THE ECO GROUP OF COMPANIES

ECOSYSTEM RESOURCE MANAGEMENT PRIVATE LIMITED

ECO CHEM SALES & SERVICES

Environmental Engineers, Consultants & Auditors



Head Office – Surat, Gujarat

Office Floor, Ashoka Pavilion – A,
Opp. Kapadia Health Club,
New Civil Road, Surat – 395001
Tele/Fax No: (+91261) 2231630, 2233075
Mobile No. 098241 56296

Branch Office – Dahej, Gujarat

Office 7/8, Saffron City, Village Jolva, Bharuch-Dahej Road, District Bharuch

E-mail: eco@ecoshripad.com

Web: www.ecosystemindia.com





ATUL LIMITED



EXPANSION IN EXISTING CAPTIVE POWER PLANT



THE ECO GROUP OF COMPANIES
ECOSYSTEM RESOURCE MANAGEMENT PVT. LTD.
ECO CHEM SALES & SERVICES

OVERVIEW

In 1986, **ECO CHEM SALES & SERVICES (ECSS)** started with a set of limited services and unlimited dreams backed with a vision to develop into a full service **environmental** and **engineering group**. Focused efforts with transparent policies towards pursuit of excellence formed the way of life. Very shortly we were recognized as **Environmental Specialists**.

In 2000, **ECOSYSTEM RESOURCE MANAGEMENT PRIVATE LIMITED (ERM)** started with several verticals catering services to private and public industrial and municipal sectors. Our field of expertise forms a wide array of channels within engineering and regulatory environmental compliance. This includes **water, wastewater, solid waste, air, natural resources and noise pollution**.

Today, the small group has evolved into a sizeable organization of **ECO Group of Companies**, which comprises of two main arms viz. **ECOSYSTEM RESOURCE MANAGEMENT PRIVATE LIMITED** and **ECO CHEM SALES & SERVICES** with several sub divisions and staff of more than 400 employees.

Office Floor, Ashoka Pavilion-A, Opp. Kapadia Health Club, New Civil Road, Surat-395 001
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Email: eco@ecosurpad.com Website: www.ecosystemindia.com





ATUL LIMITED



EXPANSION IN EXISTING CAPTIVE POWER PLANT



THE ECO GROUP OF COMPANIES
ECOSYSTEM RESOURCE MANAGEMENT PVT. LTD.
ECO CHEM SALES & SERVICES

INTRODUCTION

ECOSYSTEM RESOURCE MANAGEMENT PRIVATE LIMITED (ERM) is one of the leading Companies in the field of Environment Service Provider's in India. It is an organization with **27 years of rich experience** dedicated to promotion of advanced environmental technologies and indigenous development with Research & Development for industries & community at large. We are working in the field of **Consultancy** and provide **Turnkey Environmental and Engineering solutions** since 1986. We are equipped with well-developed **NABL Accredited** laboratory to measure all **pollution parameters** in air, water, noise, solid waste etc. We are also registered as **Environmental Auditor** with Gujarat Pollution Control Board & carry out environmental audits as per the directives of honorable high court.

ECO CHEM SALES & SERVICES (ECSS), an extended arm of Ecosystem Resource Management Pvt. Ltd is a group of Scientists, Engineers, and Professional Pollution Consultants. We are a NABET Accredited company having accreditation in 14 industrial sectors of the schedule of industries. We take up **consultancy projects** including conducting of Environment Impact Assessment Studies, Risk Assessment Studies, life cycle assessment, preparing EIA / EMP Reports, Risk Assessment and Disaster Management Reports, Preparation of DPR, undertaking Third Party Inspection and Project Management Consultancy, in accordance with various statutory clearances like Environment Clearance, CRZ Clearance, Forest Clearance, CTE, CCA etc., from Ministry of Environment and Forest & State Pollution Control Boards.

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Email: eco@ecosystemindia.com Website: www.ecosystemindia.com



ATUL LIMITED



EXPANSION IN EXISTING CAPTIVE POWER PLANT



THE ECO GROUP OF COMPANIES
ECOSYSTEM RESOURCE MANAGEMENT PVT. LTD.
ECO CHEM SALES & SERVICES

GROUP COMPANIES & THEIR ACTIVITIES

SHRIPAD CONCHEM PRIVATE LIMITED

The flagship Company of SHRIPAD Group, having ISO 9001:2008 Certification is an Authorized Stockist, Supplier and leading Applicator of world famous and specialty construction chemicals. Making of Cement Concrete Roads/Floor by using Tremix Vacuum Dewatering system, Epoxy Flooring, various kinds of Protective Coatings, Joint Sealing & Water Proofing, Maintenance and Rehabilitation of Structures, Repairing & Strengthening of Bridges, RCC Chimney, Jetty and other structures are the main services the company offers.

SHRIPAD CONSTRUCTION

SHRIPAD CONSTRUCTION purely focuses on civil construction services. The Company has served number of clients both in Private & Public Sectors. The construction activities include Infrastructural Projects like Development of small villages; Institutional Projects like Colleges, Schools, Hospitals, Court buildings; Residential Private Apartments, Staff quarters & Bungalows; Industrial Projects like construction of textile processing units, foundation units, DM plants, STP and ETP of various industries.

SHRIPAD BUILDING PRODUCTS

The firm stands for utilization of new techniques and technologies in the field of Building Construction by the way of manufacturing Fly Ash Bricks. Over & above manufacturing of Fly Ash Bricks by automatic Hydraulic Brick Plant, the company has been appointed as a franchise manufacturer & distributor of Shell Bitumen for the product Shelmac PR. Shelmac PR is an instant All-weather Pothole Repair Solution on both Bituminous and concrete roads.

SHRIPAD CONCRETE PRIVATE LIMITED

SHRIPAD Group ventures into Ready Mix Concrete manufacturing and supplying of the same in various grades. It's manufacturing unit and computerized batching plant is highly equipped with modern machineries with the technologies of Schwing Stetter of Germany with a production Capacity of 30 cubic meter of concrete per hour. The company also has 12 Transit Mixers that run round the clock to ensure speedy and timely delivery of concrete.

SHAYNE CONSULTANTS

Shayne Consultants is a full-fledged Project Management Consultancy Firm which undertakes the PMC for several heavy construction projects such as road networks, bridges, flyovers, institutional construction, etc.

PYXIS NAUTICA ENGINEERING, LLC (USA)

Pyxis Nautica Engineering, LLC (PNE) is a registered American based firm housed at Laplace, Louisiana. PNE undertakes international assignments including civil engineering design and consultancy and environmental design, modeling, and regulatory compliance projects.

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Email: eco@ecoshripad.com Website: www.ecosystemindia.com





ATUL LIMITED



EXPANSION IN EXISTING CAPTIVE POWER PLANT



THE ECO GROUP OF COMPANIES
ECOSYSTEM RESOURCE MANAGEMENT PVT. LTD.
ECO CHEM SALES & SERVICES

OUR VISION

To be a leading global environment consultant and engineering service provider of high repute with a steady and sustainable growth and development.

MISSION

It is our mission to:

- Adopt our Client's Environmental challenges as our own.
- Promote recycling and reuse of waste, conserve resources, encourage efficient use of energy and improve the quality of environment as a whole.
- Continue to refine the quality of our services, expand and enhance our capabilities, increase our efficiency, and heighten the standards of excellence.
- Elevate the customer service and customer satisfaction to the highest level by providing techno-feasible and economically viable solutions to their environmental problems.
- Provide an equal opportunity for all our employees to succeed and to be rewarded for performance and commitment.

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ATUL LIMITED



EXPANSION IN EXISTING CAPTIVE POWER PLANT



THE ECO GROUP OF COMPANIES
ECOSYSTEM RESOURCE MANAGEMENT PVT. LTD.
ECO CHEM SALES & SERVICES

KEY PERSONNEL

Mrs. Rekha S. Shah, (M.E. (Environment)), is the CEO of the company, with **30 years of experience**, giving core values to Integrity, Excellence, Generosity, Responsibility & Respect. She is a visionary and the driving force behind all the activities of the company. Her high business acumen as a sound technocrat and efficient administrator has resulted in taking the company to the highest level of repute as one of the leading Environmental Consultants in India. Under her esteemed guidance & leadership, the company is cherishing its services by a high caliber and talented team of Environment Engineers, Chemical Engineers & Scientists. It is the business entrepreneurship of Mrs. Shah that has enabled the Company to serve more than 400 reputed clients within a short span of time. Her inspiration to treat every new challenge as the next step to progress is leading the company towards tremendous growth not only in size but also in quality and service.

Mr. Shirish P. Shah, (B.E. (Civil)), is one of the Board of Directors' of the company, with **36 years of experience**. He is a technical expert in the field of Civil Engineering and construction, and has a caliber to complete turnkey projects of high repute in scheduled time frame giving excellent results. His technical knowhow and financial control has proved to be the key behind sustainable growth with profitability of the Company. He has excellent HR Management skills which has helped the organization to reach the height of excellence. His sincere efforts & management has led to development of high faith level in our clientage.

Mr. P.S. Patel, (B.E. (Chemical)), is an expert in Chemical Engineering and responsible for undertaking Turnkey Environmental Projects from concept to commissioning. He has a good command over manpower management and co-ordination with various agencies associated with the project to complete the projects in schedule time frame with desired quality and satisfactory performance.

Mr. Dhaval S. Shah - (MS - (Environment Eng.) & MBA, USA), is an expert in Civil & Environment Engineering and is responsible for all projects being carried out in terms of execution and management. His expertise involves having good knowledge of innovative technologies in the field of design of Effluent Treatment Plants, Solid Waste Management Techniques, Statistical Data Analysis, and Wetland Wastewater Treatment Systems. He also has extensive experience in landfill designs, slope stability analysis, soil consolidation analysis, design of Storm water / sewer drainage network, effluent pipelines, air emission modeling, lighting surveys and traffic noise modeling. He has an experience in designing the coastal shoreline protection structures like cofferdams. He also has the experience in preparing several engineering design reports as well as permit



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EXPANSION IN EXISTING CAPTIVE POWER PLANT



THE ECO GROUP OF COMPANIES
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ECO CHEM SALES & SERVICES

application documents related to air, solid waste, wastewater and coastal engineering media.

Mrs. Ruchika D. Shah - (BS (Electrical Eng.), & MBA (Fin & Int. Audit), USA), has a diverse experience in project management, co-ordination, operations management, marketing and financial analysis. Her involvement in quality assurance and monitoring activities ensures a sustainable deliverable product for the clients and customer satisfaction.

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ECOSYSTEM RESOURCE MANAGEMENT PVT. LTD.
ECO CHEM SALES & SERVICES

KEY TECHNICAL SERVICES

- **Environmental Services**
 - Environmental Consultancy
 - Environmental Impact Assessment
 - Environmental Audits
 - Environmental Monitoring & Laboratory Services
 - Clearance & Permits like NOC/CCA/EC/CRZ
- **Turnkey Projects / Wastewater Solutions**
 - EPC Contracts – ETP/CETP/WTP/STP
- **Engineering & Design Services**
- **Operation & Maintenance**
- **Air Pollution Control Services**
- **Solid Waste Management Services**
- **Supply of ETP Chemical & Cultures**
- **Supply of Water/Air Pollution and Control Equipment**
- **Supply of RO, softening, DM plants, etc.**



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Page



ATUL LIMITED



EXPANSION IN EXISTING CAPTIVE POWER PLANT



Certificate of Registration

This certificate has been awarded to

Ecosystem Resource Management Pvt. Ltd.

Office Floor, Ashoka Pavilion-A, Opp. Kapadia Health Club, New Civil Road,
Surat, Gujarat - 395001 India

in recognition of the organization's Quality Management System which complies with

ISO 9001:2008

The scope of activities covered by this certificate is defined below

Providing Environmental Services Like, Treatability and Feasibility Studies,
Statutory Clearances from SPCB and MoEF, Environmental Monitoring and
Laboratory Testing, Environmental Audit, Turnkey Project Execution,
Operation and Maintenance of ETP/STP/WTP

Certificate Number:

094/001/0001/URSCE

Issue No:

Date of Issue: (Original)

03 September 2013

Expiry Date:

02 September 2015

Date of Issue:

03 September 2013

Issued by:

On behalf of the Scheme Manager



Urs Consulting Services Limited, Gujarat, India is a member organization and part of the network of member organizations of the International Accreditation Forum (IAF) Ltd.



ATUL LIMITED

EXPANSION IN EXISTING CAPTIVE POWER PLANT



Certificate of Registration

This certificate has been awarded to:

Ecosystem Resource Management Pvt. Ltd.

Office Floor, Ashoka Pavilion-A, Opp. Kapada Health Club, New Civil Road,
Surat, Gujarat - 395001, India

In recognition of the organization's Environmental Management System which complies with

ISO 14001:2004

The scope of activities covered by this certificate is defined below:

Providing Environmental Services Like, Treatability and Feasibility Studies, Statutory Clearances from SPCB and MoEF, Environmental Monitoring and Laboratory Testing, Environmental Audit, Turnkey Project Execution, Operation and Maintenance of ETP/STP/WTP

Certificate Number:

300724/001/UKES

Issue No:

Date of Issue (Original)

01 September 2013

Expiry Date:

01 September 2018

Date of Issue:

01 September 2013

Issued by:

On behalf of the Scheme Manager



For more information on UKAS services, please visit our website: www.ukas.com or contact our Customer Support Centre: 0800 900 900. UKAS is a registered charity (No. 2755918) and a limited liability company (No. 2755918).



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EXPANSION IN EXISTING CAPTIVE POWER PLANT

REF - 6

SUMMARY OF THE ASSESSMENT

Laboratory: Ecosystem Resource Management Pvt. Ltd., Surat, Gujarat																																							
Quality Manager: Mr. Sunil Kumar Pandey	Date(s) of Visit: 1 st & 02 nd August 2015																																						
Type of Visit: Assessment / 1 st Surveillance / Re-assessment / Supplementary Visit / Certification																																							
Field (Testing/Calibration):	Discipline(s): Chemical (Water, Soil, Air & Noise)																																						
Facility (s): Permanent/Site/Mobile																																							
Lead Assessor: Dr. Lalini Rawat	Assessor 1: Dr. R.K. Solanki																																						
Assessor 2:	Assessor 3:																																						
Assessor 4:	Assessor 5:																																						
Time of earlier visit: 18 th & 19 th May 2013	Non-Conformities during earlier visit(s) have not been discharged.																																						
<p>ASSESSMENT SUMMARY: Ecosystem Resource Management Pvt. Ltd., Surat, Gujarat, laboratory has the permanent testing facility in the area of Water, Soil, Air & Noise. Laboratory is open to others for the testing services. The laboratory maintains four level documented management system as per requirement of ISO/IEC 17025:2005 & NABL guidelines in the form of hard copies. Laboratory has implemented the management system and has the infrastructure facilities and equipment as per the defined scope. Quality Policy & Objectives are well defined in the Quality manual. However Quality Manual require amendments for which NC has been raised. The laboratory has a quality manager and deputy quality manager who are qualified & have undergone four days training on ISO/IEC 17025:2005. Roles & Responsibilities of Quality & Technical Managers are defined. Laboratory has qualified, experienced & competent staff with trainings except for Stock monitoring where more training is required. Last Management review meeting was conducted on 25.07.15, however some of the agenda items were not considered in it as per the requirements of ISO/IEC 17025:2005 and improvement is required. Frequency and Periodicity of BMR also need to be defined and adhered to. Minutes of MRM are documented with responsibilities and target dates. Internal Audit is conducted once a year as per schedule & last internal audit was conducted by an external auditor on 12-03-15 as per the schedule for all the technical and Management clauses. One NC was raised during the internal audit and has been closed by the laboratory. Required equipment are available with the laboratory with due calibration and traceability except for Spectrophotometer & Glassware, for which NC has been raised. Intermediate checking is being done for equipment except for some of the equipment in Air. Review of test method for IS specifications and method validation for soil parameters in the area of improvement. Safety and Placement of equipment need improvement. Measurements of Uncertainty have been calculated for all the parameters covered under scope and found satisfactory except for MU for Air parameters, which need to be reviewed. Required CRM's and Primary standards are available with traceability except for a few CRM where validity is expired for 2 CRM's and traceability is not available for two and NC has been raised for this. Four year ILCPPT plan is available with the laboratory. Laboratory is participating in ILC program and Z score is found satisfactory. Laboratory has yet to participate in available PT program. Laboratory is conducting 5% of retesting of the retained samples and predefined acceptance criteria is defined.</p>																																							
Non-Conformities noted during the assessment:	<table border="1"> <thead> <tr> <th>MAJOR</th> <th>MINOR</th> </tr> </thead> <tbody> <tr> <td>01</td> <td>02</td> </tr> </tbody> </table>	MAJOR	MINOR	01	02																																		
MAJOR	MINOR																																						
01	02																																						
<p>RECOMMENDATIONS OF ASSESSMENT TEAM: The team recommends continuation of NABL accreditation in Chemical discipline for Water, Soil, Air & Noise as per enclosed scope based on ISO/IEC 17025:2005 and NABL specifications subject to the satisfactory closure of NC's raised during the assessment.</p>																																							
Encl. nos:	<table border="1"> <thead> <tr> <th>NAF 1</th> <th>NAF 2</th> <th>NAF 3</th> <th>NAF 4</th> <th>NAF 5</th> <th>NAF 6</th> <th>NAF 7</th> <th>NAF 8</th> <th>NAF 9</th> <th>Check 1</th> <th>Check 2</th> <th>Form 11</th> <th>Form 12</th> <th>Form 14</th> <th>Form 15</th> <th>T&E Terms</th> <th>PT/ILC Records</th> <th>Uncertainty Calculation/Supporting (Details of observations)</th> <th>Any other documents</th> </tr> </thead> <tbody> <tr> <td>01</td> <td>01</td> <td>01</td> <td>-</td> <td>07</td> <td>18</td> <td>02</td> <td>01</td> <td>01</td> <td>01</td> <td>01</td> <td>01</td> <td>04</td> <td>02</td> <td>02</td> <td>02</td> <td>02</td> <td>04</td> <td>03</td> </tr> </tbody> </table>	NAF 1	NAF 2	NAF 3	NAF 4	NAF 5	NAF 6	NAF 7	NAF 8	NAF 9	Check 1	Check 2	Form 11	Form 12	Form 14	Form 15	T&E Terms	PT/ILC Records	Uncertainty Calculation/Supporting (Details of observations)	Any other documents	01	01	01	-	07	18	02	01	01	01	01	01	04	02	02	02	02	04	03
NAF 1	NAF 2	NAF 3	NAF 4	NAF 5	NAF 6	NAF 7	NAF 8	NAF 9	Check 1	Check 2	Form 11	Form 12	Form 14	Form 15	T&E Terms	PT/ILC Records	Uncertainty Calculation/Supporting (Details of observations)	Any other documents																					
01	01	01	-	07	18	02	01	01	01	01	01	04	02	02	02	02	04	03																					
(No. of Pages)	01 / 01																																						
<p>Please review NABL's conduct, staff issues & document in the above order. Thank you. Regards, Date by which the Non-Conformities are to be discharged by the Laboratory: 07-10-2015 The requirements of NABL ILS have been explained by the Lead Assessor and understood by the laboratory.</p>																																							
Accepted/Agreed by Authorized Representative of Laboratory & Date:	Signature of Lead Assessor & Date Dr. (Mrs.) Lalini Rawat																																						



NABL

**National Accreditation Board for
Testing and Calibration Laboratories**
Department of Science & Technology, India

CERTIFICATE OF ACCREDITATION

ECO SYSTEM RESOURCE MANAGEMENT PVT. LTD.

has been assessed and accredited in accordance with the standard

ISO/IEC 17025:2005

"General Requirements for the Competence of Testing & Calibration Laboratories"

for its facilities at

Office Floor, Ashoka Pavillion-A, Opp. Kapadia Health Club, New Civil Road, Surat

in the discipline of

CHEMICAL TESTING

(To see the scope of accreditation of this laboratory, you may also visit NABL website www.nabl-india.org)

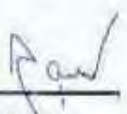
Certificate Number T-2013


Issue Date 24/07/2013

Valid Until 23/07/2015

This certificate remains valid for the Scope of Accreditation as specified in the annexure subject to continued satisfactory compliance to the above standard & the additional requirements of NABL.

Signed for and on behalf of NABL.


Alok Jain
Convener


Anil Rolia
Director


Dr. T. Ramasarni
Chairman



ATUL LIMITED

EXPANSION IN EXISTING CAPTIVE POWER PLANT



National Accreditation Board
for Education and Training

May 11, 2015

NABET/EA/HQ037/11M
The Chief Executive Officer
Eco Chem Sales & Services
Office Floor, Ashoka Pavillion-2,
Opp. Kapadia Health Club,
New Civil Road,
Surat - 395001
(Kind Attention: Mrs. Rekha Shah)

Dear Madam,

Sub. Re-Accreditation

This has reference to your application to QCI-NABET for re-accreditation (RA) as 4th Consultant Organization and the assessment carried for same in your organization from Mar. 11-12-13-14, 2014.

The Accreditation Committee has approved renewal of accreditation given to your organization for a period of three years from Mar. 14, 2014 to Mar. 13, 2017 subject to coverage of balance Functional areas and specific response to NCs/Obs./Alerts issued, if applicable (Refer Annexure III) with the following details:

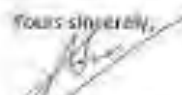
- | | |
|-----------------|---|
| 1. Annexure I | Scope of accreditation |
| 2. Annexure II | Non-Conformances/ Observations/ Alerts (NCs/ Obs./ Alerts) |
| 3. Annexure III | Terms and conditions of accreditation |
| 4. Annexure IV | Result of assessment |
| 5. Annexure V | Guidelines for addressing Major Non Conformances/ Observations/ Alerts |
| 6. Annexure VI | Format to be followed for mentioning the names of the experts involved in RA reports prepared by Eco Chem Sales & Services. |

Result of RA including Non-Conformances/ Observations/ Alerts (NCs/ Obs./ Alerts) applicable to your organization as per RA are posted on QCI website vide minutes of the Accreditation Committee meetings dated Apr. 11, Nov. 19 and Nov. 26, 2014.

You are requested to submit corrective action for the NCs/ Obs. as per guidelines by June 11, 2015. Continuation of this accreditation of your organization is subject to the clearance of all dues by your organization, satisfactory compliance to Non-Conformances/ Observations/ Alerts (NCs/ Obs./ Alerts).

With best regards,

Yours sincerely,


(Ashay Shrivastava)
Assistant Director

Institution of Engineers Building, 2nd Floor, Bahadur Shah Zafar Marg, New Delhi - 110 002, India
Tel: +91-11-2337 9321, 2337 8057 Fax: +91-11-2337 8878 e-mail: nabet@qcin.org Website: www.qcin.org



ATUL LIMITED

EXPANSION IN EXISTING CAPTIVE POWER PLANT



Scheme for Accreditation of EIA Consultant Organizations



Scope of Accreditation

Annexure I

Sl. No.	Sector number		Name of Sector	Category A/B
	As per MoEF Notification	As per NABET Scheme		
1.	1 (a) (i)	1	Mining of minerals including Open cast/ Underground mining	A
2.	1 (d)	8	Thermal Power Plants	A
3.	3 (a)	3	Metallurgical industries (ferrous & non ferrous) – both primary and secondary	A
4.	3 (b)	9	Cement Plants	B
5.	5 (a)	10	Chemical Fertilizers	B
6.	5 (b)	17	Pesticides industry and pesticide specific intermediates (excluding formulations)	A
7.	5 (d)	10	Textile – cotton and manmade fibres	A
8.	5 (f)	21	Synthetic organic chemicals industry (oxo & dyo intermediates; bulk drugs and intermediates including drug formulations; synthetic rubbers; basic organic chemicals; other synthetic organic chemicals and chemical intermediates)	A
9.	5 (j)	24	Pulp & paper industry excluding manufacturing of paper from wastepaper and manufacture of paper from ready pulp without bleaching	A
10.	6 (a)	22	Oil & gas transportation pipeline (crude and refinery/ petrochemical products), passing through national parks/ sanctuaries/ coral reefs/ ecologically sensitive Areas, including LNG terminal	A
11.	7 (a)	19	Ports, harbours, jetties, marine terminals, break waters and dredging	B
12.	7 (b)	34	Highways, Railways, transport terminals, mass rapid transport systems	A
13.	8 (a)	40	Building and large construction projects including shopping malls, multiplexes, commercial complexes, housing estates, hospitals, institutions	B
Total = 13 Sectors				


 (Abhinav Sharma)
 Assistant Director



ATUL LIMITED

EXPANSION IN EXISTING CAPTIVE POWER PLANT



GUJARAT POLLUTION CONTROL BOARD

PARYAVARAN BHAVAN

Sector 10-A, Gandhinagar 382 010

Phone : (079) 23226295

Fax : (079) 23232156

Website : www.gpcb.gov.in
R.P.A.D

No. GPCB/EA-57(2)/301372

17 JAN 2015

To,

M/s. Eco System Resource Management Pvt. Ltd.,
Office Floor, Ashoka Pavillion-A,
Opp. Kapadia Health Club,
New Civil Road,
Surat-395 001.

Sub: Recognition as Schedule-II Environmental Auditor.
Sir,

This refers to your application for the recognition as Environmental Auditor, subsequent interview and visit of your Laboratory by the Environment Audit Committee members. It is recommended by the Environment Audit Committee members, to recognize your firm as Schedule-II Environmental Auditor for carrying out the Environmental Audit under Environment Audit Scheme with following conditions.

- 1) Recognition is valid up to **31/12/2016**.
- 2) You shall have maximum **three team** for the Environment Audit.
- 3) Team members shall be as under:

Team-1		
Sr. No.	Name	Designation
1	Mrs. Rekha S. Shah	Environment Engineer
2	Mr. Praful S. Patel	Chemical Engineer
3	Mr. Rajesh M. Parekh	Chemist
4	Ms. Priti Raval	Microbiologist
Team-2		
1	Mrs. Hemlatta Patel	Environment Engineer
2	Mr. Kirtan Patel	Chemical Engineer
3	Mr. Harish S. Patel	Chemist
4	Ms. Disha Desai	Microbiologist
Team-3		
1	Ms. Forum Desai	Environment Engineer
2	Mr. Dipak Maru	Chemical Engineer
3	Mr. Bharat Patel	Chemist
4	Mrs. Dipti H. Patel	Microbiologist

- 4) You shall prepare and submit the Environmental Audit Report and comply the conditions for Environment Auditors as per the Hon'ble High Court order dated 20/12/1996, 13/03/1997, 16/09/1999, and also the Guidelines prepared by Gujarat Pollution Control Board in this regard, for the Environment Audit Scheme along with the Adequacy and Efficacy certificates as per prescribed format.

(P.T.O.)

Clean Gujarat Green Gujarat

ISO - 9001 - 2008 & ISO - 14001 - 2004 Certified Organisation



ATUL LIMITED



EXPANSION IN EXISTING CAPTIVE POWER PLANT

- 5) Environment Audit Report shall be submitted in prescribed format.
- 6) You shall apply for renewal of Environment Auditor 3 months before expiry of the recognition with the scrutiny fees to this Board.
- 7) This recognition is subject to periodic evaluation of your facility and subject to change based on performance.
- 8) In case of change in men power, team member or any other suggestion, recommendation or any issue, you shall appear before the Environment Audit Committee.

This letter is issued with the permission of competent authority.

For and on behalf of GPCB

(Sushil Vegda)

Senior Environmental Engineer
Environment Audit Cell

INWARD NO. 2065
DATE 21-01-15
TO



ATUL LIMITED

EXPANSION IN EXISTING CAPTIVE POWER PLANT



Annexure- 1 EC Copy

F. No. J-11011/85/2009- IA II (I)
Government of India
Ministry of Environment and Forests
(I.A. Division)

Paryavaran Bhawan
CGO Complex, Lodhi Road
New Delhi – 110 003
E-mail : plahujarai@yahoo.com
Telefax: 011 – 2436 3973
Dated: 13th May, 2009

To, ✓
The General Manager-SHE Dept.
M/s Atul Limited
AT& Post: Atul -396020
Dist. Valsad, Gujarat

E-mail : sushil_kharkwal@atul.co.in

Subject: Expansion of pesticide and Synthetic Organic Chemicals manufacturing unit at Post: Atul Dist. Valsad, Gujarat by M/s Atul Limited- environmental clearance regd.

Sir,

This has reference to your letter no. nil dated 9.2.2009 along with form 1 and pre-feasibility report on the above mentioned subject seeking environmental clearance under the Environment Impact Assessment Notification, 2006.

2.0 The Ministry of Environment and Forests has examined your proposal. It is noted M/s Atul Limited have proposed for expansion of pesticide and Synthetic Organic Chemicals manufacturing unit in Dist. Valsad in Gujarat. Details of the products to be manufactured along with their capacity are annexed. Environmental clearance for the existing capacity was accorded on 20th February, 2004. No eco-sensitive areas are located within 10 km radius of the plant. River Par flows at a distance of 1km from the unit. The proposed expansion will be carried within the existing unit having land area of 10,87,340 m², of which green belt will be developed in 1,42,981 m² of the land area. Total cost of the project will be Rs. 777.8 Crores. An amount of Rs. 10.03 crores (Incl. existing cost of 8.33 crores) will be utilized for environmental protection measures.

3.0 The total water requirement after the proposed expansion will be 20,532 m³/d, which will be sourced from river Par. Industrial waste water generation will be 17,216 m³/d, out of which 23 m³/d high COD effluent will be incinerated in company's own incinerator, 97 m³/d high TDS effluent will be evaporated in proposed Multiple Effect Evaporation system & remaining 15,383 m³/d of normal effluent stream after mixing with other effluent like condensate (67 m³/day) from MEE, 1833 m³/day from boiler, cooling tower and others etc. and thus total effluent quantity of 17283 m³/day will be treated in company's own effluent treatment plant and treated effluent will be discharged into pipeline of 4 km length which has been constructed by M/s Atul Ltd. and finally discharged into estuary zone of river Par. Ammonia bearing effluent shall be subjected to ammonia recovery before mixing with the normal effluent stream. Phenol containing effluent will be isolated and phenol will be recovered for the reuse in the next batch. Power requirement will be met through company's own captive power plant of 34 MW capacity. No additional DG set is required apart from the existing DG set of 3100 KVA. Fuel requirement for DG set will be HSD (12 l/hr.).



-2-

4.0 Process emissions in the form of SO₂, NH₃, Cl₂ and HCl will be controlled by scrubbers. Acetone, Methanol, IPA, Toluene, n-Hexane, Benzene & Dioxane are being used as solvents. Solvents will be recovered & reused. Separate go-downs for the storage of finish goods, raw materials & separate tank farm for solvents & other chemicals storage as per MSIH Rules 1989 shall be provided.

