BALASORE ALLOYS LIMITED

ISPAT

BAL/Mines/2376/2015 Dated: 28.05.2015

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 Vide no No. J-11015/139/2012-IA.II (M) dated 22.08.2014__ with respect to Kaliapani Chromite Mines of M/s- Balasore Alloys Ltd for the period of October-2014 – March 2015.

Ref: Environment Clearance No.- No. J-11015/139/2012-IA.II (M) dated 22.08.2014

Dear Sir,

We are herewith enclosed the compliance report to the status of the conditions stipulated in the environmental clearance Vide No. J-11015/139/2012-IA.II (M) dated 22.08.2014 for the period October 2014 – March 2015 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.Gangopadhyay
Vice President (Mine)

Encl: As above

GOVT. OF INDIA
MoEF & CC, Eastern R.O.
Bhubaneswar-751023
29 MAY 2015
RECEIVED

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E-mail : sukinda_mines@balasorealloys.com. ialmines@yahoo.com, Website : www.balasorealloys.com
BBSR Office : Module C/1, 1st Floor, Fortune Tower,Chandrasekharpur, BBSR - 23, Odisha, (India), Ph. : 0674-2301358, Fax : 0674 - 2301639
Regd. Office & Works : Balgopalpur-756020, Balasore, Odisha, Phone : 06782-275781 to 85, Fax : 275724
CIN-L27101OR1984PLC001354

SIX MONTHLY COMPLIANCE REPORT

"ENVIRONMENTAL CLEARANCE"

For the Period October -2014 to March- 2015

Kaliapani Chromite Mine
M/s Balasore Alloys Ltd

Submitted to:

Regional Office

MoEF & CC,BBSR

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II	Copy of the Consent to Establish
III	Copy of the Consent to Operate
IV	PUC Certificate
V	Approval letter on Wildlife Management Plan
VI	Letter on submission of EC copy to Panchayat
VII	Environment statement submitted on Form-V for the year ending 2013-14
VIII	Letter to Regional office, MoEF & CC for intimation of EC grant

ENVIRONMENTAL POLICY

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

In order to achieve the same we shall;

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

9th Nov 2012

Anil Sureka
Managing Director

Status of compliance of conditions stipulated by MoEF in Environment Clearance no.- No. J-11015/139/2012-IA.II (M) dated 22.08.2014 of Kaliapani Chromite Mine of M/s Balasore Alloys Ltd as on 31.03.2015

A. Specific Conditions & their Status

i. Mining shall not commence without necessary permissions for drawl of water and intersection of ground water table.

Status-. Permission of drawl of ground water due to intersection of ground water table by mining activity 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.**

ii. Mitigation measures such as well-designed ventilation network within underground mine, provision of Personal Protective Equipment should be ensured and necessary training and awareness programs for mine workers should be undertaken.

Status- Ventilation fan shall be provided within underground mine in order to control the air pollution. Necessary PPEs viz helmet, mask etc shall be provided to the employees. Training and awareness programme shall be arranged regularly for creating awareness among the employees.

iii. Continuous monitoring of Mine water should be done and reports furnished.

Status- Ground water withdrawn from mine pit is channelized to new up graded ETP designed as per the recommendation of IIT, Kharagpur for proper treatment, continuous monitoring and analysis. Analysis of the inlet & outlet water to ETP is being done regularly and the report is furnished as per the format supplied by OSPCB with submission of report to OSPCB on weekly basis.

The analysis report is as follows in **Table-1.**

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[TABLE: 1: Daly ETP water analysis report]

DAILY ETP WATER ANALYSIS REPORT FROM DECEMBER												
M/s BALASORE ALLOYS LIMITED												
KALIAPANI CHROMITE MINES												
Date and time of Monitoring	Inlet of ETP								Outlet of ETP			
	Quantity of Discharge (KL/Hr)	Parameters (Inlet Quality)			Chemicals used for treatment (dosing of chemicals)				Quantity of Discharge (KL/Hr)	Parameters (Outlet quality)		
		pH	TSS (mg/l)	Cr+6 (mg/l)	Dosing of Chemical ($FeSO_4$) in L/Hr	Concentration of Chemical ($FeSO_4$) used in (mg/l)	Dosing of Chemical (NaOH) in L/Hr	Concentration of Chemical (NaOH) used in (mg/l)		pH	TSS (mg/l)	Cr+6 (mg/l)
01.12.2014	300	6.5	102	0.413	33.75	100000	3.50	10000	150	7.12	62	0.006
02.12.2014	294	6.7	98	0.586	45.00	100000	4.50	10000	150	6.74	58	0.007
03.12.2014	302	6.6	101	0.563	45.00	100000	4.50	10000	150	6.98	70	0.002
04.12.2014	298	6.9	94	0.722	60.00	100000	5.80	10000	150	6.92	64	0.006
05.12.2014	305	6.2	101	0.700	52.50	100000	5.30	10000	150	7.44	82	0.004
06.12.2015	308	6.2	98	0.747	56.25	100000	5.80	10000	150	6.48	76	0.005
07.12.2015	288	6.7	89	0.759	57.75	100000	6.20	10000	150	7.32	84	0.004
08.12.2015	296	6.5	86	0.728	55.50	100000	5.60	10000	150	7.24	70	0.002
09.12.2015	300	6.2	92	0.702	52.50	100000	5.30	10000	150	6.88	72	0.008
10.12.2014	285	6.7	94	0.649	46.31	100000	4.80	10000	150	7.02	68	0.007
11.12.2014	290	6.6	92	0.868	65.25	100000	6.50	10000	150	6.44	57	0.006
12.12.2014	288	6.8	98	0.71	54.00	100000	5.50	10000	150	6.26	61	0.006
13.12.2014	286	6.6	87	0.715	53.63	100000	5.50	10000	150	7.34	64	0.004
14.12.2014	295	6.9	94	0.74	55.31	100000	5.60	10000	150	6.58	89	0.004
15.12.2014	310	6.8	94	0.776	60.45	100000	6.20	10000	150	6.21	82	0.004
16.12.2014	302	6.6	92	0.763	58.89	100000	6.00	10000	150	6.7	65	0.006
17.12.2014	298	6.6	89	0.858	64.82	100000	6.50	10000	150	7.11	64	0.002
18.12.2014	305	6.8	94	0.783	60.24	100000	6.40	10000	150	6.45	58	0.005
19.12.2014	295	6.5	109	0.691	51.63	100000	5.20	10000	150	7.12	91	0.002
20.12.2014	299	6.2	96	0.877	67.28	100000	6.90	10000	150	7.02	55	0.004
21.12.2014	287	6.4	112	0.938	71.75	100000	7.50	10000	150	5.98	80	0.006
22.12.2014	295	7.0	82	0.098	14.75	100000	1.50	10000	150	6.42	94	0.002
23.12.2014	285	6.7	72	0.58	57	100000	6.00	10000	150	6.52	69	0.004
24.12.2014	305	7.0	69	0.288	38.12	100000	4.20	10000	150	6.15	84	0.005
25.12.2014	310	7.3	58	0.36	38.75	100000	4.20	10000	150	6.71	48	0.002
26.12.2014	321	6.0	64	0.248	40.12	100000	4.20	10000	150	6.49	57	0.006
27.12.2014	286	8.0	88	0.42	42.9	100000	4.50	10000	150	7.23	90	0.008
28.12.2014	299	6.1	82	0.21	29.9	100000	3.20	10000	150	6.4	67	0.004
29.12.2014	302	7.9	89	0.326	29.9	100000	4.00	10000	150	7.58	71	0.004
30.12.2014	305	7.2	95	0.510	53.4	100000	5.50	10000	150	6.34	62	0.006

