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Ref: BALB/ENV/ES/.....1878  
Dt: 23.09.2014

**To,**

The Member Secretary  
State Pollution Control Board, Odisha  
A/118, Nilakanthanagar  
Unit-VIII  
Bhubaneswar-751 012 (Odisha)

**Sub: Submission of Annual Environmental Statement Report.**

Sir,

We are herewith submitting the Annual Environmental Statement Report (in FORM-V) of BALASORE ALLOYS LIMITED for the year ending 31<sup>st</sup> March'2014.

Kindly receive & acknowledge the same.

Thanking you.

Yours truly,

For **BALASORE ALLOYS LIMITED**

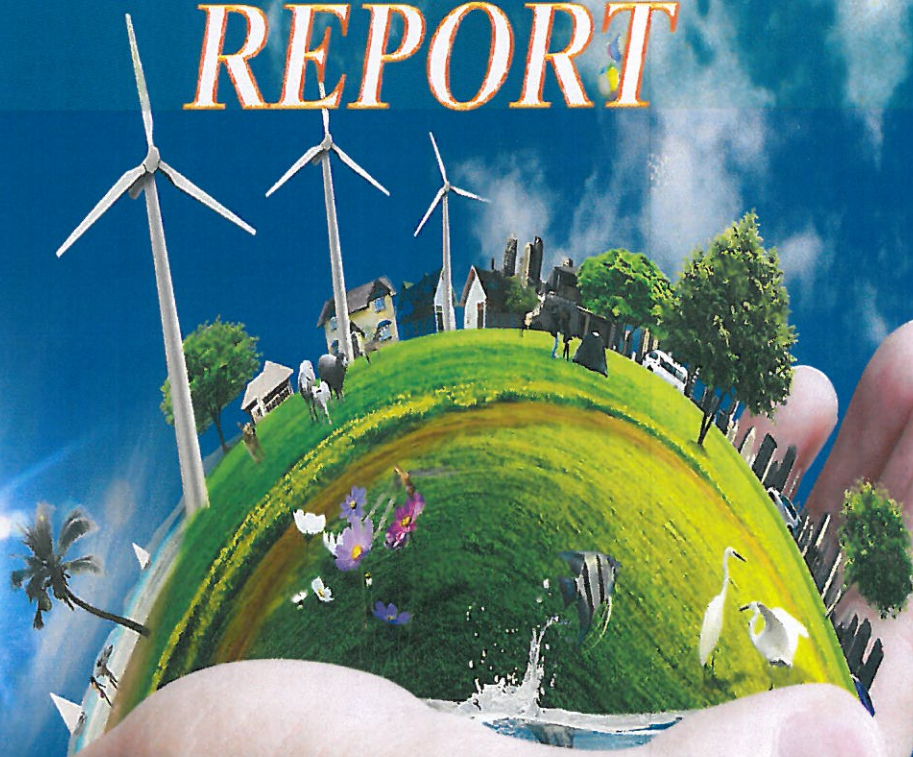
Dr. J R SWAIN  
AGM (Env.)

Encl: Environmental Statement Report

**CC: Regional Officer, Orissa Pollution Control Board, Sahadevkhunta, BLS.**



# ENVIRONMENTAL STATEMENT REPORT



2014



BALASORE ALLOYS LIMITED

## PREFACE

As per Notification No. GSR 329(E) dated 13.03.92 of Ministry of Environment & Forests, Government of India instruction was issued regarding submission of Audit Report under provision of Environment (Protection) Rule 1986 by every person carrying out an Industry operation or process requiring consent under Water and Air Acts or both or needing authorization under the Hazardous Wastes (Management & Handling) Rules 1989 and amendments as Hazardous Wastes (Management, Handling and Transboundary Movement) Rules, 2008 and by an extraordinary gazette notification the word Audit report in Rule 14 of Environment Protection Act 1986 were substituted by the work statement wherever they occur.

The Environmental Data for this statement is compiled by **BALASORE ALLOYS LIMITED** for the financial year **April' 2013 - March'2014**.