5.0 After proposed expansion, additional 19.208 MT/month of activated carbon, 19.2 MT/month of spent carbon, 118.87 MT/month of filter cake with resin contamination, 2.1 MT/month of pyridine based insecticides & herbicides (Darco / Filter aid Sludge), 13.22 MT/month of Sulfonyl Urea (Residue) will be incinerated in company's own incinerator having sufficient capacity and designed as per CPCB guidelines. 1 MT/month of sludge from waste water treatment plant, 0.01 MT/month of sludge from wet scrubber, 0.12 MT/month of incinerated ash will be disposed off at company's own TSDF site. 1000 nos./month of liners/bags, 50 nos./month of drums/HDPE carboys will be reused or sold to authorized recycler after decontamination. Each category of waste will be stored in segregated area in covered storage shed with chemical proof flooring and R.C.C. wall to prevent a leaching due to rain during monsoon. Leachate collection system will be provided which be connected to ETP inlet.

6.0 All the Pesticides & Pesticide intermediates and organic manufacturing units are listed at serial no. 5(b) and 5 (f) respectively of schedule of EIA Notification, 2006. The pesticide manufacturing units are category 'A' Projects. The Organic chemical manufacture units are categorized 'A' or 'B' depending upon their location outside or inside the notified industrial area. The proposed unit is located outside the industrial area. Hence the project has been appraised at the centre. The proposal was considered by the Expert Appraisal Committee (Industry) in the 92nd meeting held on 18-20th March, 2009. The Committee recommended the project for grant of environmental clearance as per para 7(ii) of EIA Notification, 2006 exempting the project from preparation of EIA and public hearing.

7.0 Based on the information submitted by the project authorities, the Ministry of Environment and Forests hereby accords environmental clearance to above project under the provisions of EIA Notification, dated 14th September 2006 subject to the compliance of the following Specific and General Conditions:

A. SPECIFIC CONDITIONS:

- i. Industrial waste water generation shall not exceed 17,216 m³/d, out of which 23 m³/d high COD effluent shall be incinerated in company's own incinerator, 97 m³/d high TDS effluent shall be evaporated in proposed Multiple Effect Evaporation system & remaining 15,383 m³/d of normal effluent stream after mixing with other effluent like condensate (67 m³/day) from MEE, 1833 m³/day from boiler, cooling tower and others etc. and thus total effluent quantity of 17283 m³/day shall be treated in company's own effluent treatment plant and treated effluent shall be discharged into pipeline of 4 km length which has been constructed by M/s Atul Ltd. and finally discharged into estuary zone of river Par. Ammonia bearing effluent shall be subjected to ammonia recovery before mixing with the normal effluent stream. Phenol containing effluent will be isolated and phenol will be recovered for the reuse in the next batch. The treated effluent shall conform to the prescribed standards. The domestic effluent shall be disposed off through septic tank /soak pit.



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- ii. Process emissions in the form of SO₂, NH₃, Cl₂ and HCl shall be scrubbed with scrubbers. The emissions shall be dispersed through stack of adequate height as per CPCB standards. The gaseous emissions from the DG sets shall be dispersed through stack of adequate height as per CPCB standards. Acoustic enclosures shall be provided to the DG set to control the noise pollution.
- iii. The company shall upload the status of compliance of the stipulated environmental clearance conditions, including results of monitored data on its website and shall update the same periodically. It shall simultaneously be sent to the Regional office of MOEF, the respective Zonal office of CPCB and the State Pollution Control Board. The criteria pollutant levels namely; SPM, RSPM, SO₂, Nox (ambient levels as well as stack emissions) or critical sectoral parameters like VOC, indicated for the project shall be monitored and displayed at a convenient location near the main gate of the company in the public domain.
- iv. The company shall adopt cleaner production technology to minimize the quantity of fresh water requirement and process effluent generation.
- v. The Company shall obtain Authorization for collection, storage and disposal of hazardous waste under the Hazardous Waste (Management, Handling and Trans boundary movement) Rules, 2008 for management of hazardous wastes and prior permission from GPCB shall be obtained for disposal of solid / hazardous waste in the TSDF. The concerned company shall undertake measures for fire fighting facilities in case of emergency.
- vi. The project authorities shall strictly comply with the rules and guidelines under Manufacture, Storage and Import of Hazardous Chemicals Rules, 1989 as amended in October, 1994 and January, 2000. All Transportation of Hazardous Chemicals shall be as per the MVA, 1989.
- vii. The company shall undertake following Waste Minimization measures :-
 - Metering and control of quantities of active ingredients to minimize waste.
 - Reuse of by-products from the process as raw materials or as raw material substitutes in other processes.
 - Use of automated filling to minimize spillage.
 - Use of "Close Feed" system into batch reactors.
 - Venting equipment through vapour recovery system.
 - Use of high pressure hoses for equipment clearing to reduce wastewater generation.
- viii. Fugitive emissions in the work zone environment, product, raw material storage area shall be regularly monitored. The emissions shall conform to the limits imposed by I.
- ix. The project authorities shall provide the chilled brine solution in secondary condenser for condensation of the VOCs. The project authority shall ensure that the solvent recovery shall not be less than 95%. The VOC monitoring shall be carried in the solvent storage area and data submitted to the Ministry.



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- x. Solvent management shall be as follows :
 - A. Reactor shall be connected to chilled brine condenser system
 - B. Reactor and solvent handling pump shall have mechanical seals to prevent leakages.
 - C. The condensers shall be provided with sufficient HTA and residence time so as to achieve more than 95% recovery
 - D. Solvents shall be stored in a separate space specified with all safety measures.
 - E. Proper earthing shall be provided in all the electrical equipment wherever solvent handling is done.
 - F. Entire plant shall be flame proof. The solvent storage tanks shall be provided with breather valve to prevent losses.
- xi. Hazardous chemicals shall be stored in tanks in tank farms, drums, carboys etc. An area of 33% shall be developed as green belt. Selection of plants species shall be as per the Guidelines of CPCB.
- xii. The Company shall harvest surface as well as rainwater from the rooftops of the buildings and storm water drains to recharge the ground water and use the same water for the various activities of the project to conserve fresh water.
- xiii. Occupational health surveillance of the workers shall be carried out on a regular basis and records shall be maintained as per the Factories Act.

3. GENERAL CONDITIONS:

- i. The project authorities shall strictly adhere to the stipulations made by the State Pollution Control Board.
- ii. No further expansion or modifications in the plant shall be carried out without prior approval of the Ministry of Environment and Forests. In case of deviations or alterations in the project proposal from those submitted to this Ministry for clearance, a fresh reference shall be made to the Ministry to assess the adequacy of conditions imposed and to add additional environmental protection measures required, if any.
- iii. At no time, the emissions shall exceed the prescribed limits. In the event of failure of any pollution control system adopted by the unit, the unit shall be immediately put out of operation and shall not be restarted until the desired efficiency has been achieved.
- iv. The gaseous emissions (NO_x , HCl, SO_2 and SPM) and Particulate matter along with RSPM levels from various process units shall conform to the standards prescribed by the concerned authorities from time to time. At no time, the emission levels shall go beyond the stipulated standards. In the event of failure of pollution control system(s) adopted by the unit, the respective unit shall not be restarted until the control measures are rectified to achieve the desired efficiency. Stack monitoring for SO_2 , No_x and SPM shall be carried.



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- v. The locations of ambient air quality monitoring stations shall be decided in consultation with the State Pollution Control Board (I) and it shall be ensured that at least one station is installed in the up wind and downwind direction as well as where maximum ground level concentrations are anticipated.
- vi. Dedicated scrubbers and stacks of appropriate height as per the Central Pollution Control Board guidelines shall be provided to control the emissions from various vents. The scrubbed water shall be sent to ETP for further treatment or sell to actual end users
- vii. The overall noise levels in and around the plant area shall be kept well within the standards by providing noise control measures including acoustic hoods, silencers, enclosures etc. on all sources of noise generation. The ambient noise levels shall conform to the standards prescribed under Environment (Protection) Act, 1986 Rules, 1989 viz. 75 dBA (day time) and 70 dBA (night time).
- viii. Training shall be imparted to all employees on safety and health aspects of chemicals handling. Pre-employment and routine periodical medical examinations for all employees shall be undertaken on regular basis.
- ix. Usage of PPEs by all employees/ workers shall be ensured.
- x. The project proponent shall also comply with all the environmental protection measures and safeguards proposed in the project report submitted to the Ministry. All the recommendations made in respect of environmental management and risk mitigation measures relating to the project shall be implemented.
- xi. The company will undertake all relevant measures for improving the Socio-economic conditions of the surrounding area. CSR activities will be undertaken by involving local villages and administration
- xii. The company shall undertake eco-developmental measures including community welfare measures in the project area for the overall improvement of the environment.
- xiii. A separate Environmental Management Cell equipped with full fledged laboratory facilities shall be set up to carry out the Environmental Management and Monitoring functions.
- xiv. The project authorities shall earmark adequate funds to implement the conditions stipulated by the Ministry of Environment and Forests as well as the State Government along with the implementation schedule for all the conditions stipulated herein. The funds so provided shall not be diverted for any other purpose.
- xv. A copy of the clearance letter shall be sent by the proponent to concerned Panchayat, Zila Parishad/Municipal Corporation, Urban local Body and the local NGO, if any, from who suggestions/ representations, if any, were received while processing the proposal. The clearance letter shall also be put on the website of the company by the proponent.




ATUL LIMITED



EXPANSION IN EXISTING CAPTIVE POWER PLANT


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- xvi. The implementation of the project vis-à-vis environmental action plans will be monitored by Ministry's Regional Office at Bhopal /State Pollution Control Board/Central Pollution Control Board.
- xvii. The project proponent shall inform the public that the project has been accorded environmental clearance by the Ministry and copies of the clearance letter are available with the I/Committee and may also be seen at Website of the Ministry at <http://envfor.nic.in>. This shall be advertised within seven days from 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 a copy of the same shall be forwarded to the concerned Regional Office of the Ministry.
- xviii. The project authorities shall inform the Regional Office as well as the Ministry the date of financial closure and final approval of the project by the concerned authorities and the date of start of the project.
8. The Ministry may revoke or suspend the clearance, if implementation of any of the above conditions is not satisfactory.
9. The Ministry reserves the right to stipulate additional conditions, if found necessary. The company in a time bound manner will implement these conditions.
10. Any appeal against this environmental clearance shall lie with the National Appellate Authority, if preferred, within a period of 30 days as prescribed under section 11 of the National Environment Appellate Authority Act, 1997.
11. The above conditions will be enforced, inter-alia under the provisions of the Water (Prevention & Control of Pollution) Act, 1974, Air (Prevention & Control of Water Pollution) Act, 1981, the Environment (Protection) Act, 1986 Hazardous Wastes (Management, Handling and Transboundary Movement) Rules, 2008 and the Public Liability Insurance Act, 1991 along with their amendments and rules.


(Dr.P.L. Ahujarai)
Director

Copy to:

1. The Secretary, Forests & Environment Department, Government of Gujarat, Sachivalaya, 8th Floor, Gandhi Nagar-382 010, Gujarat.
2. The Chief Conservator of Forests (Western Zone), Ministry of Environment & Forests, Regional Office, E-5, Arera Colony, Link Road -3, Bhopal -462 016, M.P.
3. The Chairman, Central Pollution Control Board Parivesh Bhavan, CBD-cum-Office Complex, East Arjun Nagar, New Delhi - 110 032
4. The Chairman, Gujarat State Pollution Control Board, Paryavaran Bhawan, Sector 10 A, Gandhi Nagar-382 043, Gujarat.
5. Monitoring Cell, Ministry of Environment and Forests, Paryavaran Bhavan, CGO Complex, New Delhi.
6. Guard File/Monitoring File/Record File.


(Dr.P.L. Ahujarai)
Director



ATUL LIMITED



EXPANSION IN EXISTING CAPTIVE POWER PLANT

Annexure to file no. F. No. J-11011/85/2009- IA II (I)

List of Details of products and their production capacities are given below:

Sr. No.	Product name	capacity, MT/month		
		existing	proposed	Total after expansion
DYES				
1	Azo dyes	550.0	0.0	550.0
2	Sulfur Black	250.0	0.0	250.0
3	Sulfur Dyes range	25.0	0.0	25.0
4	Naphthol Range	75.0	0.0	75.0
5	Fast Color Bases	40.0	0.0	40.0
6	Disperse Dyes (Atul – East) + Disperse Dyes (Atul – West)	118.5	0.0	118.5
7	Optical Brighteners	10.0	0.0	10.0
8	Reactive Dyes	127.3	0.0	127.3
9	Vat Dyes	105.0	0.0	105.0
Total Production Capacity of Dyes		1300.8	0.0	1300.8
Chlor – Alkali Industry				
10	Caustic Soda / Potash & Sodium Sulfide	1800.0	0.0	1800.0
11	Liquid Chlorine / HCl	1800.0	0.0	1800.0
Total Production Capacity of Chlor – Alkali Industry		3400.0	0.0	3400.0
Pesticides Tech.				
12	Carbamate group of Agrochemicals	33.3	0.0	33.3
13	Diuron	20.0	0.0	20.0
14	Isoproturon	8.3	0.0	8.3
15	Metoxuron	8.3	0.0	8.3
16	Trichlo Carbon	8.3	0.0	8.3
17	Cartap.HCl	50.0	0.0	50.0
18	Carbendazim	20.9	0.0	20.9
19	Herbicides (2,4 – D & related products)	1030.0	640.0	1670.0
20	Pyridine based insecticides & Herbicides chemical Imidacloprid	1.67	23.33	25.0
21	Triazole based Fungicide	1.67	0.0	1.67
22	Pyrethroides	6.0	4.0	10.0
23	Sulphonyl Urea	1.67	23.33	25.0
24	MCPA	0.0	500.0	500.0
25	Glyphosate	0.0	50.0	50.0
26	Isoprothiolane	0.0	8.3	8.3
27	Fipronil	0.0	5.0	5.0
28	Formulations	0.0	200.0	200.0
Total Production Capacity of Pesticides		1190.1	1453.96	2644.07



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EXPANSION IN EXISTING CAPTIVE POWER PLANT

		1		
Bulk Drugs & Pharmaceuticals				
29	Mabendazole	2.0	0.0	2.0
30	Tolbutamide	2.5	0.0	2.5
31	Quiniodochlor	15.0	0.0	15.0
32	Bulk Drug & Intermediates	9.6	0.0	9.6
33	Diclofenac Sodium / Potassium	2.5	0.0	2.5
34	Atenolol	1.7	0.0	1.7
35	Fresamide	1.3	0.0	1.3
36	Trimethoprim	0.9	0.0	0.9
37	Para Hydroxy acetophenone	1.7	0.0	1.7
38	Para Hydroxy phenyl acetamide	3.0	0.0	3.0
39	Acyclovir	5.2	0.0	5.2
40	Bathenechol	5.2	0.0	5.2
41	Pharma Intermediates & Chemicals	145.0	155.0	300.0
Total production capacity of Bulk Drugs & Pharmaceuticals		195.6	155.0	350.6
Manufacture of resins				
42	Epoxy Resin	450.0	2050.0	2500.0
43	Vinyl Ester Resins	37.5	0.0	37.5
44	Ketone Formaldehyde Resins & Sulphonamide, Formaldehyde Resins	20.8	0.0	20.8
45	UF / MF / PF / Di Cyanadamide Resins	270.9	0.0	270.9
46	Polyamide Resins	161.7	0.0	161.7
Total production of this group		940.9	2050	2990.9
Other chemicals				
47	Anthraquinone, Naphthalene, Benzene Intermediates. (including Beta – Naphthol & BON Acid	740.0	0.0	740.0
48	M Hydroxy phenol	460.0	0.0	460.0
49	Carbamite	30.0	0.0	30.0
50	Chlorzoxazone & other related products	5.0	0.0	5.0
51	Agro, pharma intermediates, Isocyanats & Carbonate esters etc.	100.0	0.0	100.0
52	4 Ethyl 2,3 – Diocpiperazino carbonyl chloride	3.3	0.0	3.3
53	Imino Dibenzyl 5 Carbonyl Chloride	0.8	0.0	0.8
54	Other Chemicals (DCP, MCA, MEA, DEA, PCI3, PAA, MAP etc.)	425.0	0.0	425.0
55	Formaldehyde and base products	3200.0	0.0	3200.0
56	Sulfuric Acid / Oleum / Chlorosulphonic Acid & salts	11550.0	0.0	11550.0
57	Sulpha Drug Intermediates	193.8	0.0	193.8
58	Acetyl Sulphanilyl Chloride & its derivatives	1500.0	0.0	1500.0
59	Acetanilide	500.0	0.0	500.0



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60	Sulpha Methyl Phenazole Sodium	1.1	0.0	1.1
61	Pyrazole Base	10.5	0.0	10.5
62	Sulphanilic acid	25.0	0.0	25.0
63	Bis Phenol A	416.7	0.0	416.7
64	Hexamine	150.0	0.0	150.0
65	Epoxy Intermediates	23.8	0.0	23.8
66	Hardener & Auxiliaries	83.3	416.7	500.0
67	Hardener & Intermediates	19.2	680.8	700.0
68	Bisphenol S & Intermediate Chemicals	16.6	0.0	16.6
	Total production of this group	19454.1	1097.5	20551.6
	Total production capacity	26481.5	4756.46	31237.96

LIST OF SURPLUS PRODUCT

Sr. No.	Product name	capacity, MT/month
1	DMA.HCl	90
2	25% NH ₃ soln.	144
3	30% HCl soln.	230

P. Rajaraman




ATUL LIMITED



EXPANSION IN EXISTING CAPTIVE POWER PLANT

Annexure-2 CC&A Copy

GUJARAT POLLUTION CONTROL BOARD
Paryavaran Bhavan
Sector-10-A, Gandhinagar - 382 010.
Phone : 23222756, 23222095, 23222096
Gram : CLEANWATER
Fax : (079) 23232156
Website : www.gpcb.gov.in



In exercise of the power conferred under section-25 of the Water (Prevention and Control of Pollution) Act-1974, under section-21 of the Air (Prevention and Control of Pollution) Act-1981 and Authorization under rule 3(c) & 5(5) of the Hazardous Waste (Management Handling and Transboundary Movement) Rules'2008, framed under the EP Act-1986.

And whereas Board has received on line consolidated application inward ID No: 86791 dated 03/11/2014 for the renewal of consolidated consent and authorization (CC & A) of this Board under the provisions / rules of the aforesaid Acts Consent & Authorization is hereby granted as under.

CONSENT AND AUTHORISATION:
(Under the provisions / rules of the aforesaid environmental acts)

To,

✓ M/S.ATUL LTD,
PLOT NO.5,6,29,30,33,34,35,37,38,80,81,84,85,91, , and survey no. 274,275,276
AT & POST:ATUL-396020,
DIST.:VALSAD.

1. Consent Order No: AWH – 67717 Date of Issue: 04/11/2014.
2. The consents shall be valid up to 03/11/2019 for use of outlet for the discharge of trade effluent and emission due to operation of industrial plant for manufacture of the following items / products:

Sr. No.	Product name	Capacity, MT/month
	Dyes	
1	Azo dyes	550.0
2	Sulfur Black	250.0
3	Sulfur Dyes range	25.0
4	Naphthol range	75.0
5	Fast Color Bases	40.0
6	Disperse Dyes	118.5
7	Optical Brighteners	10.0
8	Reactive Dyes	127.3
9	Vat Dyes	105.0
	Total production capacity of Dyes	1300.8
	Chlor- Alkali	
10	Caustic Soda / Potash & Sodium Sulfide	1800.0
11	Liquid Chlorine / HCl	1600.0
	Total production capacity of Chlor- Alkali	3400.0

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Pesticides Tech		
12	Carbamate group of Agrochemicals	33.3
13	Diuron	20.0
14	Isoproturon	8.3
15	Metoxuron	8.3
16	Trichlo Carbon	8.3
17	Cartap.HCl	50.0
18	Carbendazim	20.9
19	Herbicides (2,4 - D & related products)	1670.0
20	Pyridine based insecticides & Herbicides chemical Imidacloprid	25.0
21	Triazole based Fungicide	1.67
22	Pyrethroides	10.0
23	Sulphonyl Urea	25.0
24	MCPA	500.0
25	Glyphosate	50.0
26	Isoprothiolane	8.3
27	Fipronil	5.0
28	Formulations	200.0
Total production capacity of Pesticides		2644.07
Bulk Drug and Pharmaceuticals		
29	Mabendazole	2.0
30	Tolbutamide	2.5
31	Quiniodochlor	15.0
32	Bulk Drug & Intermediates	9.6
33	Diclofenac Sodium / Potassium	2.5
34	Atenolol	1.7
35	Fresamide	1.3
36	Trimethoprim	0.9
37	Para Hydroxy acetophenone	1.7
38	Para Hydroxy phenyl acetamide	3.0
39	Acyclovir	5.2
40	Bathenechol	5.2
41	Pharma Intermediates & Chemicals	300
Total production capacity of Bulk Drug and Pharmaceuticals		350.6
Resins		
42	Epoxy Resin	2500.0
43	Vinyl Ester Resins	37.5

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GUJARAT POLLUTION CONTROL BOARD

Paryavaran Bhavan

Sector-10-A, Gandhinagar - 382 010.

Phone : 23222756, 23222095, 23222096

Gram : CLEANWATER

Fax : (079) 23232156

Website : www.gpcb.gov.in



44	Ketone Formaldehyde Resins & Sulphonamide, Formaldehyde Resins	20.8
45	UF / MF / PF / Di Cyanamide Resins	270.9
46	Polyamide Resins	161.7
	Total production capacity of Resins	2990.9
	Other Chemicals	
47	Anthraquinone, Naphthalene, Benzene Intermediates. (including Beta - Naphthol & BON Acid	740.0
48	M Hydroxy phenol	460.0
49	Carbamite	30.0
50	Chloroxazone & other related products	5.0
51	Agro, pharma intermediates, Isocyanats & Carbonate esters etc.	100.0
52	4 Ethyl 2,3 - Diocpiperazino carbonyl chloride	3.3
53	Imino Dibenzyl 5 Carbonyl Chloride	0.8
54	Other Chemicals (DCP, MCA, MEA, DEA, PCl ₅ , PAA, MAP etc.)	425.0
55	Formaldehyde and base products	3200.0
56	Sulfuric Acid / Oleum / Chlorosulphonic Acid & salts	11550.0
57	Sulpha Drug Intermediates	193.8
58	Acetyl Sulphanilyl Chloride & its derivatives	1500.0
59	Acetanilide	500.0
60	Sulpha Methyl Phenazole Sodium	1.1
61	Pyrazole Base	10.5
62	Sulphanilic acid	25.0
63	Bis-Phenol A	416.7
64	Hexamine	150.0
65	Epoxy Intermediates	23.8
66	Hardener & Auxiliaries	500.0
67	Hardener & Intermediates	700.0
68	Bisphenol S & Intermediate Chemicals	16.6
69	Sodium Thio Sulphate	900 MT/M Dry basis or 1900 MT/M Wet basis
	Total production capacity of this group	21451.6 when Sodium Thio Sulphate Dry basis 22451.6 when Sodium Thio Sulphate Wet basis
	Grand Total production capacity	32137.96 when Sodium Thio Sulphate Dry basis 33137.96 when Sodium Thio Sulphate Wet basis

3



ATUL LIMITED



EXPANSION IN EXISTING CAPTIVE POWER PLANT

3.0 CONDITIONS UNDER THE WATER ACT:

3.1 The quantity of the industrial discharge shall not exceed 17,283 KLPD excluding Atul Bio Science Ltd (ABL).

3.2 High COD effluent 23 KLPD shall be incinerated in own incinerator within premises.
High TDS effluent 97 KLPD shall be evaporated in multiple effect Evaporator system.

3.3 The quantity of the domestic waste water (sewage) shall not exceed 937 KLPD.

3.4 Trade effluent :

The applicant shall provide adequate effluent treatment in order to achieve the quality of the treated effluent as per GPCB norms mentioned in column No.2

PARAMETERS	PERMISSIBLE LIMITS
pH	5.5 to 9.0
Temperature	40° C
Colour (pt.co.scale) in units	---
Suspended Solids	100 mg/l
Oil and Grease	10 mg/l
Phenolic Compounds	5 mg/l
Cyanides	0.2 mg/l
Fluorides	2 mg/l
Sulphides	2 mg/l
Ammonical Nitrogen	50 mg/l
Arsenic	0.2 mg/l
Total Chromium	2 mg/l
Hexavalent Chromium	1 mg/l
Copper	3 mg/l
Lead	2 mg/l
Mercury	0.01 mg/l
Nickel	5 mg/l
Zinc	15 mg/l
Cadmium	2 mg/l
Phosphates as P	5 mg/l
BOD (3 days at 27°C)	100 mg/l
COD	250 mg/l
Insecticides/Pesticides	Absent
Sodium absorption Ratio	26
Phosphate	5 mg/l
Manganese	2 mg/l
Tin	0.1 mg/l
Bio-assay test	90% Survival of fish after 96 hour in 100% effluent.

*All efforts shall be made to remove colour & unpleasant odour as far as practicable.

3.5 The final treated effluent from central ETP conforming to the above standards shall be collected in the guard pond and then discharged through closed pipeline to estuary zone of River Par via diffuser.

3.6 Sewage shall be disposed of through septic tank/soak pit system.



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EXPANSION IN EXISTING CAPTIVE POWER PLANT

GUJARAT POLLUTION CONTROL BOARD

Paryavaran Bhavan
Sector-10-A, Gandhinagar - 382 010.
Phone : 23222756, 23222095, 23222096
Gram : CLEANWATER
Fax : (079) 23232156
Website : www.gpcb.gov.in



4.0 CONDITIONS UNDER THE AIR ACT:

4.1 (a) The following shall be used as fuel in D.G. Sets as following rates:

Sr. No.	Fuel	Quantity
1	Coal/Lignite	30200MT/Month
2	Diesel Oil	340KL/Month
3	Furnace Oil	1100KL/Month
4	Natural Gas	200000M ³ /Month

4.1 (b) Following boilers shall be used for Captive power consumption :

Boiler	Registration No.	Located at	Steam generation capacity	MW
FBC boiler E1	GT 2836	East Site	34 TPH	15+5+4+2.5
FBC boiler E2	GT 2896	East Site	34 TPH	
FBC boiler E3	GT 4565	East Site	50 TPH	
FBC W1	GT 3266	West Site	45 TPH	5.6+2
Coal fired boiler W1	GT 1789	West Site	18.18 TPH	
Coal fired boiler W2	GT 1801	West Site	18.18 TPH	
Coal fired boiler	GT 2454	North Site	7.3 TPH	

4.2 The applicant shall install & operate air pollution control system in order to achieve norms prescribed below in 4.3.