31.12.2014	312	7.8	76	0.426	42.9	100000	4.50	10000	150	6.21	66	0.006
01.01.2015	286	7.2	99	0.18	28.6	100000	3.50	10000	150	6.80	86	0.006
02.01.2014	298	7.1	94	0.246	33.5	100000	3.50	10000	150	6.46	62	0.012
03.01.2015	299	6.9	102	0.46	52.3	100000	6.00	10000	150	6.27	76	0.008
04.01.2015	300	7.5	89	0.544	56.3	100000	6.00	10000	150	7.04	46	0.018
05.01.2015	310	7.5	109	0.318	38.8	100000	4.0	10000	150	7.26	66	0.006
06.01.2015	308	7.0	104	0.22	38.5	100000	4.2	10000	150	6.97	57	0.010
07.01.2015	296	6.8	96	0.348	37.0	100000	4.1	10000	150	6.2	82	0.004
08.01.2015	305	7.3	98	0.394	38.1	100000	4.1	10000	150	6.9	68	0.008
09.01.2015	314	6.9	101	0.44	39.3	100000	4.2	10000	150	6.08	49	0.008
10.01.2015	300	7.4	86	0.762	67.5	100000	7.1	10000	150	6.91	52	0.006
11.01.2015	288	6.4	107	0.94	72.0	100000	7.5	10000	150	5.98	48	0.004
12.01.2015	288	7.1	95	0.632	57.6	100000	6.2	10000	150	6.9	47	0.006
13.01.2015	298	7.9	112	0.482	44.7	100000	5.3	10000	150	7.6	49	0.010
14.01.2015	315	6.9	77	0.572	55.12	100000	6.4	10000	150	6.8	47	0.008
15.01.2015	308	7.1	84	0.44	38.5	100000	4.1	10000	150	7.0	50.	0.004
16.01.2015	306	6.4	104	0.712	61.2	100000	6.5	10000	150	5.8	48	0.010
17.01.2015	300	7.0	96	0.462	45	100000	5.5	10000	150	6.9	52	0.012
18.01.2015	298	6.8	77	0.848	74.5	100000	7.8	10000	150	5.97	46	0.008
19.01.2015	310	7.7	67	0.362	38.75	100000	4.2	10000	150	6.76	52	0.004
20.01.2015	315	7.2	74	0.254	39.37	100000	4.1	10000	150	6.89	47	0.01
21.01.2015	295	8.0	107	0.72	66.37	100000	7	10000	150	7.86	49	0.008
22.01.2015	298	6.8	95	0.422	44.7	100000	4.5	10000	150	6.39	58	0.012
23.01.2015	305	7.3	79	0.534	53.38	100000	5.8	10000	150	6.47	48	0.006
24.01.2015	300	6.0	116	0.282	30.00	100000	3.8	10000	150	5.84	41	0.006
25.01.2015	290	7.2	99	0.604	54.38	100000	6.3	10000	150	6.95	45	0.012
27.01.2015	310	7.4	90	0.438	38.75	100000	4.5	10000	150	7.40	44	0.006
28.01.2015	300	7.8	66	0.230	37.50	100000	4.2	10000	150	7.64	40	0.008
29.01.2015	300	8.2	118	0.440	52.50	100000	5.7	10000	150	7.90	52	0.008
30.01.2015	305	6.9	64	0.396	41.94	100000	4.5	10000	150	6.90	50	0.004
31.01.2015	305	7.1	106	0.282	26.69	100000	3	10000	150	7.00	48	0.016
01.02.2015	300	6.8	97	0.510	45.00	100000	4.5	10000	150	6.42	49	0.008
02.02.2015	296	7.9	56	0.836	74.0	100000	7.5	10000	150	7.48	24	0.008
03.02.2015	302	6.9	70	0.632	56.6	100000	6.2	10000	150	6.8	52	0.008
04.02.2015	302	6.1	92	0.452	45.3	100000	5.1	10000	150	5.96	49	0.006
05.02.2015	300	7.6	118	0.616	56.3	100000	6.2	10000	150	7.47	50	0.01
06.02.2015	305	6.5	99	1.332	114.4	100000	11.5	10000	150	6.5	46	0.004
07.02.2015	298	6.7	68	0.986	74.5	100000	7.8	10000	150	6.06	44	0.006
08.02.2015	300	6.5	102	0.520	45.0	100000	5.1	10000	150	5.99	41	0.008
09.02.2015	288	5.9	98	0.326	36.0	100000	4.0	10000	150	5.44	43	0.008
10.02.2015	290	7.0	72	0.280	29.0	100000	3.5	10000	150	6.82	45	0.010
11.02.2015	296	6.9	66	0.610	59.2	100000	6.2	10000	150	6.47	48	0.006
12.02.2015	310	6.9	77	0.810	77.5	100000	8.0	10000	150	6.40	54	0.008
13.02.2015	306	7.1	89	0.426	38.3	100000	4.2	10000	150	7.01	48	0.006
14.02.2015	310	7.4	119	0.698	62.0	100000	6.5	10000	150	7.15	44	0.004
15.02.2015	308	7.9	96	1.068	92.4	100000	9.5	10000	150	7.65	40	0.004
16.02.2015	299	7.5	66	1.726	149.5	100000	15.2	10000	150	7.16	48	0.012
17.02.2015	297	7.2	94	0.698	59.4	100000	6.5	10000	150	7.09	48	0.006

18.02.2015	297	7.8	107	0.09	14.9	100000	2.0	10000	150	7.16	56	0.008
19.02.2015	306	7.5	58	0.702	57.4	100000	6.5	10000	150	6.92	5	0.004
20.02.2015	302	6.7	62	0.596	52.9	100000	6.5	10000	150	6.56	49	0.006
21.02.2015	310	6.4	119	0.682	54.3	100000	6.5	10000	150	6.29	47	0.008
22.02.2015	300	6.6	81	0.47	37.5	100000	4.5	10000	150	5.98	59	0.010
23.02.2015	298	7.3	97	0.328	37.3	100000	4.2	10000	150	7.11	41	0.008
24.02.2015	290	7.8	99	0.480	36.3	100000	4.1	10000	150	7.50	50	0.006
25.02.2015	288	7.9	64	1.360	108.0	100000	11.1	10000	150	7.95	52	0.008
26.02.2015	300	7.8	108	0.620	56.3	100000	5.8	10000	150	7.64	42	0.010
27.02.2015	310	7.5	88	0.486	46.5	100000	4.8	10000	150	7.46	46	0.010
28.02.2015	320	8.0	71	0.724	60.0	100000	6.3	10000	150	7.95	50	0.004
01.03.2015	305	7.1	91	0.810	68.6	100000	7.1	10000	150	6.90	56	0.008
02.03.2015	289	7.2	64	0.758	65.0	100000	7.2	10000	150	7.1	52	0.014
03.03.2015	295	7.2	96	0.612	59.0	100000	6.5	10000	150	7.11	42	0.010
04.03.2015	296	6.4	117	0.714	66.6	100000	6.5	10000	150	6.3	51	0.008
05.03.2015	302	8.0	90	0.396	37.8	100000	4.1	10000	150	7.96	47	0.010
07.03.2015	305	7.3	79	0.280	38.1	100000	4.3	10000	150	7.28	42	0.016
08.03.2015	310	8.1	120	0.618	54.3	100000	5.8	10000	150	8.03	47	0.010
09.03.2035	315	6.8	104	0.426	55.1	100000	5.6	10000	150	6.59	48	0.018
10.03.2035	305	7.7	99	0.602	53.4	100000	5.5	10000	150	7.20	44	0.008
11.03.2035	298	7.1	89	0.512	44.7	100000	5.1	10000	150	6.67	55	0.012
12.03.2035	290	7.9	62	0.482	50.8	100000	5.1	10000	150	7.12	50	0.010
13.03.2035	295	6.8	95	0.652	51.6	100000	5.3	10000	150	5.90	48	0.020
14.03.2035	290	8.1	124	0.294	29.0	100000	3.2	10000	150	7.98	51	0.012
15.03.2035	296	6.1	84	0.416	37.0	100000	4.5	10000	150	5.74	55	0.010
16.03.2015	298	7.7	108	0.662	59.6	100000	6.5	10000	150	6.9	55	0.008
17.03.2015	290	6.9	94	0.604	54.4	100000	6.0	10000	150	6.17	42	0.012
18.03.2015	292	6.9	101	0.412	36.5	100000	5.0	10000	150	6.81	48	0.010
20.03.2015	300	6.2	72	0.588	52.5	100000	5.5	10000	150	5.96	56	0.008
21.03.2015	300	7.0	119	0.328	37.5	100000	4.2	10000	150	6.82	50	0.014
22.03.2015	310	6.2	99	0.592	54.3	100000	6.1	10000	150	6.01	42	0.010
23.03.2015	305	5.9	78	0.620	53.4	100000	5.5	10000	150	5.25	50	0.006
24.03.2015	302	6.8	88	0.518	45.3	100000	5.0	10000	150	6.5	56	0.014
25.03.2015	300	7.4	80	0.678	56.3	100000	6.0	10000	150	7.17	49	0.016
26.03.2015	300	6.9	106	0.594	52.5	100000	5.5	10000	150	6.81	51	0.012
27.03.2015	295	7.1	67	0.086	36.9	100000	5.0	10000	150	7.02	60	0.010
28.03.2015	310	7.9	98	1.746	155.0	100000	15.0	10000	150	7.16	46	0.016
29.03.2015	310	7.1	107	0.610	62.0	100000	6.5	10000	150	6.91	46	0.008
30.03.2015	308	7.1	100	0.54	53.9	100000	5.4	10000	150	7.04	52	0.012
31.03.2015	300	6.9	86	0.498	52.5	100000	5.4	10000	150	6.72	64	0.018