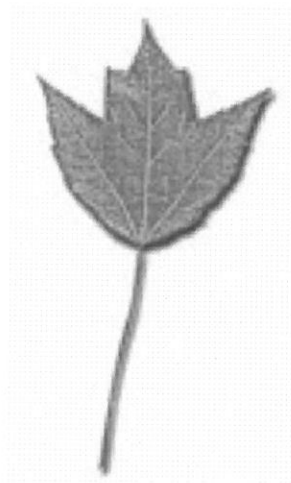
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*Care for the Environment is now a matter of great importance at every level of International, National and Local policy. We are therefore pleased to be able to forward this statement of the measures we have taken to preserve the Environment in the locality of our plant.*



## INTRODUCTION

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### BACKGROUND:

Balasore Alloys Limited (BAL) a member of Ispat Group, which was commissioned in 1985, is situated at Balgopalpur Industrial Estate of Remuna Block of Balasore District, Odisha. It produces high carbon Ferro-chrome and required chrome ore is resourced from own captive mines situated at Kaliapani chromite ore mines, Sukinda, Jajpur. Other raw material as reductants is purchased from indigenous sources and imported. Fluxes and electrode paste are also taken from indigenous sources. Water is withdrawn from ground and electricity is taken from govt power supply, OPTCL.

Major part of the production of BAL is exported mainly to Japan, China, Korea, Europe, Turkey, Chile, and Iran & Taiwan. BAL has got 5 Nos. of Submerged Electric Arc Furnaces. Balasore Alloys can produce different Ferroalloys like High Carbon FeCr, SiMn, FeMn etc. basing on the market requirements & produce about 95,000 TPA altogether. The production of different products depends upon market demand and availability of raw materials. Ferro-Alloys are used by the steel plants for production of steel as a deoxidiser and as alloying element. During this year BAL has produced High Carbon Ferro Chrome (FeCr).

## PRODUCTION PROCESS

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For production of Ferro-Alloys, required raw materials are ores of the metal (i.e. Chrome Ore), Reductants such as Low Ash Metallurgical Coke, Anthracite coal, Fluxes like Magnesite, Dolomite, Quartz and Electrode paste to form continuous type soderberg electrode that penetrates in the charge. All these raw materials are mixed in requisite proportion & fed to the furnace.

Current is supplied through the electrodes, which produce continuous arcing with the charge, and generates heat. Oxides of the ore are reduced by carbon of reductants at reaction zones. Charge moves down by gravity and the hot gases generated pass through the layers of charge imparting heat and finally escapes through the surface of the charge. In open furnace these gases i.e. CO, H<sub>2</sub> and CH<sub>4</sub> are burnt up and considerably mixed with air. Mostly steady amount of gases are exhausted from smelting furnaces. These escaping gases contain some amount of dust & when let out in the atmosphere through furnace stack creates air pollution. Reduced metal in molten condition joins to form an alloy and impurities join to form slag. Molten Alloy / Metal as well as slag is tapped out at suitable intervals. Hot Alloy is casted in beds, cooled and broken to sizes as per customer's requirement before dispatch. Slag is also casted in beds and cooled. Metal entrapments in slag are separated through jigging at our Metal Recovery Plant & pure slag in form of chips (6-25 mm) and fines (0-6 mm) are sold to suitable customers for construction purposes and for filling up of low lying areas respectively.

At every stage of production, quality checks are carried out with suitable process control measures with a thrust on resource conservation, pollution control and betterment of environment. The complete process is automated and controlled through control rooms.

ENVIRONMENTAL POLICY

# ***ENVIRONMENTAL POLICY***




We at Balasore Alloys Ltd, engaged in manufacturing of Ferro-Alloys, are committed to maintain clean & green environment in and around our plant while striving to add value to all stakeholders and fostering corporate image worldwide.

In order to achieve the same we shall;

- prevent pollution and protect environment through optimum resource utilization, minimization of emission, efficient waste management and development of green belt in and around our plant,
- comply to all applicable legal & other requirements to which organisation subscribes,
- develop among employees and surrounding community an awareness of environmental responsibility and adherence to sound environmental practices, and
- continually improve our environment management system performance.

8<sup>th</sup> February 2012

  
**B.N.Panda**  
Director (Operation)



### ENVIRONMENTAL MANAGEMENT

Environmental protection is a key part of the corporate culture at the company and its objectives are based on the environmental and individual aims of the management. The aims refer to the environmental impact of the company's activities, products, resources, and services.

