
	M/s. Aquapharm Chemicals Pvt. Ltd.	
	Environmental Impact Assessment Report	
	REPORT NO.:- GCI/V/ACPL/EIA/2014-15/JULY/R00	

## Executive Summary

### 1.0 PROJECT DESCRIPTION

#### 1.1 Introduction

M/s. Aquapharm Chemical Pvt. Ltd. is in Mahad additional M.I.D.C area of Raigad district in Maharashtra State. M/s Aquapharm Chemical Pvt. Ltd. is engaged in the manufacturing of specialty chemicals. The manufacturing process involves various unit operations and unit processes. The production facility at this unit is commenced during year 2003.

The company has on site storage facilities for various raw materials such as Acids, Chlorine tonners, Alkali, yellow phosphorous etc. The company has been registered with the register under the Factory act. Manufacturing facilities areas are spread over about 73547-sq. meters of land in a very neat environment.

#### 1.2 Type of Project



The proposed unit is manufacturing specialty chemicals covered under the category 'B', **5(f) of EIA notification** "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)" of EIA Notification-2006.

#### 1.3 Location of Project Site

The unit is located at K-3/1, K-2, K-3/3 Additional Industrial Estate, MIDC Mahad, Dist Riagad, State-Maharashtra. The Total land area for project is 73547 sq m. The Plant is situated near to national highway 17 in the Northeast direction at a distance of 3 Km. The nearest railway station is located at Veer is at distance of 23 Km. The nearest airport is located at a distance of 126 Km in the North-northwest direction at Mumbai. There are no national parks and wild life sanctuaries within the 10 Km radius of the project site



#### 1.4 Proposed Production capacity

The manufacturing capacity, land area and others silent features of project is given below in **Table -1.1. , Table- 1.2.**



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**Table: 1.1 Details of Proposed Production Capacity**

Sr. No.	Name of Product	Quantities, MT/day		
		E	P	T
<b>A</b>	<b>Alkyl Phosphonates</b>			
	HEDP (100% basis)	40.0	10.00	50.00
	PBTC	--	14.00	14.00
	Polymaleic Phosphonic acid (110 EX)	--	0.15	0.15
	Hydroxy Phosphono Acetic acid (118 EX)	--	0.15	0.15
<b>B</b>	<b>Amine Phosphonates</b>	--		
	Diethylene Triamine Penta Methylene Phosphonic Acid 100%	8.0	--	8.00
	Ethylene Diamine Tetramethylene Phosphonic Acid	0.5	--	0.50
	Amino Trimethylene Phosphonic Acid	3.0	7.00	10.00
	Bis Hexamethylene Triamine Pentamethylene Phosphonic acid BHMTMP (103 EX)	--	0.60	0.60
	Amino ethyl ethanol amine Trimethylene Phosphonate AEEATMP	--	2.00	2.00
	Poly Amino PolyEther poly methylene Phosphonic acid PAPEMP ( 104 EX)	--	1.00	1.00
	Monoethanolamino diphosphonic acid (102 EX)	--	1.00	1.00
	Hexamethylene Diamino Phosphonic acid (1076 EX)	--	1.00	1.00
<b>C</b>	<b>Salt of Alkyl Phosphonates</b>			
	HEDP salts liquid	12.0	33.00	45.00

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	HEDP salts powder	7.0	10.00	17.00
<b>D</b>	<b>Salts of Amine Phosphonate</b>			
	DETMP salts	--	100.00	100.00
	ATMP salts	5.0	5.00	10.00
<b>E</b>	<b>Polymers</b>			
	Poly Maleic (PM200)	--	14.00	14.00
	Poly Acrylic	--	14.00	14.00
<b>F</b>	<b>Green Products</b>			
	GLDA	--	27.00	27.00
	or Amino Acid derivatives or Green Product family	--	14.00	14.00
<b>G</b>	Methylene Bis-thiocyanate	1.0	0.50	1.50
<b>H</b>	<b>Halogen Derivatives</b>			
	Phosphorus Trichloride 100%	30.0	35.00	65.00
	MDB	--	3.00	3.00
	or Halogen derivatives and family	30.0	38.0	68.00
	<b>Total of Products</b>	<b>136.5</b>	<b>330.4</b>	<b>466.9</b>
	<b>By- Products</b>			
<b>1</b>	Acetyl Chloride	5.00	5.00	10.00
<b>2</b>	Methanol	--	5.00	5.00
<b>3</b>	Sodium Chloride	--	8.00	8.00
<b>4</b>	Sodium Sulphate	--	7.70	7.70

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5	Hydrochloric Acid	90.00	66.00	156.00
6	Sodium Bromide	1.5	7.5	9.00
	<b>Total</b>	<b>96.5</b>	<b>99.5</b>	<b>196</b>