iv. Continuous monitoring of all drinking water sources for Cr(VI) of Mine water should be done and reports furnished.

Status- Monitoring of drinking water sources inside mine are being done continuously for all the parameters along with Cr(VI). The analysis report is confirming the drinking water standard. The analysis report of the same is given in **Table-2.**

[Table-2: Drinking Water Analysis Report]

DRINKING WATER ANALYSIS REPORT OCTOBER 2014 TO MARCH 2015

M/s BALASORE ALLOYS LIMITED

KALIAPANI CHROMITE MINES

Station 1:Administrative Building									
SL. NO	PARAMETERS	UNITS	STANDARDS						
			(IS:10500)	14-Oct	14-Nov	14-Dec	15-Jan	15-Feb	15-Mar
1	pH	-	6.5-8.5	7.1	7.1	7.36	7.84	7.58	6.58
2	Odour	-	Unobjectionable	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	-	Agreeable	AL	AL	AL	AL	AL	AL
5	Turbidity	NTU	5(max)	1.1	1	3	4	6	4
6	Chloride(as Cl)	Mg/L	250(max)	6.1	7.2	7.6	6.1	5.8	5.6
7	Residual Free Chlorine	Mg/L	0.2(min)	ND	ND	ND	ND	ND	ND
8	Total Dissolved Solids	Mg/L	500(max)	163	136	123	108	98	112
9	Total Hardness(as CaCO3)	Mg/L	300(max)	57	50	58	42	46	40
10	Iron(as Fe)	Mg/L	0.3(max)	0.19	0.23	0.2	0.18	0.16	0.18
11	Calcium(as Ca)	Mg/L	75(max)	14.1	14.1	13.8	13.2	11.6	10.8
12	Magnesium(as Mg)	Mg/L	30(max)	12.3	8.2	7.8	6.4	6.1	7.2
13	Sulphate(as SO_4)	Mg/L	200(max)	11.7	9.2	8.9	7.5	8.8	9.4
14	Manganese(as Mn)	Mg/L	0.1(max)	BDL	BDL	BDL	BDL	BDL	BDL
15	Nitrate(as NO_3)	Mg/L	45(max)	0.44	0.44	0.41	0.35	0.28	0.33
16	Alkalinity(as CaCO3)	Mg/L	200(max)	43	39	36	28	26	24
17	Chromium(as Cr^{6+})	Mg/L	0.05	0.018	0.036	0.02	0.018	0.014	0.012
18	Fluorides(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)	0.024	0.32	0.29	0.23	0.21	0.24
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	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	Mg/L	....	0.2	0.46	0.42	0.34	0.32	....

DRINKING WATER ANALYSIS REPORT OCTOBER 2014 TO MARCH 2015

M/s BALASORE ALLOYS LIMITED

KALIAPANI CHROMITE MINES

Station: Mines Canteen

SL. NO	PARAMETERS	UNITS	STANDARDS						
			(IS:10500)	14-Oct	14-Nov	14-Dec	15-Jan	15-Feb	15-Mar
1	pH	-	6.5-8.5	7.3	7.54	7.72	7.24	7.36	7.16
2	Odour	-	Unobjectionable	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	-	Agreeable	AL	AL	AL	AL	AL	AL
5	Turbidity	NTU	5(max)	1.4	2	1	2	4	6
6	Chloride(as Cl)	Mg/L	250(max)	6.6	7.9	8.1	6.8	6.4	6.0
7	Residual Free Chlorine	Mg/L	0.2(min)	ND	ND	ND	ND	ND	ND
8	Total Dissolved Solids	Mg/L	500(max)	172	155	161	162	152	142
9	Total Hardness(as CaCO3)	Mg/L	300(max)	54	69	63	59	54	58
10	Iron(as Fe)	Mg/L	0.3(max)	0.21	0.2	0.18	0.14	0.12	0.14
11	Calcium(as Ca)	Mg/L	75(max)	14.8	12.6	12.2	11.6	12.9	14.2
12	Magnesium(as Mg)	Mg/L	30(max)	12.7	9.6	8.4	7.8	7.6	6.6
13	Sulphate(as SO_4)	Mg/L	200(max)	12.1	11.3	11.1	10.4	11.2	13.4
14	Manganese(as Mn)	Mg/L	0.1(max)	BDL	BDL	BDL	BDL	BDL	BDL
15	Nitrate(as NO_3)	Mg/L	45(max)	0.41	0.46	0.38	0.3	0.33	0.28
16	Alkalinity(as CaCO3)	Mg/L	200(max)	41	42	40	38	34	30
17	Chromium(as Cr^{6+})	Mg/L	0.05	0.02	0.029	0.026	0.024	0.020	0.018
18	Fluorides(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)	0.24	0.36	0.32	0.28	0.26	0.28

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	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	Mg/L	....	0.19	0.54	0.5	0.46	....	....

v. Morbidity pattern which is a sensitive indicator of ill health with regard to Cr related diseases need to be done.

