SIX MONTHLY ENVIRONMENT CLEARANCE COMPLIANCE

For the period April 2013 to September 2013

Of

KALIAPANI CHROMITE MINES,

M/s BALASORE ALLOYS LIMITED

AT/PO- KALIAPNAI, DIST.- JAJPUR

BALASORE ALLOYS LIMITED ISPAT

BAL/Mines/ 394
Dated: 30.11.2013

To

The Director (S),
Ministry of Environment & Forests,
Eastern Regional office,
A/3, Chandrasekharpur,
BHUBANESWAR – 751023

Sub: Six-monthly compliance report of conditions of Environment Clearance with respect to Kaliapani Chromite Mines of M/s- Balasore Alloys Ltd for the period **April 2013 to September 2013.**

Ref: **Environment Clearance No.- J-11015/341/2006-IA.II (M), dated 03-07-2007**

Dear Sir,

Enclosed please find herewith the **Six-Monthly Compliance** reports of the above referred Environment Clearance conditions for the period **April 2013 to September 2013** with respect to our **Kaliapani Chromite Mines, M/s Balasore Alloys Ltd**, for your kind perusal.

Thanking you,

Yours faithfully,
For **M/s Balasore Alloys Ltd**

S.S. Mishra
(Mines Manager)

Encl: As above

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A. Specific Conditions & their Status

I. All the conditions stipulated by the State Pollution Control Board in their Consent to Establish should be effectively implemented.

Status- All the conditions stipulated by the State Pollution Control Board in their Consent to Establish are being effectively implemented.

II. The project proponent shall ensure that no natural watercourse shall be obstructed due to any mining operations.

Status- There is no natural watercourse inside the project area, So there is no chance of obstructing same. Damsala Nallah is flowing in our buffer zone which is 1.5km away from our project boundary.

III. Top soil should be stacked properly with proper slope at earmarked site(s) with adequate measures and should be used for reclamation and rehabilitation of mined out areas.

Status- No top soil is generated from mines. Whatever produced initially has already been used for plantation.

IV. Over burden shall be stacked at earmarked dump site(s) only and should not be kept active for long period. The total height of the dump(s) should not exceed 40m in four stages of 10m each, keeping overall slope of the dumps below 28^0. The over burden dump should be scientifically vegetated with suitable native species to prevent erosion and surface run off. In critical areas, use of geo textiles shall be taken for stabilization of the dump. Monitoring and management of rehabilitated areas should continue until the vegetation becomes self-sustaining. Compliance status should be submitted to the Ministry of Environment & Forests and its Regional Office, Bhubaneswar on six month basis.

Status- Presently about 7975601 cum Over burden (OB) has been dumped in 3 no. of dumps (Dump 1,2 and 3). Dump 1 and 2 already attained 40 m height, with the over all slope angle about 23^0 and spread over 19.39 ha and the same have been reclaimed with plantation. Dump 3 covering 12.95 ha is partially active & part of it has been reclaimed with coir matting and plantation.

The dump (1 and 2) slopes have been vegetated with suitable native species like Chakunda, Bahada, Bamboo, Neem, Karanja, Babool, Sisoo etc. Garland drains with settling tanks have been provided to the dumps. Coir matting on the old dump slope has been done over an area of around 31600 sq. Mtrs.

Phtographs of the same are shown as **Photo-1.**

Geotextile cover has been done on the east and north side slope of the dump to reduce the water penetration as well as to increase the shear resistance of the dump material. Photographs showing geo-textile on dump are shown as **Photo-2.**

Regular Monitoring and management of rehabilitated areas is being done. Six monthly compliance of the same is being submitted to respective authority.

V. Trace Metals such as Ni, CO, As, and Hg should be analyzed in dust fall and soil samples for at least one year during summer, monsoon and winter seasons. If concentrations of these metals are found below the standards then with prior approval of Ministry of Environment and Forests this specific monitoring could be discontinued.

Status- Monitoring of the dust-fall for parameters Ni, Co, As and Hg has been carried out and the concentrations are found below the standard limit.

Table- 1: Dust Fall Monitoring Result

Location	Period	Results (mg/ M^2/day)			
		Ni	Co	As	Hg
Mines Office (N 21° 02' 04.7" E 85° 45' 31.0")	17.11.2013	0.036	0.018	BDL	BDL
	21.02.2013	0.061	0.012	BDL	BDL

Source: Sample collected and analyzed by S.S.ENVIRONICS, BBSR.

VI. Catch drains and siltation ponds of appropriate size should be constructed to arrest silt and sediment flows from working pit, soil, over burden and mineral dumps. The water so collected should be utilized for watering the mine area, roads, plantation etc. The drains should be regularly de-silted and maintained properly.
Toe wall and garland drain (size, gradient and length) shall be constructed for both mine pit & waste dumps and sump capacity should be designed keeping 50% safety margin over and above peak sudden rainfall (based on 50 years data) and maximum discharge in the area adjoining the mine site. Sump capacity should also provide adequate retention period to allow proper settling of silt material.
Storm water return system should be provided. Storm water should not be allowed to go to the effluent treatment plant during high rainfall/super cyclone period. A separate storm water sump for this purpose should be created.

Status- Catch drain and silt pit have been provided to over burden dump and regular cleaning of the **same** is in practice.
Toe wall (435m x 0.3m x 1.2m) and 2200m length garland drain has been provided to over burden dumps.

Two RCC sumps have been provided to collect the silt from the surface run off water flowing from overburden dump.

VII. Dimension of retaining wall at the toe of the over burden dumps and benches within the mine to check run-off and siltation should be based on the rainfall data.

Status- A retaining wall of length 435meters, width 300mm and height 1.20meter above ground has been provided for the old over burden dumps.
Photo of same attached as **Photo-3**

VIII. There shall be no discharge from the project.

Status- No discharge of run-off from the lease area during non-monsoon seasons. Only during monsoon the surface run off water is allowed to go outside through the silt pit.

Quarry discharge water is being sent outside after treatment in ETP & conforming with the prescribed standards.

IX. Effluents containing Cr^{6+} shall be treated to meet the prescribed standards before reuse/discharge. Effluent Treatment Plant should be provided for treatment of mine water discharge and wastewater generated from the workshop and mineral separation plant.
Run off from OB dumps and other surface run off should be analyzed for Cr^{6+} and in case its concentration is found higher than the permissible limit the water should be treated before reuse/discharge.

Status- For treatment of Cr+6 in mine discharge water an Effluent Treatment Plant has been established which is in operation. The water discharged to outside after treatment is meeting the prescribed standard. The Cr+6 concentrations before treatment and after treatment is given below. Photo of ETP attached as **Photo-4 & 5**

Table- 2: ETP Inlet & Outlet analysis Result

ETP ANALYSIS REPORT FOR THE PERIOD APRIL 2013- SEPTEMBER 2013, KALIAPANI CHROMITE MINES M/s BALASORE ALLOYS LTD.					
SL.NO	**Period**	**ETP INLET (N 21°02´07.1"-E 85°45´37.4")**		**ETP OUTLET (N 21°02´08.7"-E 85°45´36.3")**	
		pH	**Cr^{6+} (mg/L)**	**pH**	**Cr^{6+} (mg/L)**
1	01.04.13-15.04.13	7.3-7.6	0.96-1.30	7.0-7.2	BDL
2	16.04.13-30.04.13	7.3-7.7	1.09-1.27	7.0-7.3	BDL
3	01.05.13-15.05.13	7.3-7.6	0.17-1.32	7.0-7.3	BDL
4	16.05.13-31.05.13	7.3-7.7	1.02-1.31	7.0-7.2	BDL

5	01.06.13-15.06.13	7.2-7.7	0.18-1.29	7.0-7.5	BDL
6	16.06.13-30.06.13	7.3-7.8	1.01-1.34	7.1-7.6	BDL
7	01.07.13-15.07.13	7.3-7.7	0.09-1.29	7.0-7.3	0.001-0.009
8	16.07.13-31.07.13	7.2-7.6	0.91 - 1.21	7.0-7.2	0.001-0.008
9	01.08.13-14.08.13	7.4-7.9	0.058-1.140	6.8-7.2	0.010-0.034
10	15.08.13-31.08.13	7.1-7.8	0.067-1.130	6.8-7.3	0.011-0.041
11	01.09.13-14.09.13	7.4-7.8	0.053-1.029	6.5-7.3	0.001-0.021
12	15.09.13-30.09.13	7.1-7.8	0.348-1.008	6.8-7.8	0.011-0.028

Source: Sample collected and analyzed by in-house laboratory.

The surface run off from the OB and other areas are being analyzed in rainy seasons and the concentrations are found to be below the prescribed limit which is given below.

Table- 3: Surface run off Analysis Result

KALIAPANI CHROMITE MINES									
M/s BALASORE ALLOYS LTD.									
SURFACE RUN OFF ANALYSIS REPORT									
Period-				**August-2013**		**September-2013**		**October-2013**	
Sl. No.	**Parameter**	**Unit**	**Prescribed standard**	**SRF-1**	**SRF-2**	**SRF-1**	**SRF-2**	**SRF-1**	**SRF-2**
1	Ph	.....	5.5-9.0	6.38	6.4	6.95	6.28	6.44	6.82
2	TSS	mg/L	100	76	82	78	80	91	88
3	Cr+6	mg/L	0.1	0.076	0.081	0.068	0.077	0.071	0.066
Source: Sample collected and analyzed by EDC, BBSR.									

X. Separate impervious concrete pits for disposal of sludge shall be provided for the safe disposal of sludge generated from the mining operations.

Status- No sludge is generated from the mines as mining is being done only in the dry areas only.

XI. The project proponent shall ensure that the quality of decanted effluents from the tailing pond conform to the prescribed standards before discharge.

Status- Total water from the tailing pond is reused in COB plant; hence no discharge of decanted effluents from the project.

XII. The project proponent shall explore the possibility to reduce concentration of Cr^{+6} in the tailing pond in consultation with an expert scientific institution like NEERI.

Status- The tailing pond is made up of concrete (RCC) walls and floor and we are ensuring total re-circulation of water for the COB Plant use.

XIII. Plantation shall be raised in an area of 31.883ha including green belt of adequate width by planting native species around ML area, OB dumps, roads, around worked out area etc. in consultation with local DFO/ Agriculture Department. The density of the trees should be around 2000 plant species per hectare.