4.3 The flue gas emission through stack attached to boiler shall conform to the following standards:

Sr. No.	Stack attached to	Capacity Ton/hr	Stack Ht. In meter	Air Pollution Control system	Permissible limit		
					PM mg/m ³	SO ₂ ppm	NO _x ppm
East Site							
1	FBC boiler E1	34	56	Electrostatic precipitator	150	100	50
2	FBC boiler E2	34	56		150	100	50
3	FBC boiler E3	50	80.3		150	100	50
4	Hot oil Unit (Resorcinol Plant)	32.5	32.5		150	100	50

5



West Site							
5	FBC boiler W1	45	70	Electrostatic precipitator	150	100	50
6	Coal fired Boiler W1	18.18	35		150	100	50
7	Coal fired Boiler W2	18.18	35		150	100	50
8	Hot oil Plant Shed B	19	19		150	100	50
9	Oil Burner Shed B (standby)	17	17		150	100	50
North Site							
10	Thermic Fluid heater of DCO/DAP Plant	12	12		150	100	50

4.4 The process emission through various stacks/ vent of reactors, process, vessel shall confirm to the following standards:

Sr. No.	Stack attached to	Stack Ht., m	Stack dia., mm	APCM	Scrubbing media	Parameter	Permissible limit *
Phosgene plant							
1	Phosgene Plant	15	300	Alkali & water scrubber	Caustic + water	COCl ₂	0.1 ppm
Caustic Soda plant							
2	Dechlorination plant	35	350	Hypo scrubber	Hypochlorite solution	Cl ₂ HCl	9 mg/ NM ³ 20 mg/ NM ³
3	Common stack of HCl Sigr Unit-1& 2	25	100	water scrubber	Water	Cl ₂ HCl	9 mg/ NM ³ 20 mg/ NM ³
FCB plant							
4	Foul gas scrubber	26.5	600	Caustic scrubber	Caustic	SO ₂ NOx	40 mg/ NM ³ 25 mg/ NM ³
Sulfuric acid plant							
5	Sulfuric acid plant	30	500	Water scrubber with DCDA system	Water	SO ₂ Acid mist	2 kg/ton of conc. (100% Acid product) 50 mg/ NM ³
6	Chlorosulfonic Acid Plant Reactor	11	150	water scrubber	Water	Cl ₂ HCl	9 mg/ NM ³ 20 mg/ NM ³



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Incinerator							
7	Incinerator	40	300	Alkali & water scrubber	Caustic + water	PM	150 mg/ NM ³
						SO ₂	40 mg/ NM ³
						NO _x	25 mg/ NM ³
NI plant							
8	Foul gas scrubber	26.5	60	Caustic scrubber	Caustic	SO ₂	40 mg/ NM ³
						NO _x	25 mg/ NM ³
NBD plant							
9	Spray Dryer	21	540	water scrubber	Water	PM	150 mg/ NM ³
2, 4 D plant							
10	Chlorinator; 2,4D plant	26.5	150	Caustic scrubber	Caustic	Cl ₂	9 mg/ NM ³
						HCl	20 mg/ NM ³
11	Chlorinator; 2,4D plant	26.5	150	Caustic scrubber	Caustic	Cl ₂	9 mg/ NM ³
						HCl	20 mg/ NM ³
12	Chlorinator; 2,4D plant	26.5	150	Caustic scrubber	Caustic	Cl ₂	9 mg/ NM ³
						HCl	20 mg/ NM ³
13	Chlorinator; 2,4D plant	26.5	150	Caustic scrubber	Caustic	Cl ₂	9 mg/ NM ³
						HCl	20 mg/ NM ³
14	Chlorinator; 2,4D plant	26.5	150	Caustic scrubber	Caustic	Cl ₂	9 mg/ NM ³
						HCl	20 mg/ NM ³
15	Common scrubber; 2,4D plant	5	20	Caustic scrubber	Caustic	Cl ₂	9 mg/ NM ³
						HCl	20 mg/ NM ³
16	Dryer-1	26.5	350	bag filter, water scrubber	Water	PM with Pesticide Compound	20 mg/ NM ³
17	Dryer-2	26.5	500	Cyclone, bag filter, caustic scrubber	Caustic	PM with Pesticide Compound	20 mg/ NM ³
18	Dryer-3	26.5	550	Cyclone, bag filter, caustic scrubber	Caustic	PM with Pesticide Compound	20 mg/ NM ³
19	Dryer-4	26.5	750	Cyclone, bag filter, caustic scrubber	Caustic	PM with Pesticide Compound	20 mg/ NM ³
20	Common scrubber, 2,4 D plant	5	20	Caustic scrubber	Caustic	Phenol	-
CP Plants							
21	MCPA	19	150	Alkali & water scrubber	Caustic + water	Cl ₂	9 mg/ NM ³
						HCl	20 mg/ NM ³
						SO ₂	40 mg/ NM ³
22	Fipronil	19	150	Alkali & Water scrubber	Caustic + water	SO ₂	40 mg/ NM ³
						HCl	20 mg/ NM ³



23	Imidacloprid	20	80	water followed by acid scrubber	Water & acid	NH ₃	175mg/ NM ³
24	Pyrethroids	19	150	Alkali & water scrubber	Caustic + water	SO ₂	40 mg/ NM ³
						HCl	20 mg/ NM ³
25	Stack at Amine plant	5	150	Caustic scrubber	Caustic	NH ₃	175 mg / NM ³
MPSL plant							
26	Phosgene Scrubber at MPSL	7	150	Caustic scrubber	Caustic	Phosgene	0.1 ppm
27	Central Scrubber at MPSL	7	150	Caustic scrubber	Caustic	Phosgene	0.1 ppm
NICO plant							
28	Central scrubber at Nico Plant	12	150	Water scrubber	Water	Acetonytryle, IPA	-
Ester Plant							
29	Scrubber at Ester plant for Glyphosate	12	150	Water scrubber	Water	Formaldehyde	10 mg/ NM ³
30	Central scrubber of MCPA plant	19		Caustic scrubber	Caustic	HCl	20 mg/ NM ³
West Site							
31	Shed A 7/14/41 Reaction pan/D tank	19		Caustic scrubber	Caustic	Br ₂	2 mg/ NM ³
						NOx	25 mg/ NM ³
32	Shed-B 2/12/24 Reaction vessel	19	150	Caustic scrubber	Caustic	Cl ₂	9 mg/ NM ³
						HCl	20 mg/ NM ³
33	Shed-C C5/20/15 Chlorinator	19	150	Alkali & water scrubber	Caustic + water	Cl ₂	9 mg/ NM ³
						HCl	20 mg/ NM ³
34	Shed- D NIRO Spray Dryer No. 45	19	360	water scrubber	Water	PM	150 mg/ NM ³
35	Shed- D NIRO Spray Dryer No. 50	19	360	water scrubber	Water	PM	150 mg/ NM ³
36	Shed-E 7/12/49 Spray Dryer	19		water scrubber	Water	PM	150 mg/ NM ³



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37	Shed-F F6/1/15 Reaction vessel	19	150	Alkali & water scrubber	Caustic water	+	Cl ₂	9 mg/ NM ³
							HCl	20 mg/ NM ³
38	Shed-G G10/8/1 (receiver)	11	150	Alkali & water scrubber	Caustic water	+	Cl ₂	9 mg/ NM ³
							HCl	20 mg/ NM ³
39	Shed-H 11/6/17 Chlorinator	19	150	Alkali & water scrubber	Caustic water	+	Cl ₂	9 mg/ NM ³
							HCl	20 mg/ NM ³
40	Shed K K- 13/3/4 Final of Sulfuric acid plant	50	500	Alkali & water scrubber	Caustic water	+	SO ₂	2 kg/ton of conc. (100% Acid product)
							Acid mist	50 mg/ NM ³
North Site								
41	N-FDH Plant Catalytic Incinerator	31.5	150	Bag filter			PM	150 mg/ NM ³
							SO ₂	40 mg/ NM ³
							NO _x	25 mg/ NM ³
							FDH	10 mg/ NM ³
42	PHIN Plant	15.5	350	Water scrubber followed by two stage caustic scrubber with Ammonia/steam injection at stack	Caustic Water	+	Phosgene	0.1 ppm
43	DCDPS Plant	30	650	Alkali & water scrubber	Caustic water	+	SO ₃	-
44	DDS Plant	20	80	water followed by acid scrubber	water & acid		NH ₃	175 mg/NM ³
45	SPIC II Plant	30	650	Alkali & water scrubber	Caustic water	+	SO ₃	-
46	SPIC I Plant	30	50	water scrubber	Water		NH ₃	175 mg/NM ³

4.5 Ambient air quality within the premises of the industry shall conform to the following standards:-

PARAMETERS	PERMISSIBLE LIMIT	
	Annual	24 Hrs Average
Particulate Matter-10 (PM ₁₀)	60 Microgram/M ³	100 Microgram/M ³
Particulate Matter- 2.5 (PM _{2.5})	40 Microgram/M ³	60 Microgram/M ³
SO ₂	50 Microgram/M ³	80 Microgram/M ³
NO _x	40 Microgram/M ³	80 Microgram/M ³



- Annual arithmetic mean of minimum 104 measurements in a year at a particular site taken twice a week 24 hourly at uniform intervals.
 - 24 hourly or 08 hourly or 01 hourly monitored values, as applicable, shall be complied with 98% of the time in a year. 2% of the time, they may exceed the limits but not on two consecutive days of monitoring.
- 4.6 The applicant shall operate industrial plant / air pollution control equipment very efficiently and continuously so that the gaseous emission always conforms to the standards specified in condition no.4.3 and 4.5 as above.
- 4.7 The consent to operate the industrial plant shall lapse if at any time the parameters of the gaseous emission are not within the tolerance limits specified in the condition no.4.3 and 4.5 as above.
- 4.8 The applicant shall provide portholes, ladder, platform etc at chimney(s) for monitoring the air emissions and the same shall be open for inspection to/and for use of Board's staff. The chimney(s) vents attached to various sources of emission shall be designed by numbers such as S-1, S-2, etc. and these shall be painted /displayed to facilitate identification.
- 4.9 The industry shall take adequate measures for control of noise levels from its own sources within the premises so as to maintain ambient air quality standards in respect of noise to less than 75 dB(a) during day time and 70 dB (A) during night time. Daytime is reckoned in between 6a.m. and 10 p.m. and nighttime is reckoned between 10 p.m. and 6 a.m.
5. **Authorization for the [Management, Handling & Transboundary Movement of Hazardous Waste Form-2 (See rule 5 (4) for grant of Authorization for occupier or Operator handling Hazardous Waste Rules – 2008.**
- 5.1 (a) Number of Authorization AWH 67717 Date of Issue :04/11/2014
- 5.1 (b) M/s. ATUL LTD, is hereby granted an authorization to operate facility for following hazardous Waste on the premises situated at PLOT NO.5,6, 29,30,33,34,35,37,38,80,81,84,85,91, and survey no. 274,275,276 AT & POST: ATUL-396 020, DIST.: VALSAD :



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Sr.	Description	Category	Quantity MT/Month	Method of storage	Method of disposal
1	Graphite granules from decomposer,	16.1	0.0417	collection, storage	Own TSDF
2	Sludge from recycle unit, ground floor & sack filter,	16.1	0.014	collection, storage	Own TSDF after mercury recovery
3	Sludge from De-mercurisation Plant	16.1	1.00	collection, storage	Recycle
4	Membranes	16.2	6.00	collection, storage	Own TSDF
5	Waste Resin	16.2	0.05	collection, storage	Incineration
6	Sulfurised Carbon	16.2	0.003	collection, storage	Incineration
7	Activated Carbon	16.2	0.0104	collection, storage	Own TSDF
8	Brine purification sludge	16.3	22.5		Own TSDF
9	Sulphur sludge	17.1	5.83	Stored for Melting and reuse,	Reuse
10	Hot Gas filter Ash,	17.1	0.0208	collection, storage	Own TSDF
11	Bottom Sludge after recovery of Sulphur Sludge	17.1	0.50		Own TSDF
12	Waste Catalyst	17.2	0.083	collection, storage	Own TSDF
13	Spent Solvents, kl/month	20.2	5.00	Recovery	Recovery
14	OCBC / OCT distillation residue,	20.3	0.042	collection, storage	Incineration
15	Waste residue Bulk Intermediate (meta hydroxy phenol) (Tar),	20.3	15.00	Sell	Sell to reuser having GPCB permission
16	Waste residue From (Resorcinol Plant)	20.3	15.00	collection, storage	Sell to reuser having GPCB permission
17	Urea Formaldehyde Polymer Product	23.1	0.25		Incineration
18	Sludge containing higher amino compound	23.1	0.417		Incineration
19	Filter cake of Epoxy resins with resin contamination	23.1	0.833		Incineration
20	Epoxy Resin (Filter Cake with resin contamination)	23.1	130.29	collection, storage	Incineration



21	Aluminium Hydroxide	26.1	15.417		OWN TSDF
22	Iron sludge	26.1	80.00		OWN TSDF
23	Brass residue	26.1	0.667		OWN TSDF
24	Still / Other residue	26.1	8.67		Incineration
25	Darco / filter aid sludge	26.1	2.083		Incineration
26	Dust (Agro Plant)	26.1	3.0	collection, storage	Own TSDF
27	Iron Residue	26.1	82.5	collection, storage	Own TSDF
28	PER crystal residue	26.1	0.4	collection, storage	Incineration
29	Hyflo sludge	26.1	0.5	collection, storage	Incineration
30	Filter aid sludge for Hg recovery	26.1	1.0	Recovery of mercury	Recovery of mercury
31	Sludge from waste water treatment	26.2	5.0		Own TSDF
32	Dust from Air Filtration System	26.3	0.001	Reprocessed	Reprocessed, Reused within industry
33	Spent carbon,	28.2	40.0	Incineration	Captive Incineration / Collections, storage, Disposal by selling to authorized cement industries for co- processing
34	Date expired discarded and off-specification product,	28.4	0.008	Incineration	Incineration
35	Spent Mother liquor, kl/month	28.5	19.75		To ETP after recovery
36	Spent solvent, kl/month	28.6	19.75		Solvent Recovery
37	Still / Other bottom residue,	29.1	10	Incineration	Incineration
38	Pyridine based insecticides & herbicides (Darco / Filter aid Sludge)	29.1	3.62	Incineration	Incineration
39	Sulfonyl Urea (Residue),	29.1	14.27	Incineration	Incineration
40	Triazole based Fungicides (Residue)	29.1	1.28	Incineration	Incineration
41	Pyrethroides	29.1	0.6		Incineration
42	Hyflo	29.1	15.75	collection, storage	OWN TSDF
43	Dust from Air Filtration System,	29.3	0.008	collection, storage	Incineration
44	Chemical containing residue from decontamination and disposal	33.1	0.0008	collection, storage	Incineration



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45	Liners /Bags, No./month	33.3	9500	Collection, storage, Decontaminated detoxification	After Decontamination reuse / Sell to authorized party
46	Drums /HDPE Carboys, No./month	33.3	250		
47	Flue gas cleaning residue,	34.1	0.0008		Own TSDF
48	Toxic metal containing residue from used- ion exchange material; in water purification,	34.2	0.001	Collection, storage	Own TSDF
49	Sludge from ETP	34.3	41.667		Own TSDF
50	Gypsum from ETP	34.3	2		Own TSDF
51	MEA distillation residue	35.1	1.667		Incineration
52	Spent Catalyst	35.2	0.002		Own TSDF
53	Sludge from wet scrubber	36.1	0.02		Own TSDF
54	Incineration ash	36.2	4.62		OWN TSDF
55	Sludge & filters contaminated with oil,	3.3	0.005		Incineration
56	Used oil, kl/month	5.1	2.00		sell to registered refiners
57	Wastes / residues containing oil,	5.2	0.001		Incineration
58	Aluminum Ash	B30	2.6		Own TSDF
59	Gypsum (From meta Hydroxy Phenol Plant)	D1	840		Reuse & sell to GPCB
60	Sodium Sulphite,	D1	550		Authorized actual reuses only
61	Salt from MEE,		825		Own TSDF / Sell to actual user
62	Spent Acid	D2	400		Collection, storage, disposal by sale to the units having permission from CPCB, New Delhi under rule 11 of Hazardous Waste Rule'08.
63	Chemical Gypsum	34.3	4930 (Dry basis)		Own TSDF/ Collections, storage, Disposal by selling to authorized Cement Industries
64	Copper Hydroxide wet cake	B3	40		Collections, storage, Disposal ale to the units having



					permission from CPCB, New Delhi under rule 11 of Hazardous Waste Rule'08.Vapi.
65	Spent Organic Solvent	28.5	24.75		Collections, storage, Disposal by sale to the units having permission from CPCB, New Delhi under rule 11 of Hazardous Waste Rule'08.
66	2,6 Dichloro Phenol		94.355		sell to actual users
67	2,4,6 Tri-Chlorophenol		45.925		sell to actual users
68	p-CBSA/Na-Salt		127		sell to actual users

5.2 The authorization is granted to operate a facility for collection, storage, within the factory premises and treatment, transportation and ultimate disposal of Hazardous wastes as mentioned in the above table as per **Hazardous Waste [Management, Handling & Transboundary Movement] Rules-2008**.

5.3 The authorization is subject to the conditions stated below and such other conditions as may be specified in the rules from time to time under the Environment (Protection) Act-1986.

5.4 The authorization shall be in force for a period of five years (i.e. up to 03/11/2019).

5.5 **TERMS AND CONDITIONS OF AUTHORISATION:**

5.5.1 The applicant shall comply with the provisions of the Environment (Protection) Act - 1986 and the rules made there under.

5.5.2 The authorization shall be produced for inspection at the request of an officer authorized by the Gujarat Pollution Control Board.

5.5.3 Any unauthorized change in personnel, equipment or working conditions as mentioned in the authorization order by the persons authorized shall constitute a breach of this authorization.



ATUL LIMITED



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GUJARAT POLLUTION CONTROL BOARD

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- 5.5.4 An application for the renewal of an authorization shall be made as laid down in rule 5 (7) (ii).
- 5.5.5 Industry shall submit annual report within 15 days and sub squinty by 31st January every year.
6. **GENERAL CONDITIONS:**
- 6.1 Any change in personnel, equipment or working conditions as mentioned in the consents form/order should immediately be intimated to this Board.

For and on behalf of
GUJARAT POLLUTION CONTROL BOARD

D.P.Shah
(Smt. D.P.Shah)
ENVIRONMENTAL ENGINEER

No: GPCB/CCA-VSD-313/ID: 23158/ 306616

Date: 10/3/2015

ISSUED TO:

M/S.ATUL LTD,
PLOT NO.5,6,29,30,33,34,35,37,38,80,81,84,85,91, , and survey no. 274,275,276
AT & POST:ATUL-396020,
DIST.:VALSAD.

COPY TO:

1. The Regional Officer, G.P.C. Board, Vapi
 - With a request to visit this unit & submit VR/AR along with compliance report of conditions periodically.



ATUL LIMITED



EXPANSION IN EXISTING CAPTIVE POWER PLANT

Annexure - 3 Water Withdrawal Permission

STATE BANK OF INDIA,
STATION ROAD BR,
VALSAD-396001.
GUJ/SOS/AUTH/AVI 193/2007

भारत 41602 101128
JAN 28 2012 11:05
R.0000250-PB590R
INDIA STAMP DUTY GUJARAT

23/1/2011
23/1/16 Valsad
1976

For Atul Limited
BN Mohanan
Whole Time Director

AGREEMENT

For Atul Limited
BN Mohanan
Whole Time Director

Agreement for supply of 4 MGD (18184 Cubic metre per day) i.e. 6637160 Cubic metre per year water to Atul Limited, Atul - 396020, Dist. Valsad, for drawal of water from river par for industrial use.

For Atul Limited

This Agreement made on this day of January 30, 2012 between the Atul Limited through its authorized representative (hereinafter in this agreement called the "Licencee" which expression shall, unless context otherwise requires and admits, be deemed to include its administrators, executors, successors and assigns) having its registered office at Ashoka chambers, Rasala Marg, Ahmedabad of the one part and the Governor of the State of Gujarat through Executive Engineer, Ambica Division, Navsari in office (herein after called as "the Government" which

For Atul Limited
BN Mohanan
Whole Time Director

Executive Engineer
Ambica Division,
NAVSARI



ATUL LIMITED



EXPANSION IN EXISTING CAPTIVE POWER PLANT

expression shall unless context otherwise requires and admits, be deemed to include his successors in office and assigns) of the other part.

WHERE AS the Licencee has applied to the government for permission to draw water from River Par for the purpose of industrial use for its existing plant at Atul, Tal. Valsad, Dist. Valsad.


AND WHEREAS the Government has, under its sanction letter / Narmada, Water Resources, Water Supply & Kalpsar Department Resolution No. WTR/ 1092 / 22319/ 14/ Part-3/P dated 25.1.2006, agreed to grant such permission on the terms and conditions herein after appearing and as mentioned in the Government of Gujarat, Narmada, Water Resources, Water Supply & Kalpsar Department Resolution No. WTR/2005/41/P dated 3.2.2007.

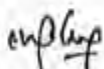
NOW THIS INDENTURE WITNES and the parties here to hereby agree as follows:

- (1) The Government hereby grants the permission to the Licencee to draw water from River Par on the terms and conditions hereafter appearing. The licencee shall construct and maintain the head works for drawing water from River Par and other required structures at suitable places as approved by the Government or its authorized officer at their risk & cost and shall provide all ancillary arrangements that may be required in connection with the drawing and conveying the water required for the use of Licencee near Village Haria in Atul, Taluka Valsad of Valsad District. The intake structures shall be open to inspection by the Government and the Government shall exercise necessary control.
- (2) The licencee shall install and maintain at is own cost, the pipeline and other requirements required for conveying water from the source of supply to the place of actual use. The expenditure towards the drawal of water

2

For Atul Limited


B N Mohanan
Whole Time Director


Executive Engineer
Ambica Division,
NAVSARI



ATUL LIMITED

EXPANSION IN EXISTING CAPTIVE POWER PLANT



i.e. installation of pumps, pipelines, meters and all other requirements in connection with the drawal of water, shall be borne by the Licencee.

- (3) The licencee shall draw water directly from River Par to the extent of 18184 Cubic metres per day throughout the year for the optimum plant capacity under operation from time to time. It would be permissible for the Licencee to increase the intake up to 36368 Cubic metres per day for a period not exceeding one month with the approval of the Narmada, Water Resources, Water Supply & Kalpsar Department, to facilitate the filling of the Licencee reservoir before closure of the canal.
- (4) The licencee agrees to bear the cost herein below detailed that may be apportioned between the beneficiaries on pro-rate basis of their demands, on account of remodeling that may take place to meet the total requirements of the beneficiaries in case.

Supply of water to him is from River Par.

- (5) The licencee shall pay a licence fee at the rate of Rs.501/- per year or at such rates as may be fixed by the Government from time to time in that behalf during the subsistence as the agreement.
- (5) The licencee shall pay for the quantity of water drawn, as measured in the manner provided under clause - 7 below, at the rates and terms given below.
- (i) The Licencee shall pay the water charges for the quantity of water actually drawn as per the rates mentioned in the Government of Gujarat, Narmada, Water Resources, Water supply & Kalpsar Department Resolution No. WTR/ 2005/ 41/P dated 3.2.2007, effective from 1.1.2007 subject to fulfillment of conditions laid

For Atul Limited -

B N Mohanan
Whole Time Director

3

Executive Engineer
Ambica Division,
NAVSARI



ATUL LIMITED




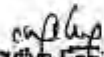
EXPANSION IN EXISTING CAPTIVE POWER PLANT

down in above mentioned resolution as well as conditions mentioned in sanction letter.

- (ii) The interest rates, penalty and all other charges / conditions mentioned in above mentioned Government of Gujarat, Narmada, Water Resources, Water Supply & Kalpsar Department, resolution No. WTR/ 2005/41/P dated 3.2.2007 shall be applicable and the licensee shall have to fulfill it.
- (iii) The above rates so fixed shall be subject to upward revision that may be made by the Government in Narmada, Water Resources, Water Supply & Kalpsar Department from time to time in connection with water reserved and used for irrigation & non-irrigation purposes. The rates fixed by the Government shall be exclusive of cost of pumping, conveying etc. of water from the source.
- (iv) The charges as mentioned in sub clause - (i), above, shall be paid in advance by the Licensee before 10th day of each month following the month to which water charges pertains calculated as per the estimated requirement of water for the month. The bills as per actual payment of charges shall be prepared every month and served on the Licensee for payment thereof.
- (v) If the arrears of water charges referred to above accumulate for more than six months, the Government shall be at liberty to ask the licensee to stop drawl of water from the source and it shall be incumbent on the licensee to do so and in case of default, Government may take action to stop entry into the intake without any notice at the risk and cost of the licensee.

For Atul Limited


B N Mohanan
Whole Time Director


Executive Engineer
Ambica Division,
NAVSARI



ATUL LIMITED

EXPANSION IN EXISTING CAPTIVE POWER PLANT



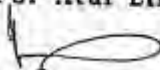
(6) If the measuring devices referred to in Clause - 7 below, ceases to function or goes out of order in any month, the charges leviable in respect of that month shall be calculated on the basis of the average quantity of water drawn in the preceding three months of the quantity of water drawn in the same month of preceding year whichever is higher, provided that there has been no increase in the capacity of the plant / plants and the corresponding water requirements thereof during such year. If the capacity of the Plant / Plants has increased during such year, the water drawn shall be correspondingly estimated on the prorata basis. For the purpose of such estimate, the licensee shall furnish necessary data to the Executive Engineer concerned whose decision in the matter shall be final and binding to the Licensee.

(7) A suitable scientific measuring device shall be installed by the Licensee at suitable place in consultation with and with the approval of the Executive Engineer, Ambica Division, Navsari or his successor in office for measuring the quantity of water drawn by the Licensee.

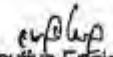
The cost of the measuring device, its installation and maintenance shall be borne by the Licensee. The measurement of the quantity of water drawn shall be taken jointly by the representative of the Government and of the Licensee. The measuring device shall be open for inspection by the concerned authorities.

(8) If the measuring device referred in the clause -7, ceases to function or goes out of order, the Licensee shall, as and when such occasion arises, get necessary repairs thereto carried out and restore the same to its original position or replace the same if so found necessary and as required by the Executive Engineer concerned within one month of its going out of order.

For Atul Limited


BN Mohanan
Whole Time Director

5


Executive Engineer
Ambica Division,
NAVSARI



ATUL LIMITED



EXPANSION IN EXISTING CAPTIVE POWER PLANT

- (9) The water drawn by the Licencee from the River Par shall be used only for the purpose for which permission to use the same is granted to him and as such the use shall be confined to the legitimate requirements of the Licencee.

The Licencee shall not draw water from the above mentioned sources for sale or supply to any person, firm or Company or other body by whatever name called.

- (10)(1) The grant of the permission to draw water under this agreement shall not mean any assurance to the Licencee regarding availability of ~~quantity~~ ^{quantity} ~~quality~~ of water as per the requirements of the Licencee and regarding the quality of water. The Licencee shall not be entitled to any compensation for non availability of quantity of water on account of reasons beyond the control of the Government/ department. It shall be incumbent on the Licencee to make its own arrangement to meet its requirement of water during the periods the canal is closed on account of repairs or accidental breach.

For Atul Limited

B N Mohanan

Whole Time Director

- (10)(2) If the special measures for conserving the water and reducing the losses of evaporation and seepage are found necessary in scarcity years, the expenses on this account shall be borne by the Licencee.

- (11) The permission granted in this agreement shall not in any manner prejudicially affect the existing water rights vested in the riparian owners nor shall it in any way prejudice the rights of Government to launch or implement any new scheme or schemes in public interest in future in connection with the water of River Par from which Licencee is permitted to draw water.

For Atul Limited

B N Mohanan
Whole Time Director

Executive Engineer
Ambler District




ATUL LIMITED

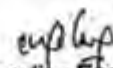


EXPANSION IN EXISTING CAPTIVE POWER PLANT

- (12) The drawal of water under this agreement by the licensee shall be subject to the provisions of the Bombay Irrigation Act, 1879 and rules made there under as amended from time to time and orders that may be passed or issued in that behalf by the Government/ Department from time to time.
- (13) The Licensee shall at all reasonable times allow the officers of the Government to inspect the work sites and records regarding quantity of water drawn, utilized and supplied to other parties, if any, and to take copy of the records.
- (14) An amount equivalent to three months prevailing water charges shall be initially deposited by the Licensee with the Executive Engineer, Ambica Division, Navsari or his successors in the office as security deposit for the due performance of the terms of this agreement. The deposit shall be in the form of fixed deposit in any scheduled bank and shall be pledged by the Licensee in favour of the Executive Engineer, Ambica Division, Navsari or his successor in office. The enhancement in amount of security deposit due to yearly increase in the rate of water charges shall also be deposited by the Licensee.
- (15) The Executive Engineer, Ambica Division, Navsari, shall dispose of all matters pertaining to this agreement subject and falling within his purview subject to decision that may be taken in appeal before the Superintending Engineer, Surat Irrigation Circle, Surat in the matter and the decision of the Superintending Engineer in the matter shall be final.
- (16) The Licensee shall make its own arrangements for storing its water requirement of about 15 days.

For Atul Limited


B N Mohanan
Whole Time Director


Executive Engineer
Ambica Division,
NAVSARI



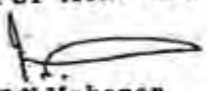
ATUL LIMITED

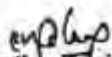
EXPANSION IN EXISTING CAPTIVE POWER PLANT



- 17) The Licencee shall arrange at its own cost the discharge of the trade waste and effluents after due treatment as may be permitted from time to time by the State Water Pollution Control Board safely in the place earmarked for the purpose in the vicinity in-consultation and with the approval of Public Health Authority. In case where the Collector, Valsad District finds that the arrangement of discharge is not suitable, it shall be the duty of Licencee to make other suitable arrangement as may be directed by him. If the discharge of trade waste and effluent proves to be a source of nuisance to the field and or the population in the neighborhoods, the Licencee shall treat the same further in such manner as may be directed by the Government.
- (18) This agreement shall remain in force for a period of 5 (five) years from the date 27.1.2011 thereof unless terminated earlier, by the Licencee by giving six calendar month's notice in writing to the Government for the purpose. The Licencee shall not be eligible for any compensation on account of such premature termination.
- (19) The Government may allow the drawal of water according to the terms stated in this agreement after the expiry of the agreement on receipt of a request to that effect from the Licencee at least six month before the expiry of the period of this agreement.
- (20) The Licencee shall bear all the legal charges, stamp duty, registration fees and translation charges and all other charges and expenses incurred in connection with this presents.

For Atul Limited


B N Mohanan
Whole Time Director


Executive Engineer
Ambica Division,
NAVSARI




ATUL LIMITED



EXPANSION IN EXISTING CAPTIVE POWER PLANT

- (2) The Government shall be entitled to terminate this agreement upon serving the Licencee with a notice of six months for breach of any of the terms and conditions of this agreement or in the event the Licencee fails to pay any sum due to the Government under this agreement. The Licencee shall not be eligible to claim any compensation from the Government on account of withdrawing the facility of drawal of water as a result of premature termination of the agreement or even otherwise. Without prejudice to any right of the Government to proceed in accordance with the relevant rules No. 6(v) to recover such sums due from the Licencee, the security deposits shall be forfeited. Any drawl of water from the River Par after the expiry of the period of the notice shall be treated as an unauthorized act and shall be subject to such penal charges as may be determined by the Government.
- (22) Except as otherwise herein provided, all notices to be given and other actions to be taken on behalf of the Licencee shall be given or taken by the Director, Atul Limited, Atul or any other official authorized by the Licencee.
- (23) All sums and amount due and payable under this agreement shall be recoverable as arrears of the land revenue under the Bombay Land Revenue Code, 1879 without prejudice to any other rights or remedies available to the Government under any other case.

For Atul Limited


B N Mohanan
Whole Time Director


Executive Engineer
Ambica Division,
NAVSARI



ATUL LIMITED



EXPANSION IN EXISTING CAPTIVE POWER PLANT

Mahesh
Executive Engineer
Ambica Division,
NAVSARI

For Atul Limited
BN Mohanan
B N Mohanan
Whole Time Director

IN WITNESS WHERE OF Shri B N Mohanan, Whole time Director, duly authorized by the Board of Directors of the Licencee for and on behalf of the Licencee and Shri Mahesh G Dhangar, Executive Engineer, Ambica Division, Navsari for and on behalf of the Governor of Gujarat have signed there presents and herein set their respective seals on the date and year first above written.

Signed, Sealed and delivered by
Mahesh
Executive Engineer
Ambica Division,
NAVSARI
Shri Mahesh G Dhangar
Executive engineer,
Ambica Division, Navsari
For and on behalf of the
Governor of Gujarat in
Presence of

For Atul Limited

B N Mohanan
Whole Time Director

Signed, Sealed and delivered by
For Atul Limited
BN Mohanan
B N Mohanan
Whole Time Director
Shri B N Mohanan
Whole time Director
Atul Limited, Atul
For and on behalf of the
Licencee in
presence of

Witness (I) *Pratik*
(G.N. Patel)
D. S. (P) Navsari
Witness (II) *Mahesh*
(C.R.K. Pathak)
A.E.

Witness (I) *S. J. Hansoti*
(S. J. HANSOTI)
General Manager - Infrastructure
Unit
Witness (II) *S. N. Desai*
(S. N. Desai)
Manager, Secretarial & Legal

Mahesh
Executive Engineer
Ambica Division,
NAVSARI

For Atul Limited
BN Mohanan
B N Mohanan
Whole Time Director






ATUL LIMITED

EXPANSION IN EXISTING CAPTIVE POWER PLANT



Annexure - 4 Coal Linkage

Infrastructure

 P.H.  
touching lives...
Coal Linkage

ATUL LTD
Atul 396 020, Gujarat, India
Telephone: +91 2632 230000, 233261 Telefax: +91 2632 233027, 233619
E-mail: atul_infra@atul.co.in Web site: www.atul.co.in

OF/MODI/2015/2/ 21st February, 2015

The Secretary,
Ministry of Coal,
Government of India,
Shastri Bhavan,
New Delhi

Dear Sir,

Sub : LONG TERM COAL LINKAGE – CPP.

We wish to inform you that in view of Expansion of our Plants/New various Projects and the Government's encouragement towards setting up own Captive Power Plant; we had undertaken construction of captive power plant comprising the following equipment's:


1) 50 TPH single drum water tube, AFBC boiler.	2 Nos.
2) 23 MW condensing cum double extraction Turbines.	1 No.

The modernisation is expected to cost us about Rs.100 Crores. The above Boilers and Turbines expected to be commissioned by December, 2015 and thereafter we will be able to generate our full requirement.

To meet our additional coal requirements, we submit herewith application along with photo copies of following necessary documents for grant of long term linkage for Coal quota:

1. Demand draft No. 726844 dated 20.2.2015 for Rs.46,000/- favouring PAY & ACCOUNTS OFFICER, MINISTRY OF COAL, payable at NEW DELHI.
2. Corporate Information Name and address of Directors & Managing Directors.
3. Nature of Products manufactured/proposed.
4. Nature of Products manufactured for last three year with power consumption.
5. Details of present coal linkage for CAPTIVE POWER PLANT with M/s. Western Coalfields Limited, Nagpur, a subsidiary company of M/s. Coal India Limited is as under:
 - a. 74100 MT/Annum for 15 MW CPP
 - b. 54528 MT/Annum for 11.5 MW CPP
 - c. 38004 MT/Annum for 7.6 MW CD CPP
6. Gross Heat Rate with Calculations of the Turbine Generator Cycle in Kcal/Kwh, issued by ARK Engineering & Power Consultants Pvt. Ltd., Tiruchirappalli.