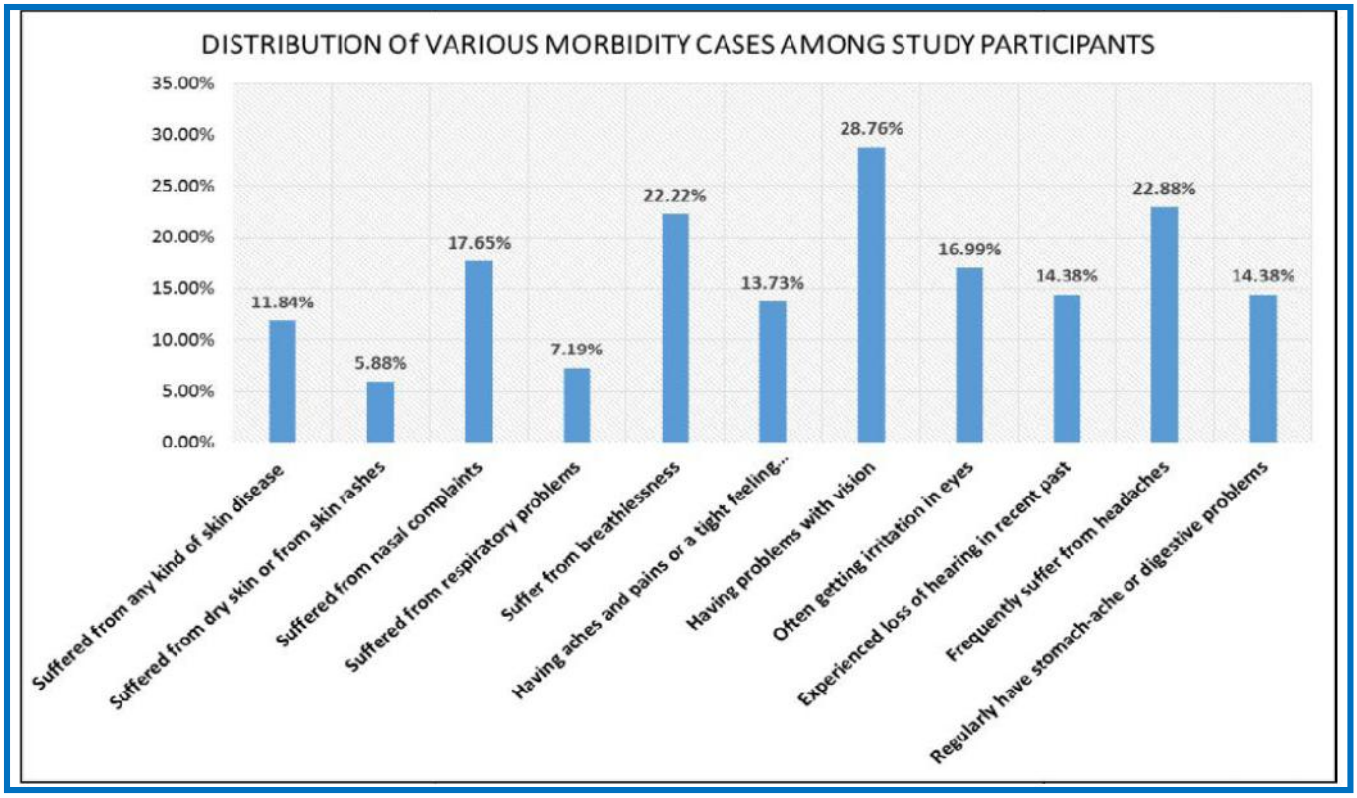
Status- A morbidity pattern study has been done during November & December 2014 by engaging Asian Institute of Public Health, Bhubaneswar with overall aim to create baseline data base on current status of occupational health risks especially morbidity pattern with regard to Chromium and air born dust associated with the facility & identify unhealthy behaviour of exposers. The major findings and morbidity pattern are given below.

MAJOR FINDINGS:

- With regards to availability of medical facilities, as per majority (72.85%) of the population the facilities were not adequate. And only 27% participants responded positively.
- 55% of the respondents reported that the canteen facility was adequate and according to the rest the facility was inadequate.
- According to one fourth of the respondents, the cold drinking water facility was inadequate.
- Around 21% of the respondents say that, availability of washing facility was inadequate.
- As per 66% of the respondents the toilet facility was inadequate only 33% respondents were satisfied by the facility
- According to only 28% of the employees the physical working environment was adequate and suitable.
- The analysis revealed that 53% of the employees believed that the steps taken against dust generation were adequate, while the others felt it was inadequate.
- 22% participants revealed that they usually suffer from breathlessness while performing physical activities.
- After the analysis it came to light that in the last five years, muscular problems or joint problems was the greatest cause of morbidity among the study participants; followed by long-term neck or back complaints, high blood pressure and stomach complaints.

MORBIDITY PATTERN:

The assessment on the morbidity status among the study participants shows the following morbidity pattern:



Morbidity	% of Morbidity
Suffered from any kind of skin disease	11.84%
Suffered from dry skin or from skin rashes	5.88%
Suffered from nasal complaints	17.65%
Suffered from respiratory problems	7.19%
Suffer from breathlessness	22.22%
Having aches and pains or a tight feeling in the chest or around the heart	13.73%
Having problems with vision	28.76%
Often getting irritation in eyes	16.99%
Experienced loss of hearing in recent past	14.38%
Frequently suffer from headaches	22.88%
Regularly have stomach-ache or digestive problems	14.38%

The findings of assessment show that, problems with vision (28%), Breathlessness (22%), Headache (22%) are the major contributors towards the current morbidity conditions. Hence it is hereby concluded that, there is no definite pattern/figure to be mentioned as the key indicator of the morbidity resulting from chrome related exposure rather it indicate that the pattern of morbidity follows the general trend of villages or urban areas elsewhere.

Based upon the outcome of result, action shall be taken.

vi. Mine water discharge and/or any waste water shall be properly treated in an ETP/s for the removal of hexavalent chromium and to meet the prescribed standards before reuse/discharge. The run off from OB dumps and other surface run off shall be analyzed for hexavalent chrome and in case its concentration is found higher than the permissible limit, the waste water should be treated before discharge/reuse.

Status- For treatment of Cr+6 in mine discharge water an up graded Effluent Treatment Plant of capacity 445KL/Hr has been established with the recommendation of IIT, Kharagpur. The raw water from mines is properly treated in the ETP for the removal of hexavalent chromium. The treated water has been monitored on daily basis and meeting the prescribed standards before reuse/discharge. The analysis report of treated water is given in **Table-1.**

PHOTO-1: New Up-Graded ETP of capacity 445KL/Hr

Figure-1: New up-graded ETP of capacity 445KL/Hr Process Flow Diagram

Run off from OB dumps and other surface run-off are being monitored on fortnightly basis during monsoon period at two different station inside ML area. However channelization of all surface run-off water to ETP for proper treatment is on progress through settling pit and pumping arrangement. Report of the surface runoff analysis given in **Table-3**. The photo of the same is shown as **Photo: 2.**

[Table-3: Surface run-off analysis report]

KALIAPANI CHROMITE MINES									
M/s BALASORE ALLOYS LTD.									
SURFACE RUN OFF ANALYSIS REPORT									
Period				Jul-2014		August-2014		September-2014	
Sl. No.	Parameter	Unit	Prescribed standard	SRF-1	SRF-2	SRF-1	SRF-2	SRF-1	SRF-2
1	Ph	.....	5.5-9.0	6.52	6.85	6.46	6.62	6.9	7.1
2	TSS	mg/L	100	92	87	81	93	78	88
3	Cr+6	mg/L	0.1	0.069	0.072	0.072	0.066	0.077	0.085