Status- 10500 nos of native species of saplings were planted during Aprô13- Sepô13 period over an area of 2 hectares on the slope of dumps & safety zone. Apart from the above, 1500 native saplings were planted as Avenue Plantation. As on date 107520 samplings have been planted inside the mining lease area, over all survival rates being around 66%. Photo of the same are attached as **Photo- 6**

Table- 4: Year wise Plantation Details

INSIDE ML AREA PLANTATION DETAILS			
	PLANTATION		
Year	No. of Plants	Area (Ha)	Survival (%)
2002-03	4800	2	65
2003-04	2000	1	69
2004-05	11500	3	72
2005-06	9600	3	75
2006-07	9078	3	78
2007-08	11685	4	80
2008-09	8850	2	83
2009-10	10017	2	85
2010-11	11115	2	87
2011-12	9975	2	97
2012-13	8400	Gap plantation	
2013-14	10500	2	NA
Total	**107520**		

OUTSIDE ML AREA PLANTATION DETAILS	
Year	Saplings Planted
2003-04	2000
2004-05	2000
2005-06	400
2006-07	612
2007-08	315
2008-09	1384
2009-10	1878
2010-11	1800
2011-12	1970
2012-13	1500
2013-14	1500
TOTAL	**15359**

XIV. Regular monitoring of ground water level and quality should be carried out by establishing a network of existing wells and constructing new piezo meters during the mining operation. The monitoring should be carried out four times in a year, pre-monsoon (April-May), monsoon (August), post-monsoon (November) and winter (January) and the data thus collected may be sent regularly to Ministry of Environment and Forests, Central Ground Water Authority and Regional Director, Central Ground Water Board.

Status- Regular monitoring of ground water levels has been carried out at several stations in the core zone and buffer zone from the piezo meter holes and open wells respectively. Monitoring of the ground water quality is also being carried out four times in a year in different seasons.

Table- 5: Ground water Level

Kaliapani Chromite mines							
M/S Balasore Alloys Ltd							
Ground Water Level for the period April 2013 to September 2013							
Village	**Well No.**	**Water Table**					
		(MBGL)	**(MBGL)**	**(MBGL)**	**(MBGL)**	**(MBGL)**	**(MBGL)**
	Period	**April-13**	**May-13**	**June-13**	**July-13**	**August-13**	**September-13**
Buffer Zone							
kaliapani-1	1	4.4	4.7	4.2	3.9	3.2	2.2
kaliapani-2	2	3.7	4.1	3.7	3.2	2.7	1.9
Tisco Hutting	3	7.05	7.9	6.8	5.4	4.6	3.4
Purunapari	4	6.5	6.5	6.5	3.8	3.2	2.35

Table- 6: Ground water quality Analysis Result

GROUND WATER QUALITY

Period-Pre-monsoon (May 2013) 2013-14

Sl No.	PARAMETERS	Unit	STANDARDS (IS:10500)	Results of pre-mosoon period -2012				
				GW1	GW2	GW3	GW4	GW5
1	pH	é .	6.5-8.5	6.78	6.64	7.2	7.14	7.6
2	Odour	é .	U/O	U/O	U/O	U/O	U/O	U/O
3	Colour	Hazen	5(Max)	CL	CL	CL	CL	CL
4	Taste	é .	Agreeable	AL	AL	AL	AL	AL
5	Turbidity,	NTU	5(Max)	2.4	1.8	2.3	1.5	1.2
6	Chloride (as Cl)	mg/l	250(Max)	10.2	11.1	9.5	12.3	4.8
7	Residual Free Chlorine	mg/l	0.2(Min)	ND	ND	ND	ND	ND
8	Total Dissolved Solids	mg/l	500(Max)	127	142	167	144	152
9	Total Hardness	mg/l	300(Max)	58	67	48	62	64
10	Iron as Fe	mg/l	0.3(Max)	0.11	0.13	0.21	0.15	0.13
11	Calcium(as Ca)	mg/l	75(Max)	12.6	11.8	13.8	10.4	16.3
12	Magnesium(as Mg)	mg/l	30(Max)	10.8	9.6	13.4	11.4	12.6
13	Sulphates(as SO4)	mg/l	200(Max)	9.8	13.7	12.5	9.9	11.3
14	Manganese(as Mn)	mg/l	0.1(Max)	BDL	BDL	BDL	BDL	BDL
15	Nitrate(as NO3)	mg/l	45(Max)	0.97	1.12	0.86	0.77	0.37
16	Alkalinity as CaCO3	mg/l	200(Max)	28	22	33	27	29
17	Chromium(as Cr+6)	mg/l	0.05	BDL	BDL	BDL	BDL	BDL
18	Fluoride as F	mg/l	1.5	BDL	BDL	BDL	BDL	BDL
19	Cadmium(as Cd)	mg/l	0.01(Max)	BDL	BDL	BDL	BDL	BDL
20	Copper(as Cu)	mg/l	0.05(Max)	BDL	BDL	BDL	BDL	BDL
21	Zinc (as Zn)	mg/l	5(Max)	0.11	0.17	0.14	0.17	0.21
22	Lead(as Pb)	mg/l	0.05(Max)	BDL	BDL	BDL	BDL	BDL
23	Selenium(as Se)	mg/l	0.01(Max)	BDL	BDL	BDL	BDL	BDL
24	Mineral Oil	mg/l	0.01(Max)	ND	ND	ND	ND	ND
25	Mercury(as Hg)	mg/l	0.001(Max)	BDL	BDL	BDL	BDL	BDL
26	Cyanide(as CN)	mg/l	0.05(Max)	BDL	BDL	BDL	BDL	BDL
27	Boron(as B)	mg/l	1(Max)	BDL	BDL	BDL	BDL	BDL
28	Arsenic(as As)	mg/l	0.05	BDL	BDL	BDL	BDL	BDL
29	Phosphorous as P	mg/l	é .	0.44	0.50	0.55	0.58	0.51

STATION	CODE
KALIAPANI VILLAGE	GW-1
KALARANGI VILLAGE	GW-2
TISCO VILLAGE	GW-3
CHINGUDIAPALA VILLAGE	GW-4
INSIDE ML AREA	GW-5

Kaliapani Chromite Mines

M/s BALASORE ALLOYS LTD

GROUND WATER QUALITY

Period-Monsoon(August 2013) 2013-14

Date of Sampling- 29.08.2013

Sl No.	PARAMETERS	Unit	STANDARDS (IS:10500)	Results of mosoon period -2013					
				GW1	GW2	GW3	GW4	GW5	GW6
1	pH	é .	6.5-8.5	6.92	6.83	7.07	7.18	7.22	6.54
2	Odour	é .	U/O	U/O	U/O	U/O	U/O	U/O	U/O
3	Colour	Hazen	5(Max)	CL	CL	CL	CL	CL	CL
4	Taste	é .	Agreeable	AL	AL	AL	AL	AL	AL
5	Turbidity,	NTU	5(Max)	2.5	3.0	2.0	3.0	1.5	2.1
6	Chloride (as Cl)	mg/l	250(Max)	8.7	9.5	10.2	10.6	11.4	10.6
7	Residual Free Chlorine	mg/l	0.2(Min)	ND	ND	ND	ND	ND	ND
8	Total Dissolved Solids	mg/l	500(Max)	154	122	135	141	132	138
9	Total Hardness	mg/l	300(Max)	50	54	58	44	58	62
10	Iron as Fe	mg/l	0.3(Max)	0.19	0.15	0.21	0.19	0.16	0.21
11	Calcium(as Ca)	mg/l	75(Max)	12.8	14.5	13.2	13.8	9.4	10.6
12	Magnesium(as Mg)	mg/l	30(Max)	12.6	11.5	9.5	8.2	10.7	8.6
13	Sulphates(as SO4)	mg/l	200(Max)	12.5	10	9.8	9.0	9.7	12.6
14	Manganese(as Mn)	mg/l	0.1(Max)	BDL	BDL	BDL	BDL	BDL	BDL
15	Nitrate(as NO3)	mg/l	45(Max)	0.94	0.85	0.45	0.58	0.76	1.1
16	Alkalinity as CaCO3	mg/l	200(Max)	30	25	15	18	28	23

17	Chromium(as Cr+6)	mg/l	0.05	BDL	BDL	0.022	0.017	BDL	BDL
18	Fluoride as F	mg/l	1.5	BDL	BDL	BDL	BDL	BDL	BDL
19	Cadmium(as Cd)	mg/l	0.01(Max)	BDL	BDL	BDL	BDL	BDL	BDL
20	Copper(as Cu)	mg/l	0.05(Max)	BDL	BDL	BDL	BDL	BDL	BDL
21	Zinc (as Zn)	mg/l	5(Max)	0.18	0.14	0.22	0.16	0.17	0.22
22	Lead(as Pb)	mg/l	0.05(Max)	BDL	BDL	BDL	BDL	BDL	BDL
23	Selenium(as Se)	mg/l	0.01(Max)	BDL	BDL	BDL	BDL	BDL	BDL
24	Mineral Oil	mg/l	0.01(Max)	ND	ND	ND	ND	ND	ND
25	Mercury(as Hg)	mg/l	0.001(Max)	BDL	BDL	BDL	BDL	BDL	BDL
26	Cyanide(as CN)	mg/l	0.05(Max)	BDL	BDL	BDL	BDL	BDL	BDL
27	Boron(as B)	mg/l	1(Max)	BDL	BDL	BDL	BDL	BDL	BDL
28	Arsenic(as As)	mg/l	0.05	BDL	BDL	BDL	BDL	BDL	BDL
29	Phosphorous as P	mg/l	é .	0.51	0.48	0.54	0.60	0.60	0.55

STATION	**CODE**
TISCO CAMP	GW-1
VILLAGE KALIAPANI	GW-2
VILLAGE SUKRANGI	GW-3
INSIDE MINES	GW-4
VILLAGE CHINGUDIAPAL	GW-5
VILLAGE KALRANGI	GW-6

Source: Sample collected and analyzed by EDC, BBSR.

XV. The project proponent shall carry out regular monitoring of groundwater quality around the tailing pond by constructing observation wells for leachates, if any.

Status- There are 1 no tube well & 2no. Of bore wells around the tailing pond area. The samples from the wells are tested for Cr^{6+} content and all are below detectable limit.