(Contd. Page-2)


LALBHAI GROUP



ATUL LIMITED

EXPANSION IN EXISTING CAPTIVE POWER PLANT



Annexure-II



महाराष्ट्र MAHARASHTRA

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MA 951281

21 JUL 2015

Addendum to Coal Supply agreement dated 22.04.2008 between Western Coalfields Ltd., and M/s Atul Limited (PP Site)

Whereas Coal Supply Agreement was executed on 22.04.2008 read with amendment dt 30.04.2013, dt.23.08.2013, dt. 20.09.2013, dt. 28.10.2013, dt. 28.11.2013, dt. 22.04.2014 and dt 13.05.2015 between Western Coalfields Limited (Seller) and M/s Atul Limited (Purchaser) having its registered office at Ashoka Chambers, Rasala Marg, Ahmedabad - 380 007(Gujarat) for supply of 12,087 tonnes per annum GCV G6/G7/G8/G9 coal for M/s Atul Limited(PP Site) plant located at Atul - 396 020 (Gujarat).

Whereas, the said agreement is valid upto 31.07.2015.

M/s Atul Limited and M/s Western Coalfields Limited have mutually agreed to extend the validity of the FSA for a further period upto 31.03.2016.



ATUL LIMITED



EXPANSION IN EXISTING CAPTIVE POWER PLANT

:2-

All other terms & conditions of Coal Supply Agreement dated 22.04.2008 read with amendment dt. 30.04.2013, dt. 23.08.2013, dt. 20.09.2013, dt. 29.10.2013, dt. 28.11.2013, dt. 22.04.2014 and dt. 13.05.2015 will remain unchanged.


Date: 17-08-2015



 R. D. Desai
 GENERAL MANAGER (S&M)
 Western Coalfields (BAM)
 Coalfields (India) Ltd.,
 Nagpur, Madhya Pradesh,
 India.
 Telephone: 0712-2511061
 Fax: 0712-2512977
 E-mail: gmam.wc@coalindia.in


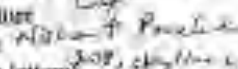
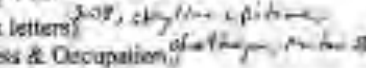


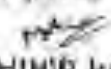

 Vikram Desai
 General Manager - Materials
 GENERAL MANAGER (MATERIAL)
 Infrastructure Unit, M/A Atul Limited

Tel.: 02632 233032
 Fax: 02632 233027, 233619
 E-mail: vikram_desai@mid.co.in

1. WITNESS
 a) Signature 
 b) Name
 (block letters)
 c) Address & Occupation

2. WITNESS
 a) Signature 
 b) Name
 (block letters)
 c) Address & Occupation

1. WITNESS 
 a) Signature
 b) Name 
 (block letters)
 c) Address & Occupation 

2. WITNESS 
 a) Signature
 b) Name HIMIR KANAKIA
 (block letters)
 c) Address & Occupation 201, Vijay Arcade, 16
 N.M. Road Shivaji
 Nagar, Nagpur - 10



ATUL LIMITED

EXPANSION IN EXISTING CAPTIVE POWER PLANT



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NA 951293

21 JUL 2015

Deputy Board Clerk / Sr. Clerk

Addendum to Coal Supply agreement dated 22.04.2008 between Western Coalfields Ltd., and M/s Atul Limited (15 MW CPP Process Plant).

Whereas Coal Supply Agreement was executed on 22.04.2008 read with amendment dt. 30.04.2013, dt. 23.08.2013, dt. 20.09.2013, dt. 28.10.2013, dt.28.11.2013, dt. 22.04.2014 and dt. 13.05.2015 between Western Coalfields Limited (Seller) and M/s Atul Limited (Purchaser) having its registered office at Ashoka Chambers, Rasala Marg, Ahmedabad - 380 007(Gujarat) for supply of 24,600 tonnes per annum DCV G9 coal for 15 MW CPP Process plant located at Atul - 396 020(Gujarat).

Whereas, the said agreement is valid upto 31.07.2015.

M/s Atul Limited and M/s Western Coalfields Limited have mutually agreed to extend the validity of the FSA for a further period upto 31.03.2016.



ATUL LIMITED



EXPANSION IN EXISTING CAPTIVE POWER PLANT

All other terms & conditions of Coal Supply Agreement dated 22.04.2008 read with amendment dt.30.04.2013, dt.23.08.2013, dt. 20.09.2013, dt.28.10.2013, dt. 28.11.2013, dt. 22.04.2014 and dt. 13.05.2015 will remain unchanged.

Date: 11.02.2015



 (R. D. DESAI)
 GENERAL MANAGER (S&M)
 Western Coalfields Ltd.,
 Coal Field Area, Civil Lines
 Nagpur - 440 001.
 Telephone : 0712-2511061
 Fax : 0712 2512977
 E mail : gmamr_wcl@coaltltdia.in



 For ATUL LIMITED

 V. D. Desai
 General Manager - Materials
 GENERAL MANAGER (MATERIAL)
 Infrastructure Unit, M/s Atul Limited

Tel : 02632 233092
 Fax : 02632 233027, 233619
 E mail : vikram_desai@atul.co.in

1. WITNESS
 a) Signature 
 b) Name
 (block letters)
 c) Address & Occupation

2. WITNESS
 a) Signature 
 b) Name
 (block letters)
 c) Address & Occupation

1. WITNESS 
 a) Signature
 b) Name: *Vishant Harshik*
 (block letters) 226, Skyline 2p, Phase 1, Gyan Prakash
 c) Address & Occupation *Mumbai - 40*

2. WITNESS
 a) Signature *Mihir Kanaria*
 b) Name: *201, Nitya, Arunde*
 (block letters) *16, N.A. Road, Shivaji*
 c) Address & Occupation *Nagpur, NAGPUR - 10*



ATUL LIMITED

EXPANSION IN EXISTING CAPTIVE POWER PLANT



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MA 951280

21 JUL 2015

Stamp Hand Carry / Sr. Clerk

Addendum to Coal Supply agreement dated 22.04.2008 between Western Coalfields Ltd., and M/s Atul Limited (Colour Division).

Whereas Coal Supply Agreement was executed on 22.04.2008 read with amendment dt. 30.04.2013, dt. 23.08.2013, dt. 20.09.2013, dt. 28.10.2013, dt. 28.11.2013, dt. 22.04.2014 and dt. 13.05.2015 between Western Coalfields Limited (Seller) and M/s Atul Limited (Purchaser) having its registered office at Ashoka Chambers, Rashtia Marg, Ahmedabad - 380 008(Gujarat) for supply of 58,338 tonnes per annum GCV G6/G7/G8/G9 coal for M/s Atul Limited (Color Division) plant located at Atul - 396 020 (Gujarat).

Whereas, the said agreement is valid upto 31.07.2015.

M/s Atul Limited and M/s Western Coalfields Limited have mutually agreed to extend the validity of the FSA for a further period upto 31.03.2016.



ATUL LIMITED



EXPANSION IN EXISTING CAPTIVE POWER PLANT

All other terms & conditions of Coal Supply Agreement dated 22.04.2008 read with amendment dt.30.04.2011, dt. 23.08.2013, dt. 22.09.2013, dt.28.10.2013, dt. 28.11.2013, dt. 22.04.2014 and dt. 13.05.2015 will remain applicable.

Date: 11.08.2016


(V. D. Desai)
GENERAL MANAGER (MATERIALS)
Western Coalfields Ltd.
Coal Engineering Division
Nagpur-440 001.
Telephone : 0712-2511061
Fax : 0712-2512977
E mail : vdesai@wcl.coalindia.in

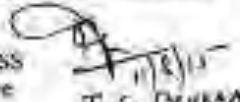


For ATUL LIMITED


V. D. Desai
General Manager (Materials)
Infrastructure Unit, M/o Atul Limited

Tel. : 02632 233032
Fax : 02632 233027, 233619
E mail : vdesai@atul.co.in

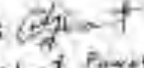
1. WITNESS

a) Signature 
b) Name T. S. DESAI
(block letters)
c) Address & Occupation Sr. MGR (MGT)/WCL

2. WITNESS

a) Signature 
b) Name MIHIR KULKARNI
(block letters)
c) Address & Occupation 201, NIPY Arcade, 16
N. A. Road, Shivajinagar
NAGPUR - 44

1. WITNESS

a) Signature 
b) Name MIHIR KULKARNI
(block letters)
c) Address & Occupation 201, NIPY Arcade, 16
N. A. Road, Shivajinagar
NAGPUR - 44

2. WITNESS

a) Signature 
b) Name MIHIR KULKARNI
(block letters)
c) Address & Occupation 201, NIPY Arcade, 16
N. A. Road, Shivajinagar
NAGPUR - 44

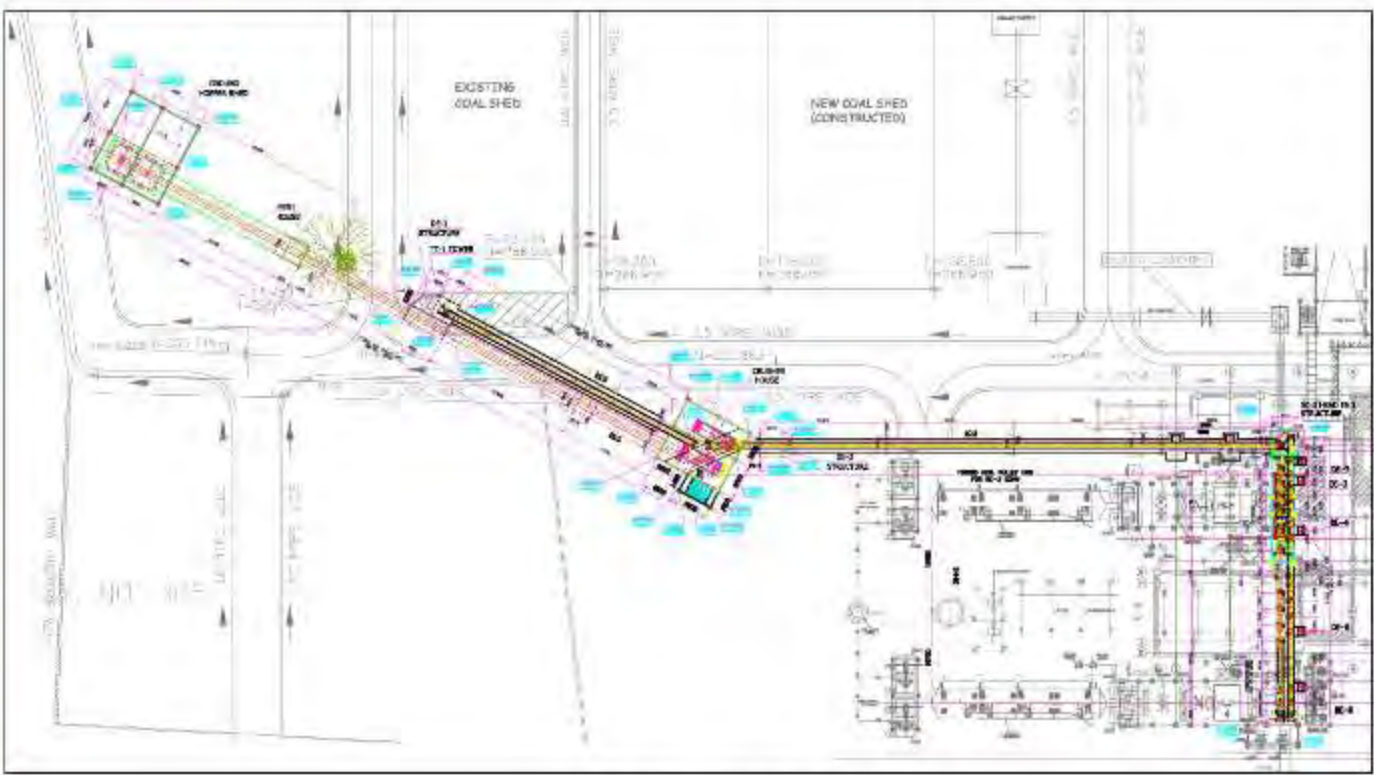


ATUL LIMITED

EXPANSION IN EXISTING CAPTIVE POWER PLANT



Annexure-5 Coal Handling System



KEY - PLAN

SCALE		
1" = 10' HORIZONTAL	1" = 10' VERTICAL	
NOTES		
1. ALL DIMENSIONS ARE IN FEET AND INCHES UNLESS OTHERWISE NOTED.		
2. ALL DIMENSIONS ARE TO FACE UNLESS OTHERWISE NOTED.		
3. ALL DIMENSIONS ARE TO CENTERLINE UNLESS OTHERWISE NOTED.		
4. ALL DIMENSIONS ARE TO CENTERLINE UNLESS OTHERWISE NOTED.		
5. ALL DIMENSIONS ARE TO CENTERLINE UNLESS OTHERWISE NOTED.		
6. ALL DIMENSIONS ARE TO CENTERLINE UNLESS OTHERWISE NOTED.		
7. ALL DIMENSIONS ARE TO CENTERLINE UNLESS OTHERWISE NOTED.		
8. ALL DIMENSIONS ARE TO CENTERLINE UNLESS OTHERWISE NOTED.		
9. ALL DIMENSIONS ARE TO CENTERLINE UNLESS OTHERWISE NOTED.		
10. ALL DIMENSIONS ARE TO CENTERLINE UNLESS OTHERWISE NOTED.		
REVISIONS		
NO.	DATE	DESCRIPTION
1	11/15/11	ISSUED FOR PERMIT
2	11/15/11	ISSUED FOR PERMIT
3	11/15/11	ISSUED FOR PERMIT
4	11/15/11	ISSUED FOR PERMIT
5	11/15/11	ISSUED FOR PERMIT
6	11/15/11	ISSUED FOR PERMIT
7	11/15/11	ISSUED FOR PERMIT
8	11/15/11	ISSUED FOR PERMIT
9	11/15/11	ISSUED FOR PERMIT
10	11/15/11	ISSUED FOR PERMIT
PROJECT INFORMATION		
PROJECT NO.	11-11111	
CLIENT	ABC COMPANY	
DATE	11/15/11	
SCALE	1" = 10'	
DESIGNER	XYZ ENGINEERS	
CHECKER	ABC ENGINEERS	
DATE	11/15/11	



ATUL LIMITED

EXPANSION IN EXISTING CAPTIVE POWER PLANT



Annexure-6 Elevation Layout for coal handling





ATUL LIMITED

EXPANSION IN EXISTING CAPTIVE POWER PLANT



Annexure-7 Coal Analysis report

COE CENTRE OF EXCELLENCE

QUALITY TESTING FACILITY & R&D CENTRE

(A DIV. OF VAPI WASTE & EFFLUENT MANAGEMENT CO. LTD.)

A PROJECT UNDER IIS SCHEME OF DEPT. OF INDUSTRIAL POLICY & PROMOTION, MINISTRY OF COMMERCE & INDUSTRY GOVT. OF INDIA

TEST CERTIFICATE

CERTIFICATE NO. : COE/02014/R&D/14-15 DATE : 07/05/2014
 Inward No. : 1464 DATE : 28/04/2014

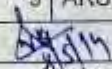
SAMPLE DETAILS

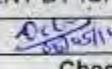
SPONSOR NAME : ATUL LTD.SHEFTY DEPT/ IN DIV.
 ADDRESS : EFFLUENT TREATMENT PLANT LEAST EAST SIDE ATUL
 SAMPLE NAME : VALSAD - COAL SAMPLE
 BATCH NO. : N/M
 SAMPLE QTY. : N/M
 MFG. DATE : N/M
 EXP. DATE : N/M


ANALYSIS RESULT

DESCRIPTION : BLACK COLOUR POWDER

Sr. No.	Parameter	Result
1	CALORIFIC VALUE	4202.53 Cal/gm
2	CADMIUM (Cd)CONTENT BY ICP	0.1907 ppm
3	CHROMIUM (Cr) CONTENT BY ICP	7.573 ppm
4	COPPER (Cu) CONTENT BY ICP	5.424 ppm
5	NICKEL (Ni) CONTENT BY ICP	1.753 ppm
6	ZINC (Zn) CONTENT BY ICP	12.63 PPM
7	MERCURY (Hg)CONTENT BY ICP	NOT DETECTED
8	LEAD (Pb) CONTENT BY ICP	8.906 PPM
9	ARSENIC (As)CONTENT BY ICP	NOT DETECTED


 Analysed By


 Checked By


 Authorised By

Page 1 of 2

Phase 1, Near GIDC Water Filtration Plant, Vapi 396 195. Dist. Valsad, Gujarat.
 Tel.: (0260) 2431597 • E-mail :info@coevapi.com, gmtech@coevapi.com, lab@coevapi.com
 Website : www.vwemcl.com / www.coevapi.com



ATUL LIMITED



EXPANSION IN EXISTING CAPTIVE POWER PLANT

COE CENTRE OF EXCELLENCE
QUALITY TESTING FACILITY & R&D CENTRE

(A DIV. OF VAPI WASTE & EFFLUENT MANAGEMENT CO. LTD.)
A PROJECT UNDER IILS SCHEME OF DEPT. OF INDUSTRIAL POLICY & PROMOTION, MINISTRY OF COMMERCE & INDUSTRY GOVT. OF INDIA

TEST CERTIFICATE

CERTIFICATE NO. : COE/02014/R&D/14-15 DATE : 07/05/2014
Inward No. : 1464 DATE : 28/04/2014

Sr. No.	Parameter	Result
10	pH ANALYSIS	6.81
11	LOSS ON IGNITION	60.36 %
12	% ASH	39.63 %
13	MOISTURE CONTENT (BY KF TITRATOR)	10.32 %
14	SULPHUR (S) CONTENT BY ICP	3744 PPM

The above test certificate is issued by the C.O.E. on basis of the sample qty received in lab for analysis. The Test Report shall not be reproduced except in without the approval of laboratory.

Analysed By: *[Signature]* Checked By: *[Signature]* Authorised By: *[Signature]*

Page 2 of



ATUL LIMITED

EXPANSION IN EXISTING CAPTIVE POWER PLANT



Annexure-8 Flow Diagram of Ash handling system



ATUL LIMITED

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Annexure-9 Health Record

DISH Report FORM NO. 29
(Prescribed under Rule 111)

Register of accidents, major accidents and dangerous occurrences

No.	Date & Time of Accident	Name & serial number of the person involved in the register of adult/child register	EPC insurance number	Date	Time	Place	Injury / dangerous occurrence Cause of accident / dangerous occurrence	Nature of injury / dangerous occurrence	What exactly was the injured person doing at the time	Name of the person giving the report	Name, address and occupation of two witnesses	Date of return of injured person to work	Number of days the injured person was absent from the work including holidays and all days	Signature and designation of the person who makes the entry with date
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	26/11/2015	Mr. Shivraj U. Sawade	729	11/11/15	8:30 am	Power house	Falling of person from 6 feet height due to changed gear up, which blunt injury on Rt leg.	Blunt injury	He was assigned job to attend HT to repairs leaking water like valve pipe cool another area	Dr. Chandra Dhanraj	Mr. Venkatesh Patil 2. Dipak Patil	19/11/2015	43 days	[Signature]



ATUL LIMITED

EXPANSION IN EXISTING CAPTIVE POWER PLANT



Annexure-10 MOU with Ambuja cement

Ambuja Cement

MGW/RMT/002/2014

Date: 01.01.2014

Atul Ltd.
Fly Ash Division,
Atul, Valsad - 396020.

Dear Sir

Sub: - Supply of Fly ash to our Magdalla plant

We are pleased to award you the contract for supply of Dry Fly Ash to our factory at Magdalla on the following terms and conditions.

1. **Scope of Work**

Supply of Dry Fly ash as per IS: 3812 PART-1 2003 from Atul Ltd., Atul, Valsad.

2. **Quantity**

You shall supply Fly ash approx 4500 MT per month as per schedule informed to you from time to time

3. **Rate:**

a) You will be paid Cost of material per MT of Fly Ash Supplied as under.

Sr.No.	Name of Supplier	Location	Total PMT (RS.)
1	Atul Ltd.	Atul, Valsad	135/- + (Taxes Extra)

b) The necessary TDS or any other statutory levies as applicable from time to time on the above contract shall be borne by you.

4. **Delivery:**

You shall ensure delivery of material as per our schedule.

5. **Quality :**

You will ensure that no contamination with water, foreign material, etc. in supplied material. It shall be your responsibility that Fly ash should be of such quality as suitable for manufacturing Cement. (O) should be less than 5% as per IS 3812.

6. **Payment :**

a) Each Truck must be weighed at loading site. In case there is no weighbridge at loading site or is not operational the weighment shall be carried out at a weighbridge near. The weighment slip of this weighbridge must be submitted to us for our records. Weighment shall be carried at our plant site. However, in case there is a difference in the challan quantity and actual quantity received on weighbridge at our plant, the lower of two shall be considered for payment.

b) You shall submit your bill to our Accounts department; payment will be released within seven days after receipt of bill.

AMBUJA CEMENTS LIMITED (Unit-Magdalla)
Survey No. 39/40, Near ABG Ship Yard, Magdalla Port Road,
Village Gavler, Tal Choryasi, SURAT - 395 007
Tel.: 0261-2720780/2720530/2720531/2720532. Fax: 0261-2720529
(Regd. Office: P.O. Ambujanagar, Taluka: kodianar, Dist: Junagadh, Gujarat)



ATUL LIMITED



EXPANSION IN EXISTING CAPTIVE POWER PLANT

Ambuja Cement

7. **Termination of Contract:**

Ambuja Cements Ltd. reserves its right to terminate this contract by giving notice of 24 hours at its sole discretion without assigning any reason and in such eventuality, company shall not be liable to pay any compensation to you. This has been clearly understood by you.

8. **Force Maieure Clause :**

Ambuja Cements Ltd. (ACL) shall be free from all responsibilities under the contract, for delay or non execution of the contract in part or whole, to the extent caused by occurrences beyond ACL's control or restraints of Government or any local authority, strike or other labour disturbances including lockout, go slow, war sabotage, refusal on part of government or other competent authority to grant necessary permit, license, sanction or consent, or any other cause or causes or dissimilar to those already specified which cannot be controlled by ACL.

9. Notwithstanding anything herein contained it is understood that the ACL shall have the final say in all matters relating to this contract and its decision is final and binding any will prevail in all cases of disputes.

10. In the event of any dispute arising of this contract or any breach of the terms and conditions contained herein, the decision of ACL shall be final and binding upon you.

11. This contract is subject to Magdalla Jurisdiction.

12. This contract will be valid from 01.01.2014 to 31.12.2014.

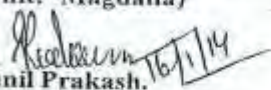
13. **General Terms and Conditions.**

General Terms and Conditions shall be as per attached Annexure - A.

Please acknowledge and return the duplicate copy duly signed by you as a token of your acceptance of the contract.

Thanking you,

For Ambuja Cements Limited
(Unit: -Magdalla)


Sunil Prakash,
Unit Head



For Atul Ltd.


(Authorized Signature)

AMBUJA CEMENTS LIMITED (Unit-Magdalla)
Survey No. 39/40, Near ABG Ship Yard, Magdalla Port Road,
Village Gavler, Tal Choryasi, SURAT -395 007
Tel.: 0261-2720780/2720530/2720531/2720532. Fax:0261-2720529
(Regd. Office:P.O.Ambujanagar, Taluka: kodianar, Dist: Junagadh, Gujarat)



ATUL LIMITED

EXPANSION IN EXISTING CAPTIVE POWER PLANT



Annexure -11 Undertaking



गुजरात गुजरात GUJARAT

AL 295083

अ. नं. १३८५२ तारीख ४ - २ - २०१५ १००।
 अंतिम रूपिमा २५५२।
 के सांघात साधे रूपिमा ते आण शेर
 श्री. २३५ ममा १३
 रे. २३५ ने वेथाण आपो.
 धरने २३५५ ममा
 लई जनारनी सदी २५५ २०१५
 २०१५ वेन्स
 ला. नं. ५४/८२
 पं. २३५ देकरा, वलसाड.
 सुलाकर

I, Dr. Sharad Potghan, Corporate General Manager – EHS of Atul Limited, have planned an expansion in existing Captive Power Plant at & Post: Atul, Dist: Valsad, Gujarat, do hereby solemnly affirm, declare and undertake as under:

- That we will work out the complete treated wastewater reuse plan within the Atul Complex instead of discharging waste water into the existing ETP.
- That we will store ash in closed silos only and not construct ash pond for storage of ash.

This undertaking is given without any prejudice on requirement of SEAC, Gujarat.

DATE:

NAME: Dr. Sharad Potghan

PLACE:

DESIGNATION: Corporate General Manager – EHS



Annexure 12 CC&A Compliance report

No.	Condition	Compliance
1	Validity up to 03/11/19	CC &A renewal application due in October 19
2	Production capacities of different products	Complied (Production is within the consented Qty.)
3	<i>Condition under Water Act:</i>	
3.1	Quantity of Industrial effluent = 17283 KLPD excluding ABL	Complied (Well below the consented qty.)
3.2	High COD – 23 KLPD - Incineration High TDS – 97 KLPD - MEE	Complied Complied
3.3	Quantity of domestic waste water – 937 KLPD	Complied
3.4	Trade Effluent	
	Treated effluent quality shall achieve prescribed norms.	Complied
3.5	Final treated effluent shall be collected in guard pond and discharged through closed pipeline to estuary zone of river Par via diffuser system.	Complied
3.6	Sewage shall be disposed off through septic tank / soak pit system.	Complied
4	<i>Condition under Air Act:</i>	
4.1 a	Fuel consumption figures for boilers / Heaters /DG set	Complied



ATUL LIMITED



EXPANSION IN EXISTING CAPTIVE POWER PLANT

4.1 b	Details of the Boilers	-
4.2, 4.3, 4.4	Installation & operation of APCM in order to achieve Flue gas / Process emission prescribed norms	Complied
4.5	Ambient Air quality norms	Complied
4.6	Continuous and efficient Operation of Air pollution Control System to meet prescribed norms	Complied
4.7	The consent shall lapse, if any time the parameters of the gaseous emission are not within the tolerance limits specified in the condition no.4.3 and 4.5 as above.	Noted.
4.8	Provide necessary monitoring facility and identification on chimneys	Complied
4.9	Take measures to control noise level	Complied
5	Authorization	
5.1 a	Authorization No. AWH 67717	
5.1 b	Haz. Waste disposal as stipulated.	Complied
5.2	The authorization is granted to operate facility for collection, storage, within the factory premises and treatment, transportation and ultimate disposal of Hazardous wastes as mentioned in the given table as per Haz. Waste [Management, Handling & Transboundry Movement] Rules-2008	Complied



ATUL LIMITED



EXPANSION IN EXISTING CAPTIVE POWER PLANT

5.3	The authorization is subject to the conditions stated below and such other conditions as may be specified in the rules from time to time under the Environment (Protection) Act-1986.	Noted.
5.4	The authorization shall be in force for a period of five years (i.e. up to 03/11/2019).	Noted.
5.5	Terms and conditions for Authorization	
5.5.1	The applicant shall comply with the provisions of the Environment (Protection) Act - 1986 and the rules made there under.	Complied
5.5.2	The authorization shall be produced for inspection at the request of an officer authorized by the Gujarat Pollution Control Board.	Noted.
5.5.3	Any unauthorized change in personnel, equipment or working conditions as mentioned in the authorization order by the persons authorized shall constitute a breach of this authorization	Noted.
5.5.4	An application for the renewal of an authorization shall be made as laid down in rule 5 (7) (ii).	CC &A renewal application due in October 19
5.5.5	Industry shall submit annual report within 15 days and sub squinty by 31st January every year.	Complied. Annual report in form of Env. Audit Report is submitted every year.
6	GENERAL CONDITIONS	
6.1	Any change in personnel, equipment or working conditions as mentioned in the consents form/order should immediately be intimated to	Noted.



Annexure 13 CREP Compliance report

Activity code No.	Action point (Brief)	Compliance Status as on today	Remarks
1	Implementation of Environmental Standards	Complied	APCM are already in place and maintained.
2	Particulate matter emission reduction	Complied	APCM are already in place and maintained.
3	New / expansion power projects to be accorded Environment Clearance	Complied	Already applied to SEAC for expansion of power plant & TOR granted.
4	Development of SO ₂ & NO _x emission standards	NA	Action by CPCB
	Development of guide lines / standards for mercury & other	NA	Action by CPCB
	Review of stack height requirement	NA	Action by CPCB
5	Install / activate meters / continuous monitoring systems with calibration system.	Complied	All the stacks are equipped with online opacity meter for continuous monitoring and also kept in CC TV camera surveillance.
	Use of beneficiated coal	As soon as it is viable option with respect to its limited availability and proximity of source, will be used.	We are in the process of exploring this option.
6	Use of abandoned coal mines for sub disposal	NA	Not Applicable
	Provide dry ash to the users	Complied. Ongoing process	Being given to local brick manufacturers and Cement industries.
	Provide dry ash free of cost	Complied	-



ATUL LIMITED



EXPANSION IN EXISTING CAPTIVE POWER PLANT

	Adhere to schedule by State Dept.	NA	Action by State Dept.
	Environment Clearance Existing plants shall adopt any of systems mentioned in 13(1)	Complied	-
	Fly ash Mission shall prepare guideline	NA	Action by GOI
	New plants shall promote adoption of clean coal & clean power	NA	-
7	CC&A status	Complied	Valid consent no. AWH – 67717 valid up to
8	Compliance with respect to norms prescribed in CC&A for last one year	Complied	Being checked & verified by Regional Office of GPCB time to time.
9	Overall compliance with respect to charter (Yes/No)	Fully complied with all the	-




ATUL LIMITED


EXPANSION IN EXISTING CAPTIVE POWER PLANT



Annexure 14 EC Compliance report

Infrastructure





ATUL LTD
Atul 396 020, Gujarat, India
Telephone: +91 2632 230000, 233261 Telefax: +91 2632 233027, 233619
E-mail: atul_infra@atul.co.in Web site: www.atul.co.in

Date: 23/04/2015

To,

Regional Head,
Regional office, MoEF, Bhopal,
Bhopal.

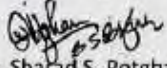
Subject: 6- Monthly Compliance on EC Condition.


R/Sir,

Please find the six monthly reports for EC compliances of M/s Atul Ltd. Valsad, Gujarat.

