

ZUARI INDUSTRIES LTD
Jai Kisaan Bhawan, Zuarinagar-403 726, Goa

ENVIRONMENTAL CLEARANCE BY MINISTRY OF ENVIRONMENT AND FORESTS

(EC no. F.No.J-11011/217/2008-IA-II (I) dated 1st September, 2009 and Corrigendum dt. 30th October, 2009)

Subject: Revamp of Ammonia plant for changeover of feedstock and fuel from Naphtha to NG/RLNG and reduction of specific energy consumption along with debottlenecking the capacity of Ammonia-Urea plants, changeover of fuel from FO to NG/RLNG in the Utility Boilers as also debottlenecking the capacity of NPK plants A & B along with product mix change at Zuarinagar, Goa by M/s. Zuari Industries Ltd.

COMPLIANCE STATUS REPORT AS ON 1st DECEMBER, 2009

Sr.No	Compliance Conditions	Status / Action plan
A. SPECIFIC CONDITIONS:		
i)	The project authority shall treat the industrial and domestic effluent as per the standards notified under Environment (Protection) Rules, 1986 or prescribed by Goa State Pollution Control Board whichever are stringent. The treated wastewater shall be recycled/reused/used for irrigation/green belt development and zero discharge shall be maintained.	Being complied on regular basis. All effluent including domestic effluent is treated and totally recycled in the plant. Zero effluent discharge is being maintained since 1989.
ii)	The water consumption shall not exceed 10135* m ³ /day and the permission for drawl of same shall be obtained from concerned Department and a copy shall be submitted to the Ministry and its Regional Office at Bangalore within 3 months. (*As per Corrigendum to EC)	Complied.

iii)	<p>The project authorities shall install efficient air pollution control system like vibropriller to Urea Prilling Tower, low NOX burners to Reformer, Scrubbers, Ammonia Stripper etc. to control particulate and gaseous emissions from the plant to achieve the prescribed standards.</p>	<p>Being complied. Vibropriller already installed in Urea Prilling Tower. Ammonia Stripper for process condensate and Scrubbers already exist and the emissions are within the standards prescribed by GSPCB. Modern design burners with lower NOX emissions are being procured as part of revamp for Gas Conversion. Scrubbers in NPK plants are also being redesigned to make them more efficient.</p>
iv)	<p>The gaseous emissions (SO₂, NO_X, NH₃, Urea dust) & Particulate Matter from various process units shall conform to the standards prescribed by the concerned authorities from time to time.</p> <p>Emission data shall be periodically monitored and reports submitted to Ministry's Regional Office, CPCB & SPCB.</p>	<p>Being complied on regular basis.</p> <p>Emission data being submitted to GSPCB on regular basis. The data is being submitted to RO-MoEF and ZO-CPCB forthwith.</p>
v)	<p>The Company shall undertake measures to reduce fugitive emissions especially of ammonia.</p> <p>The Company shall submit the Risk Assessment study report for the storage and handling of ammonia in the campus.</p>	<p>Study is in progress for reducing fugitive ammonia emissions.</p> <p>The report on "Risk Assessment study for storage and handling of ammonia at the plant site of Zuari Industries Ltd, Zuarinagar, Goa" prepared by our Consultant NEERI, Nagpur is submitted to MoEF, New Delhi vide letter dt. November 6, 2009.</p>
vi)	<p>The Company shall install the hooter system for leak detection of ammonia in the plant premises.</p>	<p>Hooter system is being procured and will be installed at strategic locations during the March 2010 annual turnaround.</p>
vii)	<p>The proponent shall upload the status of compliance of the stipulated EC conditions, including monitored data on their website and shall update the same periodically. It shall simultaneously be sent to the Regional Office of</p>	<p>Being complied forthwith.</p>