Table- 7: Bore well water quality Analysis Result

Station: Bore Well Water (Near Canteen)									
SL. NO	**PARAMETERS**	**UNITS**	**STANDARDS**	**MONTH OF SAMPLING**					
			(IS:10500)	**13-Apr**	**13-May**	**13-Jun**	**13-Jul**	**13-Aug**	**13-Sep**
1	Colour	Hazen	5	C/L	C/L	C/L	C/L	C/L	C/L

2	Odour	-	Unobjectionable	U/O	U/O	U/O	U/O	U/O	U/O
3	Taste	-	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
4	Turbidity	NTU	5	1.1	1.39	1.38	1.32	1.3	1.29
5	pH	-	6.5-8.5	7.1	7.3	6.8	7.2	7.67	7.4
6	Total Hardness(as $CaCO_3$)	Mg/L	300	39	51	59	63	60	58
7	Iron(as Fe)	Mg/L	0.3	0.13	0.16	0.11	0.11	0.13	0.10
8	Chloride(as Cl)	Mg/L	250	8.1	11.7	15.2	7.8	5.8	8.2
9	Residual Free Chlorine	Mg/L	0.2	ND	ND	ND	ND	ND	ND
10	Fluorides(as F)	Mg/L	1	BDL	BDL	BDL	BDL	BDL	BDL
11	Total Dissolved Solids	Mg/L	500	110	145	139	128	145	134
12	Calcium(as Ca)	Mg/L	75	7.7	11.1	9.9	12.6	14.4	13.5
13	Magnesium(as Mg)	Mg/L	30	1.04	1.25	1.31	10.5	12.7	11.6
14	Copper(as Cu)	Mg/L	0.05	BDL	BDL	BDL	BDL	BDL	BDL
15	Manganese(as Mn)	Mg/L	0.1	BDL	BDL	BDL	BDL	BDL	BDL
16	Sulphate(as SO_4)	Mg/L	200	15.2	17.5	16.3	15.2	12.7	14.8
17	Nitrate(as NO_3)	Mg/L	45	0.15	0.21	0.15	0.23	0.44	0.34
18	Mercury(as Hg)	Mg/L	0.001	BDL	BDL	BDL	BDL	BDL	BDL
19	Cadmium(as Cd)	Mg/L	0.01	BDL	BDL	BDL	BDL	BDL	BDL
20	Selenium(as Se)	Mg/L	0.01	BDL	BDL	BDL	BDL	BDL	BDL
21	Arsenic(as As)	Mg/L	0.05	BDL	BDL	BDL	BDL	BDL	BDL

22	Cyanide(as CN)	Mg/L	0.05	BDL	BDL	BDL	BDL	BDL	BDL
23	Lead(as Pb)	Mg/L	0.05	BDL	BDL	BDL	BDL	BDL	BDL
24	Zinc(as Zn)	Mg/L	5	0.18	0.16	0.23	0.21	0.22	0.18
25	Chromium(as Cr^{6+})	Mg/L	0.05	BDL	BDL	BDL	BDL	BDL	BDL
26	Mineral Oil	Mg/L	0.01	Nil	Nil	Nil	Nil	Nil	Nil
27	Pesticides	Mg/L	Absent	Absent	Absent	Absent	Absent	Absent	Absent
28	Alkalinity	Mg/L	200	25	20	16	21	25	19
29	Boron	Mg/L	1	BDL	BDL	BDL	BDL	BDL	BDL
30	Phosphorous	Mg/L	é .				0.43	0.52	0.48

NB: U/O- Unobjectionable, BDL- Below Detectable Limit, ND- Not Detectable.

Station- Tube well water (Main Gate)									
SL. NO	**PARAMETERS**	**UNITS**	**STANDARDS (IS:10500)**	**MONTH OF SAMPLING**					
				13-Apr	**13-May**	**13-Jun**	**13-Jul**	**13-Aug**	**13-Sep**
1	Colour	Hazen	5	C/L	C/L	C/L	C/L	C/L	C/L
2	Odour	-	Unobjectionable	U/O	U/O	U/O	U/O	U/O	U/O
3	Taste	-	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
4	Turbidity	NTU	5	1.51	1.74	1.8	1.62	1.5	1.66
5	pH	-	6.5-8.5	7.1	7.2	7.1	7.8	8.29	7.5
6	Total Hardness(as $CaCO_3$)	Mg/L	300	58	66	55	57	52	60
7	Iron(as Fe)	Mg/L	0.3	0.1	0.12	0.11	0.1	0.17	0.12
8	Chloride(as Cl)	Mg/L	250	9.3	9.8	12.1	9.2	7.4	8.4
9	Residual Free Chlorine	Mg/L	0.2	ND	ND	ND	ND	ND	ND
10	Fluorides(as F)	Mg/L	1	BDL	BDL	BDL	BDL	BDL	BDL
11	Total Dissolved Solids	Mg/L	500	119	141	135	112	116	121

12	Calcium(as Ca)	Mg/L	75	11.3	9.7	10.6	10.3	12.7	11.1
13	Magnesium(as Mg)	Mg/L	30	1.29	1.25	1.71	8.2	10.4	8.6
14	Copper(as Cu)	Mg/L	0.05	BDL	BDL	BDL	BDL	BDL	BDL
15	Manganese(as Mn)	Mg/L	0.1	BDL	BDL	BDL	BDL	BDL	BDL
16	Sulphate(as SO_4)	Mg/L	200	20.8	18.3	19.1	15.7	14.8	13.8
17	Nitrate(as NO_3)	Mg/L	45	0.24	0.33	0.2	0.42	0.56	0.51
18	Mercury(as Hg)	Mg/L	0.001	BDL	BDL	BDL	BDL	BDL	BDL
19	Cadmium(as Cd)	Mg/L	0.01	BDL	BDL	BDL	BDL	BDL	BDL
20	Selenium(as Se)	Mg/L	0.01	BDL	BDL	BDL	BDL	BDL	BDL
21	Arsenic(as As)	Mg/L	0.05	BDL	BDL	BDL	BDL	BDL	BDL
22	Cyanide(as CN)	Mg/L	0.05	BDL	BDL	BDL	BDL	BDL	BDL
23	Lead(as Pb)	Mg/L	0.05	BDL	BDL	BDL	BDL	BDL	BDL
24	Zinc(as Zn)	Mg/L	5	0.19	0.26	0.31	0.22	0.26	0.24
25	Chromium(as Cr^{6+})	Mg/L	0.05	BDL	BDL	BDL	BDL	BDL	BDL
26	Mineral Oil	Mg/L	0.01	Nil	Nil	Nil	Nil	Nil	Nil
27	Pesticides	Mg/L	Absent	Absent	Absent	Absent	Absent	Absent	Absent
28	Alkalinity	Mg/L	200	24	31	29	36	29	31
29	Boron	Mg/L	1	BDL	BDL	BDL	BDL	BDL	BDL
30	Phosphorous	Mg/L	é .				0.34	0.47	0.42

NB: U/O- Unobjectionable, BDL- Below Detectable Limit, ND- Not Detectable.

Source: Sample collected and analyzed by EDC, BBSR.

Station: Bore Well Water (C.O.B. Plant)									
SL. NO	**PARAMETERS**	**UNITS**	**STANDARDS**	**MONTH OF SAMPLING**					
			(IS:10500)	**13-Apr**	**13-May**	**13-Jun**	**13-Jul**	**13-Aug**	**13-Sep**
1	Colour	Hazen	5	C/L	C/L	C/L	C/L	C/L	C/L
2	Odour	-	Unobjectionable	U/O	U/O	U/O	U/O	U/O	U/O
3	Taste	-	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
4	Turbidity	NTU	5	1.33	1.49	1.38	1.25	1.35	1.28
5	pH	-	6.5-8.5	7.1	7.3	7.1	7.1	7.1	7.3
6	Total Hardness(as $CaCO_3$)	Mg/L	300	51	49	46	53	48	51
7	Iron(as Fe)	Mg/L	0.3	0.12	0.1	0.08	0.09	0.09	0.10
8	Chloride(as Cl)	Mg/L	250	10.2	10.8	11.4	8.2		
9	Residual Free Chlorine	Mg/L	0.2	ND	ND	ND	ND	ND	ND
10	Fluorides(as F)	Mg/L	1	BDL	BDL	BDL	BDL	BDL	BDL
11	Total Dissolved Solids	Mg/L	500	118	121	126	127	135	138
12	Calcium(as Ca)	Mg/L	75	9.5	9.1	8.9	11.5	11.8	12.4
13	Magnesium(as Mg)	Mg/L	30	1.16	1.2	1.45	10.4	8.6	10.2
14	Copper(as Cu)	Mg/L	0.05	BDL	BDL	BDL	BDL	BDL	BDL
15	Manganese(as Mn)	Mg/L	0.1	BDL	BDL	BDL	BDL	BDL	BDL
16	Sulphate(as SO_4)	Mg/L	200	17.1	14.2	17.8	11.8	13.4	12.6
17	Nitrate(as NO_3)	Mg/L	45	0.24	0.2	0.19	0.24	0.31	0.46
18	Mercury(as Hg)	Mg/L	0.001	BDL	BDL	BDL	BDL	BDL	BDL
19	Cadmium(as Cd)	Mg/L	0.01	BDL	BDL	BDL	BDL	BDL	BDL
20	Selenium(as Se)	Mg/L	0.01	BDL	BDL	BDL	BDL	BDL	BDL
21	Arsenic(as As)	Mg/L	0.05	BDL	BDL	BDL	BDL	BDL	BDL
22	Cyanide(as CN)	Mg/L	0.05	BDL	BDL	BDL	BDL	BDL	BDL
23	Lead(as Pb)	Mg/L	0.05	BDL	BDL	BDL	BDL	BDL	BDL
24	Zinc(as Zn)	Mg/L	5	0.19	0.16	0.21	0.22	0.18	0.18
25	Chromium(as Cr^{6+})	Mg/L	0.05	BDL	BDL	BDL	BDL	BDL	BDL
26	Mineral Oil	Mg/L	0.01	Nil	Nil	Nil	Nil	Nil	Nil
27	Pesticides	Mg/L	Absent	Absent	Absent	Absent	Absent	Absent	Absent
28	Alkalinity	Mg/L	200	24	28	30	23	18	25
29	Boron	Mg/L	1	BDL	BDL	BDL	BDL	BDL	BDL
30	Phosphorous	Mg/L	é .				0.38	0.44	0.42

NB: U/O- Unobjectionable, BDL- Below Detectable Limit, ND- Not Detectable.

