

**FORM - V**  
(Rule – 14)

**ENVIRONMENTAL STATEMENT FOR THE FINANCIAL YEAR 2012-13 OF  
NUASAH CHROMITE MINES**

**PART - A**

1. Name and address of the owner/ occupier of the Industry operation or process : M/s-Indian Metals & Ferro Alloys Ltd.  
Nuasahi Chromite Mines,  
Po-Dhanurjayapur, Dist-Keonjhar  
Pin-758078 (Orissa)
2. Industry category Primary(STC Code) :  
Secondary(SIC Code)
3. Production Capacity : 0.12 Million Tonnes per year
4. Year of establishment : 1991
5. Date of the last environmental statement submitted : 18.08.2012

**PART - B**

**Water & Raw material Consumption**

**1. Water Consumption**

- Process - 985 KL/Day (Average)
- Cooling - 23 KL/Day (Average)
- Domestic - 56 KL/Day (Average)

**2. Raw Material Consumption**

Name of raw materials	Name of products	Consumption of raw material per unit of output	
		During the previous financial year 2011-12	During the current financial year 2012-13
		1	2
		Not applicable as it is a raw material (Chrome Ore) generating unit for its parent concern Indian Metals & Ferro Alloys Ltd. for producing Charge Chrome.	

## PART - C

Pollution discharged to environment per unit of output (As per consent order No.220)

Pollutants	Quantity of pollutants discharged (Mass/Day) (Kg/Day)	Concentration of Pollutants in discharges (Mass volume/ppm)	Percentage of variations from prescribed standard with reason
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Note : Since it is an area source, it is difficult to measure the emission/discharge rate of dust. Ambient Air quality data is given for reference.

### a) Air

i)	Particulate Matter(PM <sub>10</sub> )	-	88.00 µgm/M <sup>3</sup> (Average)	Zero
ii)	Particulate Matter(PM <sub>2.5</sub> )	-	20.77 µgm/M <sup>3</sup> (Average)	Zero
iii)	Sulphur Dioxide(SO <sub>2</sub> )	-	8.75	Zero
iv)	Oxides of Nitrogen(NO <sub>x</sub> )	-	15.58	Zero
v)	Carbon Monoxide(CO)	-	11.00	Zero

### b) Water

01)	Colours	-	1.0	Zero
02)	Odour	-	Unobjectionable	Zero
03)	Suspended Solids	-	<10.0	Zero
04)	PH value	-	6.5	Zero
05)	Temperature	-	N.A.	Zero
06)	Oil & Grease	-	ND	Zero
07)	Total residual Chlorine	-	NDI	Zero
08)	Ammonical Nitrogen(as N)	-	0.4	Zero
09)	Total Kjeldahi Nitrogen(as NH <sub>3</sub> )	-	0.1	Zero
10)	Free Ammonia(as NH <sub>3</sub> )	-	ND	Zero
11)	BOD	-	6.0	Zero
12)	COD	-	21.9	Zero
13)	Arsenic(as As)	-	ND	Zero

14)	Mercury(as HG)	-	ND	Zero
15)	Lead(as Pb)	-	ND	Zero
16)	Cadmium(as Cd)	-	ND	Zero
17)	Hexavalent Chromium(as Cr <sup>6+</sup> )	-	ND	Zero
18)	Copper(as Cu)	-	ND	Zero
19)	Zinc(as Zn)	-	BDL	Zero
20)	Selenium(as Se)	-	ND	Zero
21)	Total Chromium (as Cr)	-	0.04	Zero
22)	Nickel(as Ni)	-	ND	Zero
23)	Cyanide(as N)	-	ND	Zero
24)	Fluoride(as F)	-	0.02	Zero
25)	Dissolved Phosphates(as P)	-	0.02	Zero
26)	Sulphide (as S)	-	ND	Zero
27)	Phenolic Compounds (as C <sub>6</sub> H <sub>5</sub> OH)	-	ND	
28)	Manganese(as Mn)	-	ND	Zero
29)	Iron(as Fe)	-	0.01	Zero
30)	Vanadium(as V)	-	ND	Zero
31)	Nitrate Nitrogen	-	2.63	Zero

#### FORM - D

#### Hazardous Wastes

(As specified under Hazardous Wastes(Management and Handling) Rules,1989.)