**Table: 1.2 Details of Land**

Land Area Existing (Sq.mt)		
S. No.	Description	Area (Sq.mt)
1	Admin/QC/Canteen	525.4
2	Changing room/Toilet	83.4
3	Green Belt	10238.4
4	Total road	13591
5	Open Space 10%	15096
6	Garden	4000
7	Total plant area	21214.9
<b>Total area</b>		<b>64749</b>
1.2 (b) : Details of Land use Break-up for Proposed Land		
Proposed Land Area ( Sq.mt)		
S. No.	Description	Area (Sq.mt)
1	Storage	2023
2	Utility	633
3	MCC/PCC	487
4	Plant	466
5	Approach road	4541
6	Changing Room	23
7	Workshop shed	125
8	Stores	500
<b>Total area</b>		<b>8798</b>

**Table 1.2 (C): Details of Total Land Use**

Existing Plot Area in Use ( Sq.mt)	Proposed plot area require ( Sq.mt)	Total Plot Area ( Sq.mt)
64749	8798	73547

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### 1.5 Water requirement

Total Water Requirement for the proposed expansion unit is 1223 KLD, out of which for Industrial use is 1173 KLD, for domestic use is 10 KLD and for greenbelt is 40 KLD. The required source of water shall be met from MIDC, Mahad water supply.

### 1.6 Waste water generation and management

The waste water generated from domestic use is 8.0 KLD and effluent generated from process/industrial use is 57 KLD and it will be treated in ETP followed by RO and MEE. The recycle water will be reuse in industrial activity and in green belt development.

### 1.7 Solid and hazardous waste management

Domestic waste generated during the operation phase will be handed over to Authorized parties. Hazardous waste generated from process will be send to TSDF site at Taloja for further process.

### 1.8 Power requirement

The total power requirement for the proposed project is 1700 KVA. The electricity shall be met from MSEDCL. The existing DG set with capacity of 380 KVA as back power supply.



### 1.9 Stack details

Table: 1.3 Stack details

S.No	Source of Emission	Capacity	Type of Emission	Stack Height (mt)	Stack Diameter (mt)	Fuel name & Quantity	Pollution Control Equipment
1	Boiler Oil Fire*	6 TPH	TMP, NO <sub>x</sub> , SO <sub>x</sub>	40	0.75	FO & 370 kg/hr	Air Preheater
2	Boiler Oil Fire*	3 TPH	TMP, NO <sub>x</sub> , SO <sub>x</sub>	40	0.75	FO & 190 kg/hr	Air Preheater
3	Boiler Coal Fired	12 TPH	TMP, NO <sub>x</sub> , SO <sub>x</sub>	40	1.2	Coal & 1500 kg/hr	Cyclone, Bag filter & APH
4	D.G.Set	380 KVA	NO <sub>x</sub> , SO <sub>x</sub>	7	0.15	Diesel & 80 kg/hr	Cooling

### 1.10 Manpower requirement

During construction phase, around 40 laborers will be hired for construction activity. During Currently 40 nos. of employees are working in the existing manufacturing plant. During proposed expansion 40 nos. employees will be required. The details are as shown in Table

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S. No	Description	No. of person
1	No. of Workers required During Construction phase of proposed expansion.	10
2	No. of Employees (Skilled) required during operation phase of proposed project	10
3	No. of Employees (Unskilled) required during operation phase) of proposed project	20

### 1.11 Green Belt Development

The Unit has already developed greenbelt area in 14238 Sq m within plant premises. Suitable plant species of local varieties will be planted with adequate spacing and density for their fast growth and survival.

### 1.12 Cost of Project

The expected cost of the proposed project will be around Rs. 35.82 Crores. Out of which 2.165 Crores shall be earmarked for development of EMS (Environment Management Systems).

## 2.0 DESCRIPTION OF THE ENVIRONMENT

### 2.1 Study Area included in Environmental Setting

Studies were carried out in about 10 km radius area from the proposed site with respect to meteorology, flora, fauna, land, geology, hydrogeology and socio-economics of the area. Further, the air quality, water quality, noise level and soil quality sampling and analysis was carried out. The air quality, water quality, noise level and soil quality in the study area is evaluated based on this physical sampling and analysis.



The base line data were monitored for study period of December 2013 to February 2014. The study team conducted site surveys and field experiments to gathering the information on Meteorology, Air Quality, and Water Quality, Soil Quality, Noise Quality, Biological environment, and traffic.

### 2.2 Proximity to Water Bodies

Kal River flows at 3.0 Km and Savitri River 1.0 Km (aerial distance) to Project site.