Source: Sample collected and analyzed by EDC, BBSR.

XVI. Sludge from the tailing pond (dry tailing) shall be stacked properly so as to ensure that it does not get into the environment either through air, water or soil.

Status- Sludge from the tailing pond after being dried, are taken to the top of the over burden dump where these are dumped in a separate place, 6 meters above the ground surrounded by overburden barrier. There is no possibility of flowing of the said materials out side.

XVII. The project authorities should meet water requirement of the peripheral village(s), especially, if the village wells go dry due to mine de-watering.

Status- The management has provided 21 nos. of tube wells in the peripheral villages for drinking and other purposes. The details are provided in the following table.

Table- 8: Showing the details of tube wells

S. No.	Name of Village	Year
1.	Mohulkhal Village	2004-05
2.	Jhatikiposhi Village	2004-05
3.	Ghagiasahi Village	2005-06
4.	Siriakali Village	2005-06
5.	Balianjari Village	2006-07
6.	Dhau Bahali village	2006-07
7.	Khuntapasi Village	2007-08
8.	Benagadia Village	2007-08
9.	Panasia Villlage	2008-09
10.	Bandapal Village	2008-09
11.	Jamadaipur Village	2008-09
12.	Pimpudia Village	2008-09
13.	Kaliapani Village (Ghagiasahi)	2009-10
(Complete drinking water supply project)		
14.	Sukinda Village (Jagannath Temple)	2010-11
15.	Ransol Village (School)	2010-11
16.	Kuninda Patna	2011-12
17.	Maula Khamba	2011-12
18.	Kharadi High School	2011-12
19.	Ampalua	2011-12
20.	Tangar Sahi Chingudipal	2012-13
21.	Behera Sahi Ostapal	2012-13

XVIII.Permission from the competent authority should be obtained for drawl of water from Damsal Nallah and ground water, if any, required for the project.

Status- Permission of drawl of ground water has been obtained from Central Ground Water Authority for 347.2KLD vide letter No: 21-4(44)/SER/CGWA/2008-1845 Dt.10.10.2013. Copy of the same is attached as **Annexure-I.**

XIX. Suitable rainwater harvesting measures on long term basis shall be planned and implemented in consultation with Regional Director, Central Ground Water Board.

Status- Action plan has already been submitted to CGWA through Regional Director, CGWB, Bhubaneswar. The copy of the same is attached as **Annexure- II.**

XX. Drills should be wet operated or operated with dust extractors.

Status- Drilling is being done through wet drill machines having water spraying arrangements.
Photo of same attached as photo-7

XXI. Blasting operation should be carried out only during the daytime. Controlled blasting should be practiced. The mitigating measures for control of ground vibrations and to arrest fly rocks and boulders should be implemented.

Status-Blasting operation is carried out only during the daytime. Controlled blasting is carried out to minimize ground vibrations and to arrest fly rocks.

XXII. The void left unfilled in an area of 22.02ha shall be converted into water body. The higher benches of excavated void/mining pit shall be terraced and plantation done to stabilize the slopes. The slope of higher benches shall be made gentler. Peripheral fencing shall be carried out along the excavated area.

Status- Presently only one quarry is in operation, hence all measures as per the condition will be undertaken at the cessation of the quarry operations.An area of 23.20 Ha is anticipated to be excavated at the conceptual stage, the same will be converted into water body.

XXIII.Vehicular emissions should be kept under control and regularly monitored. Measures shall be taken for maintenance of vehicles used in mining operations and in transportation of mineral. The vehicles should be covered with a tarpaulin and shall not be overloaded.

Status- Periodical maintenance of the vehicles is being ensured. Testing for pollution under control for all vehicles & machineries used in the mines is being done. The transporting trucks are being covered with tarpaulin and are allowed to take only the prescribed load i.e. below 10.5 Ton. Copy of the same is attached as **Annexure-III.**

XXIV. Consent to operate should be obtained from SPCB before starting enhanced production from the mine.

Status- Consent to operate has been obtained from the State Pollution Control Board. Odisha vide letter no 4765/IND-I-CON-2576 dt 16.03.2013 for production of 0.42MTPA Chrome ore and 20TPH COB plant. With validity up to 31.3.2014.
Copy of same attached as Annexure-IV.

XXV. Sewage treatment plant should be installed for the colony.

Status- As such we have no colony within the lease area, STP doesnôt exist.

XXVI. A Final Mine Closure Plan along with details of Corpus Fund should be submitted to the Ministry of Environment & Forests 5 years in advance of final mine closure for approval.

Status- Final Mine Closure Plan will be submitted to the ministry 5 years before the anticipated final mine closure.

General Conditions & their Status:

I. No change in mining technology and scope of working should be made without prior approval of the Ministry of Environment & Forests.

Status- Mining method practiced in the project is opencast mechanized and there is no change in mining technology and scope of working.

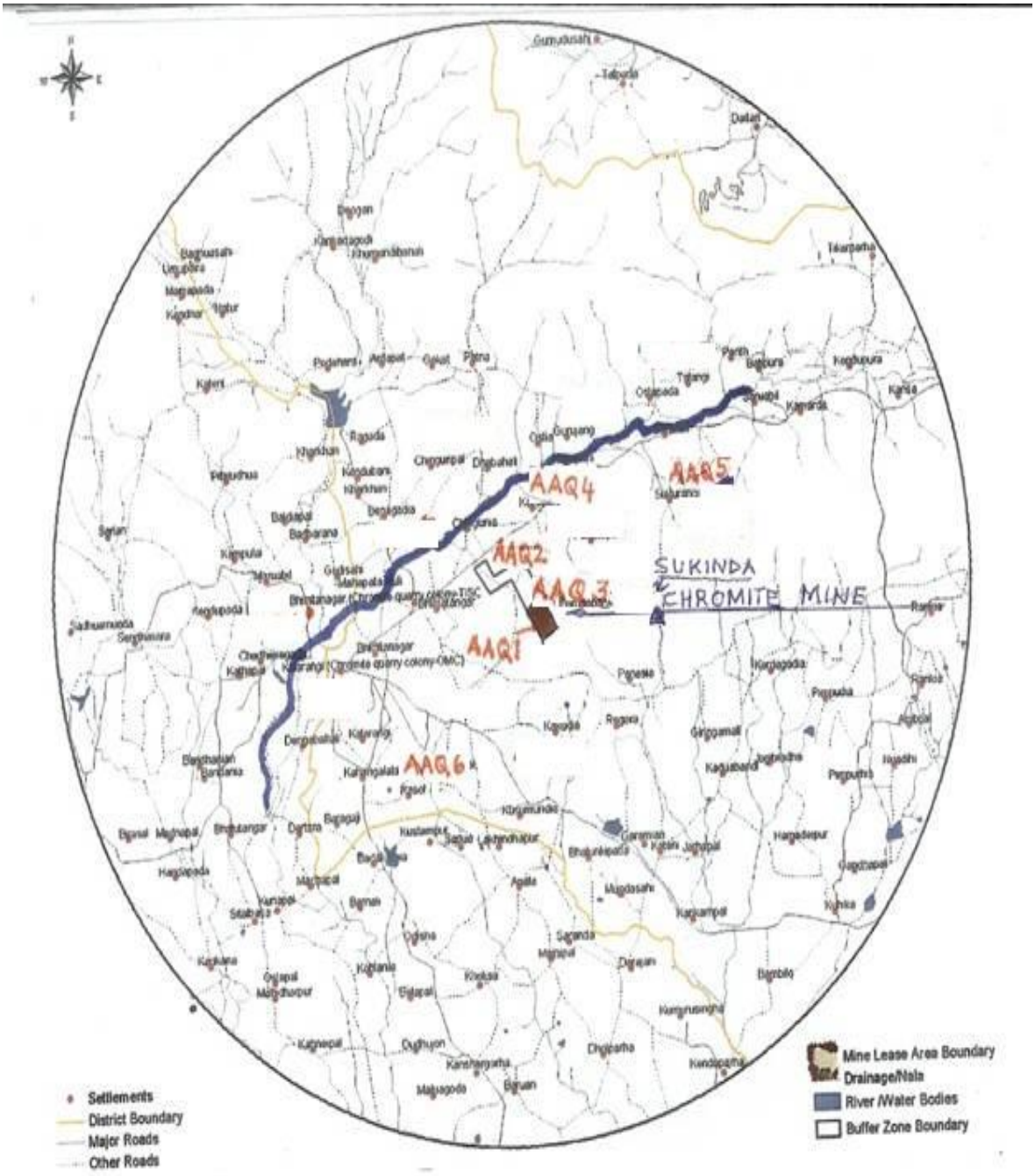
II. No change in the calendar plan including excavation, quantum of mineral Chromite and waste should be made.

Status- No change in the plan including excavation, quantum of mineral and waste during the period under reference.

III. Conservation measures for protection of flora and fauna in the core & buffer zone should be drawn up in consultation with the local forest and wildlife department.

Status- As per the norms fixed by local forest dept. We are extending funds on annual basis for protection of flora and fauna.
Letter regarding payment for implementation of regional wild life management plan obtained from DFO, Cuttack. is given in **Annexure V.**

IV. Four ambient air quality-monitoring stations should be established in the core zone as well as in the buffer zone for RPM, SPM, SO_2 & NOx monitoring. Location of the stations should be decided based on the meteorological data, topographical features, and environmentally and ecologically sensitive targets in consultation with the State Pollution Control Board.
Status- Air quality monitoring is being done by establishing 6 ambient air monitoring stations on the basis of meteorological data, topographical features and in consultation with SPCB in the core zone as well as in the buffer zone. (in core zone 3 and buffer zone 3). Location showing AAQ monitoring stations are shown below.


AAQ1
AAQ2
AAQ3
AAQ4
AAQ5
AAQ6
SUKINDA CHROMITE MINE
Settlements
District Boundary
Major Roads
Other Roads
Mine Lease Area Boundary
Drainage/Nala
River /Water Bodies
Buffer Zone Boundary

V. Data on ambient air quality (RPM, SPM, SO_2 & NOx) should be regularly submitted to the Ministry including its Regional Office at Bhubaneshwar and the State Pollution Control Board / Central Pollution Control Board once in six months.