For your review please,

Regards,


Dr. Sharad S. Potghan
Factory Manager and
Corp. General Manager-EHS,
Atul, Valsad,
09825328313





ATUL LIMITED

EXPANSION IN EXISTING CAPTIVE POWER PLANT



December, 2014

COMPLIANCE REPORT

Report No. : - ATUL-02

MONITORING PERIOD: July 2014 TO December 2014

M/s. Atul Ltd.

Atul, Valsad

Dist. – Valsad - 396020 Gujarat.



ATUL LIMITED



EXPANSION IN EXISTING CAPTIVE POWER PLANT

Project:

Atul Ltd is endeavoring to transform itself at the workplace and in the marketplace so as to become truly world-class in its chosen businesses and promoting Values which underline truthfulness, respect, collaboration, passion and accountability. Life with the Company therefore satisfies an individual personally and professionally

The 1,350 (2012-13) products and formulations sold by Atul Ltd are used by around 4,000 (2012-13) customers belonging to diverse industries particularly Adhesives, Agriculture, Animal Feed, Automobile, Chemical, Composites, Construction, Cosmetic, Defense, Dyestuff, Electrical and Electronics, Flavor and Fragrance, Food, Glass, Home Care, Horticulture, Hospitality, Paint and Coatings, Paper, Personal Care, Pharmaceutical, Plastic, Polymer, Rubber, Soap and Detergent, Textile and Tyre.

In order to enhance focus and better serve customers, Atul has divided its portfolio of products into 41 product groups. The product groups are managed by 7 Businesses, namely Aromatics, Bulk Chemicals, Colors, Crop Protection, Floras, Pharmaceuticals, and Polymers, generally depending upon the industries served by them. Furthermore, each product has been made a part of either the Life Science Chemicals Segment or Performance and Other Chemicals Segment, so as to enhance understanding amongst investors.

Quintessentially, Atul consumes basic chemicals (such as Benzene, Phenol, Toluene) and natural resources (such as Coal, Salt, and Sulphur) and manufactures value added downstream chemicals. In addition to bulk sales, the Company has since 2004 commenced building and growing sales in small packs (brands), particularly in its Crop Protection and Polymers Businesses.

COMPLIANCE TO SPECIFIC CONDITIONS: As per CCA: AWH-67717 Dated 04/11/2014

- **Industrial Waste water generation shall not exceed 17,216 m³/d**

Month wise data for waste water generation.

	Jul-14	Aug-14	Sep-14	Oct-14	Nov-14	Dec-14	Total
Month	344888	252086	292230	291615	284646	323624	1789089
avg. Per Day	11496	8403	9741	9720.5	9488	10787	59636

Waste water generation per day is not exceeding the permitted quantity and complied.

- **23 m³/d High COD effluent shall be incinerator:**

Month wise data for incineration

Jul-14	Aug-14	Sept-14	Oct-14	Nov-14	Dec-14	Total
-	-	-	-	-	-	



ATUL LIMITED



EXPANSION IN EXISTING CAPTIVE POWER PLANT

No High COD Waste water generation and hence no incineration was done during this period. : complied.

- 97 m³/d High TDS effluent shall be evaporated through MEE:

Month wise data for MME

Jul-14	Aug-14	Sept-14	Oct-14	Nov-14	Dec-14	Total
890.50	874.48	936.48	964.55	993.44	959.14	5618.59

- Final Discharge of Treated effluent is being discharge into river par through 4 km line constructed by M/s Atul
- The process emissions (SO₂, NH₃, Cl₂, and HCl, shall be scrubbed with Scrubbers. The emission shall be dispersed through stack of adequate height as per CPCB standard. The gaseous emission from the DG sets shall be dispersed through stack of adequate height as per CPCB standards. Acoustic enclosures shall be provided to the DC set to control the noise pollution. : Complied.

Gaseous emissions from process units are monitored regularly every month and same are attached as annexure - I



Table: 2 FUGITIVE EMISSION MONITORING:

Plant	Area	Parameter	Prescribed Limit	Results of VOCs in Microgram per NM3					
				Jul-14	Aug-14	Sep-14	Oct-14	Nov-14	Dec-14
2,4 D	Reactor	Phenol	19	0.06	0.048	0.063	0.048	0.032	0.016
	Buffer tank	Chlorine	0.1	0.052	0.060	0.054	0.074	0.058	0.074
Resorcinol	Benzene storage tank area near vent	Benzene	10	1.62	2.04	1.94	2.04	1.62	2.58
	Near Extraction/sru unit	Butyl acetate	-	ND	ND	ND	ND	ND	0.141
Pharma	At second floor work area	Ammonia	0.8	0.53	0.61	0.58	0.62	0.59	0.63
	Ammonia recovery area	Ammonia	0.8	0.62	0.55	0.47	0.59	0.62	0.68
Epoxy - I	At vacuum pump 2nd floor	ECH	10	6.58	6.95	5.33	7.86	6.55	7.41
	At vessel POS 1208 G.F	ECH	10	6.44	7.32	8.22	6.99	7.24	6.82
Shed H		Nitrobenzene	5	0.96	1.54	0.48	2.04	1.08	2.06
Shed J		Chlorine	3	0.04	0.07	0.07	0.08	0.05	0.05



ATUL LIMITED



EXPANSION IN EXISTING CAPTIVE POWER PLANT

- **The company shall adopt cleaner production technology to minimize the quantity of fresh water requirement and process effluent generation. Complied.**

We have already switched over to Zero discharge concept in Sulphur black. We have installed world class technology for captive power plant in place of FBC. Chimney height is provided as per requirement. We have already installed high performance 3 stages ESP and bag filter on boiler flue gas out-let under cleaned production.

- **The company shall obtain Authorization for Collection; Storage and Disposal of Hazardous waste under the hazardous waste management (Handling and trans boundary movement rule-2008) for management of hazardous waste and prior permission from GPCB shall be obtained for disposal of solid waste in the TSDF. The concerned company shall undertake measures for the fire fighting facility in case of emergency. Complied.**

We have authorization for our own TSDF through GPCB notification no. GPCB/HAZ/GEN-55/9647 dated 13th March 2000 and NOC no. CTE-65621 dated 19/11/2014:

Month wise Solid waste disposal data for TSDF site (In Kgs.),

CCA Granted Quantity 6017411 kg/month

Jul-14	Aug-14	Sept-14	Oct-14	Nov-14	Dec-14	Total
66673	89845	622760	657770	758260	908662	3103970

- **The project authorities shall strictly comply with the rules and guidelines under manufacturing, storage and import of hazardous chemicals rule 1989 as amended in October, 1994 and January, 2000 .All Transportation of Hazardous chemicals shall be as per the MVA,1989. Complied.**
- **The company shall undertake waste minimization measures : Complied**
- **Company shall take Solvent management measures : Complied**
- We already have well equipped solvent distillation facilities.
- All the vessels are provided vent condenser as well as product cooler wherever it's required.
- All the tanks are provided cold insulation and vent condenser where it's needed.
- **Company shall be stored in tanks farms, drum. Carboy etc. an area of 33% green belt and selection of plant species shall be as per the guideline of CPCB: Complied**



ATUL LIMITED



EXPANSION IN EXISTING CAPTIVE POWER PLANT

Chemicals and solvents are handled in close handling system. Heat resistant insulation provided to all solvent storage tanks. Breathers have been provided to all solvent storage tanks.

Company is having green belt development plan and plantation of about 50000 plants per year.

Total Area under Green belt in and around Atul Complex is: 300 acres

- **The company shall harvest surface as well as rain water from the roof tops of the building and storm water drain to recharge the ground water and use the same water for the various activities of the project to conserve fresh water : Complied**
- **For Rain Water Harvesting Following provisions are made in operation:**
 - ✓ **Water pond to collect rain water : 2 Nos**
 - ✓ **Roof water collection and storage in pond**
 - ✓ **Small Pits on hillock to collect the water**
- **AMBIENT AIR QUALITIES MONITORING AROUND PLANT**

PREMISES: Complied and copies attached. Anex-1

 - **Control of quantities through Good manufacturing Practices to minimize waste.**
 - All raw materials are measured in calibrated measuring tanks and then charged to reactors
 - Reuse of by-products from the process as raw materials or as raw material substitutes in other processes.
 - Use of automated filling to minimize spillage.
 - Ammonia Nitrogen recovery system
 - Venting equipment through vapor recovery system
 - All reactor vents are connected through vapor recovery system consisting condensers
 - Use of high pressure hoses for equipment clearing to reduce wastewater generation.
 - All equipment are cleaned by high pressure hose.



ATUL LIMITED

EXPANSION IN EXISTING CAPTIVE POWER PLANT



DETAILS OF WATER CONSUMPTION:

Month	Raw Water Consumed In Ltrs	
	Month	Day
July-2014	435464000	14047225.80
August-2014	329266000	10621483.87
September-2014	324700000	10823333.33
October-2014	335190000	10812580.64
November-2014	316273000	10542433.33
December-2014	380734000	12281741.93



ATUL LIMITED

EXPANSION IN EXISTING CAPTIVE POWER PLANT



Table:-4: QUALITY OF TREATED EFFLUENT

Sr. No.	Parameter	Effluent Sampling Date						GPCB Limits
		Jul-14	Aug-14	Sept-14	Oct-14	Nov-14	Dec-14	
1	pH	7.1	7.4	7.2	7.7	7.2	7.5	6.5-8.5
2	Colour (Pt. Co. Scale)	115	205	177	192	202	212	100
3	Temperature (°C)	27	28	28	30	26	24	40
4	Suspended Solids	40	58	87	22	68	54	100
5	Phenolic Compounds	0.2	0.8	0.3	0.3	0.5	0.2	1.0
6	Cyanide	ND	ND	ND	ND	ND	ND	0.2
7	Sulphide	ND	ND	ND	ND	ND	ND	2.0
8	Total Dissolved Solids	-	-	-	-	-	-	NA
9	Ammonical Nitrogen	30	42	32	40	35	27	50
10	BOD	38	40	30	52	45	39	100
11	COD	204	225	198	240	236	230	250
12	Hexa. Chromium Cr ⁺⁶	ND	ND	ND	ND	ND	ND	0.1
13	Total Chromium Cr ⁺²	0.05	0.02	0.01	0.04	0.01	ND	0.1
14	Fluorides	0.5	0.1	0.4	ND	ND	ND	1.5
15	absorbed Sodium	-	-	-	-	-	-	26

Note :
ND is not detectable
Unit of measurement is mg/l else specified



ATUL LIMITED

EXPANSION IN EXISTING CAPTIVE POWER PLANT



Table: 5 Solid Waste Generations:

Sr. No.	Type of waste	Category	Qty. per month in Kgs. (July-2014 to December- 2014)						Disposal
			July	August	September	October	November	December	
Waste Data for TSDF									
1	Al Hydroxide	26.1	0	0	0	900	0	0	TSDF
2	Iron Sludge	26.1	16500	14600	9000	0	0	3500	TSDF
3	Iron Residue	26.1	0	11900	2510	23120	29950	51840	TSDF
4	Brine Sludge	16.3	0	0	0	0	0	80400	TSDF
5	ETP/Gypsum Sludge	34.3	41657	41500	605000	632850	706850	747260	TSDF
6	Incl. Ash	36.2	1516	1745	1550	900	1260	1162	TSDF
7	Salt from MEE	-	0	0	0	0	0	0	TSDF
8	Hyflow	29.1	7000	20100	4700	0	20200	24500	TSDF
Waste Data for Incinerator									
9	Higher Amino	23.1	210	370	300	830	270	0	Incinerator
10	Filter cake of Epoxy Resins	23.1	0	1820	0	0	0	0	Incinerator

11	Epoxy Resin	23.1	29910	32339	31400	8740	28230	32620	Incinerator
12	Still & Other residue (CP)	29.1	320	1200	630	0	0	1640	Incinerator
13	Still & Other residue (CO)	26.1	0	0	0	0	0	0	Incinerator
14	Spent Carbon	28.2	39890	45140	39800	32080	29960	19670	Incinerator
15	Darco	26.1	0	0	0	0	0	0	Incinerator



ATUL LIMITED



EXPANSION IN EXISTING CAPTIVE POWER PLANT

- Detail of water quantity to be harvested. : No Rain Fall record
- Occupational health surveillance of the workers shall be done on a regular basis and records maintained as per the Factories Act.: Complied.

Occupational health surveillance of the workers is being done on regular basis and record maintained as per the factory act which is shown in Table: 6.

Table: 6 SUMMARY OF OCCUPATIONAL HEALTH SURVEILLANCE

Sr. No.	Month	Company Employees	Contract Employees	Total
1.	July 2014	265	84	349
2.	August 2014	148	81	229
3.	September 2014	185	174	359
4.	October 2014	287	178	465
5.	November 2014	081	72	153
6.	December 2014	258	99	357
GRAND TOTAL		1224	688	1912



ATUL LIMITED



EXPANSION IN EXISTING CAPTIVE POWER PLANT

COMPLIANCE TO GENERAL CONDITIONS

1. **The project authorities shall strictly adhere to the stipulations made by the GPCB.**

The company will follow all stipulated norms under various acts.

2. **No further expansion or modification in the plant shall be carried out without prior approval of the Ministry of Environment and Forests. In case of deviations or alterations in the project proposal from those submitted to this Ministry for clearance, a fresh reference shall be made to the Ministry to assess the adequacy of conditions imposed and to add additional environmental protection measures required, if any.**

This will be complied in case of further expansion or modification at present. We are complying all the conditions, stipulated in our E.C. dated 13th May 2009.

3. **At no time, the emissions shall exceed the prescribed limits. In the event of failure of any pollution control system adopted by the units, the unit shall be immediately put out of operation and shall not be restarted until the desired efficiency has been achieved.**

Will be ensured and complied.

4. **The Gaseous emission (NO_x, HCl, SO₂ and SPM) and Particulate matter along with RSPM levels from various process units shall conform to the standards prescribed by the concerned authorities from time to time. At no time, the emission levels shall go beyond the stipulated standards. In the event of failure of pollution control system(s) adopted by the unit, the respective unit shall not be restricted until the control measures are rectified to achieve the desired efficiency. Stack monitoring for SO₂, No_x and SPM shall be carried.**

Accepted

5. **The Location of ambient air quality monitoring stations shall be decided in consultation with sated pollution control Board and it shall be ensured that at least one station is installed in the up wind and downwind direction as well as where maximum ground level concentration are anticipated.**
Complied.

Company has fixed monitoring stations as per EC guideline and regular monitoring is being done.

6. **Dedicated Scrubbers and stacks of appropriate height as per the central pollution control board guideline shall be provided to control the emission**



ATUL LIMITED



EXPANSION IN EXISTING CAPTIVE POWER PLANT

from various vents. The scrubber water shall be sent to ETP for further treatment or sell to actual end users :

Complied.

- The overall noise level in and around the plant area shall be kept well with in the standard by providing noise control measures including acoustic hoods silencers, enclosures etc. on all source of noise generation. The ambient noise level shall confirm to the standards prescribed under Environment(Protection) Act-1986 Rules,1989 viz 75 dBA (day time) and 70 dBA (night time)

Noise level is regularly monitored around the source. Table: 7 below shows the noise level monitored within the plant boundaries and near source.

Table: 7 NOISE LEVEL WITHIN COMPANY PREMISES:

Sr. No.	Location	Date	Noise Level, dBA	Permissible Limits, dBA
1	Near Main guest house	22-07-14	59	75
	At Wyeth Colony		58	75
2	Gram Panchayat Hall	25-08-14	60	75
	Near Main Office North site		63	75
3	Near 66KVA substation	20-09-14	65	75
	Water tank Haria road		58	75
4	Opposite shed D	24-10-14	66	75
	ETP North site		63	75
5	Near TSDF	25-11-14	62	75
	ETP west site		67	75
6	Near Main guest house	22-12-14	60	75
	At Wyeth Colony		59	75

Note : Unit of measurement is decibel (dBA)



ATUL LIMITED



EXPANSION IN EXISTING CAPTIVE POWER PLANT

8. **Training shall be imparted to all employees on safety and health aspects of chemicals handling. Pre-employment and routine periodical medical examination for all employees shall be undertaken on regular basis:**

Complied

Company is doing all the new employment with pre medical checkup and routine medical checkup for on roll employee has been done on regular frequency.

9. **Usage of PPE's by employee/ workers shall be ensured: Complied**

Company have PPE policy in place and strictly follow for all level of employee.

10. **The project proponent shall also comply with all the environmental protection measures and safeguards proposed in project report submitted to the ministry. All the recommendation made in respect of environmental management and risk mitigation measures relating to the project shall be implemented. : Complied**

Company has made all attempts to comply with all the environmental protection measures and safeguards recommended.

11. **The company will undertake all relevant measures for improving the socio economic condition for the surrounding area, CSR activities will be undertaken by involving local villages and administration :**

Complied

List of CSR activities carried out nearby villages and schools are attached for reference.

12. **The company shall undertake eco developmental measures including community welfare measures in the project area for the overall improvement of the environment.**

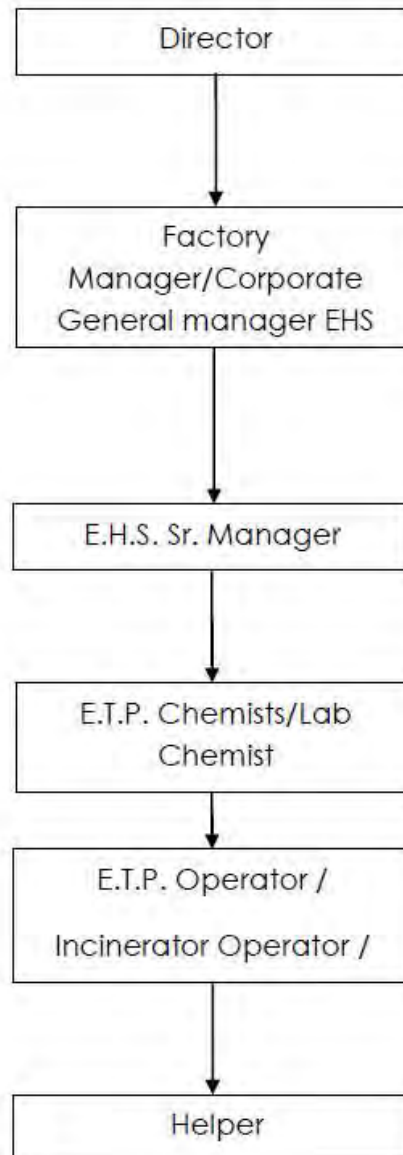
Complied

13. **A Separate environmental management cell equipped with full flagged laboratory facility shall be set up to carry out the environmental management and monitoring function. : Complied**

Company has already set up a separate Environmental Management Cell equipped with full-fledged laboratory facilities to carry out the environment management and monitoring functions.



Figure 1
Organogram of Environment Health & Safety
Management Cell





ATUL LIMITED



EXPANSION IN EXISTING CAPTIVE POWER PLANT

Also company has developed a separate laboratory equipped with equipment such as pH meter, TDS meter, COD meter, Glass ware, gas chromatography system, Oven, Muffle furnace, Inhofe Cone etc. to carry out testing of routine parameters. However sampling and testing is carried out by GPCB approved and company appointed consultant, once in every month.

Currently the parameters measured in-house are pH, COD, TDS, MLVSS, and MLSS.

- 14. The project authorities shall provide adequate funds both recurring and non-recurring to implement the conditions stipulated by the Ministry of Environment and Forest as well as the State Government along with the implementation schedule for all the conditions stipulated herein. The funds so provided shall not be diverted for any other purposes.**

A budget is prepared for every coming six months and separate allocation is made for the funds towards environmental management. Total budget for July -2014 to December -2014 is Rs **54593291.00**

Budget for months	Particular	Expenses Rs.
July-2014 to December-2014 Including, recurring maintenance, modifications and monitoring. Rs. -	Fuel	500000
	Chemicals	17733489
	Electricity	20143490
	Waste disposal	6500000
	Salary	7916312
	Maintenance & modifications [New MEE (Cap. 900 Lit/hr) System installation work is going on]	800000
	Monitoring	1000000
	Total	54593291

- 15. The implementation of the project vis-à-vis environmental action plan shall be monitored by Ministry's Regional office at Bhopal / SPCB / CPCB. A six monthly compliance status report shall be submitted to the monitoring agencies.**

Complied.



ATUL LIMITED



EXPANSION IN EXISTING CAPTIVE POWER PLANT

16. The Project Proponent shall inform the public that the project has been accorded environmental clearance by the Ministry and copies of the clearance letter are available with the SPCB/Committee and may also be seen at website of the Ministry of Environment and Forest at <http://www.envfor.ni.in>. This shall be advertised within seven days from the date of issue of the clearance letter at least in two local newspaper that are widely circulated in the region of which one shall be in the vernacular language of the locality concerned and a copy of the same shall be forwarded to the concerned Ministry's Regional office at Bhopal.

Complied.

17. The project authorities shall inform the Regional Office as well as the Ministry, the date of financial closures and final approval of the project by the concerned authorities and the date of start of the project.

This is the existing project in production as oldest chemical unit and financial institutions have already approved our appraisal and we have obtained NOC and consolidated consent and authorization from GPCB.



ATUL LIMITED



EXPANSION IN EXISTING CAPTIVE POWER PLANT

Annexure-15 Environment Policy

ATUL LIMITED ENVIRONMENT MANUAL		
Revision No.: 01	ENVIRONMENT POLICY	Doc. No.: EM/4.2
Rev Date: 01/12/05		ISO Clause Ref.: 4.2 Page No.: 1 of 1

PURPOSE

1. To define and document Atul's Environmental Policy in compliance with the requirements of ISO 14001: 2004.
2. To define the system for reviewing continuing suitability of the policy as well as ensuring implementation of the policy through EMS.

SYSTEM GUIDELINES

The Environmental Policy is defined by the Managing Director & CEO of the organization based on the different environmental aspects and impacts associated with the site's activities, products and services, its business requirements and also fulfilling all the requirements of ISO 14001:2004. Environmental Policy is implemented by deployment of it to various functions of the site.

The Environmental Policy is a public document and has been displayed at prominent locations of the site as authorized by the MR. MR communicates the Environmental Policy and Objectives to the DSC. The DSC is responsible to cascade down the Environment Policy & Objectives and Targets to the employees down the line. The Policy is also communicated by MR to the vendors, customers, contractors, regulatory bodies and public through pamphlets/reports.

The Environment Policy implementation is ensured through implementation of documented systems, which is verified through internal EMS audits. The Environmental Policy is reviewed in the Management Review meeting for its continuing suitability and revised, if necessary.

CROSS REFERENCE

Environmental Policy
Procedure for Communication (EP/GN/05)

Prepared by: Dr. A. V. Singh	Approved by: J. L. Shah	Copy Status:



GUJARAT POLLUTION CONTROL BOARD

PARYAVARAN BHAVAN

Sector 10-A, Gandhinagar 382 010

Phone : (079) 23226295

Fax : (079) 23232156

Website : www.gpcb.gov.in

BY.RPAD

"Consent to Establish" (NOC)
CTE-7793

NO: GPCB/CCA-VSD-313(11)/ID:23158/

TO,
M/s. Atul Limited,
Plot No.5,6,29,30,33,34,35,37,38,80,81,84,85,91 and
survey no: 274,275 & 276
At & P.O-Atul, Pin-396020
Dist: Valsad.

Sub: Consent to Establish (amendment) under Section 25 of Water Act 1974 and Section 21 of Air Act 1981.
Ref: Your application inward no' 103426 dated: 08/02/2016 and subsequently correspondences.

Sir,

Without prejudice to the powers of this Board under the Water (Prevention and Control of Pollution) Act-1974, the Air Act-1981 and the Environment (Protection) Act-1986 and without reducing your responsibilities under the said Acts in any way, this is to inform you that this Board grants **Consent to Establish (amendment)** for expansion of existing CPP capacity **34 MW to 56 MW (i.e additional 22MW)** of an industrial plant/activities located at **Plot No.5,6,29,30,33,34,35,37,38,80,81,84,85,91 and survey no: 274,275 & 276 At & P.O-Atul, Pin-396020 Dist: Valsad**

Sr. No.	Product	Existing Quantity	Proposed Quantity	Total Capacity
1	Captive Power Plant (CPP)	34MW	22MW	56MW

The Validity period of the order will be Five years from date of issue. i.e. up to 30/03/2021

SUBJECT TO THE FOLLOWING CONDITIONS:-

- The unit shall install online monitoring system along with CCTV camera on boiler stack
- The emission norms of PM is 50 mg/nm³
- The unit shall comply all conditions given in Environment *clearance.*

CONDITIONS UNDER WATER ACT 1974:

1. The waste water generated from the proposed expansion will be 565 KLPD. Effluent generation will be mainly from utilities i.e. Pretreatment plant for water blow down from boilers cooling tower & condensate from turbine. The condensate will be recycled and reused Effluent will be collected in a collection sump of 1500 KL capacity and will be used for ash dust suppression gardening. Hence there will be no additional load of effluent on the existing 20 KLD ETP.

D.P. Patel

Clean Gujarat Green Gujarat

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CONDITIONS UNDER AIR ACT 1981:

2. The following shall be used as fuel in the new Boiler, D.G.Set 1500 KVA respectively.

Sr. No.	Fuel	Option No.	Fuel Consumption (TPH)	Fuel Consumption (TPH)
1.	100% Imported coal	I	14.12	10.168
2.	100% Indian coal	II	23.23	16.725
3.	50% Indian coal +50% Imported coal	III	18.95	13.644
4.	100% Lignite (By adding Limestone)	IV	20	14.400
5.	70% Indian Coal+30% Lignite (By adding Limestone)	V	22.15	15.948
6.	Diesel	-	300 lit/hr	-

3. The applicant shall install & operate air pollution control system in order to achieve norms prescribed below.
4. The flue gas emission through stack shall conform to the following standards:

Stack No.	Stack attached to	Stack height in Meter	Air Pollution Control System	Parameter	Permissible Limit	Applicable Permissible Limit after 2 year of the notification S.O 3305(E) dated:07/12/2015 i.e. from 08/12/2017
1.	Boiler (50 TPH 2 Nos)	108	ESP With 4 field	PM SO ₂ NO _x Mercury (Hg)	150 mg/NM ³ 100 ppm 50 ppm -----	50 mg/NM ³ 600 ppm 300 ppm 0.03 mg/NM ³
2.	D.G.Set 1500 KVA (Stand By)	11	-	PM SO ₂ NO _x	150 mg/NM ³ 100 ppm 50 ppm	-----

5. Stack monitoring facilities like port hole, platform/ladder etc., shall be provided with stacks/vents chimney in order to facilitate sampling of gases being emitted into the atmosphere.



GUJARAT POLLUTION CONTROL BOARD

PARYAVARAN BHAVAN

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6. The concentration of the following substances in the ambient air within the premises of the industry and at a distance of 10 meters from the source (other than the slack / vent with height of more than 9 meters from the ground level) shall not exceed the following levels:

Sr. No.	Pollutant	Time Weighted Average	Concentration in Ambient air in ug/M ³
1.	Sulphur Dioxide (SO ₂)	Annual	50
		24 Hours	80
2.	Nitrogen Dioxide (NO ₂)	Annual	40
		24 Hours	80
3.	Particulate Matter (Size less than 10 mg) OR PM ₁₀	Annual	50
		24 Hours	100
4.	Particulate Matter (Size less than 2.5 mg) OR PM _{2.5}	Annual	40
		24 Hours	60

7. All measures for the control of environmental pollution shall be provided before commencing production.

CONDITIONS UNDER HAZ. WASTE:

8. Applicant shall have to comply with provisions of H.W. (M.H. & T.M) rules 2008.
- Industry shall provide adequate collection, storage, treatment & transportation system in accordance with the nature, quantity & compatibility of hazardous waste and shall offer their hazardous waste only to authorized operator of the ultimate disposal facility.
 - Applicant shall comply all the directives issued by Honorable Courts, notifications issued by Ministry of Environment & Forest, Department of Environment & Forest, Central Pollution Control Board and other competent authorities time to time.
 - Applicant shall comply all the guidelines published by Ministry of Environment & Forest, Department of Environment & Forest, Central Pollution Control Board and other competent authorities time to time.
 - Industry shall also comply following directives issued by the Supreme Court of India dated 14 10 2003.
 - Industry shall have to display the relevant information with regard to hazardous waste as indicated in the Court's order in W.P. No.657 of 1995 dated 14th October 2003.
 - Industry shall have to display on-line data outside the main factory gate with regard to quantity and nature of hazardous chemicals being handled in the plant, including wastewater and air emissions and solid hazardous wastes generated within the factory premises.

GENERAL CONDITION:

9. Adequate plantation shall be carried out all along the periphery of the industrial premises in such a way that the density of plantation is at least 1000 trees per acre of land and a green belt of 05 meters width is developed.

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10. The applicant shall have to submit the returns in prescribed form regarding water consumption and shall have to make payment of water cess to the Board under the Water Cess Act- 1977.
11. In case of change of ownership/management the name and address of the new owners/partners/directors/proprietor should immediately be intimated to the Board.
12. The applicant shall however, not without the prior consent of the Board bring into use any new or altered outlet for the discharge of effluent or gaseous emission or sewage waste from the proposed industrial plant. The applicant is required to make applications to this Board for this purpose in the prescribed forms under the provisions of the Water Act-1974, the Air Act-1981 and the Environment (Protection) Act-1986.
13. The applicant also comply with the General conditions as per Annexure - I attached herewith (No. 1 to 38) (whichever applicable)
14. The concentration of Noise in ambient air within the premises of industrial unit shall not exceed following levels:
Between 6 A.M. and 10 P.M.: 75 dB (A)
Between 10 P.M. and 6 A.M.: 70 dB (A)
15. Applicant is required to comply with the manufacturing, Storage and Import of Hazardous Chemicals Rules-1989 framed under the Environment (Protection) Act-1986.
16. If it is established by any competent authority that the damage is caused due to their industrial activities to any person or his property in that case they are obliged to pay the compensation as determined by the competent authority

**For and on behalf of
Gujarat Pollution Control Board**

D.P. Shah
**(Smt. D.P. Shah)
Environmental Engineer**

Outward No: 356262, 17/05/2016



GUJARAT POLLUTION CONTROL BOARD

PARYAVARAN BHAVAN

Sector 10-A, Gandhinagar 382 010

Phone : (079) 23226295

Fax : (079) 23232156

Website : www.gpcb.gov.in

By R.P.A.D

NO: GPCB/CCA-VSD-313(12) /ID: 23158/

To,

M/S. ATUL LIMITED,

PLOT NO. 5, 6, 29, 30, 33, 34, 35, 37, 38, 80, 81, 84, 85, 91, & S.NO. 274, 275, 276,

AT & P. O. ATUL,

PIN- 396020, DIST: VALSAD.

SUB: CCA Amendment (No: AWH-82241) to Consolidated Consent & Authorization (CC & A) under various Environmental Acts/ Rules.