### 2.3 Important Features within the Periphery of the Study Area

No major eco-system / biosphere reserves have been identified within the periphery of the project site. The nearest archaeological monument is Pandav Leni, which is at a distance of approximately 10 Km from the project Site.

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## 2.4 Climate of the Study Area

The climate of study area varies with hot summer, cold winter and rainfall. Climate of study area is warm and dry from mid march to June, during season of summer, climate remains warm and dry, while during rainy season, from mid June to end of September climate is humid and pleasant. From October to November mild warm climate prevails and from December to February climate is cold.

## 2.5 Ambient Air Quality

Ambient air quality monitoring was carried out on selected locations within the 10 km radius of the proposed Project. Ambient air quality was monitored on 10 locations to generate representative ambient air quality data.



- The concentration of PM<sub>10</sub> was found in the average range of 128-340 µg/ M<sup>3</sup> and PM<sub>2.5</sub> was observed to be varying from 64-80 µg/M<sup>3</sup>.
- Concentration of SO<sub>2</sub> was observed to be varying from 19-24 µg/M<sup>3</sup>, NO<sub>x</sub> was observed to be varying from 33-43 µg/M<sup>3</sup> and CO was observed to be varying from 0.35 to 0.45 mg/m<sup>3</sup>.
- Concentration of PM<sub>10</sub> and PM<sub>2.5</sub> is exceeding applicable limit of 100 µg/ M<sup>3</sup> and 60 µg/ M<sup>3</sup> respectively, this may be due to the burning of dry grasses and agricultural residues.

## 2.6 Noise Environment

- Noise level was measured in day time and night time at six different locations.
- Comparison of the ambient noise levels with the standards specified by CPCB reveals that the noise level at all locations is below the specified limit.

## 2.7 Land Use of the Study Area

Landuse	Area (m <sup>2</sup> )	Area (ha)	Area (%)
Water	2707675	271	0.86
Agriculture land	3294775	329	1.05
Fallow land	73168100	7317	23.32
Degraded land	19494650	1949	6.21
Forest	88598975	8860	28.23
Degraded forest	125321925	12532	39.94
Settlements	111200	11	0.04
Road	1106199.7	111	0.35
<b>Area</b>	<b>313803500</b>	<b>31380</b>	<b>100</b>

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- Soil: Soil samples from 6 locations were collected and analyzed to assess the soil quality prevailing in the study area.

## 2.8 Biological Environment

### Flora:

The tree plantations include Aam, Sitaphal, Ashok, Saptaparni, Kaner, Neem, Pipal, Gulmohar, Jamun; etc are found to be growing in the Mahad.

### Fauna:

The various animal species in the study area are found, detailed study is given in Baseline chapter-3. No endemic or threatened plant species were observed during the survey in the vicinity of the Project.

## 2.9 Demographic and Socio-economic Profile



- The socio-economic profile of the study area is based on Census of India 2011.
- Total of 40 villages are comes under 10 km radius of study area.
- Total population of study area is 45241. Out of this male population is about 22831 and female population is about 22410. The sex ratio in the study area is around 981.56 females per 1000 males and the no of household is approx. 10608.
- Total literate population is 33016 and average literacy rate is 72.9 % in study area.
- In the study area SC population is about 2116 and ST population is 2008.
- Villages in study area have fairly good infrastructural, health, Drinking water, Electricity and communication facilities.

## 3.0 ANTICIPATED ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

### 3.1 Ambient Air

- In order to estimate the ground level concentrations due to the emission from the proposed project, an EPA approved ISCST - 3 version 98356 (Industrial Source Complex Short Term dispersion model) has been employed.
- These predicted ground level concentrations when added to baseline scenario, the overall scenario levels of PM<sub>10</sub>, SO<sub>2</sub>, NO<sub>x</sub>, are well within the permissible limits specified by CPCB.
- VOCs and other NAQQS parameters are observed with below detectable limit, the detail explanation is mentioned in Baseline chapter-3.
- Adequate mitigation measures will be proposed to control air pollution.



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### 3.2 Noise

The major noise source includes various machines, pumps, motors, DG sets and vehicular traffic. The noise levels were below the stipulated standards of CPCB for residential and industrial areas.

Every effort would be taken to minimize the noise levels including Periodic maintenance of machinery, mandatory use of equipment with operable mufflers, oiling and lubrication, Noise suppression measures such as enclosures, buffers, green belt development etc.

### 3.3 Water Environment

Total water requirement of the plant is 1223 KLD. This requirement will be met from MIDC, Mahad water supply.

### 3.4 Waste Water generation and treatment

The waste water generated from domestic use is 8 KLD and it will be disposed into soak pit and septic tank followed by ETP. Effluent generated from process/industrial use is 57 KLD and it will be treated by ETP followed by RO and MEE.