Status- AAQ is being regularly monitored and the data is submitted to MoEF. Monitoring data for the period October 2012 to March 2013 is given below.

Table-9: Showing AAQ results for the period April 2013 to September 2013

AAQ MONITORING RESULTS FOR THE PERIOD FROM APRIL 2013 TO SEPTEMBER 2013									
Sl. No.	**Monitoring Stations**	**Station Code**	**Month**	**Range**	**CONCENTRATION in µg/m³**				**CO (Result in mg/CuM)**
					PM10	**PM2.5**	**SO_2**	**NO_x**	
1	**Rooftop of Administrative Building (Core Zone) Elevation-123M N21⁰02'47" E85⁰45'14.2"**	AAQ-1	Apr-13	**AVERAGE**	59.6	32.7	8.1	10.8	
				MAXIMUM	69.3	37.9	9.0	12.5	BDL
				MINIMUM	51.6	26.9	5.7	9.4	BDL
			May-13	**AVERAGE**	59.7	24.7	6.5	12.6	
				MAXIMUM	79.3	32.9	7.8	15.6	BDL
				MINIMUM	50.7	21.6	5.4	9.0	BDL
			Jun-13	**AVERAGE**	59.8	21.7	7.0	10.6	
				MAXIMUM	65.3	24.6	8.1	14.3	BDL
				MINIMUM	53.0	18.9	5.5	7.8	BDL
			July-13	**AVERAGE**	55.0	19.1	6.4	11.1	
				MAXIMUM	59.3	20.6	8.1	11.8	1.1452
				MINIMUM	52.3	17.6	4.6	10.3	BDL
			August-13	**AVERAGE**	53.8	18.4	5.8	10.4	
				MAXIMUM	58.7	20.5	6.4	11.5	1.145
				MINIMUM	49.8	16.9	4.7	9.2	BDL
			September-13	**AVERAGE**	56.9	23.1	5.9	10.2	1.145
				MAXIMUM	64.4	28.4	7.1	11.2	1.145
				MINIMUM	45.3	18.6	4.2	9.2	1.145
2	**Rooftop of Bachelor Barrack Elevation-127M N21⁰02'5.7" E85⁰45'34.2"**	AAQ-2	Apr-13	**AVERAGE**	58.4	24.9	7.4	11.2	
				MAXIMUM	75.6	36.9	8.0	14.5	BDL
				MINIMUM	48.3	20.5	5.8	9.4	BDL
			May-13	**AVERAGE**	59.4	24.0	6.0	12.9	
				MAXIMUM	74.6	32.8	7.1	15.9	BDL
				MINIMUM	50.3	20.2	5.0	10.2	BDL
			Jun-13	**AVERAGE**	59.2	24.0	7.7	11.1	

				MAXIMUM	72.3	32.6	9.9	12.1	BDL
				MINIMUM	51.3	20.2	6.2	10.4	BDL
			July-13	**AVERAGE**	55.5	21.0	5.4	10.4	
				MAXIMUM	58.9	25.1	6.4	12.4	1.145
				MINIMUM	49.6	16.6	4.2	8.4	BDL
			August-13	**AVERAGE**	50.1	16.8	6.1	8.8	
				MAXIMUM	56.2	21.4	7.1	10.7	BDL
				MINIMUM	44.8	13.4	4.6	7.6	BDL
			September-13	**AVERAGE**	58.6	20.2	5.4	10.9	1.145
				MAXIMUM	67.9	23.7	6.4	12.9	1.145
				MINIMUM	42.6	17.8	4.2	9.7	1.145
3	**Open cast quarry (Core Zone) Elevation-155M N21° 01' 57.8" E85° 46' 01.2"**	AAQ-3	Apr-13	**AVERAGE**	59.1	25.0	7.2	11.5	
				MAXIMUM	76.9	33.8	8.8	15.6	BDL
				MINIMUM	50.4	21.4	5.9	9.0	BDL
			May-13	**AVERAGE**	59.0	23.4	7.6	13.0	
				MAXIMUM	76.9	35.9	8.1	18.9	BDL
				MINIMUM	51.7	20.1	7.0	9.9	BDL
			Jun-13	**AVERAGE**	59.5	24.4	7.8	11.5	
				MAXIMUM	69.3	26.1	8.4	12.6	BDL
				MINIMUM	51.6	22.2	7.1	10.6	BDL
			July-13	**AVERAGE**	58.2	21.9	7.8	12.2	
				MAXIMUM	63.6	24.9	8.7	13.5	BDL
				MINIMUM	54.6	20.4	6.9	10.5	BDL
			August-13	**AVERAGE**	é ..	é ..	é ..	é ..	é ..
				MAXIMUM	é ..	é ..	é ..	é ..	é ..
				MINIMUM	é ..	é ..	é ..	é ..	é ..
			September-13	**AVERAGE**	53.4	19.0	5.1	11.0	
				MAXIMUM	58.6	21.4	6.4	12.6	1.145
				MINIMUM	48.2	17.3	4.6	9.5	BDL
4	**Village Kaliapani (Buffer Zone) Elevation-122M N21° 03' 42.0" E85° 46' 19.3"**	AAQ-4	Apr-13	**AVERAGE**	56.43	21.5	7.9	15.52	
				MAXIMUM	58.9	24.8	9.3	17.8	BDL
				MINIMUM	47.9	14.9	6.3	12.6	BDL
			May-13	**AVERAGE**	53.6	18.3	6.1	12.1	
				MAXIMUM	63.6	20.7	8.3	17.6	BDL
				MINIMUM	45.9	14.3	4.9	9.8	BDL
			Jun-13	**AVERAGE**	59.4	22.1	5.6	10.9	
				MAXIMUM	68.3	23.6	6.9	12.8	BDL
				MINIMUM	54.3	20.3	4.7	9.3	BDL
			July-13	**AVERAGE**	51.3	17.4	5.9	9.3	
				MAXIMUM	56.3	18.9	5.9	9.3	BDL
				MINIMUM	46.3	15.9	5.9	9.3	BDL
			August-13	**AVERAGE**	é ..	é ..	é ..	é ..	é ..
				MAXIMUM	é ..	é ..	é ..	é ..	é ..
				MINIMUM	é ..	é ..	é ..	é ..	é ..

			September-13	**AVERAGE**	54.1	19.9	6.2	12.0	
				MAXIMUM	61.4	24.3	8.7	16.9	BDL
				MINIMUM	45.2	17.5	4.1	9.2	BDL
5	**Village Ransol (Buffer Zone) Elevation-113M N21° 03' 43.1" E85° 44' 32.2"**	AAQ-5	Apr-13	**AVERAGE**	59.2	23.58			
				MAXIMUM	69.3	27.8	BDL	BDL	BDL
				MINIMUM	53.6	19.3	BDL	BDL	BDL
			May-13	**AVERAGE**	60.5	20.9			
				MAXIMUM	64.9	23.7	BDL	BDL	BDL
				MINIMUM	56.2	17.9	BDL	BDL	BDL
			Jun-13	**AVERAGE**	59.8	19.8			
				MAXIMUM	65.8	20.7	BDL	BDL	BDL
				MINIMUM	52.3	18.9	BDL	BDL	BDL
			July-13	**AVERAGE**	54.2	19.0	5.3	9.2	
				MAXIMUM	54.6	20.4	5.9	9.2	BDL
				MINIMUM	53.7	17.6	4.7	9.2	BDL
			August-13	**AVERAGE**	é ..	é ..	é ..	é ..	é ..
				MAXIMUM	é ..	é ..	é ..	é ..	é ..
				MINIMUM	é ..	é ..	é ..	é ..	é ..
			September-13	**AVERAGE**	54.7	20.0	4.8	10.1	1.145
				MAXIMUM	62.4	23.5	5.8	10.5	1.145
				MINIMUM	47.6	17.4	4.1	9.8	1.145
6	**Village Sukrangi (Buffer Zone) Elevation-153M N21° 02' 44.5" E85° 48' 16.3"**	AAQ-6	Apr-13	**AVERAGE**	57.83	24.94			
				MAXIMUM	64.9	29	BDL	BDL	BDL
				MINIMUM	50.7	19.7	BDL	BDL	BDL
			May-13	**AVERAGE**	60.8	20.8			
				MAXIMUM	65.9	23.6	BDL	BDL	BDL
				MINIMUM	56.9	18.3	BDL	BDL	BDL
			Jun-13	**AVERAGE**	56.6	20.9			
				MAXIMUM	60.3	22.3	BDL	BDL	BDL
				MINIMUM	53.6	19.3	BDL	BDL	BDL
			July-13	**AVERAGE**	50.4	15.7	4.6	9.8	
				MAXIMUM	53.6	17.8	4.9	10.2	BDL
				MINIMUM	47.2	13.6	4.3	9.3	BDL
			August-13	**AVERAGE**	é ..	é ..	é ..	é ..	é ..
				MAXIMUM	é ..	é ..	é ..	é ..	é ..
				MINIMUM	é ..	é ..	é ..	é ..	é ..
			September-13	**AVERAGE**	51.9	17.5	5.2	10.2	
				MAXIMUM	57.6	22.4	5.7	11.2	BDL
				MINIMUM	48.3	14.6	4.6	9.6	BDL
NORMS(ANNUAL)					**60.0**	**40.0**	**50.0**	**40.0**	**4(1Hr)**
NORMS(24HOURS)					**100.0**	**60.0**	**80.0**	**80.0**	**2.0**

Source: Sample collected and analyzed by in-house laboratory.

VI. Fugitive dust emissions from all the sources should be controlled regularly. Water spraying arrangement on haul roads, loading and unloading and at transfer points should be provided and properly maintained.