Hazardous Wastes	Total Quantity(Kg)	
	During the previous financial year(2011-12)	During the current financial year(2012-13)
a) From Process	Battery – Nil Used Oil – 2585.000 Ltrs	Battery- Nil Used Oil – 2625.250 Ltrs.
b) From pollution control Facility	N.A.	N.A.

## PART – E

### SOLID WASTE

	Total Quantity(Kg)	
	During the previous financial year 2011-12	During the current financial year 2012-13
a) From Process	12,551.159 M <sup>3</sup>	1,877.960 M <sup>3</sup>
b) From pollution control facility i.e. Primary processing of Chrome Ore	Insignificant	Insignificant
c) Quantity recycled or re-utilised	Whatever quantity produced was 100% utilised for useful land filling	100% utilisation for useful land filling of old opencast quarry.

## PART - F

- All the hazardous generated during process are disposed to authorized recyclers.
- Characteristics (in terms of concentration and quantum) of solid wastes and mode of disposal.

During the mining of Chrome Ore by Underground mining, overburden material as detailed below has to excavated from the strata by drilling and blasting. Loading of these material is done by Rocker Shovel to tubs and transported to grizzly. Later it is hoisted to surface via skip to bin. Then transported by dumpers to a place at a distance of  $\frac{1}{2}$  km within the lease hold area for back filling of old pits. The characteristics as well as quantity of the overburden material which is the only solid waste excavated is given below.

The overburden dumps during the year 2012-13 is 1,877.960 M<sup>3</sup>

### **Characteristics of the overburden**

<u>Sl.No.</u>	<u>Parameters</u>	<u>Results(%)</u>
1.	Cr <sub>2</sub> O <sub>3</sub>	Traces
2.	Feo	9.20
3.	CaO	2.20
4.	Mgo	25.30
5.	SiO <sub>2</sub>	51.10
6.	Al <sub>2</sub> O <sub>3</sub>	3.20
7.	Undetectable	Around 9.0

## **PART - G**

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

The main pollution control measures taken at Nuasahi Chromite Mines of M/s-Indian Metals & Ferro Alloys Ltd. are as follows.

### **1. Water sprinkling for dust suppression**

The sources of dust generation in processing yard during loading of material and movement of heavy vehicles on the "KUTCHA" road for transportation of material to respective destination.

For the suppression and to control the fugitive dust so generated, water sprinkling system is thus provided in the site. A tanker of 8 KL water carrying capacity is utilised for the purpose, three times a day, two rounds in the morning, two rounds during the day time and two rounds in the night. So in this process the roads inside the lease hold area used for transportation of materials as always in wet condition and ceased the scope for dust generation from the road due to the vehicle moment.

### **2. Utilisation of mines strata water**

Approximately 985 KL/day of strata water is generated in the natural way. Out of which 23 KL/day(Average) is utilized for water sprinkling purpose on the KUTCHA road inside the lease hold area and rest of water is discharge to paddy fields after primary settling. Regular monitoring of discharge water is done & analysis reports sent to OPCB on monthly basis.

### **3. Green belt development (Plantation Programme)**

We have planted 3,550 nos. of saplings inside the lease hold area & 1050 nos. of saplings outside the lease hold area during the year 2012-13 & we have planned to plant 3,250 nos. saplings during the year 2013-14 inside the lease hold area.

### **4. Disposal of hazardous waste**

Hazardous waste generated are disposed to authorized recyclers, other material like oil soaked filter, cottons are disposed on impervious pit.

## **PART - H**

Addition measurement/investment proposal for environmental protection including abatement of pollution & prevention of pollution.

**SIGNATURE**