

FORM-V
(See rule 14)
ENVIRONMENTAL STATEMENT FOR THE FINANCIAL YEAR ENDING
31st MARCH, 2019

PART-A

i)	Name and address of the owner / occupier of the industry operation or process	Mr. S.CHANDRA SHEKHAR Managing Director Office: Bhagiradha Chemicals & Industries Limited 8-2-269/S/3/A, Plot No.3, Sagar Society, Road No.2 Banjara Hills, Hyderabad – 500 034. Tel. No.040-23608083/23556910 Fax No.040-23540444 Factory: Cheruvukommupalem Village, Yerajarla Road, Ongole Mandal, Prakasam District, Andhra Pradesh.
ii)	Industry Category	Red – Hazardous
iii)	Production Capacity (Units)	The unit obtained Consent Order No: APPCB/VJA/NLR/10491/CFO/HO/2017-331 dated 20-12-2017 for the production of various technical grade pesticides with formulations. The list of products and their capacities are presented in the table 1.
iv)	Year of Establishment	1996
v)	Date of the last environmental audit report submitted	September 2018

TABLE-1: List of Products and Capacities during 2018-19

S No.	Products	Capacity(Kg/day)
Group-A		
Combination -1	Chlorpyriphos	6700
	Chlorpyriphos Methyl	5000
	Azoxystrobin	500
	4-amino-2,5-dimethoxypyrimidine(4-ADMP)	500
Combination -2	Triclopvr Technical	2500
	Fluroxypyr Technical	1500
	R(+)-2-(4-Hydroxyphenoxy) Propionic Acid (HPPA)	500
	Diafenthuron	1000
	2-Amino5,7-dimethoxy(1,2,4) triazol (ADTP)	500
Combination -3	Clodinafop-propargyl	1000
	Cloquintocet-Mexyl	500
Combination -4	Fipronil	1000
	2,6-Dichloroniline	100
	Sulfosulfuron	400
Combination -5	Imidacloprid	2000
	Thiamethoxam	500
Group - B		
EMULSIFIABLE FORMULATIONS		
1	Chlorpyriphos formulation	5.0 KLD
2	Chlorpyriphos Methyl Formulation	5.0 KLD
3	Triclopvr Formulation	5.0 KLD
4	Fluroxypyr Formulation	5.0 KLD
5	Imidacloprid Formulation	5.0 KLD
6	Clodinafop Propargyl Formulation	5.0 KLD
7	Fipronil Formulation	5.0 KLD
8	Clodinafop -15% WP	5.0 KLD
9	Imidacloprid - 70% WG	5.0 KLD
10	Fipronil- 80% WG	5.0 KLD
11	Thiamethoxam - 25% WG	5.0 KLD
12	Fipronil- 5% SC	5.0 KLD
13	Buprofezin - 25% SC	5.0 KLD

Note: One product from each combination from Group-A (5 Nos. of Products) and one pesticide formulation from Group-B any point of time.

PART – B

Water and Raw Material Consumption		
i) Water consumption	317.03	KLD
Process	55.24	KLD
Boiler Feed	132.54	KLD
Cooling	108.25	KLD
Domestic	21.0	KLD

Name of Products	Water consumption per unit of product (m ³ /Batch)	
	During the previous financial year (2017-2018)	During the Current financial year (2018-2019)
Chlorpyrifos technical	19.24	19.24
Triclopyr technical	23.52	23.52
Fluroxypyr technical	58.07	58.07
Imidacloprid	09.20	09.20
Clodinafop propargyl	41.30	41.30
Fipronil	41.30	41.30

PART - C

POLLUTION GENERATED

(Parameter as specified in the consent issued)

Pollutants	Quantity of Pollutants Discharged (Kg/day) 2018-2019	Concentrations Of Pollutants in Discharged (mg/l) 2018-2019	Percentage of variation from prescribed standards with reasons
a) Treated Waste Water			
Total Suspended Solids	Zero Liquid Discharge system is adopted		
Biochemical Oxygen Demand			
Oil & Grease			
Average effluent quantity : 188.65 m ³ /Day			

b) Air				
Stack Attached to	Pollutants	Quantity of Pollutants Discharged (Kg/day) 2018-2019	Concentrations Of Pollutants in Discharged (mg/L) 2018-2019	Percentage of variation from prescribed standards with reasons
Coal fired Fluidized bed boiler	PM	23.66	69.71	39.38 %less
Rotary Kiln	PM	3.79	38.28	48.96 %less