Figure-2: Graph showing level of different parameters of Surface run-off

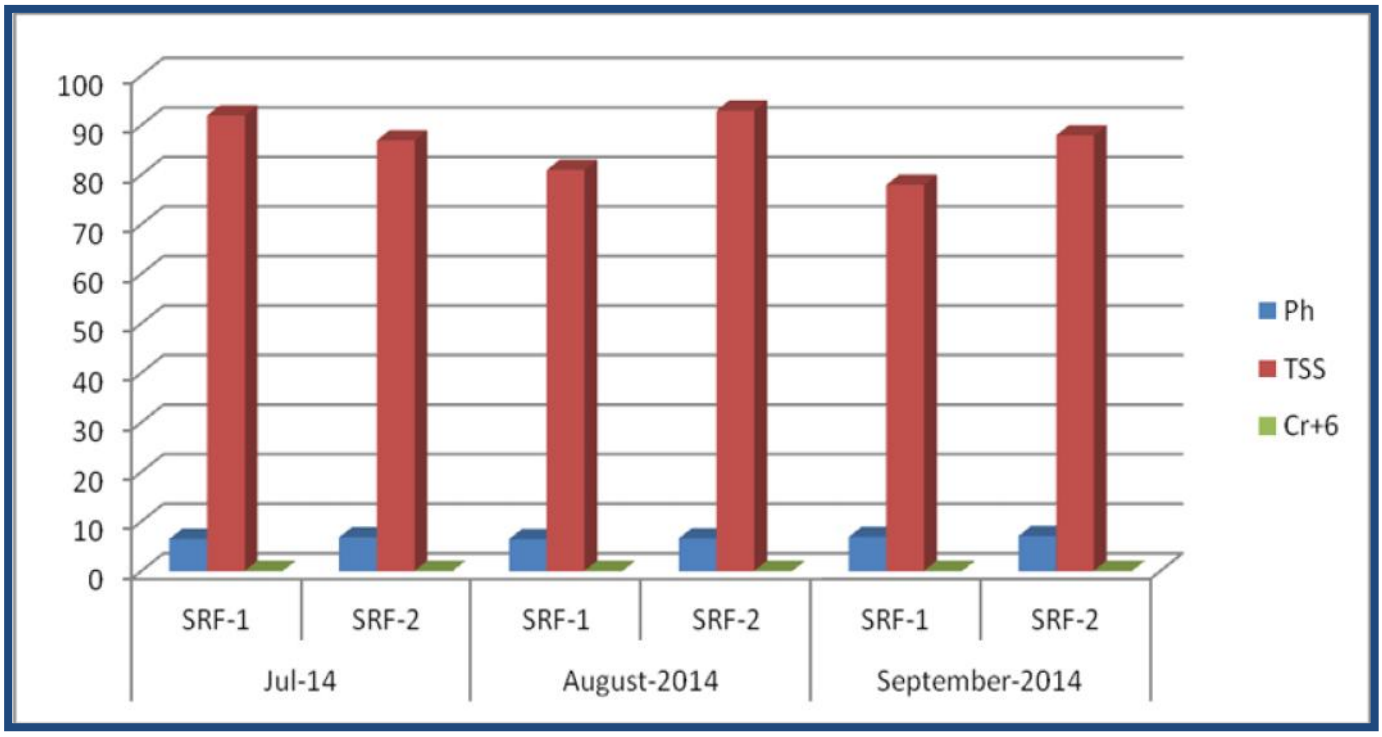


PHOTO-2: Showing concrete drain to channelize surface run-off to ETP through settling pit

vii. **The project proponent shall obtain Consent to Establish and Consent to Operate from the State Pollution Control Board, Odisha and effectively implement all the conditions stipulated therein.**

Status- Consent to establish has obtained from SPCB,Odisha vide letter No. 18196/ IND-II-NOC- 5723 dated 08.10.2013 & Consent to Operate has obtained from SPCB,Odisha vide letter No. 557/ IND-I-CON-2576 dated 12.01.2015. Copy of the same are attached as **Annexure- II & III.** All the conditions stipulated in Consent to Establish and Consent to Operate are effectively implemented.

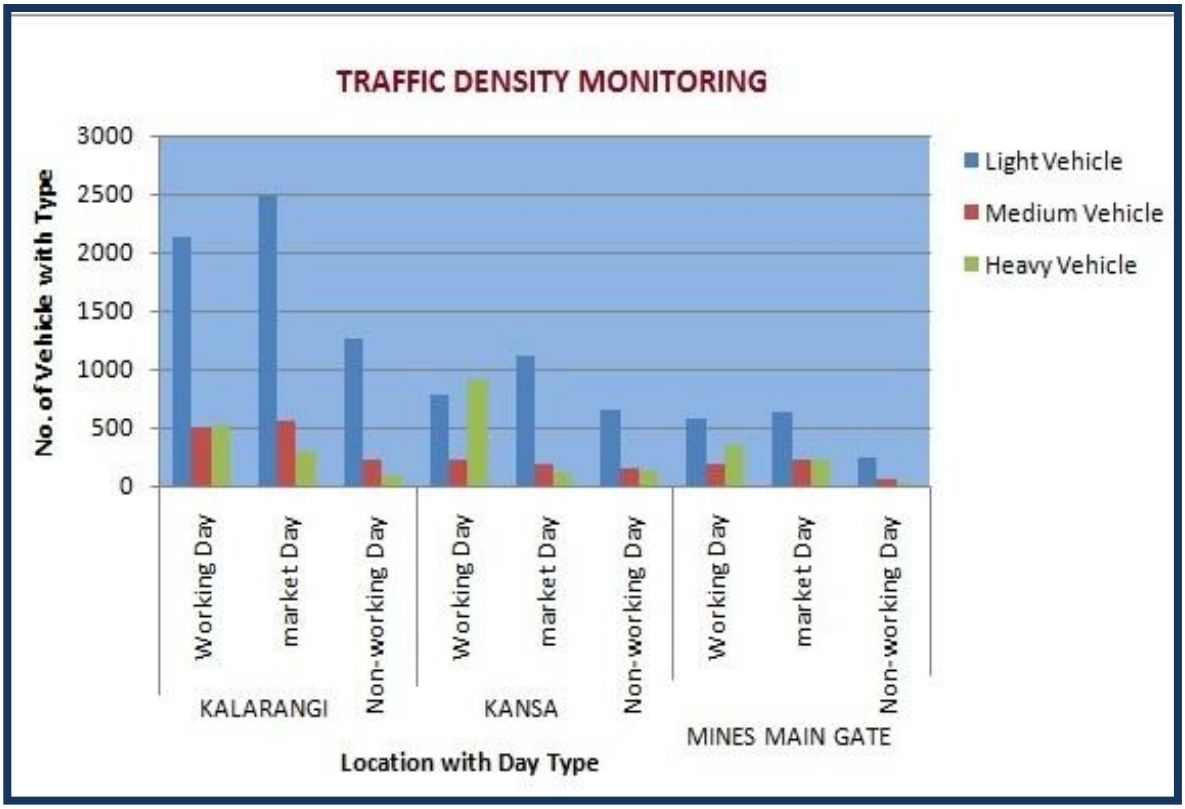
viii. **Traffic density on the route of mineral transportation shall be regularly monitored and report shall be submitted along with compliance report.**

Status- Traffic density is being monitored on the route of mineral transportation at three locations and the monitoring report is given in **Table-4.**

[Table-4: Traffic Density Monitoring Report]

TRAFFIC DENSITY MONITORING REPORT							
M/s BALASORE ALLYS LIMITED							
KALIAPANI CHROMITE MINES							
Sl. No.	**Location**	**Date**	**Day**	**Light Vehicle**	**Medium Vehicle**	**Heavy Vehicle**	**Total**
1	KALARANGI	30.03.2015	Working Day	2126	491	519	3136
		18.04.2015	market Day	2474	547	293	3314
		19.04.2015	Non-working Day	1256	223	100	1579
2	KANSA	30.03.2015	Working Day	775	226	899	1900
		18.04.2015	market Day	1104	193	105	1402
		19.04.2015	Non-working Day	643	154	127	924
3	MINES MAIN GATE	30.03.2015	Working Day	576	177	350	1103
		18.04.2015	market Day	631	231	230	1092
		19.04.2015	Non-working Day	245	58	27	330

Figure-3: Graph showing traffic density monitoring



ix. As part of ambient air quality monitoring during operational phase of the project, the air samples shall also be analysed for their mineralogical composition and records maintained.