	<p>MoEF, the respective Zonal Office of CPCB and the SPCB.</p> <p>The criteria pollutant namely; SPM, RSPM, SO₂, NO_X (Ambient levels as well as stack emissions) or NH₃, indicated for the project shall be monitored and displayed at the convenient location near the main gate of the Company in public domain.</p>	<p>Being complied on regular basis. Ambient pollutant levels being displayed at four locations in public domain. Stack emission monitoring display board is under procurement.</p>
viii)	<p>Spent catalysts shall be sold to authorized vendors for its metal value. The other solid wastes shall be segregated and stored in the separate storage space and finally sold to the authorized vendors.</p>	<p>Being complied on regular basis.</p>
ix)	<p>As proposed the Company shall maintain the green belt covering 50% land area of the plant to mitigate the effect of fugitive emissions and noise as per the CPCB guidelines.</p>	<p>Complied. Green belt covering 50% land area being maintained.</p>
x)	<p>The Company shall implement all the recommendations made in the Charter on Corporate Responsibility for Environment Protection (CREP) for fertilizer industries.</p>	<p>We have complied with all recommendations relevant to us made in “CREP for Fertilizer Industries” except the phasing out of use of Arsenic for CO₂ absorption system in Ammonia plant. The replacement with non-arsenic system will be carried out in March 2011 annual turnaround. The discharged solution will be disposed off in a scientific manner using process developed by NEERI and implemented successfully by us for the disposal of original charge of GV solution.</p>
xi)	<p>Occupational health surveillance of the workers shall be carried out on a regular basis and records shall be maintained as per the Factories Act.</p>	<p>Being complied on regular basis.</p>
xii)	<p>Provision shall be made for the housing of construction labour within the site with all necessary infrastructure and facilities such as fuel</p>	<p>The required housing, necessary infrastructure and other facilities will be provided to the construction labour at the time of implementation of revamp project.</p>

	for cooking, mobile toilets, mobile STP, safe drinking water, medical health care, crèche etc. The housing may be in the form of temporary structures to be removed after the completion of the project.	
B. GENERAL CONDITIONS		
i)	The project authorities shall strictly adhere to the stipulations of the GSPCB/State Government or any Statutory body.	Being complied.
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 adequacy of conditions imposed and to add additional environmental protection measures required, if any.	Noted.
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.	Being complied on regular basis.
iv)	The locations of ambient quality monitoring stations shall be reviewed in consultations with State Pollution Control Board (SPCB) and additional stations shall be installed, if required, in the downwind direction as well as where maximum ground level concentrations are anticipated.	Complied.

v)	Dedicated scrubbers and stacks of appropriate height as per the CPCB guidelines shall be provided to control the emissions from various vents. The scrubber water shall be sent to ETP for further treatment.	Dedicated scrubbers are already provided and the scrubber water is totally recycled within the plants. The revamp project involves change of fuel from Naphtha containing around 600 ppm of Sulphur and Furnace oil containing around 3% Sulphur to Natural Gas which is a clean fuel. With this change in fuel, SO2 emission will reduce drastically by about 98% and the existing stack heights are found to be appropriate as per CPCB guidelines.
vi)	The Company shall undertake following Waste Minimization measures a) Metering and control of quantities of active ingredients to minimize waste b) Reuse of by-products from the process as raw materials or as raw material substitute in other processes c) Use of “Closed Feed” system into batch reactors d) Venting equipment through vapour recovery system e) Use of high pressure hoses for equipment cleaning to reduce wastewater generation.	Being complied on regular basis.
vii)	Fugitive emissions in the work zone environment, product, and raw material storage area shall be regularly monitored. The emissions shall conform to the limits imposed by SPCB/CPCB.	Being complied on regular basis.
viii)	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 and Hazardous Waste (Management and Handling) Rules, 1989 as amended from time to time. Authorization from the SPCB shall be obtained for collection, treatment, storage, and disposal of	Being complied on regular basis. Authorization from GSPCB is already obtained & is being renewed regularly.

