

ENVIRONMENTAL STATEMENT (AUDIT)
FOR
M/s. RHODIUM FERRO ALLOYS PVT. LTD,

For the Year 2017- 2018

M/s. RHODIUM FERRO ALLOYS PVT. LTD
Plot No. 16, 18, Gollapuram (V),
Hindupur (M), Anantapur (Dist) – 515 211



Report Prepared By

M/s. GLOBAL ENVIRO LABS
Tilaknagar "X" Roads, Baghambertpet,
Hyderabad – 13

ACKNOWLEDGMENT

M/s. GLOBAL ENVIRO LABS express sincere gratitude to ***M/s. RHODIUM FERRO ALLOYS PVT. LTD*** for the opportunity provided by assigning the preparation of Environmental Statement (Audit) for their Unit at Plot No: 16 and 18, Gollapuram (V), Hindupur (M), Anantapur (Dist) of Andhra Pradesh. The Environmental Statement (Audit) is prepared for the financial year from April 2017 to March 2018. ***GLOBAL ENVIRO LABS*** are obliged to the Executives of ***M/s. RHODIUM FERRO ALLOYS PVT. LTD*** for their co-operation and assistance during the preparation of this statement. We also wish to acknowledge our gratitude to all of them who helped during the data collection and report preparation.

1. INTRODUCTION:

The Concern for Environment, both in the national and international arena, has increased manifold in the recent years. Sustainability of present, manufacturing practices, rates of resource consumption, and the effects of economic progress on Environment are debated. People are worried about the health hazards that are posed by any degraded environment. In order to limit degradation, the government in line with its regulatory approach to environmental protection, has enacted environmental audit.

Environment audit can be defined as a management tool compressing a systematic, documentable, periodic and objective evaluation of how well environmental organisation, management and equipment are performing with the aim of helping to regulate the environment by facilitating management control of environmental practices and assessing complains with company policies, which would include meeting regulatory requirements. In essence, environmental audit is a process of detecting waste of resources and environmental damage that can be avoided in any productive activity.

When the procedure for environmental audit was first notified under the Environment (Protection) Act, 1986 by the Ministry of Environment and Forests (vide notification no GSR 329(E) Dated 13th March 1992) the industrial units were required to furnish environmental audit reports. By an amendment (vide notification no GSR 386 (E) Dated 22nd April 1993) the term for the document has been revised from “environmental audit report” to “environmental statement”.

M/s. RHODIUM FERRO ALLOYS PVT. LTD has set up their unit at Sy. No: 16 and 18, Gollapuram (V), Hindupur (M), Anantapur (Dist) of Andhra Pradesh in the year 2012 for manufacturing of Ferro Silicon.

2. OBJECTIVE OF THE STUDY:

The objective of the present study is to review the performance of pollution control systems installed by the industry so as to identify efficient pollution prevention and control systems, which could be beneficial to both environment and its components.

M/s. RHODIUM FERRO ALLOYS PVT. LTD has entrusted the task of preparation of Environmental Statement (Audit) to ***M/s. GLOBAL ENVIRO LABS, { Recognized by NABET, QCI, GoI, New Delhi }*** Hyderabad and an in-depth study was conducted to review the process efficiency, waste water generated and the present treatment systems, emissions generated and air pollution control equipment provided, mode of solid waste collection and disposal and the other associated problems leading to the pollution and impact on environment.

3. SITE LOCATION:

M/s. RHODIUM FERRO ALLOYS PVT. LTD is located Plot No: 16 and 18, Gollapuram (V), Hindupur (M), Anantapur (Dist) of Andhra Pradesh. The management is committed in its Quality Policy to maintain Clean and Safe Environment. The project is located about 12 km away from National Highway connecting Hyderabad – Bangalore, predominant soil is red soil. The climatic conditions at the site are mainly dry throughout the year. The average annual rainfall in the area is 550 mm, the maximum ambient temperature is 43°C and minimum is 17°C. There is no forest area within the radius of 10 kms around the present project site.

FORM - V
(See Rule 14)

ENVIRONMENTAL STATEMENT FOR THE FINANCIAL YEAR 31st MARCH 2018.

PART – A

- i) Name and address of the owner/ : **Mr. S. NIRMAL KUMAR**
Occupier of the industry operation or process : *M/s. RHODIUM FERRO ALLOYS PVT. LTD.,*
Plot No. 16, 18,
Gollapuram (V), Hindupur (M),
Ananthapur (Dist).
- iii) Production Capacity (Units) : Ferro Silicon - 8000 TPA

Produced Quantity : Ferro Silicon - 7,964.5 TPA
(2017-2018)

PART – B

WATER AND RAW MATERIAL CONSUMPTION

- 1) Water consumption : 34.0 m³/day
- Process : 0.0 m³/day
Cooling (Make Up) : 24.0 m³/day
Gardening & Domestic : 10.0 m³/day

Name of Products	Water consumption per unit of products (m ³ /MT)	
	During the previous financial year (1) 2016-2017	During the current financial year (2) 2017-2018
Ferro Silicon	1.17	0.99

ii) Raw Material Consumption

Name of the raw materials	Name of product	Consumption of raw material per MT of output (MT)	
		During the previous financial year 2016-2017	During the current financial year 2017-2018
Quartz	Ferro Silicon	1.74	1.84
Coke		1.87	1.85
Millscale		0.43	0.39