Status- Mineralogical composition as part of Ambient air quality is being monitored in six locations of core and buffer zone of the lease area. The air samples are also being analysed for the free silica content. The analysis report of the same is given in the **Table-5 & 6.**

[Table- 5: Mineralogical Composition in Ambient Air Quality]

MINERALOGICAL COMPOSITION IN AMBIENT AIR QUALITY
KALIAPANI CHROMITE MINES,M/s BALASORE ALLOYS LIMITED

Monitoring Stations	Station Code	Range	PM10 (Micro Gram/Cu M)	PM 2.5 (Micro Gram/ CuM)	Pb(Micro Gram/Cu M)	Ni(Micro Gram/ CuM)	As (ng Gram/Cu M)
Rooftop of Administrative Building (Core Zone) Elevation-123M N21002'47" E85045'14.2"	AAQ-1	AVERAGE	76.3	33.0	0.00021	BDL	BDL
		MAX. VALUE	87.0	41.0	0.00026	BDL	BDL
		MIN.VALUE	64.0	26.0	0.00017	BDL	BDL
Rooftop of Bachelor Barrack Elevation-127M N21002'5.7" E85045'34.2"	AAQ-2	AVERAGE	77.3	30.5	0.00021	BDL	BDL
		MAX. VALUE	86.0	38.0	0.00026	BDL	BDL
		MIN.VALUE	62.0	21.0	0.00017	BDL	BDL
Open cast quarry (Core Zone) Elevation-155M N21° 01' 57.8" E85° 46' 01.2"	AAQ-3	AVERAGE	80.8	35.6	0.00021	BDL	BDL
		MAX. VALUE	90.0	44.0	0.00026	BDL	BDL
		MIN.VALUE	72.0	29.0	0.00017	BDL	BDL
Village Kaliapani (Buffer Zone) Elevation-122M N21° 03' 42.0" E85° 46' 19.3"	AAQ-4	AVERAGE	73.3	27.5	0.00020	BDL	BDL
		MAX. VALUE	82.0	35.0	0.00026	BDL	BDL
		MIN.VALUE	63.0	20.0	0.00017	BDL	BDL
Village Ransol (Buffer Zone) Elevation-113M N21° 03' 43.1" E85° 44' 32.2"	AAQ-5	AVERAGE	71.3	26.6	0.00020	BDL	BDL
		MAX. VALUE	78.0	34.0	0.00025	BDL	BDL
		MIN.VALUE	62.0	19.0	0.00017	BDL	BDL
Village Sukrangi (Buffer Zone) Elevation-153M N21° 02' 44.5" E85° 48' 16.3"	AAQ-6	AVERAGE	70.6	25.6	0.00020	BDL	BDL
		MAX. VALUE	79.0	32.0	0.00025	BDL	BDL
		MIN.VALUE	60.0	20.0	0.00017	BDL	BDL
NORMS(ANNUAL)			**60.0**	**40.0**	**.....**	**20**	**6**
NORMS(24HOURS)			**100.0**	**60.0**	**1**	**.....**	**.....**

[Table- 6: Free silica content in Ambient Air Quality]

Analysis result of Free Silica					
M/s BALASORE ALLOYS LIMITED					
KALIAPANI CHROMITE MINES					
Sl. No	**Date of Monitoring**	**Monitoring Location**	**Station Code**	**PM10 (Microgram/M3)**	**Free Silica in PM10(%)**
1	17.01.2015	Office Area	A1	71.000	3.9
2	17.01.2015	Bachelor Barrack	A2	76.0	4.2
3	17.01.2015	Quarry	A3	86.000	4.4
4	17.01.2015	Kaliapani Village	A4	78.0	3.2
5	17.01.2015	Ransol Village	A5	63.0	2.9
6	17.01.2025	Sukrangi Village	A6	82.0	3.5

x. Mineral handling plant shall be provided with adequate number of high efficiency dust extraction system. Loading and unloading areas including all the transfer points should also have efficient dust control arrangements. These should be properly maintained and operated.

Status- Mineral handling plant in the form of chrome ore beneficiation is practising as a fully wet process. Water sprinkling has been going on through two nos.water tankers viz . 12 KL and one 10KL capacity at loading and unloading points including transfer points regularly to control the generation of dust.

PHOTO-3 : SHOWING COB PLANT

PHOTO-4 : SHOWING FIXED SPRINKLER AND MOBILE SPRINKLER IN OPERATION

PHOTO-5 : SHOWING MOBILE SPRINKLER

xi. Effective safeguard measures such as conditioning of ore with water, regular water sprinkling shall be carried out in critical areas prone to air pollution and having high levels of particulate matter such as around crushing and screening plant, loading and unloading point and transfer points. It should be ensured that the Ambient Air Quality parameters conform to the norms prescribed by the Central Pollution Control Board in this regard.

Status- Regular water sprinkling has been going on engaging two nos of water tankers of 12 KL and 10KL capacity at critical areas prone to air pollution and having high levels of particulate matter such as loading and unloading point, transfer points, haul road & stack area etc. Fixed type of sprinklers also installed near COB plant to arrest the fugitive dust. Photo of the same is shown as **Photo- 2,3 & 4.**

Ambient air quality monitoring is being done by establishing 6 ambient air monitoring stations in core and buffer zone of the lease area. The analysis result of all the parameters conform to the norms prescribed by the Central Pollution Control Board. The monitoring data for the period October 2014 to March 2015 is given in **Table-7**.

[Table-7: Ambient air quality for the period Oct'2014 to March 2015]

KALIAPANI CHROMITE MINES

M/s BALASORE ALLOYS LIMITED

Ambient air quality for the period Oct'2014 to March 2015

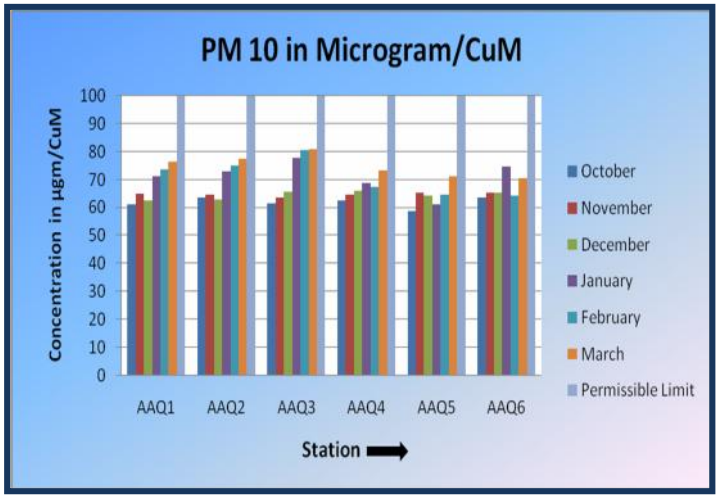
Sl. No.	Monitoring Stations	Month	Range	CONCENTRATION in µg/m^3				CO (Result in mg/CuM)	NH_3(Micro Gram/CuM)	O_3(Micro Gram/CuM)
				PM 10	PM 2.5	SO_2	NO_x			
1	Rooftop of Administrative Building (Core Zone) Elevation-123M N21002'47" E85045'14.2"	October-14	AVERAGE	61.1	22.1	6.9	13.0	1.1	BDL	5.3
			MAX. VALUE	66.8	28.4	9.3	16.9	1.1	BDL	6.9
			MIN.VALUE	53.4	17.7	5.2	9.4	1.1	BDL	4.1
		November-14	AVERAGE	64.8	25.0	7.1	12.7	1.1	BDL	6.6
			MAX. VALUE	68.4	27.5	9.3	15.7	1.1	BDL	8.8
			MIN.VALUE	59.4	22.6	5.2	10.2	1.1	BDL	5.4
		December-14	AVERAGE	62.7	24.4	7.2	13.3	1.1	BDL	6.8
			MAX. VALUE	68.2	27.9	8.9	14.8	1.1	BDL	8.2
			MIN.VALUE	56.7	21.6	6.1	11.8	1.1	BDL	5.9
		January-15	AVERAGE	71.3	25.3	6.7	11.5	0.3	BDL	7.1
			MAX. VALUE	85.0	33.0	8.1	13.9	0.4	BDL	7.9
			MIN.VALUE	52.0	18.0	4.8	9.4	0.2	BDL	6.5
		February-15	AVERAGE	73.6	29.5	6.9	12.2	0.3	BDL	7.0
			MAX. VALUE	82	37	8.4	14.6	0.4	BDL	7.8
			MIN.VALUE	61	21	4.8	9.9	0.2	BDL	6.5
		March-15	AVERAGE	76.3	33.0	7.2	12.7	0.3	#DIV/0!	7.1
			MAX. VALUE	87.0	41.0	8.8	15.1	0.4	0	7.9
			MIN.VALUE	64.0	26.0	5.2	10.1	0.2	0.0	6.5
2	Rooftop of Bachelor Barrack Elevation-127M N21002'5.7" E85045'34.2"	October-14	AVERAGE	63.6	22.6	6.7	12.5	1.145	BDL	5.4
			MAX. VALUE	67.3	25.2	8.4	15.8	1.145	BDL	6.6
			MIN.VALUE	56.2	18.1	5.7	9.9	1.145	BDL	4.1
		November-14	AVERAGE	64.5	24.1	7.2	14.0	1.145	BDL	7.7
			MAX. VALUE	66.2	26.4	9.2	15.	1.145	BDL	11.2