	hazardous wastes.	
ix)	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).	Being complied on regular basis.
x)	The Company shall develop rain water harvesting structures to harvest run off water for recharge of ground water.	Complied. Rain water harvesting for storage in the form of captive lake of 235 MG capacity already exists. Additional measures for rain water harvesting consisting of ground water recharge structures and mini artificial aquifer recharge structures for recharge of ground water are implemented in October/November 2009.
xi)	The Company shall undertake eco-development measures including community welfare measures in the project area for the overall improvement of the environment. The eco-development plan should be submitted to the SPCB within three months of receipt of this letter for approval.	Being complied on regular basis. The Factory is in operation since 1973 and the Company has already undertaken many eco-development measures like afforestation, creation and maintenance of green belt around the factory premises, maintenance of public gardens in Vasco city etc. on regular basis. The Company has also undertaken community welfare measures like providing land for sulabh toilets for general public in the neighborhood, development of neighboring govt. school playground, awarding scholarship to meritorious students, beautification of highway road divider etc. as part of Corporate Social Responsibility Schemes.
xii)	The project proponent shall also comply with all the environmental protection measures and safeguards proposed in the EIA/EMP report.	As proposed in EIA/EMP report, all environmental protection measures and safeguards will be implemented during revamp for gas conversion and debottlenecking the capacity.

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.	Complied.
xiv)	The project authorities shall earmark adequate funds to implement the conditions stipulated by the MoEF as well as the State Govt. along with the implementation schedule for all the conditions stipulated herein. The fund so provided shall not be diverted for any other purpose.	Complied. Rs.10.15 crores for capital investment has been earmarked for implementing EC conditions and environment protection measures and Rs.1.05 crores/annum has been earmarked to take care of recurring cost.
xv)	The implementation of the project vis-à-vis environmental action plans shall be monitored by the concerned Regional Office of the Ministry/SPCB/CPCB. A six monthly compliance status report shall be submitted to the monitoring agencies and shall be posted on the website of the Company.	Noted. Once the implementation of project starts, the six monthly compliance status report will be submitted to RO-MoEF, ZO-CPCB and GSPCB and the same will be put on website of the Company.
xvi)	The project proponent shall also submit six monthly reports on the status of compliance of stipulated EC conditions including results of monitored data (both hard copies as well as by e-mail) to the respective Regional Office of MoEF, the respective Zonal Office of CPCB and SPCB.	Being complied forthwith.
xvii)	A copy of clearance letter shall be sent by the proponent to concerned Panchayat, Zila Parishad/Municipal Corporation, Urban Local Body and Local NGO, if any, from whom suggestions/representations if any, were received while processing the proposal. The clearance letter shall also be put up on website of the Company by the proponent.	Complied.

xviii)	<p>The 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 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.</p>	Complied.
xix)	<p>The environmental statement for each financial year ending 31st March in Form-V as is mandated to be submitted by the project proponent to the concerned State Pollution Control Board as prescribed under the Environment (Protection) Rules, 1986 as amended subsequently, shall also to be put on the website of the Company along with the status of compliance of EC condition and shall also be sent to the respective Regional Office of MoEF by e-mail.</p>	Being complied forthwith.
xx)	<p>The project proponent 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.</p>	<p>The basic/detailed engineering study for the proposed revamp and debottlenecking project is still in progress. After completing the entire study, we will approach the concerned authorities for necessary approvals before starting the implementation of the project.</p>