Status- Regular water spraying is being done on haul roads, ore transfer points, over burden dumping areas and stack yards by deploying one no 12 KL water tanker and two nos of 10 KL water tankers to control the fugitive dust.
Photographs of the same is given as **Photo-8.**

Table-10: Showing fugitive dust report for the period April 2013 to September 2013

Summarized Fugitive Emission Monitoring Report: Kaliapani Chromite Mine M/s Balasore Alloys Ltd., District; Jajpur, Odisha.				
Sl. No.	**Sampling location**	**Month**	**Quality Parameter, Results, micro.gm/CUM**	
			Range	**EMISSION VALUE**
1	MINES FACE	Apr-13	Max	**745.5**
			Min	**520.7**
		May-13	Max	**694.8**
			Min	**581.2**
		June-13	Max	**995.4**
			Min	**610.7**
2	HAUL ROAD	Apr-13	Max	**659.6**
			Min	**613.2**
		May-13	Max	**895.7**
			Min	**557.3**
		June-13	Max	**1054.2**
			Min	**559.3**
3	SCREENING PLANT	Apr-13	Max	**813.6**
			Min	**688.3**
		May-13	Max	**857.6**
			Min	**633.2**
		June-13	Max	**954.8**
			Min	**710.6**
4	STOCK YARD & LOADING POINT	Apr-13	Max	**944.2**
			Min	**686.8**
		May-13	Max	**1089.3**
			Min	**762.4**
		June-13	Max	**862.4**
			Min	**595.6**

Source: Sample collected and analyzed by in-house laboratory.

VII. Measures should be taken for control of noise levels below 85 dB (A) in the work environment. Workers engaged in operations of HEMM, etc. should be provided with ear plugs / muffs.

Status-Regular monitoring is being carried out for noise level in the work environment. Ear plugs / muffs are provided to all workers engaged in operations of HEMM etc.. Noise level monitoring results are given below.Photographs showing use of PPEs are given as **Photo-9.**

Table-11: Noise level for the period April 2013 to September 2013

NOISE LEVEL MONITORING RESULTS FOR THE PERIOD APRIL 2013 TO SEPTEMBER 2013								
Sl. No.	**LOCATION**	**POSITION**	**MONTH**					
			Apr-13	**May-13**	**Jun-13**	**Jul-13**	**Aug-13**	**Sep-13**
1	Office area	Near office	60.8	62.1	61.2	60.4	60.4	59.5
2	O/C Quarry	Middle	63.5	64	63.1	64	61.2	62.2
3	Dumper operation	Operatorôs cabin	81.7	82.7	81.7	81	81.4	78.4
4	Loader operation	Operatorôs cabin	79.9	80.3	81.1	82.1	82.3	80.6
5	Poclain operation	Operatorôs cabin	82.4	81.2	80.9	80.2	80.5	82.4
6	Dozer operation	Operatorôs cabin	82.5	82.1	81.4	80.7	81.1	81.8
7	DG set (320KVA)	Operatorôcabin	78.6	79.4	79	79.6	80.6	81.6
8	Electrical pump	Operatorôs cabin	65.1	66	66.9	67	68.4	66.7
9	Loading point	Middle	70.3	69.5	70	69.5	70.2	71.3
10	COB plant	Control room	70.8	69.9	69	69.4	68.2	69.1
11	Drill M/c operation	Operatorôs cabin	71.1	72.4	71.5	70.7	70.7	72.3

Source: Monitoring done by in-house.

VIII. Industrial waste water (workshop and waste water from the mine) should be properly collected, treated so as to conform to the standards prescribed under GSR 422 (E) dated 19th May, 1993 and 31st December, 1993 or as amended from time to time. Oil and grease trap should be installed before discharge of workshop effluents.

Status- There is no work shop in the lease area. All the machines deployed are out sourced and maintenance is done outside the lease area.

For treatment of Cr^{6+} in mine discharge water an effluent treatment plant has been established which is in operation. The water discharged to outside after treatment is meeting the prescribed standard. The analysis result of discharge water is shown in **Table-2.**

The Surface Run Off from the OB and other areas are being analyzed in rainy seasons and the concentrations are found to be below the prescribed limit. The analysis result of surface run-off water is shown in **Table-3.**

IX. Personnel working in dusty areas should wear protective respiratory devices and they should also be provided with adequate training and information on safety and health aspects.

Occupational health surveillance program of the workers should be undertaken periodically to observe any contractions due to exposure to dust and take corrective measures, if needed.

Status- Personal protective equipments are provided to all workers respective to the nature of the job. Initial and periodical training is being imparted to all workers in the Companyôs Vocational Training Center located within the lease area on Safety and Health Aspects.

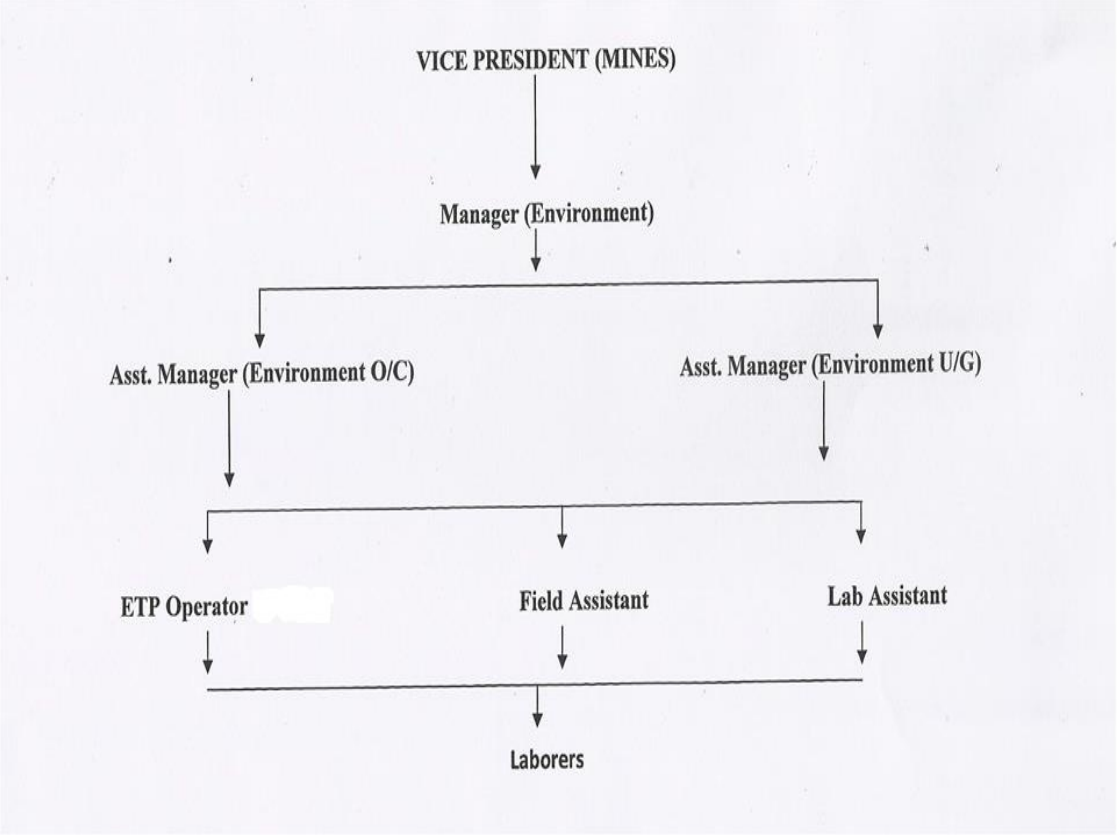
Periodical health check up is being carried out for workers. Photograph showing primary health check-up is given as **Photo-10**

Table-12: Showing details of IME & PME status

DETAILS OF IME & PME AS ON 1st SEPT-2013				
KALIAPANI CHROMITE MINES, M/s BALASORE ALLOYS LTD.				
CATEGORY	**MAN POWER**	**IME EXECUTED**	**PME EXECUTED**	**IME TO BE DONE**
RETAINER	**6**	**5**	**NIL**	**1**
EXECUTIVES & MANAGERS	**62**	**56**	**6**	**6**
OFFICERS	**40**	**36**	**10**	**4**
WORKERS	**78**	**78**	**14**	**Nil**
DRM	**34**	**34**	**NIL**	**Nil**

X. A separate environmental management cell with suitable qualified personnel should be set-up under the control of a Senior Executive, who will report directly to the Head of the Organization.

Status- A separate Environment management cell under the control of Vice President (Mines) has been set up. Organizational Chart of Environmental Management Cell is given below.



XI. The project authorities should inform to the Regional Office located at Bhubaneswar regarding date of financial closures and final approval of the project by the concerned authorities and the date of start of land development work.

Status- This is an ongoing project since Septô2000.

XII. The funds earmarked for environmental protection measures should be kept in separate account and should not be diverted for other purpose. Year wise expenditure should be reported to the Ministry and its Regional Office located at Bhubaneswar.

Status- A separate account is maintained for Environmental protection and periphery development. Details of expenditure for the period are given below.

Table-13: Expenditure on EMP for the period April 2013 to September 2013

Sl. No.	Activity	For the period April 2013- September 2013
01	Fixed type water sprinklers/maintenance	**15,000**
02	Maintenance of wetting provision in drilling machine.	**13,000**
03	Desilting of check dams, garlanding drain& Retaining wall,etc	**100,000**
04	Development of Green Belt and afforestation.	**5,05000**
05	Others : Application of coir geo textiles	**5,59000**
06	Installation of CETP	**10414520**
07	Chemicals for existing ETP	**68625**
08	Environmental monitoring and Equipment Maintenance	**1,50000**
09	Dust suppression	**8,64000**
10	WaterCess Payment	**53,571**
Total Amount incurred: in Rs		**12,742,716**

XIII. The Regional Office of this Ministry located at Bhubaneswar shall monitor compliance of the stipulated conditions. The project authorities should extend full cooperation to the officer (s) of the Regional Office by furnishing the requisite data / information / monitoring reports.

Status- Company management is extending full cooperation to the Regional Office, MoEF

XIV. The project proponent shall submit six monthly reports on the status of the implementation of the stipulated environmental safeguards to the Ministry of Environment and Forests, its Regional Office, Bhubaneswar, Central Pollution Control Board and State Pollution Control Board.

Status- Being Complied regularly, Receipt of submission of Half yearly compliance report is given below.

Table-14: The status of six monthly EC compliance submission

Period	Letter no.	Date of submission
October 2012 to March 2013	BAL/MINES/202	14.05.2013
April 2012 to September 2012	BAL/MINES/459	19.11.2012
October 2011 to March 2012	BAL/MINES/198	29.05.2012
April 2011 to September 2011	BAL/MINES/394	18.11.2011
October 2010 to March 2011	BAL/MINES/168	16.05.2011
April 2010 to September 2010	BAL/MINES/358	03.11.2010
October 2009 to March 2010	BAL/MINES/166	25.05.2010
April 2009 to September 2009	BAL/MINES/362	29.10.2009
October 2008 to March 2009	BAL/MINES/134	05.05.2009
April 2008 to September 2008	BAL/MINES/275	19.11.2008

XV. A copy of clearance letter will be marked to concerned Panchayat / local NGO, if any, from whom suggestion / representation was received while processing the proposal.

