BALASORE ALLOYS LIMITED

ISPAT

CIN-L27101OR1984PLC001354

Ref: BALB/ENV/ES/2541
Date: 26./09/2015

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 31st March'2015.

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.

Recd 29/9/15

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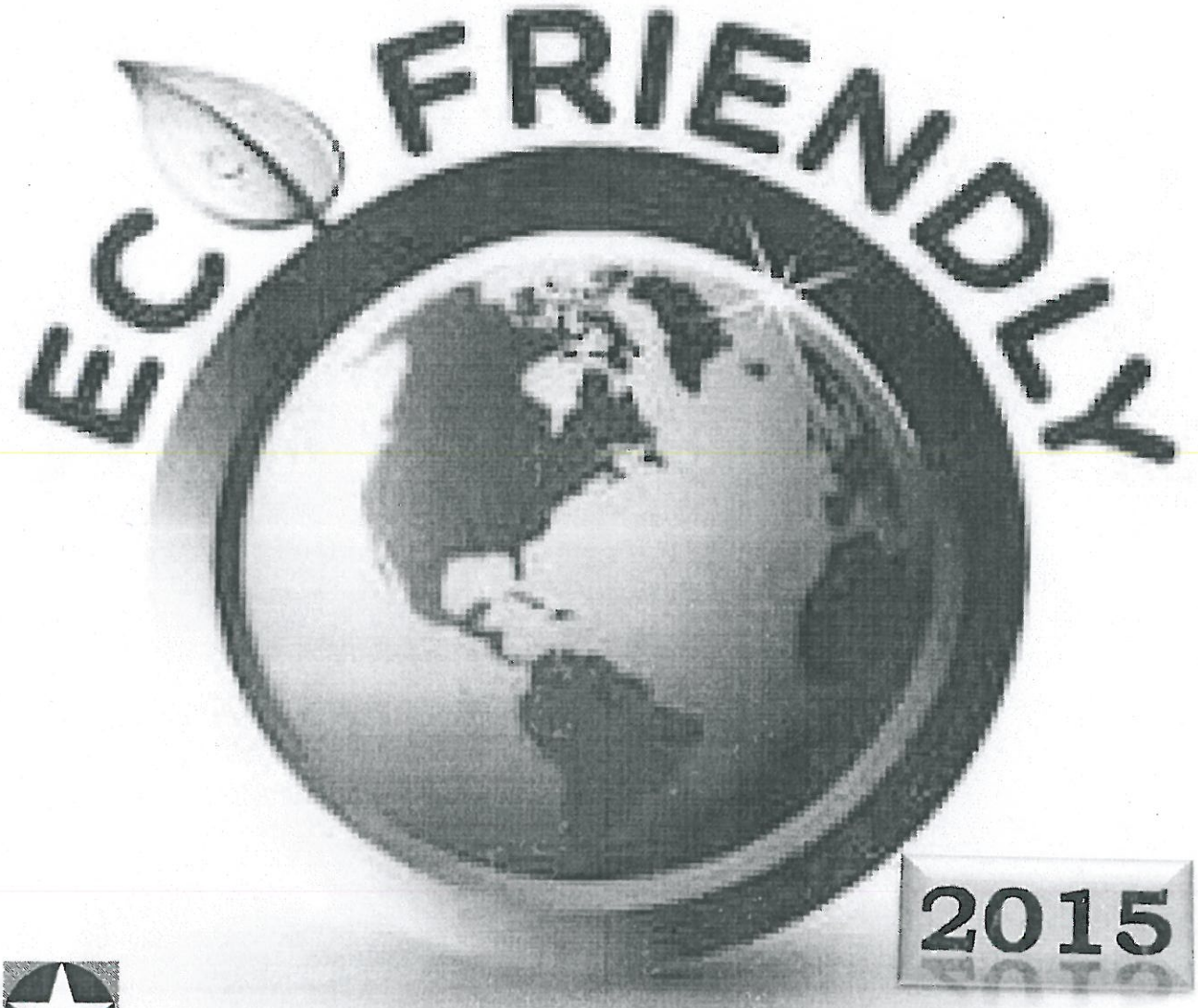
ENVIRONMENTAL STATEMENT REPORT



2015

ISPAT

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 extra ordinary 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' 2014 - March'2015.**

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.

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List of Tables:

INTRODUCTION

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-756020.

Major part of the production of BAL is exported mainly to Japan, China, Korea, Europe, Turkey and Chile etc. 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

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_2 and CH_4 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.

Briquetting Process

The chrome ore fines received from mines kept at yard are sent to underground bunker after weighment at Weigh Bridge. Over size chrome ore are separated at screen and screened fines discharged to drier for removal of extra moisture.

The dry ore fines are feed to a closed screen of +6mm size and the – 6 mm size is conveyed to a Pan-mixer through weigh hopper.