ZUARI INDUSTRIES LTD, ZUARINAGAR, GOA

Stack Emission Monitoring Data from September 2009 to November 2009

Stack Description	Parameter	Limits prescribed by GSPCB	September 2009	October 2009	November 2009
Urea Prilling Tower	SPM, mg/Nm ³	150	68.7	38.2	44.4
Urea Dust Seperator	SPM, mg/Nm ³	150	57	40.2	41.4
Urea Off Gas Absorber	NH ₃ , kg/hr	10	0.4	0.4	0.4
Urea Amm. Rec. Absorber	NH ₃ , kg/hr	10	2	2.1	1.9
NPK-A Fumes Scrubber	NH ₃ , kg/hr	10	1.5	1.4	1.4
NPK-A Dryer Scrubber	SPM, mg/Nm ³	150	52.1	32.9	39.8
NPK-A Dedusting Scrubber	SPM, mg/Nm ³	150	53.6	43.9	44.4
NPK-B	NH ₃ , kg/hr	10	4.6	5.3	4.8
	SPM, mg/Nm ³	150	64	48	45
Power Station Boiler	SO ₂ , kg/hr	832	353.4	353.4	350
	SPM, mg/Nm ³	150	73.8	73.8	88.5
DG Set	SO ₂ , kg/hr	105.6	11.3	11.3	DG Set was shut down for full month
	SPM, mg/Nm ³	150	60.6	58.8	
	NOX, ppmv	1100	4.46	58.42	
	CO, mg/Nm ³	150	11.2	5.9	
	NMHC, mg/Nm ³	150	4.55	4.55	

NOTE:

Stack emission monitoring was carried out by M/s.Italab(Goa) Pvt.Ltd, Goa, an external laboratory recognized as "Environmental Laboratory" by the Ministry of Environment and Forests

ZUARI INDUSTIES LTD, ZUARINAGAR, GOA

Ambient Air Quality Monitoring Data from September 2009 till November 2009

	SPM, ug/m3			RSPM, ug/m3			SO2, ug/m3			NOX, ug/m3			Ammonia, ug/m3		
NAAQ Standard	500			150			120			120			400		
	Avg	Min	Max	Avg	Min	Max	Avg	Min	Max	Avg	Min	Max	Avg	Min	Max
September 2009															
Station -I	39.5	20.78	63.65	24.11	10.6	40.77	1.46	0.6	4.14	12.31	6.63	19.38	105.73	34.69	180.26
Station -II	45.11	27.78	62.81	26.55	11.46	36.77	1.34	0.45	3.28	16.62	8.04	21.81	100.18	47.96	192.68
Station -III	55.18	29.58	131.92	28.49	11.35	71.02	1.26	0.6	4.4	11.15	6.21	17.44	53.15	32.11	92.98
Station -IV	29.33	14.35	62.59	14.9	8.04	29.86	1.05	0.6	1.55	8.52	5.15	13.73	69.44	38.42	114.67
October 2009															
Station -I	40.28	12.86	91.89	22.87	4.79	52.66	0.78	0.6	1.05	18.36	9.82	28.71	83.66	37.15	142.64
Station -II	62.18	20.08	108.87	39.36	10.37	60.3	0.9	0.6	1.5	26.96	18.25	42.58	72.95	33.2	144.16
Station -III	57.43	26.37	91.79	37.73	9.89	66.07	1.07	0.75	1.47	13.71	8.43	17.58	58.53	25.2	135.09
Station -IV	44.34	11.92	76.22	28.47	3.07	47.71	0.85	0.6	1.18	15.81	8.66	24.67	71.12	33.75	167.01
November 2009															
Station -I	62.22	36.97	108.05	33.08	14.28	56.11	0.75	0.59	1.12	20.55	14.53	32.74	74.82	35.58	119.97
Station -II	67.12	31.72	115.5	40.87	15.05	91.38	0.82	0.59	1.17	29.82	19.17	38.11	81.73	31.42	138.06
Station -III	49.35	36.41	70.3	34.1	18.14	45.54	1.36	0.88	2.35	21.12	16.84	25.87	63.19	39.79	87.16
Station -IV	50.51	22.97	87.81	33.23	13.75	59.11	1.1	0.59	1.65	21.47	10.08	39.13	85.73	51.3	147.29

Station-I: At D-Colony area
 Station-II: Near Govt. Primary School
 Station-III: Near Jai Kisaan Club
 Station-IV: At C-Colony area

NOTE:

Ambient air quality monitoring carried out on 24 hourly basis twice a week by M/s.Italab(Goa) Pvt.Ltd, Goa, an external laboratory recognized as "Environmental Laboratory" by the Ministry of Environment and Forests