REF: 1) Your Application inward No.111917 dated; 20/09/2016
2) CTE issued vide this office letter dated: 17/05/2016

Sir,

This has reference to the CCA order No.AWH- 67717 dated: 04/11/2014 issued vide letter No. GPCB/CCA-VSD-313(2)/ID:23158/306616 dated:10/03/2015 having validity up to 03/11/2019 under the provisions of the various Environmental Act/ Rules, which stands amended for expansion of existing captive power plant capacity 34 MW to 56 MW by installation of captive power plant CPP 22 MW at an industrial plant at location PLOT NO. 5, 6, 29, 30, 33, 34, 35, 37, 38, 80, 81, 84, 85, 91, & S.NO. 274, 275, 276, AT & P. O. ATUL, PIN- 396020, DIST: VALSAD.

Sr. No.	Product	Existing Quantity	Proposed Quantity	Total Capacity
1.	Captive Power Plant (CPP)	34MW	22MW	56MW

The Validity period of the CCA amendment order as per existing CC& A i.e. up to 03/11/2019

SUBJECT TO THE FOLLOWING CONDITIONS:-

SPECIFIC CONDITION:

- The unit shall install and operate online monitoring system with CCTV camera on boiler stack.
- The unit shall comply all the condition given in to Environmental clearance.
- The unit shall comply provisions of Fly Ash Notification 1999 and its subsequent amendment.

CONDITIONS UNDER WATER ACT 1974:

1. The waste water generated from the proposed expansion will be 665 KLPD. Effluent generation will be mainly from utilities i.e. Pretreatment plant for water blow down from boilers cooling tower & condensate from turbine. The condensate will be recycled and reused Effluent will be collected in a collection sump of 1500 KL capacity and will be used for ash dust suppression gardening. Hence there will be no additional load of effluent on the existing 20 KLD ETP.

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CONDITIONS UNDER AIR ACT 1981:

2. The following shall be used as fuel in the new Boiler, D.G.Set 1500 KVA respectively.

Sr. No.	Fuel	Option No.	Fuel Consumption (TPH)	Fuel Consumption (TPH)
1.	100% Imported coal	I	14.12	10,166
2.	100% Indian coal	II	23.23	16,725
3.	50% Indian coal +50% Imported coal	III	18.95	13,644
4.	100% Lignite (By adding Limestone)	IV	20	14,400
5.	70% Indian Coal+30% Lignite (By adding Limestone)	V	22.15	15,948
6.	Diesel	-	300 lit/hr	-

3. The applicant shall install & operate air pollution control system in order to achieve norms prescribed below in condition number 4
4. The flue gas emission through stack shall conform to the following standards:

Stack No.	Stack attached to	Stack height in Meter	Air Pollution Control System	Parameter	Permissible Limit	Applicable Permissible Limit after 2 year of the notification S.O 3305(E) dated:07/12/2015 i.e. from 06/12/2017
1.	Boiler (50 TPH 2 Nos)	108	ESP With 4 field	PM SO ₂ NO _x Mercury(Hg)	50 mg/NM ³ 100 ppm 50 ppm -----	50 mg/NM ³ 600 ppm 300 ppm 0.03 mg/NM ³
2.	D.G.Set 1500 KVA (Stand By)	11	-	PM SO ₂ NO _x	150 mg/NM ³ 100 ppm 50 ppm	-----

5. Stack monitoring facilities like port hole, platform/ladder etc., shall be provided with stacks/vents chimney in order to facilitate sampling of gases being emitted into the atmosphere.



GUJARAT POLLUTION CONTROL BOARD

PARYAVARAN BHAVAN

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6. The concentration of the following substances in the ambient air within the premises of the industry and at a distance of 10 meters from the source (other than the stack / vent with height of more than 9 meters from the ground level) shall not exceed the following levels:

Sr. No.	Pollutant	Time Weighted Average	Concentration in Ambient air in ug/M ³
1.	Sulphur Dioxide (SO ₂)	Annual 24 Hours	50 80
2.	Nitrogen Dioxide (NO ₂)	Annual 24 Hours	40 80
3.	Particulate Matter (Size less than 10 µm) OR PM ₁₀	Annual 24 Hours	60 100
4.	Particulate Matter (Size less than 2.5 µm) OR PM _{2.5}	Annual 24 Hours	40 60
5.	Carbon Monoxide (CO) mg/m ³	8 Hours 1 Hour	02 04

All other conditions of CCA order No.AWH- 67717 dated: 04/11/2014 issued vide letter No. GPCB/CCA-VSD-313(2)/ID:23158/306616 dated:10/03/2015 shall remain unchanged.

For and on behalf of
Gujarat Pollution Control Board


(Smt.D.P.Shah)
Environmental Engineer

Outward No: 375131, 08/11/2016

Clean Gujarat Green Gujarat

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GUJARAT POLLUTION CONTROL BOARD

PARYAVARAN BHAVAN

Sector-10-A, Gandhinagar-382 010

Phone : (079) 23226295

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Website : www.gpcb.gov.in

BY.RPAD

"Consent to Establish" (NOC)
CTE-60394

NO: GPCB/CCA-VSD-313(12)/ID:23158/

TO,

✓ Mrs. ATUL LIMITED,
PLOT NO.5,6,29,30,33,34,35,37,38,80,81,84,85,91
AT & P.O-ATUL, PIN-396020,
DIST: VALSAD.

Sub: Consent to Establish (amendment) under Section 25 of Water Act 1974 and Section 21 of Air Act 1981.

Ref: Your application inward no: 106516 dated 27/04/2016 and subsequently correspondences,

Sir,

Without prejudice to the powers of this Board under the Water (Prevention and Control of Pollution) Act-1974, the Air Act-1981 and the Environment (Protection) Act-1986 and without reducing your responsibilities under the said Acts in any way, this is to inform you that this Board grants **Consent to Establish (amendment)** for expansion of production quantity at an existing industrial plant/activities located at Plot No.5,6,29,30,33,34,35,37,38,80,81,84,85,91, At & P.O--Atul, Pin-396020 Dist. Valsad for manufacturing of the following products:

Sr. No.	Product	Existing Capacity (TPM)	Proposed Capacity (TPM)	Total Capacity (TPM)
1.	Dyes	1,300.80	583.33	1,884.13
2.	Chloro - Alkali Industry	3,400.00	4,100.00	7,500.00
3.	Pesticide Technical	2,644.07	261.64	2,905.71
4.	Bulk Drugs & Pharmaceuticals	350.60	0.00	350.60
5.	Resin	2,990.90	441.67	3,432.57
6.	Other Chemicals	20,551.60	651.00	21,202.60
7.	Flavors & Fragrances	0.00	733.32	733.32
	Total	31,237.96	6,770.95	38,008.91
8.	Phosgene	2844 MT/Year	2156 MT/Year	5000 MT/Year

The Validity period of the order will be seven years from date of issue. i.e. up to 17/07/2023

SUBJECT TO THE FOLLOWING CONDITIONS:-

- The unit shall not install plant and machinery and shall not start any activities without obtaining Environment Clearance from the MOEFCC, New Delhi, Government of India.

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SPCCIFIC CONDITIONS:-

- (i) The unit shall manufacture the Phosgene gas in fully automated plant having multi levels of safety provisions.
- (ii) Unit will utilize the Phosgene gas immediately after its generation for their captive purpose only.
- (iii) Unit shall provide all sensor for detection of a leakage of Phosgene gas.
- (iv) Unit shall establish and maintain onsite emergency plan and carry out mock drill as per period decided.
- (v) Unit shall liable to obtain all other necessary permission from concerned agencies/organization prior commencement of Production.
- (vi) Unit shall dismantle old Phosgene Plant after commencement of new Plant.
- (vii) Unit shall submit production data of Phosgene every month to this office.
- (viii) Unit shall install online monitoring system on process stack for PM and CO.
- (ix) Unit shall install continuous Ambient Air Quality monitoring Station in their premises.
- (x) Unit shall install new 4 Kms length HDPE pipeline parallel to existing pipeline for disposal of treated waste water in the estuary of Par River at the identified point by NIO.
- (xi) Unit shall use pipeline in case of emergency like breakdown, preventive maintenance only when old pipeline is under maintenance and unit shall get prior permission from Regional Office, Vapi before use of new pipeline.
- (xii) Unit shall comply undertaking dated: 08/07/2016 given to the board.

CONDITIONS UNDER WATER ACT 1974:

1. There shall be 23392.84 KLD waste water generation after proposed expansion. Out of this 23,021.51 KLD treated in ETP and 17812.84 KLD evaporated in MEE.
2. The quantity of the domestic waste water (sewage) shall not exceed 939 KLD.
3. Unit shall explore possibility of Sewage Treatment Plant (STP) for domestic waste water and its reuse after due treatment.

CONDITIONS UNDER AIR ACT 1981:

4. There shall be no use of fuel hence there shall be no flue gas emission, from proposed production.
5. The process emission through various proposed stacks, in addition to existing stacks shall confirm to the following standards:

Stack No.	Stack attached to	Stack height in Meter	Air Pollution Control system	Parameter	Permissible Limit
1.	MPP Plant	21	Water & Alkali Scrubber	HCl	20 mg/NM3
2.	PHIN - I & II	21	Water scrubber followed by two stage caustic scrubber with ammonia/steam injection at stack	HCl COCl ₂	20 mg/NM3 0.1 ppm



GUJARAT POLLUTION CONTROL BOARD

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3.	Flavors Fragrances Plant	21	Water scrubber followed by caustic scrubber	HCl	20 mg/NM3
4.	Phosgene Plant	15	Alkali & water scrubber	COCl ₂	0.1 ppm

6. The concentration of the following substances in the ambient air within the premises of the industry and at a distance of 10 meters from the source (other than the stack / vent with height of more than 9 meters from the ground level) shall not exceed the following levels:

Sr. No.	Pollutant	Time Weighted Average	Concentration in Ambient air in ug/M ³
1.	Sulphur Dioxide (SO ₂)	Annual 24 Hours	50 80
2.	Nitrogen Dioxide (NO ₂)	Annual 24 Hours	40 80
3.	Particulate Matter (Size less than 10 µm) OR PM ₁₀	Annual 24 Hours	60 100
4.	Particulate Matter (Size less than 2.5 µm) OR PM _{2.5}	Annual 24 Hours	40 60

7. All measures for the control of environmental pollution shall be provided before commencing proposed production activities.

CONDITIONS UNDER HAZ. WASTE:

8. Applicant shall have to comply with provisions of H.W. (M.H. & T.M) rules 2008 and amendment thereof.
- Industry shall provide adequate collection, storage, treatment & transportation system in accordance with the nature, quantity & compatibility of hazardous waste and shall offer their hazardous waste only to authorized operator of the ultimate disposal facility.
 - Applicant shall comply all the directives issued by Honorable Courts, notifications issued by Ministry of Environment & Forest, Department of Environment & Forest, Central Pollution Control Board and other competent authorities time to time.
 - Applicant shall comply all the guidelines published by Ministry of Environment & Forest, Department of Environment & Forest, Central Pollution Control Board and other competent authorities time to time.
 - Industry shall also comply following directives issued by the Supreme Court of India dated 14.10.2003.
 - Industry shall have to display the relevant information with regard to hazardous waste as indicated in the Court's order in W.P. No.857 of 1995 dated 14th October 2003
 - Industry shall have to display on-line data outside the main factory gate with regard to quantity and nature of hazardous chemicals being handled in the plant, including wastewater and air emissions and solid hazardous wastes generated within the factory premises

Clean Gujarat Green Gujarat

ISO - 9001 - 2008 & ISO - 14001 - 2004 Certified Organisation

GENERAL CONDITION:

9. Adequate plantation shall be carried out all along the periphery of the industrial premises in such a way that the density of plantation is at least 1000 trees per acre of land and a green belt of 05 meters width is developed
10. The applicant shall have to submit the returns in prescribed form regarding water consumption and shall have to make payment of water cess to the Board under the Water Cess Act- 1977.
11. In case of change of ownership/management the name and address of the new owners/partners/directors/proprietor should immediately be intimated to the Board.
12. The applicant shall however, not without the prior consent of the Board bring into use any new or altered outlet for the discharge of effluent or gaseous emission or sewage waste from the proposed industrial plant. The applicant is required to make applications to this Board for this purpose in the prescribed forms under the provisions of the Water Act-1974, the Air Act-1981 and the Environment (Protection) Act-1986.
13. The concentration of Noise in ambient air within the premises of industrial unit shall not exceed following levels:
Between 6 A.M. and 10 P.M.: 75 dB (A)
Between 10 P.M. and 6 A.M.: 70 dB (A)
14. Applicant is required to comply with the manufacturing, Storage and Import of Hazardous Chemicals Rules-1989 framed under the Environment (Protection) Act-1986.
15. If it is established by any competent authority that the damage is caused due to their industrial activities to any person or his property, in that case they are obliged to pay the compensation as determined by the competent authority

For and on behalf of
Gujarat Pollution Control Board

D.P. Shah
(Smt.D. P. SHAH)
Environmental Engineer

Outward No:363958, 25/07/2016



GUJARAT POLLUTION CONTROL BOARD

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R.P.A.D.

NO: GPCB/CCA-VSD-313(16) /ID: 23158/ 513897

Date: 17/07/2014

TO,

M/s. ATUL LIMITED,

PLOT NO.5,6,29,30,33,34,35,37,38,80,81,84,85,91

AT & P.O ATUL-396020,

TAL: VALSAD, DIST: VALSAD.

SUB: Amendment (AH- 102080) to Consolidated Consent & Authorization (CC & A) under various Environmental Acts/ Rules.

REF: 1) Your Application inward No.156104 dated: 26/04/2019.

2) CTE issued vide this office letter dated: 25/07/2016.

Sir,

The Gujarat Pollution Control Board had granted Consolidated Consents & Authorization Order No. AWH- 67717 dated 04/11/2014, Which is valid up to 03/11/2019. This order was served vide letter No. GPCB/CCA-VSD-313/ID-23158/306616 dated: 10/03/2015 is further amended with respect of following conditions.

Sr. No.	Product	Existing Capacity (TPM)	Proposed Capacity (TPM)	Total Capacity (TPM)
1.	Dyes	1,300.80	583.33	1,884.13
2.	Chloro - Alkali Industry	3,400.00	4,100.00	7,500.00
3.	Pesticide Technical	2,644.07	261.64	2,905.71
4.	Bulk Drugs & Pharmaceuticals	350.60	0.00	350.60
5.	Resin	2,990.90	441.67	3,432.57
6.	Other Chemicals	20,551.60	651.00	21,202.60
7.	Flavors & Fragrances	0.00	733.32	733.32
	Total	31,237.96	6,770.95	38,008.91
8.	Phosgene	2844 MT/Year	2156 MT/Year	5000 MT/Year

SPCCIFIC CONDITIONS:-

- The unit shall manufacture the Phosgene gas in fully automated plant having multi levels of safety provisions.
- Unit will utilize the Phosgene gas immediately after its generation for their captive purpose only.
- Unit shall submit production data of Phosgene every month to this office.
- Unit shall use pipeline in case of emergency like breakdown, preventive maintenance only when old pipeline is under maintenance and unit shall get prior permission from Regional Office, Vapi before use of new pipeline.
- Unit shall comply undertaking dated: 08/07/2016 given to the board.

M/s. Atul Limited (PCB ID-23158)

1. **CONDITIONS UNDER THE WATER (PREVENTION AND CONTROL OF POLLUTION) ACT 1974:**

1.1 The quantity of total fresh water consumption shall not exceed 28358 KLD (21950 KLD Fresh + 3073 KLD Rain water + 3335 KLD recycled water) as per break up mentioned in form D submitted for consent application under the Water (Prevention and Control of Pollution) Act-1974. Source of fresh water shall only from local body.

- a) Industrial: 27419 KLD
- b) Domestic: 402 KLD
- c) Gardening: 537 KLD

1.2 Total quantity of effluent generated from manufacturing process and other ancillary operation shall not exceed 24096 KLD.

1.3 20514 KLD waste water shall be treated in ETP and then discharged into Par river through 4 km pipeline.

1.4 1000 KLD waste water shall be sent to RO/MEE.

1.5 800 KLD RO permeates shall be recycled into cooling tower.

1.6 200 KLD RO reject shall be sent to MEE.

1.7 190 KLD recovered MEE water shall be recycled into cooling tower.

1.8 10 MT MEE salt shall be sent to TSDF.

1.9 2500 KLD waste water shall be sent to RO/MEE.

1.10 2000 KLD RO permeates shall be recycled into cooling tower.

1.11 150 KLD RO reject water shall be utilized for Quenching/Ash cooling.

1.12 350 KLD RO reject shall be sent to MEE.

1.13 345 KLD recovered MEE water shall be recycled into Boiler.

1.14 5 MT MEE salt shall be sent to TSDF.

1.15 82 KLD high COD waste water shall be sent to incinerator.

1.16 The quantity of the domestic waste water (sewage) shall not exceed 322 KLD.

3.17 **TRADE EFFLUENT**

3.17.1 The treated effluent from the industrial unit shall conform to the GPCB norms mentioned in below table:

PARAMETERS	GPCB NORMS
pH	5.5 TO 9
Temperature	40 ^o C



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Suspended Solids	100 mg/l
Oil and Grease	10 mg/l
Phenolic Compounds	5 mg/l
Cyanides	0.2 mg/l
Fluorides	2 mg/l
Sulphides	2 mg/l
Ammonical Nitrogen	50 mg/l
Arsenic	0.2 mg/l
Total Chromium	2 mg/l
Hexavalent Chromium	1 mg/l
Copper	3 mg/l
Lead	2 mg/l
Mercury	0.01 mg/l
Nickel	5 mg/l
Zinc	15 mg/l
Cadmium	2 mg/l
Phosphates as P	5 mg/l
BOD (3 days at 27°C)	100 mg/l
COD	250 mg/l
Insecticides/Pesticides	Absent
Sodium Absorption ratio	26
Phosphate	5 mg/l
Manganese	2 mg/l
Tin	0.1 mg/l
Bio-assay test	90% Survival of fish after 96 hour in 100% effluent.

All efforts shall be made to remove colour & unpleasant odor as far as practicable.

3.17.2 The final treated effluent from central ETP conforming to the above standards shall be collected in the guard pond and then discharged through closed pipeline to estuary zone of river Par via diffuser.

3.17.3 Domestic effluent shall be disposed off through septic tank/soak pit system, in case of overflow shall be sent to ETP.

2. CONDITIONS UNDER THE AIR (PREVENTION AND CONTROL OF POLLUTION) ACT 1981:

2.1 There shall be no use of fuel hence there shall be no flue gas emission, from proposed production.

2.2 The process emission through various proposed stacks, in addition to existing stacks shall confirm to the following standards:

Stack No.	Stack attached to	Stack height in Meter	Air Pollution Control system	Parameter	Permissible Limit
1.	MPP Plant	21	Water & Alkali Scrubber	HCl	20 mg/NM3

2.	PHIN - I & II	21	Water scrubber followed by two stage caustic scrubber with ammonia/steam injection at stack	HCl COCl ₂	20 mg/NM3 0.1 ppm
3.	Flavors Fragrances Plant	21	Water scrubber followed by caustic scrubber	HCl	20 mg/NM3
4.	Phosgene Plant	15	Alkali & water scrubber	COCl ₂	0.1 ppm

- 2.3 The concentration of the following substances in the ambient air within the premises of the industry and at a distance of 10 meters from the source (other than the stack / vent with height of more than 9 meters from the ground level) shall not exceed the following levels:

Sr. No.	Pollutant	Time Weighted Average	Concentration in Ambient air in µg/M ³
1.	Sulphur Dioxide (SO ₂)	Annual 24 Hours	50 80
2.	Nitrogen Dioxide (NO ₂)	Annual 24 Hours	40 80
3.	Particulate Matter (Size less than 10 µm) OR PM ₁₀	Annual 24 Hours	60 100
4.	Particulate Matter (Size less than 2.5 µm) OR PM _{2.5}	Annual 24 Hours	40 60
5.	Carbon Monoxide (CO) mg/m ³	8 Hours 1 Hour	02 04

3. **M/S. ATUL LIMITED**, is hereby granted an authorization based on the enclosed signed inspection report for generation, collection, reception, storage, transport, reuse, recycling, recovery, pre-processing, co-processing, utilization, treatment, disposal or any other use of hazardous or other wastes or both on the premises situated **PLOT NO: 5,6,29,30,33,34,35,37,38,80,81,84,85,91, AT & P.O-ATUL, PIN-396020, DIST: VALSAD.**

Details of Authorization:

Sr. No.	Category of Hazardous Waste as per the Schedules I, II and III of these rules	Authorized mode of disposal or recycling or utilization, or co-processing, etc.	Quantity MT/Month
1.	Brine purification sludge 16.3	Collection, storage, Transportation, disposal at OWN TSDF OR disposal at common TSDF at SEPPL OR disposal at common TSDF at BEIL	242.50
2.	Still / Other residue 29.1	Collection, Storage, Transportation, Disposal by Incineration at own Incinerator OR co-processing at RSPL, Panoli OR co-processing at cement industry OR co-processing at SEPPL OR co-processing at GGEPII OR disposal at common facility at BEIL	63.66



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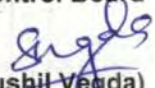
Fax : (079) 23232156

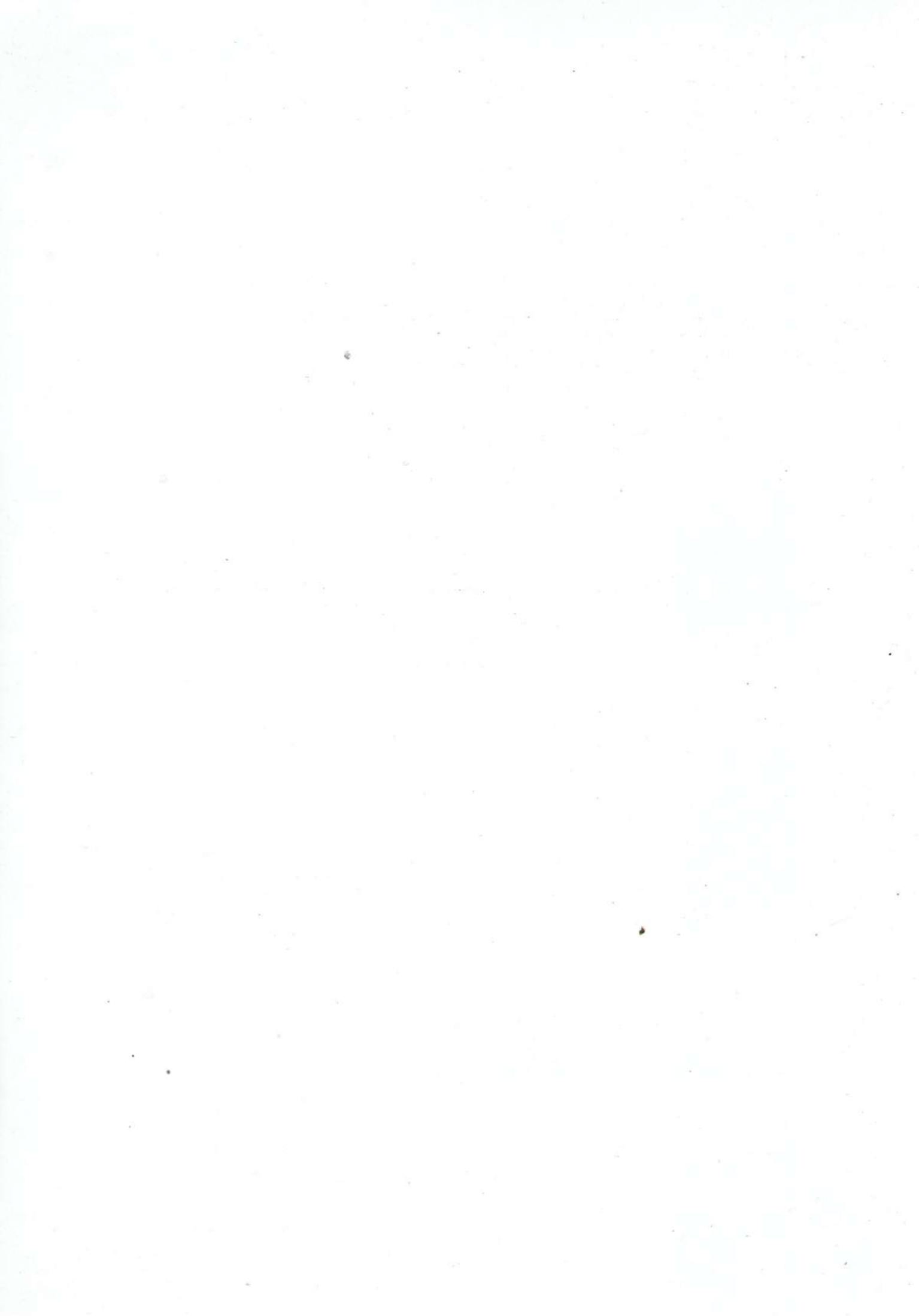
Website : www.gpcb.gov.in

3	Salt from MEE	37.1	Collection, storage, Transportation, disposal at OWN TSDF OR selling to actual reuser OR disposal at common TSDF at SEPPL OR disposal at common TSDF at BEIL	1,678.71
4.	OCBC/OCT	20.3	Collection, Storage, Transportation, Disposal by Incineration at own Incinerator OR co-processing at RSPL, Panoli OR co-processing at cement industry OR co-processing at SEPPL OR co-processing at GGEPIIL OR disposal at common facility at BEIL	154.042
5.	Waste from Pharma intermediates	28.1	Collection, Storage, Transportation, Disposal by Incineration at own Incinerator OR co-processing at RSPL, Panoli OR co-processing at cement industry OR co-processing at SEPPL OR co-processing at GGEPIIL OR disposal at common facility at BEIL	28.97
6.	HCl (30%)	B15	Collection, Storage, In house treatment within premises.	417

- All measures for the control of environmental pollution shall be provided before commencing production.
- All other conditions of CCA order AWH- 67717 dated 04/11/2014 issued vide No. GPCB/CCA-VSD-313/ID-23158/306616 dated: 10/03/2015 shall remain unchanged.

For and on behalf of
Gujarat Pollution Control Board


(Sushil Vagda)
Senior Environmental Engineer





Provisional Consent Order (CCA)

Gujarat Pollution Control Board
Paryavaran Bhavan, Sector-10/A,
Gandhinagar - 382010
Tele : 23222756

Consent No. AWH-105110 Valid upto: 30/09/2025

Application : CtO:CCA-Renewal, No. 163867 Dt. 05/10/2019, Granted On: 16/11/2019

PCB Id:23158

Besides streamlining and simplifying of regulatory regime, Gujarat Pollution Control Board has taken initiative in from of introduction of Consolidated Consent and Authorization (CC&A) which provides for a one shot application and clearance of the consents under Water Act, Air Act and Authorization under Hazardous Wastes Rules for a period of 5 years.

Board issues consolidated consent and Authorization to an industrial unit for operation of plant/carrying out industrial activity specifying following conditions.

Consolidated Consent and Authorisation

In exercise of the power conferred under section-25 of the Water (Prevention and Control of Pollution) Act-1974, under section-21 of the Air (Prevention and Control of Pollution) Act-1981

and Authorization under rule 3(c)& 5(5) of the Hazardous Waste (Management, Handling and Transboundary Movement) Rules'2008 framed under the E(P) Act-1986.

And whereas Board has received consolidated Application No.(CtO:CCA-Renewal) 163867 and Dated 05/10/2019 for the consolidated consent and authorization(CC&A) of this Board under the provisions / rules of the aforesaid Acts Consent & Authorization is hereby granted as under.

CONSENT AND AUTHORISATION : (under the provisions / rules of the aforesaid environmental acts)

To,

M/s. Atul Limited.

5, 6, 29, 30, 33, 34, 35, 37, 38, 80, 81, 84, 85, 91, etc., AT & P.O.ATUL, Dist. Valsad, Pin: 396020.,

City : ATUL,

Dist : Valsad, Tal : Valsad, SIDC : Not In Gide

Phone : 9723551316

1. Consent Order No: AWH-105110 Valid Upto: 30/09/2025

2. All Conditions under the AIR ACT-1981 WATER ACT-1974 HAZARDOUS ACT-2008 shall be Applicable to you as mentioned in the detailed Consent Order ***

Consented CETP: Not Linked to any CETP

Consented TSDF: Recycling Solution Pvt Ltd.(GEPIL)[13376]

3. GENERAL CONDITIONS :-

a) This order is provisional order and detailed order is considered as final.

b) All the conditions & provisions under the Water Act 1974, the Air Act 1981 and the Environment (Protection) Act – 1986 and the rules made there under shall be complied with *.

c) All the conditions & provisions under the Hazardous Waste (Management, Handling and Trans boundary Movement) Rules 2008 as amended shall be complied
d) The applicant shall provide portholes, ladder, platform etc at chimney(s) for monitoring the air emissions and the same shall be open for inspection to/and for use of Board's staff. The chimney(s) vents attached to various sources of emission shall be designed by numbers such as S-1, S-2, etc. and these shall be painted/ displayed to facilitate identification.

e) The industry shall take adequate measures for control of noise levels from its own sources within the premises so as to maintain ambient air quality standards in respect of noise to less than 75dB(A) during day time and 70dB(A) during night time. Daytime is reckoned in between 6 a.m. and 10 p.m. and nighttime is reckoned between 10 p.m. and 6 a.m.

f) In case of change of ownership/management the name and address of the new owners/ partners/ directors/ proprietor or equipment or working conditions as mentioned in the consents form / order should immediately be intimated to the Board.

g) Industry shall have to display data outside the main factory gate with regard to quantity and nature of hazardous chemicals being handled in the plant, including waste water and air emissions and solid hazardous wastes generated within the factory premises.

h) The CCA shall be produced for inspection at the request of an officer authorized by the Gujarat Pollution Control Board.

i) Any unauthorized change in personnel, equipment or working conditions as mentioned in the CCA order by CCA holder shall constitute a breach of this CCA.

j) Adequate plantation shall be carried out all along the periphery of the industrial premises in such a way that the density of plantation is atleast 1000 trees per acre of land and a green belt of 5 meters width is developed.

K) The applicant shall have to submit the returns in prescribed form regarding water consumption and shall have to make payment of water cess to the Board under the Water Cess Act- 1977.

***** Note : ACT-Specific, Industry-specific, Area-specific Conditions alongwith Product, Waste water effluent details shall be precisely mentioned in the DETAILED Consent Order.**

***** Note :This is only provisional communication. The final Consent/Authorization in hard copy with duly signed by competent authority shall the final and valid Consent/Authorization.**

For and on behalf of
Gujarat Pollution Control Board

(Member Secretary)



GUJARAT POLLUTION CONTROL BOARD

Plot No. C-5/124, N. H. No. 8, G.I.D.C. Vapi-396 195 (Dist. Valsad)
 Tal. Valsad, Gujarat
 Tel. No. 39601 3430083, 34301 34301 343024
 Email: gpcb@vsnl.com, gpcb.gujarat@gov.in

PUBLIC HEARING PROCEEDINGS

As per the Ministry of Environment and Forests, Government of India, New Delhi vide its notification no. S.O. 1533 (E) dated 14/09/2006 and its amendment S. O. 3067 (E) dated 01/12/2009, Environment Public Hearing is conducted for M/s. Atul Limited, Valsad at Gram Panchayat Hall, Village: Atul, Dist. Valsad for capacity expansion of Coal based Captive Power plant i.e. from 34 MW to 56 MW by installing additional 22 MWH CPP, which is covered under Category "B", and hence Environmental Clearance is necessary. Accordingly, Environmental Public Hearing is conducted at Gram Panchayat Hall, Atul, at Village: Atul, Ta. Valsad, Dist. Valsad on Dated 09/10/2015 at 11.00 am.