PART - D
HAZARDOUS WASTE

(As specified under Hazardous wastes/Management and handling rules, 2003)

Hazardous wastes	Total Quantity in MT per year	
	During the Previous financial year (2017-2018)	During the current financial year (2018-2019)

From Process		
From process and pollution	5833.16	5833.16
Control Facilities		
Organic Residue	265.97	265.97

PART – E
SOLID WASTES

Solid Wastes	Total Quantity MT per year	
	During the previous financial year (2017-2018)	During the current financial year (2018-2019)
From Process		
From Process	5833.16	5833.16
From Pollution Control Equipment		
Boiler Ash	3570	3570
ETP Sludge	6.10	6.10

PART - F

Please specify the characteristics (in terms of concentration and quantum) of Hazardous as well as solid wastes and indicates disposal practice adopted for both these categories of wastes.

The hazardous waste as well as solid waste generated, its composition and method of disposal is shown in table:

S.No.	Sources	Quantity Kg/Day	Composition % W/W	Method of disposal
1.	MEE/Evaporation Salts from rotary kiln	14364	NaOH – 5-10 NaCl – 90-95	TSDF, CWMP, Visakhapatnam (Dist.)
2.	Process Residue (Organic)	1516	pH – 7.0	Authorized Cement Plants for Co-Processing.
			Calorific Value - 4259	
			Water - 8.04	
			CPP - 0.5	
			Organic colored impurities – 3	
3.	Ash from coal fired boiler	12000	--	Sold to brick manufacturers
4.	ETP Sludge	210	--	TSDF, CWMP, Visakhapatnam (Dist.)

PART -G

Impact of the pollution control measures on conservation of natural resources and consequently on the cost of production.

The distillate from Multiple effect evaporation system has considerably reduced the load on effluent treatment plant and the final effluent quality is well within the prescribed limits. The treated effluents are used for cooling towers makeup within the premises. The cost of production however has increased. The incinerator is used for incinerating VOC from process vents if the VOC in ambient is more than the stipulated limits indicated by on line VOC monitoring system.

PART-H

Additional investment proposal for environmental protection including abatement of pollution.

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PART - I

Any other particulars in respect of environment protection and abatement of pollution.

Industry is developing the greenbelt in vacant space within the plant premises. Industry is sending organic waste to authorized cement industries for co-processing and also operating MEE & Batch Evaporation systems regularly. Rotary kiln is operated regularly to dry the sludge from Evaporation system. Dried Sludge is transported and disposed into Secured Landfill facilities available with Coastal Waste Management Project, TSDF, Parawada, Visakhapatnam (Dist.).