Environment Protection, Occupational Health and Safety Care are primary concerns of the Plant. The areas of occupational safety, quality and environmental protection are assessed regularly by appointed personnel and are adapted according to operating conditions. Compliance with all relevant statutory regulations and continuous improvements in the company's environmental protection has been common practice here for many years. It is not only the ideas that are important but also the actions and deeds of each and every employee. Amongst other things this documentation covers all general work instructions and documented procedures for environmental processes. Each employee is required to contribute to ensuring that BAL always comes out on top in terms of quality, safety and environmental protection. Also we are ISO 14001:2004 Certified Company since 2007 and every time we are assessing nos. of Environmental Aspect.

## ENVIRONMENT PROTECTION

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We always analyze and consolidate the outcome of Environmental Management audit that are carried out in addition to the corrective and preventive measure, these provide important information for defining environmental programs, targets and control mechanism. All of our employees are involved in achieving the company's aims towards minimize environmental input due to several activities.

### A. PRODUCTION

The production department along with the Environmental Cell is particularly responsible for environmental protection in relation to production, as it is in this area that potential environmental influences occur depending on the respective procedure. This includes the optimized use of raw materials and other resources like Water, Electricity and Manpower. In addition to actual products, the company also generates solid wastes like Slag and flue dust. The aim is to minimize these through environment-friendly production and reuse of it for protection of the Environment.

### B. PACKAGING & DISPATCH

1. Reusable recyclable & bio-disposable packing materials are used wherever possible.
2. Transportation of materials like raw material, semi-finished and finished products are done in Environment-friendly way like well packaging through properly covered vehicle so that no spillage or dust emission would be there.
3. Slow driving within the plant premises to reduce dust emission and for safety.

### C. SOLID WASTE DISPOSAL & MANAGEMENT

In the kind of our process, two types of solid wastes are generated:

#### 1. SLAG:

Slag produced during production of Ferro-Chrome is harmless and non-toxic. It is non-hazardous material. It is a lumpy hard solid and does not create any air pollution.

Slag generated after processing at our Metal recovery plant, in form of fines and chips is being used for filling the low lying areas, road construction & to some extent for house construction etc. and balance slag is dumped in a heap in the company's own land & sold to suitable customers.

## 2. **FLUE DUST:**

Furnace gas in form of fine dust after passing through the bag filters at Gas Cleaning Plant contains some  $\text{Cr}_2\text{O}_3$  in it. So this dust get reused in the form of briquette & fed to the furnace.

The Ferro-Alloy Plants are a major source of air pollution. Thus, stress is given for adoption of preventive measures to control air pollution rate.

In part of this, the gas cleaning plants are already installed for all the furnaces (Furnace –I, II, III IV & V) and have been working satisfactorily by reducing the PM level from the stack emission there by keeping the values well within NAAQS as prescribed by the Pollution Control Board. There is no discharge of any process effluent water as all the process effluent water is reused for dust suppression and plantation purpose, as total process water is used for furnace cell metal cooling.

## D. **GREEN BELT DEVELOPMENT:**

Balasore Alloys limited always takes part in plantation every year since inception of the Plant. During the period April'2013 to March'2014, we have planted in total of 12205 nos. plant within the Plant Premises (in 22 acres of land) including 7912 nos. of Acacia, 3635 nos. of Mehogini, 23 nos. Katha Badam & 635 nos. of Radhachura. This year, as intimated by Local Administration and Divisional Forest Officer, Balasore we are in process of massive plantation of 16 RKM at Urban Area and 10 Acre of Block Plantation near Remuna Proposed Medical College.

### STATUTORY COMPLIANCE

1. Renewal Consent order for both air and water for all the 5 nos. of furnaces of BAL was granted for the period 2014 - 15.
2. The Industry is submitting monthly returns of water consumptions & results of monthly pollution drive conducted in house before 5<sup>th</sup> of the succeeding month. The water cess payment is deposited on regular basis as per the assessment order of Board.
3. Yearly Compliance status report sent to the Board in time.
4. Annual Environmental Statement of the plant is being prepared & sent to the Board every year in time.

The environmental statement of M/s Balasore Alloys Limited for the Year ending 31<sup>st</sup> March'14 in accordance with the rule 14 of the Environment Protection Act 1986 and amended there-after 1993 in prescribed Form -V is given herewith.