The chrome ore fines discharge from the weigh hopper, lime and molasses binders are mixed in a mixer equipped with mixer blades to facilitate the mixing process. Lime powder and Molasses are mixed with the chrome ore to provide for the binding of ore to facilitate the briquetting process.

The mixture material is feed to a Hydraulic Briquetting Press. Chrome ore is briquetted under pressure by passing the mixture over a set of rolls equipped with segment pockets. The resulting briquette (70mm long, 45wide and 22-28mm thick) is screened; the undersize is recycled in a closed circuit while the oversize is warehoused in a shed.

ENVIRONMENTAL POLICY AND 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 9001:2008, 14001:2004, OHSAS 18001:2007 and ISO 50001:2011 Certified Company and every time we are assessing nos. of Environmental Aspect.

This year Balasore Alloys Ltd. taken initiation on distribution of saplings and has distributed 65000 Nos. of fruit bearing saplings at nearby schools and villages.

ENVIRONMENT PROTECTION

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 spillpage 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 Cr_2O_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 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'2014 to March'2015, we have planted in total of 6598 nos. plant/seasonal flowers within the Plant Premises (in 22 acres of land) including 650 nos. of Acacia, 1060 nos. of Mehogini, 61 nos. of Guava, 8 nos. of Coconut, 81 nos. of Arica-nut, 20 nos. of Banana, 118 nos. of Rose/tagar, 100 nos. of Croton, 500 nos. of Hedge & 4000 nos. of Seasonal Flowers. Also, as per instruction of Local Administration and Divisional Forest Officer, Balasore, we have done massive plantation of 16 RKM at Urban Area and in process of 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 2015 – 16.
2. Renewal of authorization of hazardous waste management from state pollution control board, Odisha up to 31.03.2019.
3. BAL has received authorization for generation, storage, transportation and disposal of bio-medical waste from state pollution control board, Odisha valid till 31.03.2018.
4. The Industry is submitting monthly returns of water consumptions & results of monthly pollution drive conducted in house before 5th of the succeeding month. The water cess payment is deposited on regular basis as per the assessment order of Board.
5. Yearly Compliance status report sent to the Board in time.
6. 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 31st March'15 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 31ST MARCH 2015

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. A.K.Bhanja Director (Operations) Balgopalpur, Balasore Odisha – 756020
© Category of the Plant defined by the Ministry of Environment & Forests, Government of India.	: Large Scale
(d) Year of Commercial Production	: Year 1985
(e) Operating Schedule	: Round the Clock in three shifts

(f) Number of Employees : Up to March 2015

Workers	-	218
Officer & Staff	-	380
Total	-	**598**

(g) i. Investment in the Plant : Rs. 451.90 Crores

ii. Investment in Pollution Control : Rs. 10.35 Crores
GCP Maintenance – Rs. 221599813.4/-
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_{10}) – 01 No.
Fine Dust Sampler ($PM_{2.5}$) – 01 No.
Stack Monitoring Kit – 01 No.
Sound Level Meter – 1 No.

2. SITE FEATURE AND SETTLEMENT:

(2) 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

© 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

(2) Population accommodated in the colony	: 280 no. of persons (Approx.)
(b) Distance of colony to the plant	: 100 mtrs away
© 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 (2014 – 15)

(a) In the plant including colony : 407874.0 MW
For the whole year

(b) Source of Energy : NESCO

5. Date of Environmental statement report last submitted: 23.09.2014

(PART-A)

TABLE –1

PRODUCTION FIGURES (PRODUCT WISE) PER ANNUM (MT)

Sl. No.	Name of Product	2013-2014	2014-2015
1.	Silico Manganese	------	------
2.	Ferro Chrome	104336	111475
3.	Briquette Production	-----	210457

(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^3/month) (at full production capacity)	Actual consumption (m^3/annum)
		(2014-2015)
Process	Nil	-
Cooling	21048	245280
Domestic	3346	40150

TABLE-2

CONSUMPTION OF WATER PER UNIT (MT) OF PRODUCTION

For production year 2014-2015

Ferro Chrome Production	Water Consumed in KL/MT
For process	Nil
For Furnace Cooling	2.20
For Domestic	0.36

2. Raw material consumption

TABLE-3

RAW MATERIAL CONSUMPTION PER UNIT (MT) OF PRODUCTION

Name of Raw material	Consumption in MT of production during the year 2014-2015 FeCr
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
Hydrated Lime (Briquette making)	0.018-0.022
Molasses (Briquette making)	0.048-0.058
Furnace Oil (Drying of ore)	0.006-0.010 (KL)

(PART-C)

POLLUTION GENERATED

(Parameter as specified in consent order)

The industry is granted renewal of consent order for all the five furnaces for 2015 - 16

1. AIR POLLUTION

(A) SOURCE OF AIR POLLUTION & ITS CONTROL

Sl. No.	SOURCE	EXISTING (2014-2015)
1.	5 nos. of furnaces	• GCPs attached to each furnace • Fume extraction systems installed at tapping point of furnace floor
2.	Material storage yard (Both Raw material & Finished product)	Stored under shed and water sprinkling on regular interval to reduce the fugitive emission
3.	Four Nos. of drier for de-moisturize the ore (< 2.5%)	Four nos. of Gas cleaning plant is attached to individual driers to control the stack emission.