No.	DESCRIPTION	LENGTH	WIDTH	HEIGHT	ROOF	No.	DESCRIPTION	LENGTH	WIDTH	HEIGHT	ROOF
1	RAW MATERIAL STORES	24.30m	12.50m	6.85m	A.C.SHEET	2A	FORMULATION BUILDING	30.23m	15.63m	8.00m	A.C./R.C.C
2	PROCESS PLANT - 1	24.50m	15.63m	19.5m	R.C.C	3A	UTILITY BLOCK - II	30.30m	12.30	5.00m	A.C.SHEET
3	UTILITY BLOCK	24.30m	12.50m	4.50m	A.C. SHEET	30	TOILET BLOCKS	9.0m	8.4m	3.00m	R.C.C.
4	POWER HOUSE	18.30m	12.50m	4.50m	R.C.C	31	R . W . H . S POND	81.0m	67.0m	8.00m	----
5	COOLING TOWERS	32.60m	10.0m			32	WORK SHOPE	15.63m	30.23m	8.00m	A.C.SHEET
6	BOILER HOUSE	21.75m	12.50m	8.00m	A.C.SHEET	2B	PROCESS PLANT -II	15.63m	30.23m	19.50m	A.C.SHEET
7	COAL YARD	23.30m	30.10m	----		4A	POWER HOUSE EXTENSION	6.00m	18.30m	5.00m	R.C.C.
8	A.T.F.D	6.31m	5.00m	13.00m		4B	POWER HOUSE - II	12.30m	6.23m	5.00m	R.C.C.
9	GUEST HOUSE	11.25m	7.63m	4.00m	R.C.C	33	RAW MATERIAL STORE-II	30.23m	12.30m	6.00m	A.C. SHEET
10	FURNACE OIL TANK	16.80m	7.70m	----		34	BOILER HOUSE -II	20.30m	10.60m	14.20m	A.C. SHEET
11	TIME OFFICE	7.30m	5.90m	4.00m	R.C.C	35	MULTIPLE EFFECT EVAPOU RATOR	10.80m	5.60m	16.50m	R.C.C.
12	CYCLE SHED	21.30m	5.30m	3.00m	R.C.C	36	SECURITY BUILDING	13.0M	10.0M	4.0M	R.C.C.
13	TANK FARM TANKS	48.50m	12.20m	----		2C	RECOVERY BLOCK	35.0M	26.0M	16.50m	R.C.C.
14	CUSTOMS BONDED WARE HOUSE	24.20m	5.30m	4.00m	A.C.SHEET	37	A.C.N. UNLOADING SHED	24.0M	9.0M	6.50M	A.C SHEET
15	FIRE WATER SUMP	9.00m	12.50m	----		38	WATER TREATMENT PLANT	40.0M	11.0M		
16	PROCESS WATER SUMP	9.60m	12.50m	----		39	INORGANIC SOLID WASTE STORAGE SHED	30.0	5.0	4.50	AC SHEET
17	PUMP HOUSE	4.00m	4.00m	4.00	A.C.SHEET	39	INORGANIC SOLID WASTE STORAGE SHED	20.0	10.0	6.0	AC SHEET
18	DIESEL OIL STORAGE	9.30m	12.20m	----		40	R&D BUILDING	28.0	21.0	7.50	R.C.C
19	INCINERATOR	15.00m	14.55m	----							
20	E . T . P	58.50m	27.30m	----							
21	TRANSFORMER YARD	17.50m	12.40	----							
22	CANTEEN	30.50m	6.30m	4.00m	R.C.C						
23	SECURED LANDFILL	15.00m	15.00m	----							
24	SOLAR EVAPORATION POND	13.70m	7.50m	----							
25	SECURED LANDFILL	15.00m	15.00m	----							
26	COLLECTION TANK	15.23m	6.50m	----							
27	T . W . S . F .	72.50m	33.0m	----							
28	(R.W.H.S) POND	80.00m	65.00m	----							
29	BORE WELL	----	----	----							



Bhagiradha Chemicals & Industries Limited

Yerajarla Road , Cheruvukommupalem - 523 272 ,
Ongole Mdl , Prakasam Dist , A . P .

TITLE :

SITE PLAN

POLLUTION CONTROL IN THE PLANT

The industry has given top priority to pollution prevention and control. There are Alkali wet scrubbers, cyclone separator and Wet scrubber followed by tall chimneys to arrest the air pollution. Coal fired boiler emissions are effectively controlled by using a bag filter in the FBC boiler. The incinerator/rotary kiln emissions are passed through wet caustic scrubber. And HCl gases from process are passed through wet caustic scrubber. Pollution control equipments are operated efficiently to minimize the pollution and bring down to the standards prescribed by the APPCB. Solid wastes generated as coal ash from coal fired boiler is sold to brick manufacturers. Effluents are sent to stripper to remove COD, followed by Multiple Effect Evaporators (MEE) and distillates from the MEE are sent to effluent treatment plant. The treated effluents are sent to cooling tower makeup within the plant premises. All the parameters of the treated effluents are within the limits prescribed by APPCB.

Extensive green belt is developed to minimize the impacts on environment and make it eco- friendly.

Ambient air quality

The ambient air quality monitoring is carried out at three locations in the factory premises to know the status of the ambient air quality. Monitoring is carried out at the following places.

- a) Near ETP
- b) Near Security Room
- c) Near Generator Room

Ambient air quality is monitored for 24 hours at each station for the estimation of PM₁₀, PM_{2.5}, sulphur dioxide, oxides of nitrogen and HCl concentrations. The analyzed values for the parameters monitored are represented in the Table 7.1. The analyzed values for PM₁₀, PM_{2.5}, SO₂, NO_x and HCl concentrations are within the limits prescribed by APPCB for industrial and mixed use.