[FORM - V]  
(See Rule - IA)

**ENVIRONMENTAL STATEMENT FOR THE FINANCIAL  
YEAR ENDING 31<sup>ST</sup> MARCH 2014**

**1. PLANT DATA:**

- (a) Name & Address of Works : **M/S. BALASORE ALLOYS LIMITED**  
Balgopalpur Industrial Estate  
Balgopalpur, PO: Rasalpur  
Dist: Balasore - 756020  
Odisha
- (b) Name & Address of the Occupier : Mr. Anil Sureka  
Managing Director  
Balgopalpur, Balasore  
Odisha - 756020
- (c) Category of the Plant defined by the : Large Scale  
Ministry of Environment & Forests,  
Government of India.
- (d) Year of Commercial Production : Year 1985
- (e) Operating Schedule : Round the Clock in three shifts

- (f) Number of Employees : Up to March 2014
- |                 |   |            |
|-----------------|---|------------|
| Workers         | - | 218        |
| Officer & Staff | - | 380        |
| <b>Total</b>    | - | <b>598</b> |
- (g) i. Investment in the Plant : Rs. 451.90 Crores  
 ii. Investment in Pollution Control : Rs. 10.35 Crores  
 GCP Maintenance - Rs. 2981161.64/-  
 GCP Running Cost (30MW/Day) @  
 Rs. 5600/MW = Rs. 60480000/-  
 Mobile Water Sprinkling @  
 Rs. 3000/Month = Rs. 360000/-
- (iii) Pollution Control equipment : High Volume Air Sampler – 01 No.  
 Respirable Dust Sampler (PM<sub>10</sub>) – 01 No.  
 Fine Dust Sampler (PM<sub>2.5</sub>) – 01 No.  
 Stack Monitoring Kit – 01 No.  
 Sound Level Meter – 1 No.

## 2. SITE FEATURE AND SETTLEMENT:

- (a) Elevation of the plant above Mean sea level : 16 Mtrs. MSL.
- (b) Latitude and longitude : 20° 43' to 20°48' N  
 86° 16' to 86°29' E
- (c) Area used by the plant
- |                                   |             |
|-----------------------------------|-------------|
| i) Land in possession             | : 65 Acres  |
| (ii) Land for Factory Use         | : 10 Acres  |
| (iii) Land for Residential Colony | : 6.5 Acres |
| (iv) Land for Waste Disposal      | : 4.0 Acres |
| (v) Land for Tree plantation      | : 22 Acres. |
- (d) Nature of Topography : Plain Terrain
- (e) Site of the plant : Agricultural area acquired for Industrial Estate.
- (f) Others Features within 20 km distance
- i. Other Important Industries
- |   |        |
|---|--------|
| Emami Paper Mills                                 | : 2 Km |
| Birla Tyres                                       | : 9 Km |
| Others Industries of Somnathpur Industrial Estate | : 7 Km |

Other Industries of Ganeswarpur Industrial Estate	: 10 Km
ii. Lakes	: Nil
iii. Rivers	: River Sona - 3 Km River Budha Balang -12 Km.
iv. Sea	: Bay of Bengal at about 25Km.
v. Forest	: Raj Nilgiri distance - 10 Km.
vi. Urban Settlement	: Balasore - 15 km
vii. Crop Field	: Distributed all around 1 km
viii. Tourist Spot	: Chandipur Sea Beach - 25 km
ix. High Way	: National High way No. 5 - about 7 Km
x. Railway Station	: Balasore - 15 km
(g) Weather Condition	
i. Yearly Rainfall	: 1811 mm
ii. Temperature	: Max.      Min      Avg
Summer	45 °C    31 °C    36-37 °C
Winter	32 °C    16 °C    24-25 °C
iii. Wind Speed range	: Calm to 24 km /hr varies with seasonal Variance.
iv. Humidity	: Max. – 86.0 % Min - 71.6 %

### 3. RESIDENTIAL COLONY

(a) Population accommodated in the colony	: 280 no. of persons (Approx.)
(b) Distance of colony to the plant	: 100 mtrs away
(c) Service provided in the colony by the company	: Water, Electricity, Sanitation, Transportation, Shopping Center, Cultural as well as Sports Club, Library etc.