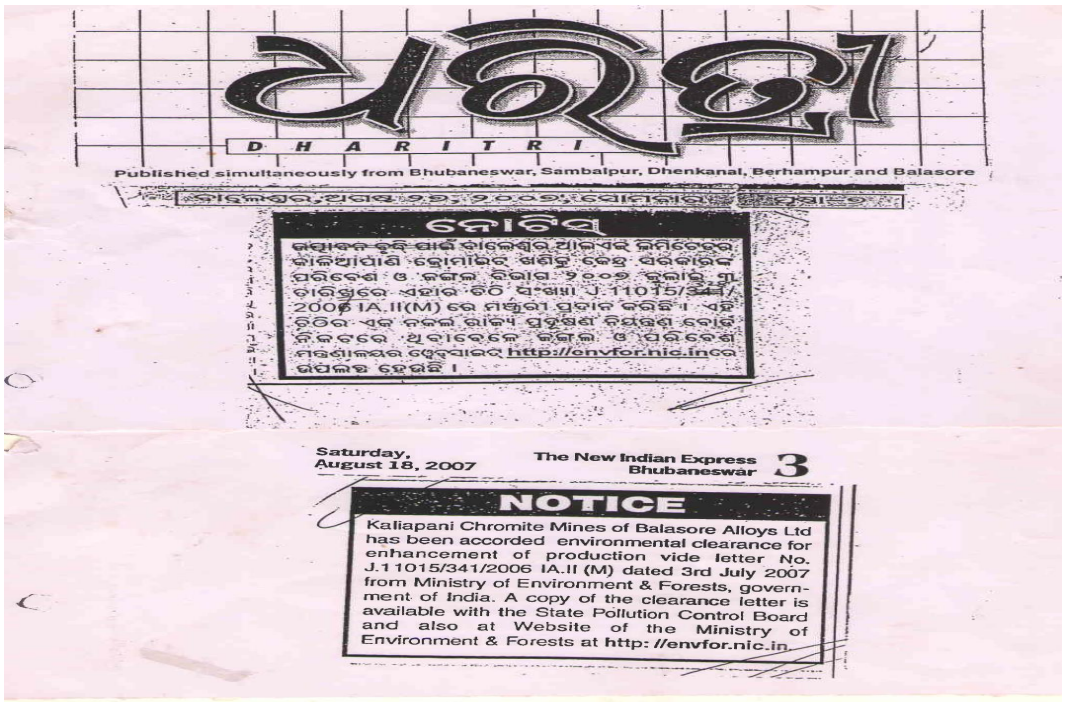
Status- Already given to local Panchayats.

XVI. The State Pollution Control Board should display a copy of the clearance letter at the Regional office, District Industry Centre and Collector's office/ Tehsildar's Office for 30 days.

Status- The same has been submitted during first compliance report.

XVII. The project authorities should advertise at least in two local newspapers widely circulated around the project, one of which shall be in the vernacular language of the locality concerned within seven days of the issue of the clearance letter informing that the project has been accorded environmental clearance and a copy of the clearance letter is available with the State Pollution Control Board and also at Web Site of the Ministry of Environment & Forests at http://envfor.nic.in **and a copy of the same should be forwarded to the Regional Office of this Ministry located at Bhubaneswar.**

Status- Advertised in New Indian Express as well as in Dharitri dated 27/08/2007. The same is given below. Copy of the same has been forwarded to the Regional Office of MOEF located at Bhubaneswar.



ଧରିତ୍ରୀ

DHARITRI

Published simultaneously from Bhubaneswar, Sambalpur, Dhenkanal, Berhampur and Balasore

ନୋଟିସ୍

କଳାଙ୍କଡ଼ ଜିଲ୍ଲା ବାଲେଶ୍ୱର ଥାନାରେ ଲିମିଟେଡ୍‌ର କାଲିଆପାଣି ଡୋମାଇଟ୍ ଖଣିରୁ କେନ୍ଦ୍ର ପରିବେଶ ଓ ଜଙ୍ଗଲ ବିଭାଗ ୨୦୦୭ ଜୁଲାଇ ୩ ତାରିଖରେ ଏହାର ଚିଠି ନଂ-ଆଇ.ଏ. J.11015/341/2006 IA.II(M) ରେ ମଞ୍ଜୁରୀ ପ୍ରଦାନ କରିଛି । ଏହି ଚିଠିର ଏକ ନକଲ୍ ରାଜ୍ୟ ପ୍ରଦୂଷଣ ନିୟନ୍ତ୍ରଣ ବୋର୍ଡ ନିକଟରେ ଥିବାବେଳେ ଜଙ୍ଗଲ ଓ ପରିବେଶ ମନ୍ତ୍ରଣାଳୟର ୱେବ୍‌ସାଇଟ୍ http://envfor.nic.inରେ ଉପଲବ୍ଧ ହେଉଛି ।

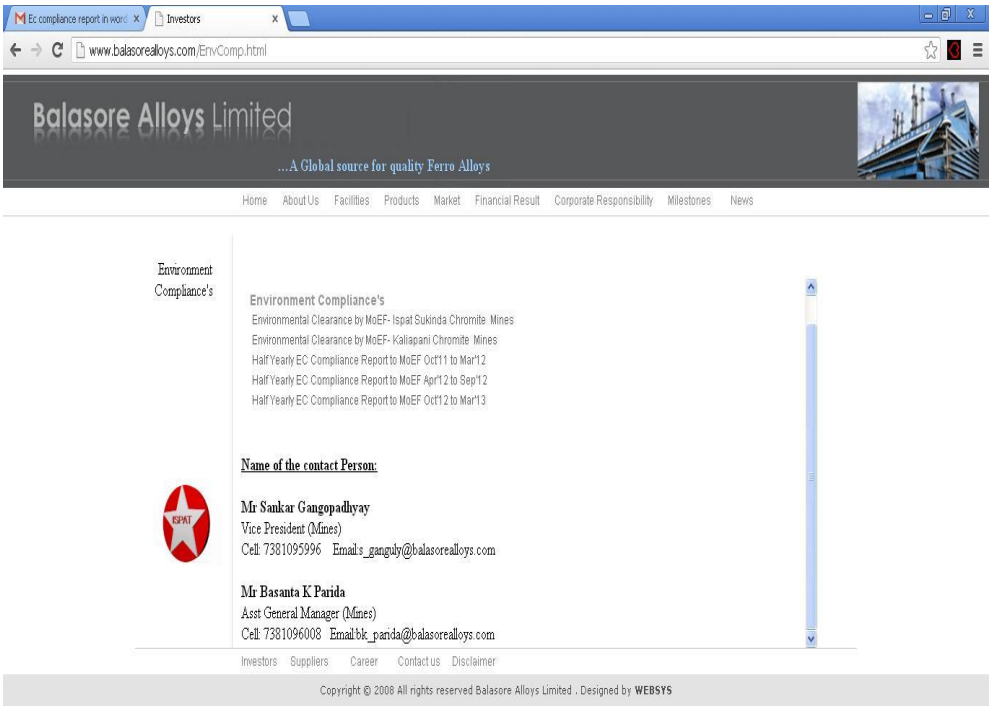
Saturday, August 18, 2007

The New Indian Express Bhubaneswar 3

NOTICE

Kaliapani Chromite Mines of Balasore Alloys Ltd has been accorded environmental clearance for enhancement of production vide letter No. J.11015/341/2006 IA.II (M) dated 3rd July 2007 from Ministry of Environment & Forests, government of India. A copy of the clearance letter is available with the State Pollution Control Board and also at Website of the Ministry of Environment & Forests at http: //envfor.nic.in

Six monthly report has been loaded in our website **www.Balasorealloys.com** under head Market-Environment Compliance. Screen shot of website showing upload of EC compliance report is shown below.



ANNEXURE-I: NOC FOR GROUND WATER WITHDRAWAL

भारत सरकार
केन्द्रीय भूमि जल प्राधिकरण
जल संसाधन मंत्रालय

Member Secretary

Government of India
Central Ground Water Authority
Ministry of Water Resources

CGWA/IND/Proj/2013-1408

No.21-4(44)/SER/CGWA/2008- 1845 Dated:- 10 OCT 2013

M/s Balasore Alloys Ltd.,
Kaliapani Chromite Mine
At/Po Kalipani
District Jajpur-755047, Odisha

Sub: - NOC for ground water withdrawal by M/s Balasore Alloys Ltd., in respect of their Kalipani Chromite Mine located at Village Kalipani, Block & Tehsil Sukinda, District Jajpur, Odisha – reg.

Refer to your letter dated 28.5.2013 on the above cited subject. Based on recommendations of Regional Director, Central Ground Water Board, South Eastern Region, Bhubaneswar vide their office letter no. 5-22/SER/CGWA/2013-758 dated 13.8.2013 & 12.9.2013 and further deliberations on the subject, the NOC of Central Ground Water Authority is hereby accorded to **M/s Balasore Alloys Ltd., in respect of their Kalipani Chromite Mine located at Village Kalipani, Block & Tehsil Sukinda, District Jajpur, Odisha**. The NOC is, however subject to the following conditions:-

1. The firm may withdraw 294.2 m^3/day water for mine dewatering due to intersection of water table by mining activity through suitable ground water withdrawal structures under intimation to the Regional Director, Central Ground Water Board, South Eastern Region, Bhubaneswar. Firm is also permitted to withdraw 53 m^3/day for industrial & domestic use through existing one (1) & proposed one (1) borewell (to be kept as standby) and no additional ground water abstraction structures to be constructed for this purpose without prior approval of the CGWA. Thus, the total withdrawal allowed is **347.2 m^3/day (not exceeding 1,26,728 m^3/year)**.
2. The wells to be fitted with water meter by the firm at its own cost and monitoring of ground water abstraction to be undertaken accordingly on regular basis, at least once in a month. The ground water quality to be monitored twice in a year during pre monsoon and post monsoon periods.
3. **M/s Balasore Alloys Ltd.,** shall, in consultation with the Regional Director, Central Ground Water Board, South Eastern Region, Bhubaneswar implement ground water recharge measures to the tune of **15,000 m^3/year** as proposed for augmenting the ground water resources of the area.
4. The photographs of the recharge structures after completion of the same are to be furnished immediately to the Regional Director, Central Ground Water Board, South Eastern Region, Bhubaneswar for verification and under intimation to this office.