PART – C

POLLUTION GENERATED

(Parameter as specified in the consent issued)

i)	Pollutants	Quantity of pollutant discharged (mass/day) (Avg.)	Concentration of pollutant discharges (mass/volume) (Avg.)	Percentage of variation from prescribed standards with reasons		
a) Water		NIL				
8.0 m³ / day of wastewater generated from Domestic use. The Domestic Effluents are sent to septic tank followed by soak pit.						
b) Air (Stack Quality)		Quantity of pollutant Emissions (Kgs/day) 2017-2018	Concentration of pollutant in Emissions (mg/N m ³) 2017 – 2018	Percentage of variation from prescribed standards with reasons		
1.	Stack attached to the 9 MVA Electric Arc Furnace Particulate Matter [PM] Sulphur Dioxides [SO ₂] Oxides of Nitrogen NO _x	86.70 94.08 53.49	47 mg/Nm ³ 51 mg/Nm ³ 29 mg/Nm ³	06.00% less 93.62% less 95.17% less		
b) Air (Ambient Air Quality) [µg /m ³] Avg		PM ₁₀	PM _{2.5}	SO ₂	NO _x	All the values are well within the limits stipulated by APPCB
1.	Near Main Gate	56.0	31.0	07.0	10.0	
2.	Near Furnace	68.0	39.0	19.0	14.0	
3.	Near Raw Material Area	62.0	35.0	14.0	09.0	

PART – D

HAZARDOUS WASTE

(As specified under Hazardous wastes/Management and handling) rules, 1989

Hazardous Wastes	Total Quantity (KL / Year)	
	During the previous financial year 2016-2017	During the current financial year 2017-2018
Waste Oils	0.04	0.04 Kl/ yr

PART – E

SOLID WASTES

	Total Quantity (Tons/ Year)	
	During the previous financial year 2016-2017	During the current financial year 2017-2018
(a) From Process	NIL	NIL
(b) From Pollution Control Facility		
Bag Filter Dust	84.15	85.12
(c) Quantity recycled or re-utilized	NIL	NIL

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.

There are 40 lt/year of used oils are generated from this unit as hazardous waste and these are disposed to authorized reprocessing agencies.

There are 85.12 MT/Year of Bag filter dust is generated from the pollution control facilities in the form of Solid waste. The same shall be given to out side parties/ Recycled into production process.

PART - G

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

Adequate measures taken to maintain clear environment in and around the factory premises. There is a bare minimum impact on the surrounding environment. Cost of production is slightly increased due to the pollution control measures.

PART – H

Additional investment proposal for environmental protection including abatement of pollution.

M/s. RHODIUM FERRO ALLOYS PVT. LTD has already spent 1.50 Crores to control the water and air pollution from their plant. They are spending around 15.0 Lakhs - per month as maintenance expenditure to run the pollution control system.

PART - I

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

Pollution control facilities are functioning satisfactorily. The plant has developed green belt in area of 7 acres area in the plant. Prompt attempts have been taken by the plant authorities to grow trees since from beginning of the plant. The management also proposed to develop the Greenbelt in all vacant areas of the plant. The steps taken by the management to abate pollution and at the same time improves the surrounding environment. About 1200 plants were planted under the greenbelt development program during the year 2017 – 2018 by the plant management.

Ferro Silicon Manufacturing Process:

Ferrosilicon is generally manufacture in submerged electrical arc furnace with a power requirement of 7,500 to 10000 KWAC/MT at liner voltage of 120 – 130 V and current of 33-38 Ka using electrodes (900 to 1100 mm diameter) depending upon the size of the furnaces. The hearth and walls of the furnace are lined with carbon blocks and the upper portion of wall with fire clay bricks. The charge for making ferro silicon is composed of M.S. Scrap, Quartz and Coke. Ferro Silicon ids smelted by a continuous process with the electrodes submerged deep into the charge.

The manufacturing process of ferro Silicon can be broadly classified into four steps.

- a) Blending of raw materials.
- b) Charging and smelting in the arc furnace
- c) Tapping and cooling of molten materials
- d) Breaking, cleaning and packing

Blending of Raw Materials

Quartz, coke and M.S scrap are mixed in the required quantity and lifted to the charging platform with the help of the lifting arrangements. The raw materials are generally mixed in the following proportion in terms of weight.

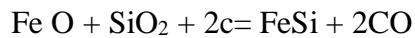
Quartz	:	46%
Coke	:	42%
M.S Scrap	:	12%

Charging of raw material

The blended raw materials are charged to the furnace with the help of hoist and charging chutes at a regular interval. In the furnace three carbon electrodes are partially submerged in the charge, with are supported by hydraulic cylinders for upward and down word movements. The electrodes help in maintaining desired electric conditions in the

furnace. The chemical reaction starts at a temperature of 1600° C to 1700° C. At these high temperatures in the reaction zone, the carbon source reacts with oxides to form carbon

Monoxide and to reduce the ores to base metal. A typical reaction producing ferrosilicon is shown below:



In the reaction zone of the furnace the silica reacts with the Resultants and after reaction, a mixture of iron and silicon tickles down and gets collected at the bottom of the furnace crucible. The impurities present in the form of molten slag are collected in vessel.

Tapping and cooling

Three tap holes are provided at the bottom of the furnace for tapping both molten alloys and slag. During repair work of the Tap hole function and the works as standby. As the charge enters the smelting zone, the alloy formed by chemical reactions of the oxide and the reductant, being heavy, gradually settles at the bottom. At regular intervals of 2 to 2.5 hours the furnace is tapped. The tap hole is opened by Oxygen lancing pipe and after tapping is completed, it is closed by clay plugs. The liquid Ferro silicon is collected in the tapping port and cast on the dressed sand beds for solidification and cooling

Breaking cleaning and packing

After solidification the cakes are broken manually with help of hammers to reduce into the required lump sizes being removal of undesired particles if any, like slag contents etc. After cleaning and braking, laboratory test in conducted for checking quality and composition. Finished goods are then packed in either jute bags/P.P bags ready for dispatch.