3.	Roads	Water sprinkling through Mobile water tanker
4.	Raw material feeding points	Dry fog dust suppression systems are installed
5.	Ore handling area	Mobile water sprinkling and permanent high pressure water sprinkling system to reduce fugitive emission.

(B) STACK DETAILS (GCP STACK)

Furnace No.	No. of Stacks	Material of Construction	Height above ground level	Diameter (In mm)	Flue gas Qty (In m^3/hr)
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-4

Furnace No.	No. of Stacks	Description	Point of discharge	Emission Rate	Compliance
F-1	3 Furnace stacks	Attached to GCP-I	40 mtr	45000 m^3/hr	Complied
F-2	3 Furnace stacks	Attached to GCP-II	40 mtr	45000 m^3/hr	Complied
F-3	3 Furnace stacks	Attached to GCP-III	40 mtr	45000 m^3/hr	Complied
F-4	1 Furnace stack	Attached to GCP-IV	40 mtr	25000 m^3/hr	Complied
F-5	1 Furnace stack	Attached to GCP-V	35 mtr	35000 m^3/hr	Complied

(ii) Details of stacks attached to Drier of Briquette plant:

Nos. of Stack	Height of Stack (mtr)	Qty of emission (M3/Hr)
Stack-1	13	2000
Stack-2	13	2000
Stack-3	22	2000
Stack-4	22	2000

(iii) Monthly analysis report to be submitted to the Board

: Monthly monitoring report has been submitted to board in pollution control drive.

(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. And meter reading is submitted at SPCB in pollution control drive on monthly basis.

(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 in part B ,table 4 and table 5.

(vii) Characteristics of Emission & % Variation

TABLE-5

Sl. No.	GCP Stack	PM Level (mg/Nm^3)		Standard given by PCB (mg/Nm^3)	% Variation
		2013-2014	2014-2015		
1.	F-1	56	63	100	Nil
2.	F-2	57	64	100	Nil
3.	F-3	65	67	100	Nil
4.	F-4	48	62	100	Nil
5.	F-5	48	60	100	Nil

Sl. No.	Stack of Briquette Plant	PM Level (mg/Nm^3)	Standard given by PCB (mg/Nm^3)	% Variation
		2014-2015		
1.	F-1	69	100	Nil
2.	F-2	72	100	Nil
3.	F-3	63	100	Nil
4.	F-4	66	100	Nil

(viii) Ambient Air Quality Monitoring

TABLE-6

Pollutants	2014-2015	Standard given by PCB	% Variation
Particulate matter (PM_{10}) (At 4 diff. monitoring stations)	57 59 60 56	100 $\mu g/m^3$	Nil
Particulate matter ($PM_{2.5}$) (At 4 diff. monitoring stations)	25 27 25 24	60 $\mu g/m^3$	Nil

Sulphur Dioxide ($S0_2$) (At 4 diff. monitoring stations)	4.48 4.60 4.55 4.43	80 µg /m^3	Nil
Nitrogen Dioxide ($N0_2$) (At 4 diff. monitoring stations)	10.88 10.98 10.95 10.50	80 µg /m^3	Nil

Briquette Plant

Pollutants	2014-2015	Standard given by PCB	% Variation
Particulate matter (PM_{10}) (At 3 diff. monitoring stations)	67 60 73	100 µg /m^3	Nil
Particulate matter ($PM_{2.5}$) (At 3 diff. monitoring stations)	26 21 27	60 µg /m^3	Nil

2. WATER POLLUTION

(Parameter as specified in consent issued)

(i) Discharge of effluent (Cooling water blow down) is permitted to discharge on land for irrigation : There is no discharge of Effluent.

(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 & soak pit.

(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 (2013 - 2014)	Flue Dust (in MT) During the year (2014 - 2015)	
From Pollution Control Facilities	1090.50	1392.3	GCP dust is collected & is recycled to make briquettes along with chrome ore fines in the briquette Plant.
Source	Used Oil (in KL) During the year (2013 - 2014)	Used Oil (in KL) During the year (2014 - 2015)	**Remarks**
From Machineries	12.18	15.54	Disposed to registered Recycler

(PART-E)
(Solid Waste)

TABLE-8

Source	Solid Waste Generated (In MT)		Remarks
	During the Year 2013-2014	**During the Year 2014-2015**	
From process	Slag Tailing-122084.80	Slag Tailing-165873.00	--
Quantity recycled/Re utilized.	100 %	100 %	FeCr Slag in form of chips and fines is utilized 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 Cr_2O_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 2015-16.Tree plantation is going on in & around the factory premises.