West Block - 2, Wing - 3, Sector - 1, R.K. Puram, New Delhi - 110066
Tel : 011-26175362, 26175373, 26175379 • Fax : 011-26175369
Website : www.cgwb.gov.in, www.mowr.gov.in

ANNEXURE-II: SUBMISSION OF RAIN WATER HARVESTING PLAN

SPEED POST

No. 5-22/SER/CGWA/2012- 370
Govt. of India
Central Ground Water Board
South Eastern Region
Bhujal Bhawan, Khandagiri,
Bhubaneswar –751030.
Date: 03.04.2012

To

The Member Secretary
Central Ground Water Authority
Ministry of Water Resources
West Block -2, Wing-3 (Ground Floor),
Sector-1, R.K. Puram,
New Delhi – 110066.

Sub: Forwarding of Report on Rain Water Harvesting in respect of M/s. Kaliapani Chromite Mines of M/s. Balasore Alloys Ltd, Vill:- Kaliapani, Sukinda, District-Jajpur, Odisha – Reg.

Sir,

As per the conditions on NOC issued vide letter no. 21-4(44)/SER/CGWA/2008-793 dated 06.06.2008 to M/s. Balasore Alloys Ltd for its Kaliapani Chromite Mines at village Kaliapani, Sukinda, district-Jajpur, Odisha, the firm has submitted report on Rain Water Harvesting, Conservation of Water and artificial recharge to ground water plan for its mines . The same is being forwarded for your kind perusal and necessary action.

Encl:- As above.

Yours faithfully,

(D.Y Sirsikar)
Regional Director

Copy to: M/s. Balasore Alloys ltd, Plot No.1003 (opp.PWD IB), Ferro Chrome Road, Dhabalgiri, PO-Sobara, Jajpur Road, District- Jajpur Pin-755019 for information.

(D.Y Sirsikar)
Regional Director

ANNEXURE-III: PUC CERTIFICATE

COMPUTERISED EMISSION TEST CERTIFICATE

Authorised By : Transport Dept., Govt. of Odisha

(See rule 129-A(8)(b) of C.M.V. Rule. 1998)

M/S CHOUDHURY AUTOMOBILES

CHANDIKHOLE, SUNGUDA, DIST.- JAJPUR, ODISHA

Auth. No-STA/CTC/POLL -12/98 **TEST RESULTS :**

Vechicle Pass Certificate

HSUPres	65
HSUAvg.	14.8
Puccno.	2100796
Reg.No.	OR04C 8703
Reg Year	1997
Make	TATA
Model	1613
Veh Type	TRUCK
Fuel	DIESEL
Test Date	01/Jun/2013
Test Time	10:05:36 AM
Valid Till	30/ Nov/2013
Owner Name	ZAKRIA HUSSAIN

This Vehicle meets the Emission Standards Prescribed by Rule 115 (2) of Central Motor Vehicle Rules, 1989 and accordingly The Certificate is valid for Six months.

Tested by

CHOUDHURY AUTOMOBILES EMISSION TESTING CENTRE CHANDIKHOLE N.H-5 JAJPUR ODISHA

Flush	ing Cycle				
Avg.	RPM Min.	RPM Max.	Temp.		
	1005	2170	63		
S.No.	RPM Min.	RPM Max.	Km	HSU %	Temp.
1	785	2097	0.69	25.8	63
2	988	1993	0.47	18.5	63
3	962	1993	0.45	17.9	63
4	785	2061	0.40	15.9	63
5	785	2061	0.31	12.7	63
6	785	2019	0.32	12.9	64
Mean		Pass	0.37	14.8	

CHOUDHURY AUTOMOBILE

ANNEXURE-IV: CONSENT TO OPERATE OBTAINED FROM OSPCB

BY REGD. POST WITH AD

STATE POLLUTION CONTROL BOARD, ODISHA

[DEPARTMENT OF FOREST & ENVIRONMENT, GOVERNMENT OF ODISHA]
Paribesh Bhawan, A/118, Nilakantha Nagar, Unit – VIII
Bhubaneswar – 751 012, INDIA

REVISED CONSENT ORDER

No. 4765 / IND-I-CON- 2576 Dt. 16.03.13.

CONSENT ORDER NO. 1239

Sub : **Consent for discharge of sewage and trade effluent under section 25/26 of Water (PCP) Act, 1974 and for existing / new operation of the plant under section 21 of Air (PCP) Act, 1981.**

Ref : Your application No. **(i) BAL/Mines/495 DT. 19.12.2012**
(ii) BAL/Mines/113 DT. 13.03.2013

Consent to operate is hereby granted under section 25/26 of Water (Prevention & Control of Pollution) Act, 1974 and under section 21 of Air (Prevention & Control of Pollution) Act, 1981 and rules framed thereunder to

Name of the Industry: **KALIAPANI CHROMITE MINES OF M/S. BALASORE ALLOYS LIMITED**

Name of the Occupier & Designation: **SRI S. S. MISHRA, MINES MANAGER**

Address: **AT/PO: KALIAPANI, DIST: JAJPUR**

This consent order is valid for the period **up to 31.03.2014**

This consent order supersedes the earlier consent order issued vide letter No. 6200 dated 31.03.2012.

Details of Products Manufactured

Sl. No	Product	Quantity
01.	Chrome Ore	0.42 MTPA

Details of Mineral Handling Plants /Units

01	*Operation of COB Plant of capacity 1x20 TPH*

This consent order is valid for the specified outlets, discharge quantity and quality, specified chimney/stack, emission quantity and quality of emissions as specified below. This consent is granted subject to the general and special conditions stipulated therein.

MB
P.T.O

ANNEXURE-V: PAYMENT ON IMPLEMENTATION OF REGIONAL WILDLIFE MANAGEMENT PLAN

OFFICE OF THE DIVISIONAL FOREST OFFICER: CUTTACK FOREST DIVISION
GHATAKULA: NUAPARA: CUTTACK

Memo 7579 /5F (Misc.)
Dated, Cuttack, the 2ND Spetemeber'2013

To

The Addl.Chief Conservator of Forests,
Forest Diversion and Nodal Officer, FC Act,
O/O-the Pr. Chief Conservator of Forests,
Odisha Bhubaneswar.

Sub: Implementation of Wildlife Management Plan in the Mining area at Project cost.

X-Sub: Payment of cost of Wildlife Management Plan in respect of lease for Chromite Mines of M/S Ispat Alloys now renamed as M/S Balasore Alloys Ltd.

Ref: Letter No.10F (Cons)-81/2004-6495/F&E Dt.23.03.2008 of Govt. of Orissa Forest & Environment Department & your office memo no.8664 Dt.02.05.2008.

As per the instruction contained in the above memo, the User Agency, M/S Balasore Alloys Ltd. Dist. – Jajpur was asked to submit the cost of Wildlife Management Plan to make payment towards cost of Wildlife Management Plan over 64.463 ha. (64.743 ha. mentioned in the demand notice which is a typographical error) of M.L area in respect of Kaliapani Chromite Mines. Accordingly the User Agency has deposited the cost of Wildlife Management Plan through RTGS in favour of *"Compensatory Afforestation Fund (CAF)-Orissa. Account No. C.A-25222 in Corporation Bank, Lodhi Road, New Delhi* amounting to Rs. 1289260 /- (Rupees twelve lakh eighty nine thousand two hundred sixty) only" and the copy of the receipt is sent herewith for favour of kind information and necessary action.

Encl: As above

DIVISIONAL FOREST OFFICER
CUTTACK FOREST DIVISION

Memo No. 7580 */Dt.* 02-9-2013
Copy forwarded to the Regional Chief Conservator of Forests, Angul Circle, Angul for favour of kind information and necessary action.

DIVISIONAL FOREST OFFICER
CUTTACK FOREST DIVISION

Memo No. 7581 */Dt.* 02-9-2013
Copy forwarded to the Vice –President (Mines), M/S Balasore Alloys Pvt. Ltd., 199, Forest Park, Bhubaneswar for info5rmation and necessary action with reference to his letter No.BAL/MINES/716/2013 Dt.16.08.2013.

DIVISIONAL FOREST OFFICER
CUTTACK FOREST DIVISION

O/C

PHOTO:1- SHOWING DUMP SLOPE PLANTATION

PHOTO:2- SHOWING COIRMATING ON DUMP SLOPE

PHOTO:3- SHOWING TOE WALL & GARLAND DRAIN

PHOTO:4- SHOWING EFFLUENT TREATMENT PLANT

PHOTO:5- SHOWING EFFLUENT TREATMENT PLANT

PHOTO:6- SHOWING AVENUE PLANTATION

PHOTO:7-SHOWING WET DRILLING OPERATION

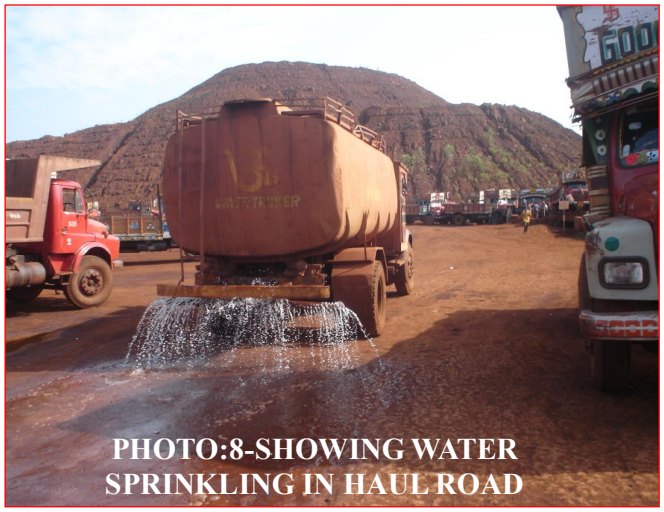


PHOTO:8-SHOWING WATER SPRINKLING IN HAUL ROAD

PHOTO:9-SHOWING PPE FOR NOISE ABATEMENT

PHOTO:10-SHOWING PRIMARY HEALTH CHECK-UP