A copy of the Draft Environment Impact Assessment Report and the Executive Summary of Draft Environment Impact Assessment Report in English and Gujarati were sent to the following authorities or offices to make available for inspection to the public during normal office hours, till the Public Hearing is over:

1. The District Collector Office, Valsad.
2. District Development Office, Valsad.
3. District Industries Centre, Valsad.
4. Taluka Development Office, Ta. Valsad, Dist. Valsad.
5. The Chief Conservator of Forests, Ministry of Environment & Forests, Govt. of India, Regional Office (West Zone), Kendriya Paryavaran Bhavan, E - 5, Area Colony, Link Road - 3, Ravishankar Colony, Bhopal-462 016.
6. REGIONAL OFFICE, Gujarat Pollution Control Board, Vapi, Shed No. C-5/124, Vapi GIDC, Near Hotel Pritam, VAPI - 396 195

Executive Summary of Draft Environment Impact Assessment Report was also circulated in surrounding villages for effective publicity.

Other concerned persons having plausible stake in the environmental aspects were requested to send their responses in writing to the concerned regulatory authorities.

An advertisement in English was published in "**Times of India**" dated **09/09/2015** and in Gujarati in "**Gujarat Samachar**" and "**Sandesh**" dated **08/09/2015**.

Additional Collector and Additional District Magistrate, Valsad Mr. A. D. Bagul has presided over the entire public hearing process.

A statement showing participants present during the Public Hearing is enclosed herewith as **Annexure-"A"**.

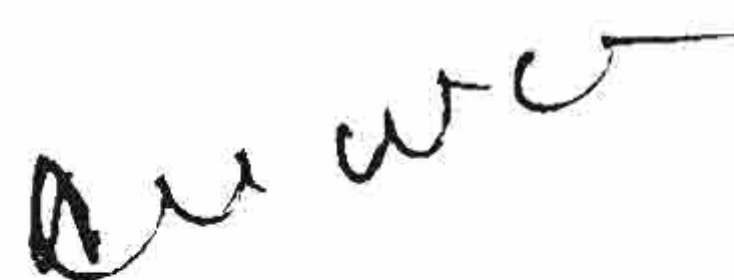



A statement showing the salient points highlighting issues raised by the participants and responded to by the representative of the applicant during the Public Hearing in **English Languages** is enclosed as **Annexure-"B"** and in **Gujarati Languages** is enclosed herewith as **Annexure-"B1"**.

The copies of responses received in writing from other concerned persons having plausible stake in the environment aspects before and during the public hearing are enclosed as **Annexure "C-1" to "C-9"** and replies from the project proponent to the same are enclosed as **Annexure "D-1" to "D-9"**.

Venue:
Gram Panchayat Hal,
Village :Atul,
Ta &Dist: Valsad,

Date: 09/10/2015


(A. G. Patel)
Representative of
Member Secretary, GPCB,
Gandhinagar &
Regional Officer - GPCB,
Vapi


(A. D. Bagul)
Chairman of the
Environmental Public Hearing
& Additional Collector and
Additional District
Magistrate, Valsad

- Encl.: 1. Annexure A, B, B1, C-1 to C-9 and D-1 to D-9 as above.
2. Video CD/DVD of Public Hearing.



GUJARAT POLLUTION CONTROL BOARD

Plot No. C-5/124, N. H. No. 8, G.I.D.C., Vapi-396 195. Dist. Valsad. (Gujarat)

Tel. : (O) (0260) 2432089, 2426207 Fax : (0260) 2432826

Email: gpcb-val@gujarat.gov.in • Website : www.gpcb.gov.in

ANNEXURE-A

Regional Office : Vapi

A Statement showing participants presents during the public hearing

As per the Ministry of Environment & Forest, Government of India, New Delhi, vide its notification no. S.O.1533(E) dated 14/09/2006 and its subsequent amendment S.O. 3067(E) dated 1st December 2009. Public Hearing was fixed for the following project covered under category "B" of M/s. Atul Ltd., for the expansion of Coal based Captive Power Plant from 34 MW to 56 MW, Survey No.274, 275 & 276, At & Po: Atul, Ta. & Dist. Valsad, Gujarat.

The statement showing Participants present during public hearing held on 09/10/2015 at 11:00 A.M. and venue at: Gram Panchayat Hall-Atul, At. Atul, Ta. & Dist. Valsad,(Gujarat) is as under.

ભારત સરકારના વન અને પર્યાવરણ મંત્રાલય, નવી દિલ્હીના જાહેરનામા ક્રમાંક: એસ.ઓ.૧૫૩૩(ઇ), તા.૧૪/૦૯/૨૦૦૬ અને તેના પછીના સુધારા ક્રમાંક: એસ.ઓ.૩૦૬૭(ઇ), તા.૦૧/૧૨/૨૦૦૯ અનુસંધાને મેસર્સ અતુલ લીમીટેડ દ્વારા સર્વે નં. ૨૭૪, ૨૭૫ અને ૨૭૬, મુ.પો: અતુલ, તા. અને જી. વલસાડ (ગુજરાત) ખાતે ૩૪ મેગાવોટ કેપ્ટીવ પાવર પ્લાન્ટ ક્ષમતાને ૫૬ મેગાવોટ વિસ્તારવા માટેની પરિયોજના કેટેગરી "બી" માં આવરી લેવાયેલ છે, જે અનુસંધાનમાં લોક સુનાવણી રાખવામાં આવેલ છે.

તા.૦૯/૧૦/૨૦૧૫ ના રોજ સવારે ૧૧:૦૦ કલાકે ગ્રામ પંચાયત હોલ-અતુલ, મુ.અતુલ, તા.અને જી. વલસાડ (ગુજરાત) ખાતે યોજાયેલ લોક સુનાવણી દરમિયાન હાજર રહેલા લોકોની યાદી નીચે મુજબ છે.

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1	Bhavesh N. Nayka	સુરવણી	B.N. Nayka
2	Vishal S. Nair	અમલી	Vishal
3	Sandip B. Nayka	દાદી કોળીયા	S. B. Nayka
4	Shital Tendel	Atul 2st gate	
5	Kuntal Patel	પર્નાર	K. T. Patel

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6	વપંભિભાઈ દાસરાવભાઈ	અગ્રા	જીવલક
7	અનંબ કુમાર મનહરભાઈ પરીખ	સરપંચ. (અલાવઈ)	અનંબ
8	અનંબ. વા. - અગ્રા	અગ્રા	અનંબ
9	બુદ્ધેશ્વર શંકરભાઈ	અગ્રા	બુદ્ધેશ્વર
10	Satish. bhavs. nayak.	અગ્રા	Satish. bhavs.
11	K.N. Nair ka.	ATUL	K.N.
12	દાસરાવભાઈ.	અગ્રા	D.B.K.
13	ડી.આર. વિનયભાઈ દેસાઈ અગ્રા ગામ વડોદરા	અગ્રા	ડી.આર.
14	શંકરભાઈ રમેશ દેસાઈ	અગ્રા	J.H. Desai
15	Hemant Patel	અગ્રા	Hemant
16	Jiendra. S. Kaval.	અગ્રા	Jiendra
17	Bupin bhai. B. Patel.	અગ્રા	Bupin
18	Ravi. T. Rathod	અગ્રા	Ravi
19	Bhuvan. S. Rathod	અગ્રા	Bhuvan
20	Mehul. S. Rathod	અગ્રા	M.S. Rathod
21	Nilesh R Nayak	અગ્રા	Nilesh
22	Nilesh G. Nayak.	અગ્રા	Nilesh
23	ASHISH R NAYAK	અગ્રા	ASHISH
24	VIKASH	અગ્રા	VIKASH



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25	મલિનકુમાર ગાયુડાશ પટેલ,	વેવે	[Signature]
26	રવિલાલ મોદી. પટેલ.	વેવે	[Signature]
27	દેવદાસ અમરજીભાઈ મુલ્કી સુપર	વેવે	[Signature]
28	રમેશચંદ્ર વશિષ્ઠી પટેલ સાહુ ઘાટ નં. ૭	વેવે	[Signature]
29	'Kumudhara' Gopalsji Patil	Biniwada	[Signature]
30	Ashok D Patel	Biniwada	[Signature]
31	રમેશચંદ્ર.મ. પટેલ	વેવે	[Signature]
32	સુભાષચંદ્ર મુલ્કી.	વેવે	[Signature]
33	સુભાષચંદ્ર મુલ્કી	વેવે	[Signature]
34	શિવુ પ. સોરઠી	વેવે	[Signature]
35	Parichay Desai	Advocate, Valsad	[Signature]
36	Sanket. m. Desai	Valsad.	[Signature]
37	Kalpesh R. Patel	Valsad	[Signature]
38	Ravishai Khachor Co. Chairman. (Tahelka News.)	Valsad	[Signature]
39	Kailash vachhani Tahelk News cameramen	valsad	[Signature]
40	Gurdip Singh	Vapi	[Signature]
41	Anup Chhugani	Vapi.	[Signature]
42	Suresh Shah	Vap.	[Signature]
43	NIRAN B DESAI	VALSAD	[Signature]



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44	Bhansali. M. Patil	Parmer	
45	મહેશ્વરભાઈ વાગમીસ વાઈ	ગાંધીધામ	M.V. Patil
46	સુભાષીબાઈ ડા. રાઈ	મગર-ડા. ૧ મોજીપોર મંડલ	
47	Yogesh D. Mahaj	Atul	
48	પ્રેમજીભાઈ. જી. પાટી.	સુલકા	
49	Pitambar B. Patil	Chichwada	A.D. Patil
50	Arun D. Patil	chichwada	A.D. Patil
51	Harsha. K. Muni	chanvi	
52	Dinesh Patil	Parmer	
53	Pravin B. Patel	Atul	
54	Himanshu Patel	Dungarwad.	
55	Dipesh N. Patel	Parmer	
56	Kamlesh S. Patil	parmer	
57	મહેશ્વરભાઈ દેસાઈ	મગર-ડા. ૧ મોજીપોર મંડલ	
58	મહેશ્વર જી. પટેલ.	મધ્ય પંચાયત મંડલ	Lionel D.
59	મહેશ્વર જી. પટેલ	મગર	
60	Shankar. A. Desai	valsad	SAD Desai
61	Anant C. Patil	Atul.	
62	Babubhavi P. Patel.	Palmer.	



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63	યશદેવ રાજ. પ્રભુ A	જી. પા. ૫૨૬	
64	વસંતલાલ શ. રસોડા	વડોદરા	
65	ભાઈ જી. વાઘ	વડોદરા	
66	શ્યામળ જી. વાઘ	વડો.	
67	પ્રદીપ રાજ વાઘ	વડોદરા	
68	સિદ્ધા. ડી. વાઘ	જામણ	
69	D. B. Patel	જી. પા. ૫૨૬	
70	અ. શ. રાજોડા	વડોદરા.	
71	શીશુ. રાજ. વાઘ	(૩૨૬)	HRP
72	શિવભાઈ રાજ. ડાઠ	શિવભાઈ.	
73	મહેશ. રાજ. રાઠોડા	દેરાલ	M. S. Rathod.
74	Mangrath	Atul.	
75	કે. પ. મુનિયાં	—	
76	Karandha Mishra	—	
77	Dipak B Patel	ATUL	
78	Vinay K. Patel	Purnera	
79	Sailesh I Patel	JIVEJ	
80	Hasmukh. R. Patel.	Anilav	
81	Mahesh. L. Patel	mota-sudarden	



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82	પી.કે. સુભાષી માધુભાઈ	વેલે	
83	બીપારી રાજેશી રાવર	પારવેરા	
84	સુભાષી સ. રાવર	જુગુમ	
85	પ્રદીપ રાવર બુધાભાઈ	પારવેરા/પારા	
86	પરિલ તેજસુધાર ભટ્ટરાજ	વેલે	
87	પરિલ સામુએલ રાવર	ચીચવાડા.	
88	પરિલ ચુગિલાભાઈ રાવર	દમલા.	S. R. Patel
89	પરિલ કુમર સુરજભાઈ	પારવેરા	K.S. Patel
90	વિવેકભાઈ ભટ્ટરાજ/પરિલ	ગાંધી	
91	કુમલ સમુએલ પટેલ	વણિયર	
92	ગુણ સુભાષી પટેલ	ડોરવાડા	J.S. Patel
93	હર્ષદી નરિસભાઈ પટેલ	મુકે	H.N. Patel
94	Darshan M Naile	દમલા	
95	Patel Sumit B	Dungarwad.	
96	Jatin S. Patel	chithwad	
97	Prakash N Pat	chithwad	
98	Harsh Patel	Valsad	
99	Subhash K Patel	chithwad	
100	Hasm S. Patel	chithwad.	



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101	Devubhai - Soni PRESS REPORTER	ATUL KANCHAN-NAGAR	
102	પ્રદીપ જી. ડી.	પાટણ	
103	Ravindra Thakur	Vapi	
104	Rakesh. R. Patel	પાટણ	
105	Prayank. B. Patel	Gundlur	P.B. Patel
106	Paresh m. Patel	Chichwadi	
107	Kirun M. Patel	Chichwadi	
108	કરુણેશ જી પટેલ	Chichwadi	K. B. D
109	Mahesh D. Naikar	Atul.	M. Naikar
110	Jinal R. Patel	Atul	
111	Narendra Modi	N. Modi	Atul
112	Narendra Modi	Atul	B.H. Bhatti
113	સુરેશ જી સુરેશ મહેતા	સુરેશ	
114	Dipesh V. Joshi	સુરેશ	D. V. Joshi
115	કરુણેશ જી પટેલ	સુરેશ	
116	Bhurat U. Patel	પાટણ	B. Patel
117	Satish m. Patel	Atul	
118	Ustin - R. Patel	Atul	
119	Vmesh. G. Naikar	Atul	V.G. Naikar



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120	Hirani - Desai	Malgaon	
121	Ulepad		
122	Rajendra M. Patel	-	
123	Jignesh M Patel	chichwada	
124	Suryakant B Pat	chichwada	
125	Nitin Uttambhai Patel	Darga Wadi	
126	Tansel Mukesh B eng.	Valskosambha	
127	Tandel Hemantkumar G	Valsad.	
128	Patel Dhirek M	Vapi	
129	Hardik. H. Patel	Vapi	
130	Parey Sindhi.	Atul.	
131	Utkashi G. Patel. T.M	Sudwadi	
132	Bhupendra. K. Bhatt	Parnore	
133	Harish N. Patel	chichwada	
134	Yatin. J. Patel	chichwada	
135	Devish K. Patel	chichwada.	
136	Toman J Patel	"	
137	Jinjal G. Patel	chichwada	
138	minesh m Patel	chichwada	



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139	Iskander E. Patel.	Tithkar.	[Signature]
140	KUNDAN KUMAR	Atul	[Signature]
141	Yasin Patel	Atol	[Signature]
142	Jayesh Patel.	ATUL (North)	[Signature]
143	Pankaj G Patel	Bagod-	[Signature]
144	Kiran N Patel	MORU Bhugra	[Signature]
145	Kishore S. Revani	CP ATUL	[Signature]
146	Vijay Mishra	Atul	[Signature]
147	R. R. Bhatt	PO- Eny	Bhatt R.R.
148	Hitesh A. Patel	PO (North)	[Signature]
149	Dinesh D. Desai	ADP Phos.	[Signature]
150	Ankushing D. Gurusing	API Phos	[Signature]
151	Suman N. Nayak	Bhagod) Ex. Sanjay (Vr)	[Signature]
152	Kajal S. Gopala	Vice (Bhagod)	[Signature]
153	Mohit J. Patel	Atul-GTK (Tomy)	[Signature]
154	Manoharlal B. Bhabha	Atul Vasava	[Signature]
155	[Signature]	[Signature]	[Signature]
156	Dharmesh M. Patel	Karmora	[Signature]
157	Bharat M. Patel	Bimwada	[Signature]



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158	P RT Tiwari	Valsad	[Signature]
159	Narsh B. Patel	Bhaged	[Signature]
160	V. D. Desai	Atul	[Signature]
161	બીના એચ. લાડ	અમુલ	Heena *
162	સી. જ્ઞાણી રામચંદ્રાણી	અમુલ	[Signature]
163	પીરમી કાલોદાસી વલ્લભ	અમુલ	P.K. Patel
164	બાલકૃષ્ણ. લલિત. રાજ	અમુલ	[Signature]
165	Ravindra kumar	Amul	[Signature]
166	Pratul G. Patel	Surat	[Signature]
167	Rajesh M. Patel	Surat	[Signature]
168	Daxuben V. Patel	Amul	Daxub V. Patel
169	Farah Desai	Surat	[Signature]
170	Jinal Mishra	Surat	[Signature]
171	Jinal H. Pandey	Surat	[Signature]
172	A. Venkatesh	Atul	[Signature]
173	Narsh B. Patel Sarpanch	Surwadu	[Signature]
174	Govind H. Patel	Dhruv	[Signature]
175	Dipak D. Desai	Lilapore	[Signature]
176	Raviadra S. Athi	Atul	[Signature]



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177	SUNIL PATEL	ECO-CHEM SURAT	
178	Ruchika Shah	ECO-CHEM SALES & SERVICES (SURAT)	
179	Hemlatta Patel	Ecochem sales & service	
180	Dr. N. C. Shah	Atul Ltd, SURAT ATUL	
181	Pankaj. A. Desai	Haria	
182	Dipak C. Naik	Haria	
183	Poojvi. Manishbhai Rethal	Haria.	
184	Ashok. T. Desai	Haria	
185	Kanishk B. Desai	Haria	
186	Dr. Dipal K. G-Desai	Haria	
187	A. M. Datta	Atul LD, ATUL	
188	Patel Yogesh H. ^{સુરત} સુરત	farmers	

Annexure-B (English)

A Statement showing issues raised by the participants and responses given by the representative of the applicant during the Public Hearing

As per the Ministry of Environment and Forests, Government of India, New Delhi vide its notification no. S.O. 1533 (E) dated 14/09/2006 and its amendment S. O. 3067 (E) dated 01/12/2009, Environment Public Hearing is conducted for M/s. Atul Limited, Valsad at Gram Panchayat Hall, Village: Atul, Dist. Valsad for capacity expansion of Coal based Captive Power plant i.e. From 34 MW to 56 MW by installing additional 22 MWH CPP, which is covered under Category "B", and hence Environmental Clearance is necessary. Accordingly, Environmental Public Hearing is conducted at Gram Panchayat Hall, Atul, at Village: Atul, Ta. Valsad, Dist. Valsad on Dated 09/10/2015 at 11.00 am under the chairmanship of Shri A. D. Bagul, Additional Collector and Additional District Magistrate, Valsad.

Mr. A.G. Patel, Regional Officer, Gujarat Pollution Control Board, Vapi and Representative of Member Secretary, Gujarat Pollution Control Board has obtained oral permission to start proceeding of public hearing from the chairman of the committee. Regional Officer, Gujarat Pollution Control board has welcomed all those who are remaining present. He has briefed the various provisions of EIA Notification-2006 and the process of public hearing. He has informed about its wide publicity of Public Hearing notice which was published in local newspaper i.e. Gujarat Samachar and Sandesh on 08/09/2015 and Times of India on 09/09/2015. Further, he stated that as per the provision of the notification, only local affected people can present their suggestions/views/comments/questions orally and other interested people can make their suggestions/comments/questions in writing which will be considered as a part of procedure of the Public Hearing.

The company has made Power Point presentation about the proposed project. Initially, Mr. Mohanan – Director, has given presentation by covering various aspects in brief about the company. Subsequently, Mr. Sunil Hansoti, Dr. Gautam Dave and Mr. Ajitsing Batra etc. presented about the exiting & proposed expansion project related activities.

Regional Officer, GPCB, Vapi invited the local affected people for representation and suggestions. He also added that person has to ask questions one by one after giving their brief introduction.

Sr. No.	Name and address of person Who presented the issue of	The issues presented	Reply
1	Mr. Rajubhai Pravinbhai Dangarvala Jan Jagruti Manch, Valsad	<ul style="list-style-type: none">Why the media persons are not allowed to enter in this public hearing?	Since, this is an Environment Public Hearing and hence there should not be any private or special kind of invitation to be given.. Mr. A. G. Patel, Regional Officer stated that the

		<ul style="list-style-type: none"> • If the Public hearing is of District level, why District Collector is not present? 	<p>press note regarding the Environment public Hearing was published in local Gujarati newspapers (i) Gujarat Samachar and (ii) Sandesh on 08/09/2015 and English newspaper i.e. Times Of India on 09/09/2015. It is also pointed out that total 14 surrounding villages were informed well in advance about the Environment public Hearing through intimation to the Talati cum mantri and Sarpanch of the respective villages.</p> <p>The chairman of the Environment public Hearing stated that District Collector is unable to attend the public hearing due to unavoidable circumstances and hence on behalf of him myself, As an Additional Collector is present for the same.</p>
2	Mr. Brijesh Pandey, Sandesh (Daily newspaper), Valsad	<ul style="list-style-type: none"> • Why media personnel are not invited and why they have been stopped by securities for participating? 	Mr. A. G. Patel, Regional Officer clearly stated that we don't invite any individual. This is a public invitation in which only local affected people can participate without any special invitation.
3	Mr. Harshadrai Thakorbai Desai Village: Valsad, Pardi Ta. & Di.Valsad	<ul style="list-style-type: none"> • Atul Company discharges their wastewater through underground drain. I have submitted numbers of applications to Atul Ltd. as well as to GPCB, but till date I have not received any reply for the same. • Why the Company damages the environment by installing proposed coal based power plant instead 	Mr. A. G. Patel, Regional Officer informed that GPCB has not received any such complaints/ applications against this unit. ---

		<p>of natural gas based/solar energy power plant?</p> <ul style="list-style-type: none"> • By replacing the 35 m height chimney with 106 meter height chimney, how much distance shall be covered by Fly ash emitting from the chimney? • All the power plants are of gas based and solar based, then why do you want to expand this coal based power plant? • Please clarify this and I have opposed the coal based proposed power plant. Too? • Often there is smell due to gas causing asthma and mostly small children are affected.. 	<p>Mr. A. G. Patel, Regional Officer stated that the height of chimney is determined by a precise calculation. And whereas, the height of the chimney lesser the pollution. While In the proposed project "ESP" will be installed and for reduction in the SO₂ emission, lime will be used. To reduce the NO_x emission, low NO_x burners will be installed. There are three types of gaseous emission from a chimney.</p> <ol style="list-style-type: none"> 1. Particulate matter (PM₁₀ & PM_{2.5}), 2. SO_x, 3. NO_x. <p>Your suggestion will be forwarded to competent authority and the decision regarding the project will be taken by DOEF, Gujarat.</p> <p>The company's representative Dr. Gautam Dave said that the phosgene is manufactured in the company since last 60 years. And the plant is installed in collaboration with Japanese company. And till the date, not a single case of phosgene leakage has been occurred so far. There are 11 types of process controls for the phosgene manufacturing process which controls the chlorine (Cl₂) and Carbon Monoxide (CO) at source.</p> <p>In case of phosgene leakage the plant will stop</p>
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4	Mr. Sumanbhai Jivanabhai Patel, Village: Dived, Ta. & Di.Valsad	<ul style="list-style-type: none"> • Why do you damage the environment? • He also demands that free electricity and water will be provided to the villages, but it is not done by the company. 	<p>---</p> <p>---</p>
5	Mr. Ashokbhai Chhotubhai Patel Village: Dungarvadi. Ta. & Di.Valsad	<ul style="list-style-type: none"> • How much distance shall be kept between the proposed plant and village population? • 80 percent of total employment are from outside in company. Local people don't get employment in company. • There are about 10 lacs trees planted in Atul which are of such types trees that don't be affected by gases. • About @ 400 acres of land, out of total 1000 acres is still unutilised. This land shall be utilized for projects which doesn't affect the nearby population. We oppose the proposed expansion of power plant. 	<p>---</p> <p>---</p> <p>---</p>

6	Mr.Jinal Patel, Village: Atul, Ta. & Di.Valsad	<ul style="list-style-type: none"> • There is medi claim policy for the company's employees but no such policy for the nearby villagers. • Local people don't get education and employment. @ 80% percent of total employment are from outside in the company. • What is the present status of Government Land and Gauchar land which was marked at the time of establishment of Atul Ltd.? 	<p>The company's representative Mr. Hriday Desai stated that the company has taken Public Liability Insurance (PLI) policy under which all the affected people are covered and shall get compensation in case of any environmental disaster.</p> <p>The company's representative Mr. Gautam Desai replied that more than five thousand people are employed and 90 per cent out of which are almost local people. Frequent interviews are being arranged by the company for the employment. Company is also running institutes for skill development at Khergam and Sagbara villages. Presently, there are requirement for the ITI grade workers in the company and applications are invited from the local people.</p> <p style="text-align: center;">---</p>
7	Mr. Hitesh Patel, Village: paranera Ta. & Di.Valsad	<ul style="list-style-type: none"> • I was rejected only on medical ground even after passing the interview at Atul Ltd. 	<p style="text-align: center;">---</p>
8	Mr.Sanket Desai Prahari Charitable Trust, Valsad	<ul style="list-style-type: none"> • How far away proposed project from reserved forest? 	<p>The company's representative Mr. Navin Patel replied that no such notified reserved forest within the 10 km radius of the proposed project site.</p>

9	Mr .Sumant Patel, Village: Dived, Ta. & Di.Valsad	<ul style="list-style-type: none"> • Villagers don't get water and they have to use contaminated water. 	The company's representative Mr.Navin Patel informed that under the proposed project survey, water samples were taken from 9 villages within 10 km radius of the project site. The analysis results of these samples are within the prescribed limit.
10	Mr. Jignesh MohanbhaiPatel Village: Chichvada, Ta. & Di.Valsad	<ul style="list-style-type: none"> • Our application is being rejected on the basis of name of the villages even after completion of interviews by the ATUL Company. 	---
11	Mr. Hemant Kumar Tandel Po. Valsad, Ta. & Di.Valsad	<ul style="list-style-type: none"> • Earlier, in a committee held at Paris on the "Climate change", • it was declared that the gas emission will be controlled compare to the year 2005 level. 	The Company's representative Mr.Navin Patel replied that the emission level and incremental value of gas emission of exiting plant are well within the prescribed limit.
12	Mr. Bhargav Dave, Po. Valsad, Ta. & Di.Valsad	<ul style="list-style-type: none"> • First of all, he thanks to GPCB for organizing the public hearing. • He informed that we have to be incurred medical expenses in case of gas leakage from the company whereas company doesn't provide even any medical treatment facility. 	---
13	Mrs.Purvi Rathod Sarpanch Village: Hariya Ta. & Di.Valsad	<ul style="list-style-type: none"> • She thanks to GPCB for organising such public hearing event and emphasis to organize at regular interval. • She also added focus towards CSR activities. 	---
14	Mr.Parichay DesaiValsad City	<ul style="list-style-type: none"> • With reference to column No. 4 of page No.2 of executive summary report, NH- 8 is at a distance of 2 KM from company, but in fact it is less than 500 meter. Have you check 	The company's representative Mr.Navin Patel replied that the proposed project site is @ 2 km away from the NH. No. 8.

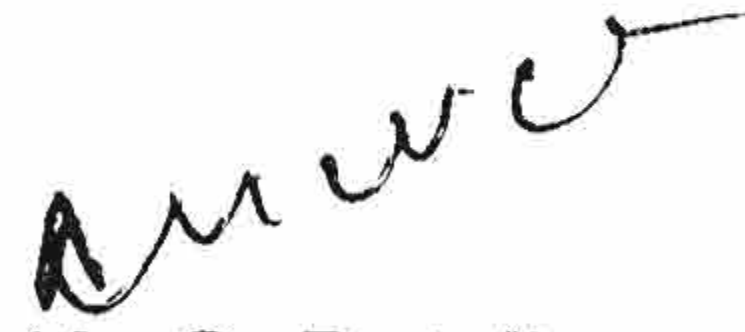
		<p>this report?</p> <ul style="list-style-type: none"> • He further stated that in Column No. 8 of the same page, it is shown that there is no reserved forest within 10 K.M. radius of this project, but in fact there are @ 3 reserve forest zones. • He quoted about recent U.N. meeting & stated that Indian Ministry has given assurance that measures will be taken to reduce Green House Gases(GHG) by 35%. The reduction will be done by converting coal based plant into solar based and or gas based power plant. Then how there can be expansion of the coal based plant? • Why the Coal based plant of this company is not being converted into gas based and/or solar based plant? • Please give me answer for the same. • If there will not be 100% treatment of the fly ash and toxicity such as Arsenic, Lead, Mercury and other solid waste then what will you do for it? • He has also submitted letter in writing for the same. 	<p>---</p> <p>---</p> <p>The company's representative Mr. Sunil Hansoti informed that Gas based plant is very costly and gas is not available consistently. Nos. of Gas based power plant has been compelled under shut down due to this reason.</p> <p>The company's representative Mr. Sunil Hansoti replied that as per the MoEF notification there should be @ 85 % utilization of the fly ash. But, this company is going to achieve @ 100 % utilization and it will not be released in water.</p>
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While concluding the public hearing, Chairman of the public hearing stated that all oral and written representations, suggestions have been recorded. He also added that, answers given by the company against suggestions/comments received in writing are also noted. Also, video and audio recording of the whole proceeding was done and the same will be submitted along with final report to Department of Environment & Forest (DOEF) Govt. of Gujarat, Gandhi agar. Final decision will be taken by the respective department/ committee of the Government of Gujarat.

As there are no further questions are being raised so far for the proposed project expansion activity of Captive power plant, the public hearing was declared completed with the permission of Chairman.