Stack emissions

The industry is having 7 stacks; a stack attached to 12 TPH coal fired fluidized bed boiler, a stack attached to 8 TPH (stand by) coal fired fluidized bed boiler, a separate stack attached to incinerator/rotary kiln and 4 stacks for D.G.Sets. Two stacks were selected for the audit namely stack attached to coal fired fluidized bed boiler and incinerator/rotary kiln as these stacks emitting more flue gases compared to flue gases from other stacks.

The emissions from the stack attached to the coal fired fluidized bed boiler, Incinerator/rotary kiln are monitored for the parameters like PM. The results are presented in Table 7.2. The data presented in Table 7.2 shows that the monitored values for all parameters are meeting the APPCB Standards.

AVERAGE VALUES OF AMBIENT AIR QUALITY DATA

S No.	Parameters	Near ETP	Near Security Room	Near Generator Room
1	PM ₁₀ Concentration ($\mu\text{g}/\text{m}^3$)	66.51	67.84	65.33
2	PM _{2.5} Concentration ($\mu\text{g}/\text{m}^3$)	26.40	26.40	27.40
3	Sulphur Dioxide Concentration ($\mu\text{g}/\text{m}^3$)	15.10	16.86	16.97
4	Oxides of Nitrogen Concentration ($\mu\text{g}/\text{m}^3$)	19.24	20.72	18.30
5	HCl Concentration ($\mu\text{g}/\text{m}^3$)	BDL	BDL	BDL
6	Acrylonitrile Concentration ($\mu\text{g}/\text{m}^3$)	<0.01	<0.01	<0.01

Note: BDL – Below Detectable Limits.

AVERAGE VALUES OF STACK EMISSIONS DATA

Sl. No.	Parameters	Stack attached to Coal fired fluidized boiler	Stack attached to Incinerator / Rotary Kiln
1.	Particulate matter Concentration	69.71	38.28

Note: All values are expressed in mg/Nm³.

Water Pollution Control

Effluents are sent to Multiple Effect Evaporators (MEE) and distillates from the MEE are sent to effluent treatment plant. The treated effluents are sent to cooling tower makeup within the plant premises. All the parameters of the treated effluents are within the limits prescribed by APPCB. Effluent treatment plant flow diagram and MEE flow diagrams are shown in Fig. 3 & 4 respectively.

Solid Waste Management

Ash from the coal fired boiler is sold to brick manufactures. The residue from rotary kiln, activated carbon and ETP sludge are disposed in secured land fill facilities available with Coastal Waste Management Project, TSDF, Parawada, Visakhapatnam Dist. The organic residues are sending to the authorized Cement plants for Co- Processing.

HOUSE KEEPING

Proper cleaning of the different sections is required to maintain healthy atmosphere and a good quality product. Stores are to be maintained properly. Factory premises are to be clean and green to have good housekeeping. M/s. Bhagiradha Chemicals & Industries Limited is keeping

their plant and premises neat and tidy. Housekeeping has been found to be satisfactory.

PROCESS DESCRIPTION OF EFFLUENT TREATMENT PLANT

The main sources of effluent generation from plant are from process, blow downs from boiler and cooling tower and domestic effluents, The effluents generated in the process are both Organic and inorganic in nature. For efficient treatment the effluents are segregated based on COD and TDS content. Effluents with high COD are sending to stripper. After stripping the stripped liquid (VOC) sent to TSDF / authorized cement plants for co-incineration. Effluents with high TDS are concentrated in batch evaporators. The condensate is collected and further treated in effluent treatment plant. The residue from the evaporators is further dried in a rotary kiln. The dried mass from rotary kiln is packed in HDPE bags and sent to TSDF ,CWMP, Parawada, for safe disposal in to secured land fill. The LTDS effluents comprise of steam condensate from ejectors, aqueous layers from layer separators and spent lye from caustic scrubbers and they are treated in a stripper for the removal of organics followed by evaporation in MEE. The condensate is sent to effluent treatment plant which is based on activated sludge principle. The treated effluents are used as makeup water in cooling towers. Blow downs from utilities are evaporated in MEE and the condensate is recycle to boiler feed water make-up. The residue obtained from MEE is treated in batch evaporators along with HTDS effluents, Domestic effluents are sent to soak pit followed by septic tank. The total treated waste water in ETP are sent to RO, the RO product is used for cooling towers makeup and the reject water from the RO is further treated in MEE. The effluent treatment Scheme is shown in Fig