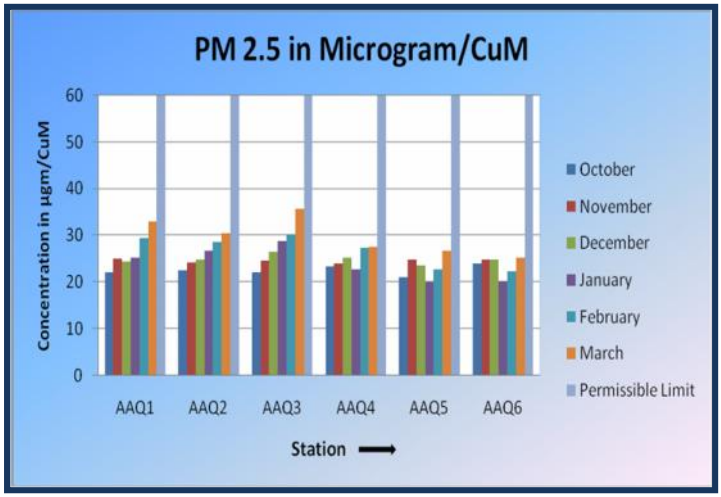
							6			
			MIN.VALUE	62.9	21.8	5.9	11.6	1.145	BDL	6.4
		December-14	AVERAGE	62.9	24.9	7.3	13.5	1.145	BDL	7.5
			MAX. VALUE	67.8	26.7	8.8	15.9	1.145	BDL	10.5
			MIN.VALUE	57.2	22.7	5.8	11.8	1.145	BDL	5.9
		January-15	AVERAGE	72.8	26.6	6.8	12.2	0.3	BDL	7.1
			MAX. VALUE	83.0	34.0	8.0	13.9	0.4	BDL	7.9
			MIN.VALUE	59.0	17.0	4.4	9.6	0.2	BDL	6.6
		February-15	AVERAGE	74.9	28.5	6.7	12.1	0.3	BDL	7.1
			MAX. VALUE	87	35	8	14.4	0.4	BDL	7.9
			MIN.VALUE	54	19	4.6	9.3	0.2	BDL	6.5
		March-15	AVERAGE	77.3	30.5	7.4	12.7	0.300	BDL	7.1
			MAX. VALUE	86.0	38.0	8.4	14.8	0.400	BDL	7.8
			MIN.VALUE	62.0	21.0	5.2	10.1	0.200	BDL	6.5
3	Open cast quarry (Core Zone) Elevation-155M N21° 01' 57.8" E85° 46' 01.2"	October-14	AVERAGE	61.6	22.0	8.1	15.6	1.145	BDL	6.5
			MAX. VALUE	64.8	26.8	10.4	21.4	1.145	BDL	8.3
			MIN.VALUE	56.9	18.6	6.9	11.9	1.145	BDL	4
		November-14	AVERAGE	63.6	24.7	7.8	13.0	1.145	BDL	8.6
			MAX. VALUE	66.8	26.6	10.5	15.6	1.145	BDL	12.7
			MIN.VALUE	59.6	23.3	5.6	9.4	1.145	BDL	6.4
		December-14	AVERAGE	65.5	26.5	7.4	12.9	1.145	BDL	8.0
			MAX. VALUE	68.4	29.1	9.6	15.1	1.145	BDL	11.4
			MIN.VALUE	60.2	23.3	5.4	10.2	1.145	BDL	5.8
		January-15	AVERAGE	77.8	28.7	7.4	12.9	0.3	BDL	7.2
			MAX. VALUE	86.0	35.0	8.3	14.8	0.4	BDL	7.9
			MIN.VALUE	69.0	21.0	5.7	10.8	0.2	BDL	6.7
		February-15	AVERAGE	80.0	30.3	7.4	13.3	0.3	BDL	7.1
			MAX. VALUE	91	39	8.7	14.8	0.4	BDL	7.9
			MIN.VALUE	71	25	6.4	11.3	0.2	BDL	6.6
		March-15	AVERAGE	80.8	35.6	8.0	13.7	0.313	BDL	7.1
			MAX. VALUE	90.0	44.0	9.8	15.8	0.400	BDL	7.9
			MIN.VALUE	72.0	29.0	6.8	11.1	0.200	BDL	6.5
4	Village Kaliapani (Buffer Zone) Elevation-122M N21° 03' 42.0" E85° 46' 19.3"	October-14	AVERAGE	62.6	23.4	6.1	12.2	1.145	BDL	4.0
			MAX. VALUE	66.1	27.2	7.4	15.5	1.145	BDL	5.1
			MIN.VALUE	54.5	18.5	4.7	9.3	1.145	BDL	3
		November-14	AVERAGE	64.6	23.9	7.5	12.1	1.145	BDL	7.3
			MAX.	68.1	28.9	10	14	1.145	BDL	10.6