Venue:
Gram Panchayat Hal,
Village :Atul,
Ta &Dist: Valsad,

Date: 09/10/2015



(A. G. Patel)
Representative of
Member Secretary, GPCB,
Gandhinagar &
Regional Officer - GPCB,
Vapi



(A. D. Bagul)
Chairman of the
Environmental Public Hearing
&Additional Collector and
Additional District
Magistrate, Valsad

એનેક્સર-બી૧ ગુજરાતી

લોક સુનાવણી દરમ્યાન હાજર રહેલ લોકો દ્વારા રજુ કરવામાં આવેલ મુદ્દાઓ અને અરજદારના પ્રતિનિધિ દ્વારા આપવામાં આવેલ જવાબ

ભારત સરકારના વન, પર્યાવરણ અને જળ, વાયુ પરિવર્તન મંત્રાલય નવી દિલ્હીના જાહેરનામા ક્રમાંક :એસ.ઓ. ૧૫૩૩-ઇ તા. ૧૪-૦૯-૨૦૦૬ અને તેના પછીના સુધારાક્રમાંક એસ.ઓ. ૩૦૬૭ (ઇ) તા. ૦૧-૧૨-૨૦૦૯ ના પરીશિષ્ટના ક્રમ નંબર: ૬(એ) અન્વયે મેસર્સ અતુલ લિમીટેડ, વલસાડની લોક સુનાવણી, ગ્રામ પંચાયત હોલ, ગામ: અતુલ, તા. જિ. વલસાડ ખાતે હાલની કોલસા આધારીત ૩૪ મેગાવોટ કેપ્ટીવ પાવર પ્લાન્ટ ક્ષમતાને વિસ્તારવા સૂચિત વધુ ૨૨ મેગાવોટની સ્થાપના માટેની પરિયોજના (પ્રોજેક્ટ) કેટેગરી “બી” માં આવરી લેવાયેલ છે અને તે અન્વયે પર્યાવરણીય મંજૂરી જરૂરી છે. સદર પર્યાવરણીય લોક સુનાવણી મોજે: અતુલ, તા. અને જિ. વલસાડ ખાતે તા. ૦૯/૧૦/૨૦૧૫ નાં રોજ સવારે ૧૧:૦૦ કલાકે અધિક જિલ્લા મેજિસ્ટ્રેટ; વલસાડ તેમજ પર્યાવરણીય લોક સુનાવણીના અધ્યક્ષશ્રી એ.ડી.બાગુલની અધ્યક્ષપણા હેઠળ આયોજીત કરવામાં આવેલ.

શ્રી. એ.જી.પટેલ, પ્રાદેશિક અધિકારી, ગુજરાત પ્રદુષણ નિયંત્રણ બોર્ડ, વાપી તથા સભ્ય સચિવશ્રી ગુજરાત પ્રદુષણ નિયંત્રણ બોર્ડના પ્રતિનિધિ તરીકે તેમણે કાર્યવાહી શરૂ કરવા માટે અધ્યક્ષશ્રીની પરવાનગી મેળવી. પ્રાદેશિક અધિકારી, ગુજરાત પ્રદુષણ નિયંત્રણ બોર્ડએ લોક સુનાવણીમાં ઉપસ્થિત સૌને આવકાર્યા, તેઓએ ઇ.આઇ.એ. નોટીફિકેશન (ઈ.આઈ.એ.-૨૦૦૬) અંતર્ગત વિવિધ જોગવાઈઓ અને લોક સુનાવણીની પ્રક્રિયા બાબતે સંક્ષિપ્તમાં માહિતી આપી, તેમને લોકસુનાવણીની બહોળી પ્રસિધ્ધિ અંગે ગુ.પ્ર.નિ.બોર્ડ દ્વારા સ્થાનિક દૈનિક પત્રો ગુજરાત સમાચાર અને સંદેશ, ગુજરાતી આવૃત્તિમાં તા. ૮/૦૯/૨૦૧૫ અને અંગ્રેજી દૈનિક પત્ર ટાઇમ્સ ઓફ ઇન્ડિયા માં તા. ૦૯/૦૯/૨૦૧૫ નાં રોજ આપવામાં આવેલ જાહેરખબર બાબતે જણાવેલ તેમજ જાહેરનામાંની જોગવાઈ અનુસાર માત્ર સ્થાનિક અસરગ્રસ્ત લોકો જ આ પર્યાવરણ લોક સુનાવણીમાં મૌખિક રજૂઆત કરી શકશે, જ્યારે હિત ધરાવતા અન્ય વ્યક્તિઓ દ્વારા કરેલ લેખિત રજૂઆતનો કાર્યસુચિમાં સમાવેશ કરવામાં આવશે.

ત્યારબાદ કંપનીને સૂચિત પ્રોજેક્ટ અંગેનું પાવર પોઇન્ટ પ્રેઝન્ટેશન/પ્રસ્તુતિકરણ રજૂ કરવા જણાવ્યું. જે મુજબ સૌપ્રથમ કંપનીના શ્રી મોહનન, નિયામકશ્રી દ્વારા સૂચિત યોજનાનો ટુંકમાં ખ્યાલ આપ્યો ત્યારબાદ શ્રી સુનિલ હાંસોટી, ડૉ. ગૌતમ દવે અને શ્રી અજીતસિંગ બત્રા દ્વારા દરખાસ્ત હેઠળની યોજના અને હયાત પ્લાન્ટ અંગેની વિગતોનું પ્રસ્તુતિકરણ કરવામાં આવ્યું.

કંપની દ્વારા સૂચિત પ્રોજેક્ટની માહિતી અંગેનું પ્રસ્તુતિકરણ પુર્ણ થયા બાદ શ્રી એ.જી.પટેલ, પ્રાદેશિક અધિકારી અને સભ્ય સચિવશ્રી ગુ.પ્ર.નિ.બોર્ડ, ગાંધીનગરના પ્રતિનિધિ દ્વારા સૂચિત યોજનાના

સંદર્ભમાં એક પછી એક રજુઆત કરવા અને તે મુજબ જરૂરી પ્રત્યુત્તર કંપનીના પ્રતિનિધિશ્રી દ્વારા આપવામાં આવે તેવી સુચના આપેલ જે મુજબ નીચેની વિગતે રજુઆત કરવામાં આવેલ છે.

ક્રમ	મુદ્દો રજુ કરનારનું નામ અને સરનામું	રજુ કરાયેલ મુદ્દાઓ	પ્રત્યુત્તર
૧	શ્રી રાજુભાઈ પ્રવિણભાઈ ડાંગરવાલા, જનજાગૃતિ મંચ, વલસાડ	<p>આ જાહેર લોક સુનાવણીમાં પ્રેસ/મીડીયાને શા માટે પ્રવેશ અપાયો નથી?</p> <p>• આ જિલ્લા કક્ષાની લોક સુનાવણી છે તો જિલ્લા કલેક્ટર કેમ હાજર નથી?</p>	<p>આ જાહેર પર્યાવરણીય લોક સુનાવણી હોઈ, ખાનગી કે ખાસ પ્રકારનું આમંત્રણ આપવાનું રહેતું નથી. પર્યાવરણ લોક સુનાવણીની જાહેરાત એક માસ અગાઉ સ્થાનિક દૈનિકપત્રો ગુજરાત સમાચાર (ગુજરાતી આવૃત્તિ), વલસાડ તા. ૮/૦૯/૨૦૧૫ અને ટાઇમ્સ ઓફ ઇન્ડિયા, (અમદાવાદ આવૃત્તિ) તા. ૯/૦૯/૨૦૧૫ ના રોજ આપવામાં આવેલ, એમ શ્રી એ.જી.પટેલ, પ્રાદેશિક અધિકારી દ્વારા જણાવેલ તેમજ તે અંગેની બહોળી પ્રસિધ્ધિ આજુબાજુના ૧૪ અસરગ્રસ્ત ગામો ખાતે પણ તલાટી કમ મંત્રીશ્રી અને સરપંચશ્રી દ્વારા પણ જાણ કરવામાં આવેલ.</p> <p>અધ્યક્ષશ્રી એ જણાવ્યું કે જિલ્લા કલેક્ટર અનિવાર્ય સંજોગો ના કારણે ઉપસ્થિત રહી શક્યા ન હોઈ તેમના વતી હું અધિક કલેક્ટરશ્રી હાજર છું.</p>

૨	શ્રી બ્રીજેશ પાંડે, સંદેશ (દૈનિક સમાચાર પત્ર), વલસાડ	<ul style="list-style-type: none"> મિડિયા કર્મી ને કેમ આમંત્રણ આપવામાં આવ્યું નહિ અને અમને લોક સુનાવણી માં ભાગ લેવાથી કેમ સીક્યુરીટી દ્વારા અટકાવવામાં આવે છે? 	શ્રી એ.જી.પટેલ, પ્રાદેશિક અધિકારી, સદર બાબતે પુનઃ સ્પષ્ટતા કરીને જણાવ્યું કે વ્યક્તિગત આમંત્રણ આપવાનું રહેતું નથી. જાહેર આમંત્રણ આપેલ છે જેમાં આજુબાજુનાં ગામના માત્ર અરસગ્રસ્ત લોકો જ મૌખિક રજૂઆત કરી શકે છે.
૩	શ્રી હર્ષદરાય ઠાકોરભાઈ દેસાઈ ગામ: વલસાડ પારડી તા અને જી. વલસાડ	<ul style="list-style-type: none"> અતુલ કંપની દ્વારા ભુગર્ભ ગટરનું પાણી સીધે સીધુ બહાર છોડવામાં આવે છે. મે વારંવાર ઘણીવાર અરજીઓ અતુલ કંપનીને લખવામાં આવેલ છે તેમજ જી.પી.સી.બી. ને આપેલ છે. જેનો આજ સુધી મને જવાબ આપવામાં આવ્યો નથી. કંપની ગેસ કે સોલાર આધારિત પાવર પ્લાન્ટને બદલે કોલસા આધારિત યોજના દ્વારા શા માટે પર્યાવરણને નુકશાન કરવા માંગો છો? ૩૫ મીટરની ચીમનીની જગ્યાએ ૧૦૬ મીટરની ચીમની કરશો તો તેમાંથી નીકળતી ફ્લેયમ્સ કેટલા વિસ્તાર સુધી જશે? બધા પ્લાન્ટો કોલસા આધારિત, ગેસ આધારિત અને સોલર આધારિત થાય છે તો તમે આ કોલસા આધારિત પ્લાન્ટ નું વિસ્તરણ કેમ કરો છો? તો અંગે સ્પષ્ટતા કરશો અને મારો કોલસા આધારિત પ્લાન્ટ બાબતે 	શ્રી એ.જી.પટેલ, પ્રાદેશિક અધિકારીએ જણાવ્યું કે આ અંગેની કોઈ ફરીયાદ મળી નથી. --- શ્રી એ.જી.પટેલ, પ્રાદેશિક અધિકારી એ જણાવ્યું કે ચીમનીની ઉંચાઈ ચોકક્સ ગણતરી મુજબ નક્કી કરવામાં આવે છે. ચીમનીની ઉંચાઈ જેટલી વધારે એટલું પ્રદુષણ ઓછું થાય છે. સુચિત પરીયોજનામાં ESP લગાડવામાં આવશે અને લાઇનનો ઉપયોગ કરી SO2 ની માત્રા ઓછી કરવામાં

		<p>વિરોધ છે.</p> <ul style="list-style-type: none"> • રાત્રે ઘણી વાર ગેસની વાસ આવે છે તેનાથી અસ્થમાનો રોગ થાય છે તેમજ ખાસ કરીને નાના છોકરાઓને આની ખાસ અસર થાય છે. • ફોસ્જીન લીક થાય તો તે સમયે તમે શું કરશો? 	<p>આવશે. NOx ની માત્રા ઘટાડવા માટે low NOX બર્નરનો ઉપયોગ થશે. ચીમનીમાંથી ત્રણ પ્રકારના ઉત્સર્જન થાય છે. ૧). પાર્ટીક્યુલેટ મેટર (PM), ૨). SOx અને ૩). NOx.</p> <p>આપની રજુઆતને ધ્યાનમાં લઈ આગળ મોકલવામાં આવશે અને આ પ્રોજેક્ટ અંગેનો નિર્ણય કોમ્પીટન્ટ (Compentant) ઓથોરીટી દ્વારા લેવામાં આવશે.</p> <p>કંપની પ્રતિનિધિ શ્રી ડૉ. ગૌતમભાઈ દવે એ જણાવ્યું કે છેલ્લા ૬૦ વર્ષથી આ કંપનીમાં ફોસ્જીન નું ઉત્પાદન કરવામાં આવે છે. જાપાનીઝ કંપનીના સહયોગ થી આ પ્લાન્ટ નાંખવામાં આવેલ છે અને આજ દિન સુધી લીકેજ અંગેનો એક પણ કેસ નોંધાયો નથી. ફોસ્જીન બનાવવાની પ્રક્રિયા પર ૧૧ જાતની પ્રોસેસ કંટ્રોલથી નિયંત્રણ રાખવામાં આવે છે જે ક્લોરીન (Cl₂) અને કાર્બન મોનોક્સાઈડ (CO) ને કંટ્રોલ કરે છે. કોઈપણ જગ્યાએ જ્યારે પણ ફોસ્જીન લીકેજ થાય તો આપોઆપ પ્લાન્ટ</p>
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			<p>બંધ થઈ જાય તેવી સીસ્ટમ છે. આ સિવાય કાચદાની જોગવાઈ મુજબ અમે વર્ષમાં ૪ થી ૫ મોકડીલ કરીએ છીએ અને વર્ષમાં એક વાર કલેક્ટરશ્રીની હાજરીમાં મોકડીલ પણ કરવામાં આવે છે.</p> <p>ફોસ્ફોન માટે ની નિયમિત ટ્રેનિંગ કામદારોને આપવામાં આવે છે.</p> <p>સરકારી ધારાધોરણ મુજબ ફોસ્ફોન નો સંગ્રહ કરીએ છીએ, ફોસ્ફોન ની સ્ટોરેજ ટેન્કને એમોનીયમ હાઇડ્રોક્સાઇડ ના સોલ્યુશન વડે સંપૂર્ણ રીતે કવર કરવામાં આવે છે. તદ્દ્વારા પાણી સાથે શાવરની પણ વ્યવસ્થા કરેલ છે. જેની સમયાંતરે ચકાસણી કરવામાં આવે છે.</p>
૪	શ્રી સુમનભાઈ જીવણભાઈ પટેલ, ગામ : દીવેદ, તા અને જી. વલસાડ	<ul style="list-style-type: none"> પર્યાવરણને કેમ નુકશાન કરો છો? ગામડાને મફત વીજળી તેમજ પાણી આપવાનું કહેલ પણ કોઈ ગામને આપેલ નથી. 	---
૫	અશોકભાઈ ઓટુભાઈ પટેલ	<ul style="list-style-type: none"> જે પ્લાન્ટ નાંખવાના છો તે ગામ વસ્તીથી કેટલો દૂર રાખવો 	---

	ગામ: ડુંગરવાડી. તા અને જી. વલસાડ	જોઈએ? <ul style="list-style-type: none"> • ૮૦ ટકા બહારના માણસો કામ કરે છે? સ્થાનિકને રોજગારી મળતી નથી? • અતુલની અંદર જે વૃક્ષો વાવેલ છે તે આશરે ૧૦ લાખ વૃક્ષો છે અને એ લોકો જે વૃક્ષો વાવેલા છે કે તેને ગેસની અસર થતી નથી. ૧૦૦૦ એકર જમીનમાંથી ૪૦૦ એકર જમીન ઉપયોગ વગરની છે. એ જમીન માં વસ્તીને નુકશાન ન થાય એવો પ્રોજેક્ટ લાવો. અમારો વિરોધ છે કે કંપનીનું વિસ્તરણ ન થવું જોઈએ. નવું કશું કરવું નહીં, અહીંથી જ અટકવું. 	--- ---
૬	શ્રી જીનલ પટેલ, ગામ: અતુલ તા અને જી. વલસાડ	<ul style="list-style-type: none"> • કંપનીના માણસોનો મેડીકલેમ છે પરંતુ આજુબાજુના ગામના અન્ય લોકોનો મેડીકલેમ નથી? જે હોવો જોઈએ. જીવના જોખમે કામ કરતા કામદારો માટે મેડીકલેમ છે, ગામના લોકોનો મેડીકલેમ હોવો જરૂરી છે. • ગામના લોકોને શિક્ષણ, રોજગારી મળતી નથી? ૮૦ ટકા બહાર ના લોકોને રોજગારી આપવામાં આવે છે.? 	કંપની પ્રતિનિધિ શ્રી હૃદય દેસાઈ એ જણાવ્યું કે કંપની એ PLA પોલીસી લીધેલ છે. જેમાં આજુબાજુના અસરગ્રસ્ત વિસ્તારનો સમાવેશ થયેલ છે અને કોઈ દુર્ઘટના થાય તો વળતરની જોગવાઈ છે. આ અંગે કંપની પ્રતિનિધિ શ્રી ગૌતમ દેસાઈ એ જવાબ આપ્યો કે પાંચ હજારથી વધુ લોકો ને રોજગારી આપી છે જેમાં ૮૦ ટકા જેટલા લોકો સ્થાનિક છે. રોજગારી માટે ઇન્ટરવ્યુંનું પણ વખતોવખત

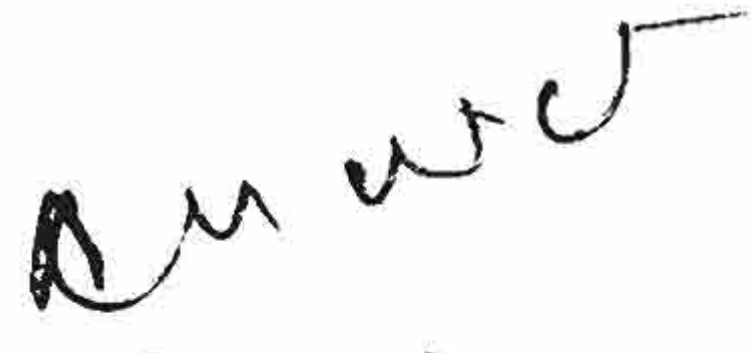
			આયોજન કરવામાં આવે છે. સ્કીલ ડેવલોપમેન્ટ માટે ખેરગામ અને સાગબારામાં કાર્યરત છે. કંપનીમાં હાલમાં આઇ.ટી.આઇ. ટ્રેડના કુશળ ટેકનીશિયનની જરૂરીયાત હોઇ અરજદારોને આવકારીએ છીએ.
		અતુલ કંપનીની જ્યારે સ્થાપના થઇ ત્યારે ગૌચરની અને સરકારી જમીનો હતી તે જમીન કયાં છે અને કેટલી છે તે જણાવો?	---
૭	શ્રી હિતેશ પટેલ, ગામ : પારનેરા તા અને જી. વલસાડ	મને ઇન્ટરવ્યુ માં સિલેક્ટ કરેલ અને પછી મેડીકલ ગ્રાઉન્ડ ઉપર નિમણુંક નકારવામાં આવેલ. ગામના લોકોની પસંદગી કરવામાં આવેલ નથી.	---
૮	શ્રી સંકેત દેસાઇ, પ્રહરી ચેરીટેબલ ટ્રસ્ટ, વલસાડ	તેઓશ્રી દ્વારા પુછવામાં આવ્યું કે રીઝર્વ ફોરેસ્ટ આ પ્રોજેક્ટથી કેટલો દૂર હોવો જોઇએ?	કંપનીના પ્રતિનિધિ શ્રી નવીનભાઇ પટેલ એ જણાવ્યું કે આ પ્રોજેક્ટથી ૧૦ કીલોમીટરની ત્રિજ્યામાં કોઇ નોટીફાઇડ રીઝર્વ ફોરેસ્ટ નથી.
૯	શ્રી સુમંત પટેલ, ગામ: દિવેદ, તા અને જી. વલસાડ	ગામમાં પાણી આવતુ નથી પ્રદુષિત પાણીનો ઉપયોગ કરવો પડે છે.	કંપનીના પ્રતિનિધિ શ્રી નવીનભાઇ પટેલ એ જણાવ્યું કે આ સુચિત યોજના અંતર્ગત ૧૦ કીલોમીટરની ત્રિજ્યામાં ૯ ગામોના પાણીના નમુનાઓ લેવામાં આવેલ, જે નિયત ધારાધોરણ મુજબ ના જણાવેલ.
૧૦	શ્રી જીજ્ઞેશભાઇ મોહનભાઇ પટેલ,	અતુલ કંપની દ્વારા ઇન્ટરવ્યુ યોજાયા પછી અમારી અરજીઓ અને ગામના	---

	ગામ: ચિયવાડા, તા અને જી. વલસાડ	નામો જોઈને જ અરજી નકારવામાં આવે છે.	
૧૧	શ્રી. હેમંત કુમાર ટંડેલ, મું: વલસાડ, તા અને જી. વલસાડ	હાલમાં "કલાઇમેન્ટ ચેન્જ" અંગેની પેરીસમાં સમિતિ મળેલ હતી. તેમાં ૨૦૦૫ ના લેવલ પ્રમાણે ગેસ એમીશનને કંટ્રોલ કરવામાં આવશે તેવું જાહેર કરેલ.	કંપની પ્રતિનિધિ શ્રી નવીનભાઈ પટેલ એ જણાવ્યું કે ગેસ એમિઝન પણ નોટીફાઇડ લેવલ ની અંદર છે અને ઇન્કરીમેન્ટલ વેલ્યુ પણ નોટીફાઇડ લેવલ ની અંદર છે.
૧૨	શ્રી ભાર્ગવ દવે, મું. વલસાડ, તા અને જી. વલસાડ	સૌપ્રથમ લોક સુનાવણી યોજના માટે જી.પી.સી.બી. નો આભાર વ્યક્ત કર્યો. વધુમાં ગામના લોકો જ્યારે આ કંપનીના ગેસથી બિમાર થાય છે ત્યારે અમારા પૈસાથી સારવાર કરાવવી પડે છે અને કંપની આ અંગે સગવડ આપતી નથી.	---
૧૩	શ્રી પૂર્વી રાઠોડ સરપંચશ્રી ગામ: હરીયા તા અને જી. વલસાડ	આ લોક સુનાવણી માટે જી.પી.સી.બી. નો આભાર વ્યક્ત કર્યો અને આ પ્રકારનો કાર્યક્રમ સતત થવો જોઈએ તેમજ સી.એસ.આર.ની પ્રવૃત્તિઓમાં વધારે ભાર મુકવાની જરૂર જણાય છે તેમ જણાવેલ.	---
૧૪	શ્રી પરિચય દેસાઈ, વલસાડ સીટી	<ul style="list-style-type: none"> અહેવાલમાં દર્શાવવામાં આવેલ પાના નં.૨ ઉપર કોલમ ૪ માં એવું બતાવેલ છે "કે નેશનલ હાઇવે નં ૮ અહીંયા થી ૨ કીમી ના અંતરે આવેલ છે" પણ હકીકતમાં ૫૦૦ મીટરનું પણ અંતર નથી. શું તમે આ રીપોર્ટ ચેક નહિ કરેલ ? અહેવાલના પાનાના કોલમ નં-૮ માં જણાવેલ છે કે સૂચિત 	કંપનીના પ્રતિનિધિ શ્રી નવીનભાઈ પટેલ એ જણાવ્યું કે સૂચિત સાઇટ આશરે ૨ કી.મી. જેટલા અંતરે છે.

		<p>પ્રોજેક્ટના ૧૦ કી.મી. ના ત્રિજયામાં કોઈ પણ રિઝર્વ ફોરેસ્ટ ઝોન આવેલ નથી હકીકત ૩ જેટલાં રિઝર્વ ફોરેસ્ટ ઝોન આવેલ છે.</p> <ul style="list-style-type: none"> • યુ.એન. ની હાલમાં થયેલ મીટીંગમાં એવી બાંહેધરી આપી કે ગ્રીન હાઉસ ગેસ માં ૩૫ ટકા નો ઘટાડો કરીશું. આ ઘટાડો કોલ આધારિત પ્લાન્ટો ને ગેસ આધારિત અને સોલાર આધારિતમાં પરિવર્તન કરીને જ થશે. તો પછી આ કંપનીના કોલ આધારિત પ્લાન્ટનું વિસ્તરણ કેવી રીતે થઈ શકે છે? • આ કંપનીના સુચિત પ્લાન્ટને કોલ આધારિત થી ગેસ અને સોલાર આધારિત પ્લાન્ટ કેમ કરવામાં આવતો નથી તેનો જવાબ આપો? • ફ્લાય એશ અને ટોક્સિક તત્ત્વો જેવાં કે આરસેનીક (Arsenic), લીડ (Lead), મરક્યુરી (Mercury) જેવાં સોલીડ વેસ્ટ નું ૧૦૦ % ટ્રીટમેન્ટ નહિ થઈ શકે તો તેનું શું? • રજુઆતકર્તાએ લેખિતમાં રજુઆત કરેલ છે. 	<p>---</p> <p>કંપનીના પ્રતિનિધિશ્રી સુનીલ હાંસોટીએ જણાવ્યું કે ગેસ આધારિત પાવર પ્લાન્ટ બહું જ મોંઘો પડે છે અને ગેસ પણ સતત ઉપલબ્ધ ન હોઈ એટલે ગેસ આધારિત પાવર પ્લાન્ટ સલાહભર્યો નથી.</p> <p>કંપનીના પ્રતિનિધિશ્રી સુનીલ હાંસોટીએ જણાવ્યું કે ભારત સરકારના જાહેરનામાં પ્રમાણે ફ્લાયએશનું ૮૫% યુટીલાઇઝેશન થવું જોઈએ. આ કંપની ૧૦૦% ફ્લાયએશનું યુટીલાઇઝેશન કરનાર છે.</p>
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અંતમાં અધ્યક્ષશ્રીએ જણાવ્યું કે, જે રજુઆતો અમને મૌખિકમાં મળી છે તે તમામની નોંધ કરવામાં આવેલ છે. કંપની દ્વારા જે પ્રશ્નોના જવાબ આપવામાં આવ્યા છે, જે આપની લેખિત રજુઆતો છે, તેની પણ નોંધ કરવામાં આવેલ છે. સાથે સાથે સમગ્ર પ્રક્રિયાનું ઓડીયો અને વિડીયો રેકોર્ડીંગ પણ કરવામાં આવેલ છે એ તમામ પ્રક્રિયાની નોંધ કરીને ફાઇનલ રીપોર્ટ ગુજરાત સરકારના વન અને પર્યાવરણ મંત્રાલય, ગાંધીનગર મોકલવામાં આવશે. જેનો નિર્ણય ગુજરાત સરકારનાં સંલગ્ન વિભાગ દ્વારા કરવામાં આવે છે અને કોઈ બીજા પ્રશ્નો ઉપસ્થિત ન થતા હોય તો આજની પર્યાવરણીય લોક સુનાવણીનો માનનીય અધ્યક્ષશ્રીની અનુમતિથી પુર્ણ થયેલ જાહેર કરવામાં આવી.

સ્થળ: ગ્રામ પંચાયત હોલ,
ગામ: અતુલ
તા. જિ. વલસાડ,
તા. ૦૯/૧૦/૨૦૧૫



એ.મ.પટેલ

પ્રાદેશિક અધિકારી,
ગુજરાત પ્રદુષણ નિયંત્રણ બોર્ડ, વાપી,
તથા સભ્ય સચિવશ્રી, ગુ.પ્ર.નિ.બોર્ડ,
ગાંધીનગરના પ્રતિનિધિ



એ.ડી.બાગુલ

પર્યાવરણ લોક સુનાવણીના
અધ્યક્ષ તથા અધિક કલેક્ટર
અને અધિક જિલ્લા મેજિસ્ટ્રેટશ્રી,
વલસાડ

ATUL LIMITED PUBLIC HEARING LETTER

JITENDRA PATEL [jitendrapatel16293@gmail.com]

Sent: Tuesday, September 29, 2015 9:10 AM
To: gpcb-val; ms-gpcb

Attachments: ATUL LIMITED.jpg (551 KB)

Sir,

Please, find out attached sheet of ATUL LIMITED public hearing related letter.

Thanks With Regards,
Jitendra Patel
Ankleshwar
9998980519

(PTO)

Received
(Bhavesh Tandel)
Atul Ltd.
06/10/2015

URGENT
PH of Atul Ltd
Dr. P. A. D. +
Dr. P. A. D.
05/10/2015
Plz. Call Mr. Anil
Patel
Send with receipt
G/K
2015

G.P.C. Board, VAPI
Regional Office
-6 OCT 2015
Inward No. 4920

पटेल जितेन्द्रकुमार बबलभाई
अ-४, गजाननपार्क सोसायटी,
आर.बी.एल स्कूलके पीछे,
जी.आइ.डी.सी., अंकलेश्वर
जिला-भरुच-३९३००२
दिनांक: २९/९/२०१५

मेम्बर सेक्रेटरी,
गुजरात प्रदूषण नियंत्रण बोर्ड,
गांधीनगर

महोदयश्री,

दिनांक ९ अक्टूबरको वलसाड जिलेके अतुल लिमीटेड कंपनीकी पर्यावरण सावर्जनिक सुनवाई होनेवाली है। जिसमें हमारे निम्नलिखित प्रश्न और सुझाव है।

- १) आपकी कंपनीकी रेनवोटर हार्वेस्टिंग सिस्टम बहुत ही अच्छी है। यह देखकर आनंद हुआ, पर यह सिस्टम खुली (OPEN) होनेकी वजहसे अकस्मात हो सकता है।
- २) आपकी कंपनी वीज उत्पादनके लिये कोयलेकी जगह गेसका इस्तमाल क्यों नहीं करती। गेस पर्यावरणके लिये अच्छा है।
- ३) कोयलेके ट्रान्सपोर्टके लिये आप क्या सुविधा करनेवाले है। कोयलेकी आयात करनेवाली कंपनीया ज्यादातर यह कहती है की ट्रान्सपोर्टके वक्त पर्यावरणकी जिम्मेदारी खरीदनेवाली कंपनीकी होती है। ट्रान्सपोर्टके वक्त कोलसीकी कण हवामें फै नहीं इसके लिये आप क्या करनेवाले हे।
- ४) यह कंपनीको पर्यावरणके नियमोका भंग करनेके बारेमें कभी नोटीस मिली है, अगर मिली है तो इसकी नकल शामिल करना।
- ५) आप लिग्नाटका इस्तमाल करते वक्त लाइमस्टोनका उपयोग करनेवाले हे। यह लाइमस्टोनका बादमें क्या करनेवाले है दिनमें कितना लाइमस्टोनका वेस्ट निकलेगा।

जितेन्द्रकुमार बबलभाई पटेल
अंकलेश्वर
मो: 9998980519

Annexure - C 2


Environmental Public Hearing for M/s Atul Ltd. Scheduled on 9th October, 2015

Krishna kant [tokrishnakant@yahoo.co.in]

Sent: Wednesday, October 07, 2015 12:04 PM

To: Collector Valsad(GOG-Revenue Dept); gpcb-val

Cc: Hardik Shah [msgpcb@gmail.com]; Dr. K U Mistry(Chairman-GPCB.); sg@qcin.org; bkrana@nabh.co; secy-moef@nic.in

Attachments:  EPH Letter 7-10-2015.pdf (2 MB) [Open as Web Page]

URGENT BY EMAIL

Date: 8th October, 2015

To,

The Chairman EPH Valsad / District Collector, Valsad
Jilla Seva Sadan-II,
Dharampur Road Valsad,
Gujarat - 396001.

The Regional Officer,
C5/124, GIDC Vapi, Near Hotel Pritam,
District Valsad, Vapi - 396 195.

Received.

(H 92
HRADAY DESAI)
ATUL LTD.
07/10/2015