**4. ENERGY CONSUMPTION (2013 - 14)**

- (a) In the plant including colony : 387097.0 MW  
For the whole year
- (b) Source of Energy : NESCO

**5. Date of Environmental statement report last submitted: 27.09.2013****(PART-A)****TABLE -1****PRODUCTION FIGURES (PRODUCT WISE) PER ANNUM (MT)**

Sl. No.	Name of Product	2012-2013	2013-2014
1.	Silico Manganese	-----	-----
2.	Ferro Chrome	98466	104336

**(PART-B)****WATER AND RAW MATERIAL CONSUMPTION****1. Water consumption**

- (a) Source of supply : Bore wells
- (b) Details of water consumption at full production capacity:

Consumption Head	Consumption rate (m <sup>3</sup> /month) (at full production capacity)	Actual consumption (m <sup>3</sup> /annum)
		(2013-2014)
Process	Nil	-
Cooling	20300	243595
Domestic	3346	40150



**TABLE-2****CONSUMPTION OF WATER PER UNIT (MT) OF PRODUCTION****For production year 2013-2014**

<b>Ferro Chrome Production</b>	<b>Water Consumed in KL/MT</b>
For process	Nil
For Furnace Cooling	2.33
For Domestic	0.38

**2. Raw material consumption****TABLE-3****RAW MATERIAL CONSUMPTION PER UNIT (MT) OF PRODUCTION**

<b>Name of Raw material</b>	<b>Consumption in MT of production during the year 2013-2014</b>
	<b>FeCr</b>
Reductant	0.55 - 0.60
Quartz	0.25 - 0.30
Dolomite	0.15 - 0.20
Electrode Paste	0.015 - 0.020
Chrome Ore	2.30 - 2.50

**(PART-C)****POLLUTION GENERATED**

(Parameter as specified in consent order)

The industry is granted renewal of consent order for all the five furnaces for 2014 - 15

**1. AIR POLLUTION****(A) SOURCE OF AIR POLLUTION & ITS CONTROL****TABLE-4(A)**

<b>Sl. No.</b>	<b>SOURCE</b>	<b>EXISTING (2013-2014)</b>
1.	5 nos. of furnaces	<ul style="list-style-type: none"> <li>GCPs attached to each furnace</li> <li>Fume extraction systems installed at tapping point of furnace floor</li> </ul>
2.	Material storage yard (Both Raw material & Finished product)	Stored under shed
3.	Roads	Water sprinkling through Mobile water tanker
4.	Raw material feeding points	Dry fog dust suppression systems are installed

**(B) STACK DETAILS (GCP STACK)****TABLE-4(B)**

<b>Furnace No.</b>	<b>No. of Stacks</b>	<b>Material of Construction</b>	<b>Height above ground level</b>	<b>Diameter (In mm)</b>	<b>Flue gas Qty (In m<sup>3</sup>/hr)</b>
F-1	One GCP Stack	Mild Steel	40 mtr	1400	45000
F-2	One GCP Stack	Mild Steel	40 mtr	1400	45000
F-3	One GCP Stack	Mild Steel	40 mtr	1400	45000
F-4	One GCP Stack	Mild Steel	40 mtr	1400	25000
F-5	One GCP Stack	Mild Steel	35 mtr	1400	35000

**(C) STIPULATED IN CONSENT ORDER**

(i) Emission is permitted through following stacks:

**TABLE-4C (i)**

<b>Furnace No.</b>	<b>No. of Stacks</b>	<b>Description</b>	<b>Point of discharge</b>	<b>Compliance</b>
F-1	3 Furnace stacks	Attached to GCP-I	40 mtr	Complied
F-2	3 Furnace stacks	Attached to GCP-II	40 mtr	Complied
F-3	3 Furnace stacks	Attached to GCP-III	40 mtr	Complied
F-4	1 Furnace stack	Attached to GCP-IV	40 mtr	Complied
F-5	1 Furnace stack	Attached to GCP-V	35 mtr	Complied

- (ii) Maximum discharge of emission:

**TABLE-4C(ii)**

<b>Furnace No.</b>	<b>Stack No.</b>	<b>Emission Rate</b>
F-1	3 Stacks	45000 m <sup>3</sup> /hr
F-2	3 Stacks	45000 m <sup>3</sup> /hr
F-3	3 Stacks	45000 m <sup>3</sup> /hr
F-4	1 Stack	25000 m <sup>3</sup> /hr
F-5	1 Stack	35000 m <sup>3</sup> /hr