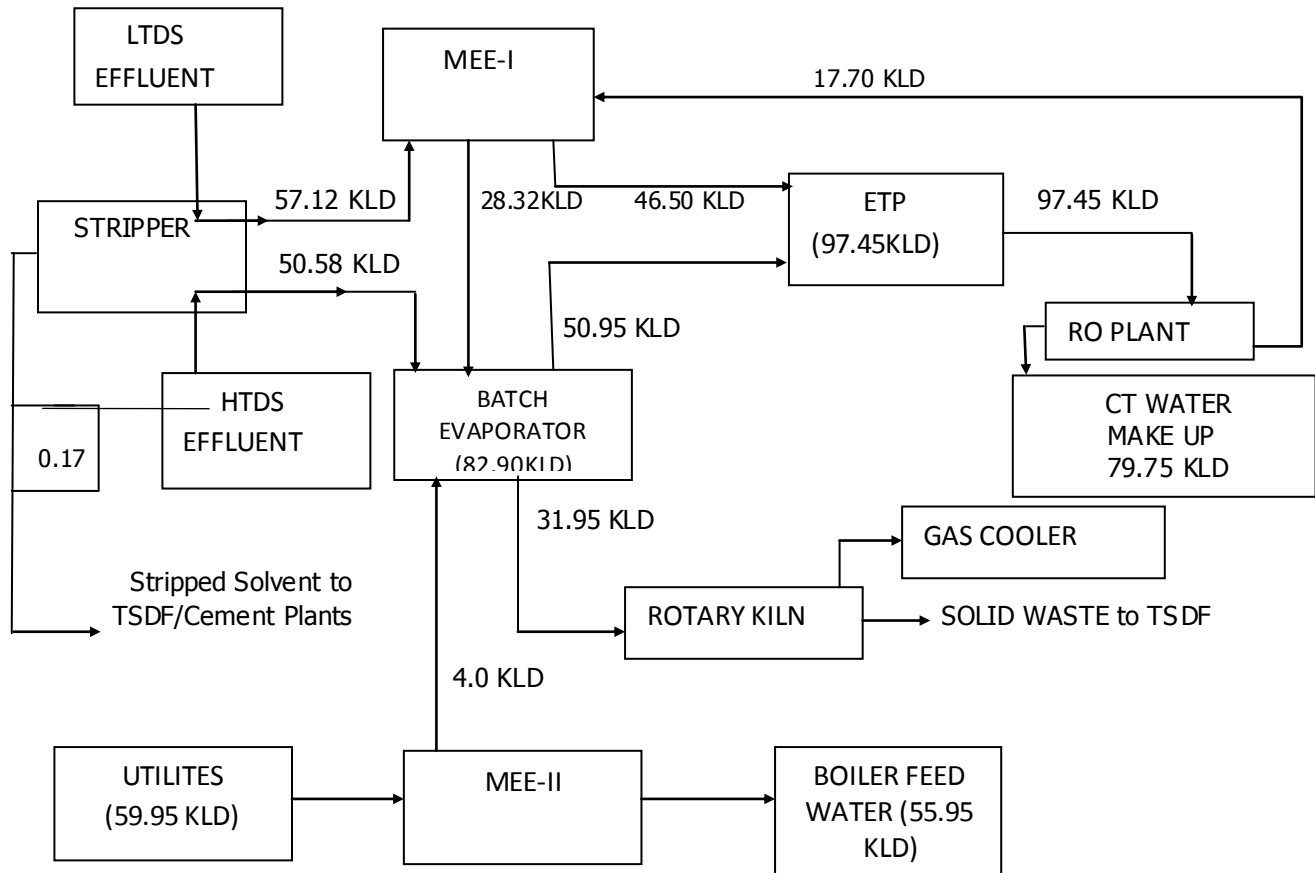


Fig: 2-WASTE WATER MANGEMENT SCHEME- FLOW DIAGRAM