### 3.5 Land Environment

Development of green belt and other landscape on the proposed site would enhance the visual aesthetics of the area. No construction activity will carried out during rainy season. There is no discharge of solid as well as liquid effluent in open land. Thus no adverse impact envisaged on land environment.



### 3.6 Biological Environment

**Flora:** Analysis of abiotic factors reveals that ambient air and fresh water quality will remain practically unaffected. Thus, indirect adverse impact on flora is ruled out.

**Fauna:** The quality of ambient air and fresh water system will remain practically unaffected. Thus indirect impact on fauna, due to these abiotic factors is ruled out.

### 3.7 Socio - Economic Environment

- The project will contribute to the socio-economic development of the area at the local level.
- The direct and indirect employment to the local population during the operation of the project.
- All these will be beneficial to the local economy.

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#### **4.0 ENVIRONMENTAL MONITORING PROGRAM**

Environmental Monitoring Network is designed for construction and operation phase of the project for monitoring of various environmental parameters like air, water, noise, soil and ecology etc.

##### **4.1 Implementing Schedule of Monitoring Measures**

Monitoring should be done as periodically to understand the environmental condition of the site. The mitigation measures suggested in the Chapter-4 should be implemented so as to reduce the impact on environment due to the operations of the proposed project. In order to facilitate easy implementation, mitigation measures are phased as per the priority implementation. Air pollution control measures will be installed as per CPCB norms. During construction phase monthly monitoring will be carried out and during operation phase monitoring will be done on quarterly basis or as per MPCB/CPCB guideline.



#### **5.0 ENVIRONMENT MANAGEMENT PLAN**

The EMP presents the project specific guidelines on:

- Environmental management strategies
- Specialized engineering construction procedures in relation to environmental guidelines of the country
- Spill prevention and control
- Management of wastes and hazardous chemicals
- Air, water and soil quality protection
- Noise control
- Soil erosion control and slope stabilization
- Vegetation, wildlife and habitat protection
- Socio-economic and welfare considerations
- Risk and disaster management plan
- To prepare a checklist for statutory compliance
- Budget allocation for environment management plan.

##### **5.1 Environmental Objectives**

- To adopt construction and operational methods that will limit environmental degradation.
- To protect physical environmental components such as air, water and soil.
- To conserve terrestrial and aquatic flora and fauna.
- To protect historic and cultural sites.
- To incorporate the views and perceptions of the local inhabitants in the project.

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- To generate employment opportunities wherever possible and feasible.
- To provide environmental guidelines and stipulations to the construction contractors to minimize the impact of those activities around the proposed site.
- To establish a long term program to monitor effects of the project on the environment.

## **6.0 PROJECT BENEFITS**

Growth in the industrial sector creates new opportunities for employment and can also help diversify the economy.

### **6.1 Improvement in Social Infrastructure**



From the very initial stage of the inception of the project, infrastructure development in and around the project site has been kept into consideration. Infrastructure development will be done based on actual requirement rolled out as part of company's CSR activity.

### **6.2 CSR Activities**

- There will be more employment generated due to the proposed project both during the construction phase and operation phase. On the basis of technical knowledge acquired by the local village youths, they will be providing with suitable employment opportunity in the company.
- The labour force required during construction and operation phase shall be sourced from nearby village.
- School uniforms, notebooks and scholarship will be provided to poor students.
- Special Health awareness camp and medical camps for primary check up will be arranged at least once in a year in nearby villages for health check-ups.
- Free medical checkup for villagers.
- Tree Plantation in rural areas.
- Provision of sanitation (toilets) facility

## **7.0 CONCLUSION**

- The project proponent will follow all the statutory norms and guidelines as per EPA, 1986 to safeguard environment.
- Wastewater generated from the proposed project will be treated in to ETP followed by R.O and MEE will be provided in the premises.
- Ambient Air Quality of the project site are concerned viz. SPM (PM<sub>10</sub> & PM<sub>2.5</sub>), SO<sub>2</sub> and NO<sub>x</sub>, their concentrations in the ambient air at the proposed site were observed to be exceed SPM and SO<sub>2</sub> and NO<sub>x</sub> well within the prescribed limits
- The operational phase noise shall be within industrial premises which will not exceed 75 dB(A).

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- No significant impact is seen on flora and fauna as no reserve forest and eco-sensitive zones are present within 10 km.
- The project will generate employment opportunities during construction stage and also at operational stage. The standard of living of local people due to employment is likely to be better, so we may say that it is positive socio-economic impact. The region will get economic boost.
- Overall the project will have positive impact for socio-economic and cultural development.