- (iii) Monthly analysis report to be submitted to the Board : Complied
- (iv) A separate energy meter with recording device shall be installed in the gas cleaning plant to ascertain its continuous operation. : Separate energy meters have been fixed for each of five GCPs.
- (v) The industry shall abide the provision of EP Act, 1986 and rules framed there under. : Complied
- (vi) A comprehensive Environmental Management Plan for all furnaces shall be prepared and submitted to the board. : Complied

(vii) Characteristics of emission &amp; % variation

**TABLE-5**

Sl. No.	GCP Stack	PM Level (mg/Nm <sup>3</sup> )		Standard given by PCB (mg/Nm <sup>3</sup> )	% Variation
		2012-2013	2013-2014		
1.	F-1	53	56	100	Nil
2.	F-2	53	57	100	Nil
3.	F-3	59	65	100	Nil
4.	F-4	45	48	100	Nil
5.	F-5	44	48	100	Nil

(viii) Ambient Monitoring

**TABLE-6**

Pollutants	2013-2014	Standard given by PCB	% Variation
Particulate matter (PM <sub>10</sub> ) (At 3 diff. monitoring stations)	62 78 63	100 µg /m <sup>3</sup>	Nil
Particulate matter (PM <sub>2.5</sub> ) (At 3 diff. monitoring stations)	27 32 26	60 µg /m <sup>3</sup>	Nil
Sulphur Dioxide (SO <sub>2</sub> ) (At 3 diff. monitoring stations)	4.64 4.91 4.53	80 µg /m <sup>3</sup>	Nil
Nitrogen Dioxide (NO <sub>2</sub> ) (At 3 diff. monitoring stations)	10.91 10.98 10.79	80 µg /m <sup>3</sup>	Nil

**2. WATER POLLUTION**

(Parameter as specified in consent issued)

- (i) Discharge of effluent (Cooling water blow down) : There is no discharge of Effluent.  
is permitted to discharge on land for irrigation
- (ii) Plantation shall be carried on (2500 nos. per Hectare) : Complied



**Note:** There is no industrial effluent as water is used for cooling purpose, which is recirculated. The domestic sewage arises in the plant & from the colony is discharged into the septic tank & IDCO Drain that is being cleaned at regular intervals.

**(PART-D)****(Hazardous Waste)**

(As specified under Hazardous Waste (Management, Handling and Transboundary Movement) Rules, 2008)

**TABLE-7**

Source	Hazardous Waste Generated (In MT)		Remarks
	Flue Dust (in MT) During the year (2012 - 2013)	Flue Dust (in MT) During the year (2013 - 2014)	
From Pollution Control Facilities	1299.91	1090.50	GCP dust is collected & is recycled to make briquettes along with chrome ore fines in the briquette Plant.
	Used Oil (in KL) During the year (2012 - 2013)	Used Oil (in KL) During the year (2013 - 2014)	
From Machineries	9.03	12.18	Disposed to registered Recycler

**(PART-E)****(Solid Waste)****TABLE-8**

Source	Solid Waste Generated (In MT)		Remarks
	During the Year 2012-2013	During the Year 2013-2014	
From process	Slag Tailing- 122725.67	Slag Tailing- 122084.80	Slag is generated at about 1:1.2 ratio of the metal
Quantity recycled/Re utilized.	100 %	100 %	FeCr Slag in form of chips and fines is utilised for construction of boundary walls, roads etc. & as well as for refilling of low lying areas and also sold to the parties.

#### **PART-F**

The ultimate solid waste generated in the form of slag tailings and fines from Metal Recovery Plant is utilised in roads lining, boundary wall and other construction purposes & filling up of low lying areas respectively. Balance is dumped within the company's premises.

#### **PART G**

GAS CLEANING PLANTS are installed for each furnace as a measure of pollution control. This reduces the PM levels in & around the factory premises. The dust collected from GCP contains  $\text{Cr}_2\text{O}_3$ . The utilisation of this dust in the furnace reduces the raw material cost.

The water used for cooling is recycled & spillage water is collected in the settling tank made inside the Company's own created Horticultural garden and reused for gardening.

#### **PART-H/PART-I**

The industry has been granted consent order for the entire five furnaces for 01 (One) year i.e. for 2014-15. Tree plantation is going on in & around the factory premises.