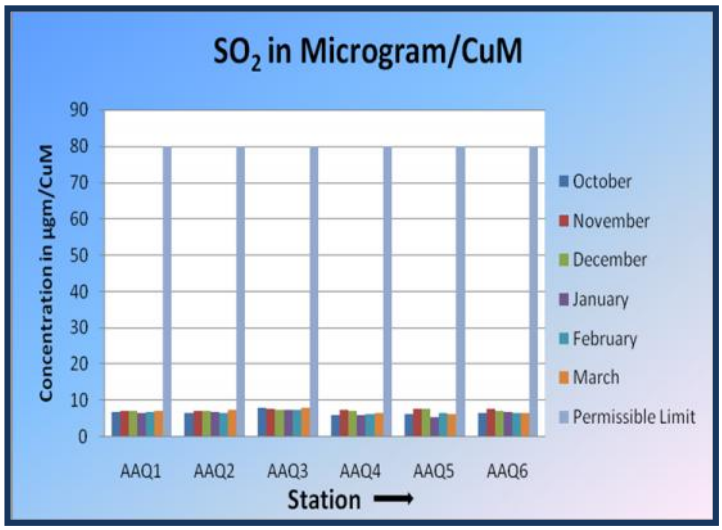
			VALUE			4	6			
			MIN.VALUE	60.7	21.3	5.4	9.6	1.145	BDL	5.8
		December-14	AVERAGE	66.0	25.2	7.3	12.8	1.145	BDL	7.4
			MAX. VALUE	70.2	27.6	9.4	15.6	1.145	BDL	9.6
			MIN.VALUE	61.8	22.7	5.7	10.9	1.145	BDL	6.1
		January-15	AVERAGE	68.8	22.7	6.1	11.8	0.3	BDL	7.2
			MAX. VALUE	78.0	28.0	7.2	13.8	0.4	BDL	7.9
			MIN.VALUE	49.0	16.0	4.6	9.2	0.0	BDL	6.6
		February-15	AVERAGE	67.5	27.3	6.4	11.6	0.3	BDL	7.2
			MAX. VALUE	76	35	8.8	14.2	0.4	BDL	7.9
			MIN.VALUE	60	18	4.6	9.2	0.2	BDL	6.6
		March-15	AVERAGE	73.3	27.5	6.7	11.2	0.340	BDL	6.8
			MAX. VALUE	82.0	35.0	7.9	14.1	0.400	BDL	7.7
			MIN.VALUE	63.0	20.0	4.9	9.4	0.200	BDL	6.3
5	Village Ransol (Buffer Zone) Elevation-113M N21° 03' 43.1" E85° 44' 32.2"	October-14	AVERAGE	58.9	21.1	6.2	11.7	1.145	BDL	4.3
			MAX. VALUE	62.5	25.1	7.1	14.0	1.145	BDL	5.7
			MIN.VALUE	52.3	17.8	5.4	9.7	1.145	BDL	3
		November-14	AVERAGE	65.3	24.9	7.6	12.5	1.145	BDL	8.2
			MAX. VALUE	68.2	27.3	11.4	16.3	1.145	BDL	12.8
			MIN.VALUE	62.5	21.2	5.6	10.6	1.145	BDL	5.4
		December-14	AVERAGE	64.2	23.6	7.6	13.3	1.145	BDL	7.9
			MAX. VALUE	67.2	26.3	9.6	15.8	1.145	BDL	9.3
			MIN.VALUE	60.6	20.8	5.9	11.7	1.145	BDL	6.4
		January-15	AVERAGE	61.2	20.3	5.5	10.9	0.3	BDL	7
			MAX. VALUE	71.0	26.0	6.9	12.1	0.4	BDL	7.7
			MIN.VALUE	46.0	14.0	4.3	9.1	0.2	BDL	6.5
		February-15	AVERAGE	64.5	22.8	6.5	11.0	0.3	BDL	7.1
			MAX. VALUE	73	29	8.1	13.1	0.4	BDL	7.8
			MIN.VALUE	55	16	4.3	9.2	0.2	BDL	6.5
		March-15	AVERAGE	71.3	26.6	6.3	11.0	0.325	BDL	6.9
			MAX. VALUE	78.0	34.0	7.9	12.4	0.400	BDL	7.8
			MIN.VALUE	62.0	19.0	4.6	9.4	0.200	BDL	6.5
6	Village Sukrangi (Buffer Zone) Elevation-153M N21° 02' 44.5" E85° 48' 16.3"	October-14	AVERAGE	63.5	23.9	6.7	12.5	1.145	BDL	4.1
			MAX. VALUE	68.7	25.1	8.3	16.1	1.145	BDL	5
			MIN.VALUE	60.6	19.9	5.3	9.4	1.145	BDL	3.2
		November-14	AVERAGE	65.3	24.9	7.6	12.6	1.145	BDL	8.7
			MAX. VALUE	69.2	28.6	10.3	16.8	1.145	BDL	11.2
			MIN.VALUE	61.3	21.1	6.7	8.4	1.145	BDL	6.4
		December	AVERAGE	65.3	24.9	7.2	12.	1.145	BDL	8.1

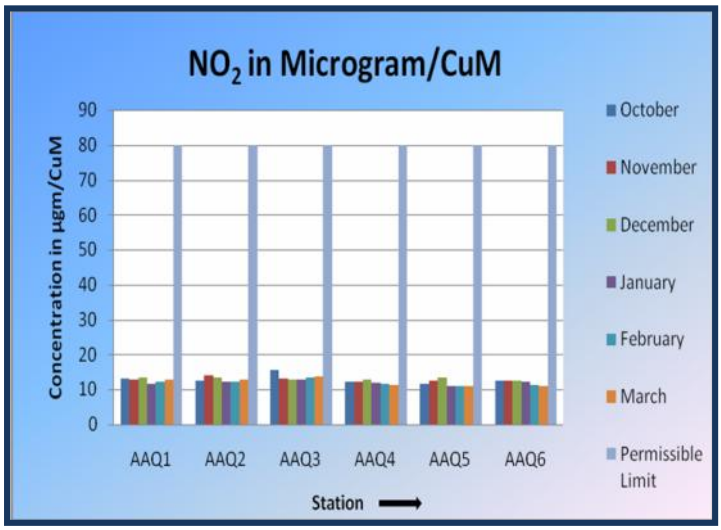
		-14					5			
			MAX. VALUE	68.7	29.1	10.6	15.4	1.145	BDL	9.8
			MIN.VALUE	59.4	20.8	5.4	9.3	1.145	BDL	6.8
		January-15	AVERAGE	74.7	26.2	6.9	12.3	0.3	BDL	7.1
			MAX. VALUE	84.0	33.0	8.0	13.8	0.4	BDL	7.8
			MIN.VALUE	58.0	19.0	4.4	9.5	0.2	BDL	6.5
		February-15	AVERAGE	64.4	22.4	6.6	11.4	0.3	BDL	7.3
			MAX. VALUE	74	29	8.3	13.6	0.4	BDL	7.9
			MIN.VALUE	54	13	4.6	9.9	0.2	BDL	6.7
		March-15	AVERAGE	70.6	25.6	6.5	11.0	0.283	BDL	7.0
			MAX. VALUE	79.0	32.0	7.9	12.1	0.400	BDL	7.8
			MIN.VALUE	60.0	20.0	4.8	9.9	0.200	BDL	6.5
NORMS(ANNUAL)				**60.0**	**40.0**	**50.0**	**40.0**	**4(1Hr)**	**100.0**	**180(1Hr)**
NORMS(24HOURS)				**100.0**	**60.0**	**80.0**	**80.0**	**2.0**	**400.0**	**100(8Hr)**

Figure-4: Graph showing concentration of PM10, PM2.5, SO2 & NOx in different stations during oct'14 to Mar'15









xii. The project authority shall implement suitable conservation measures to augment ground water resources in the area in consultation with the Regional Director, Central Ground Water Board.

Status- Rooftop rain water harvesting structure has implemented to augment ground water resources in the area in consultation with the Regional Director, Central Ground Water Board. The photo of the same is shown as **Photo: 6.**

PHOTO- 6: SHOWING ROOFTOP RAIN WATER HARVESTING STRUCTURE

xiii. Regular monitoring of ground water level and quality shall be carried out in and around the mine lease by establishing a network of existing wells and installing new piezo meters during the mining operation. The periodic monitoring [(at least four times in a year- pre-monsoon (April- May), monsoon (August), post-monsoon (November) and winter (January); once in each season)] shall be carried out in consultation with the State Ground Water Board/Central Ground Water Authority and the data thus collected may be sent regularly to the Ministry of Environment and Forests and its Regional Office Bhubaneswar, the Central Ground Water Authority and the Regional Director, Central Ground Water Board. If at any stage, it is observed that the groundwater table is getting depleted due to the mining activity; necessary corrective measures shall be carried out.

Status- Regular monitoring of ground water level and quality has been carried out at six different locations in the core zone and buffer zone. The periodic monitoring [(four times in a year- pre-monsoon (April- May), monsoon (August), post-monsoon (November) and winter (January); once in each season)] has been carried out in consultation with the State Ground Water Board/Central Ground Water Authority and the data thus collected is being sent regularly to the Ministry of Environment and Forests and its Regional Office Bhubaneswar, the Central Ground Water Authority and the Regional Director, Central Ground Water Board.

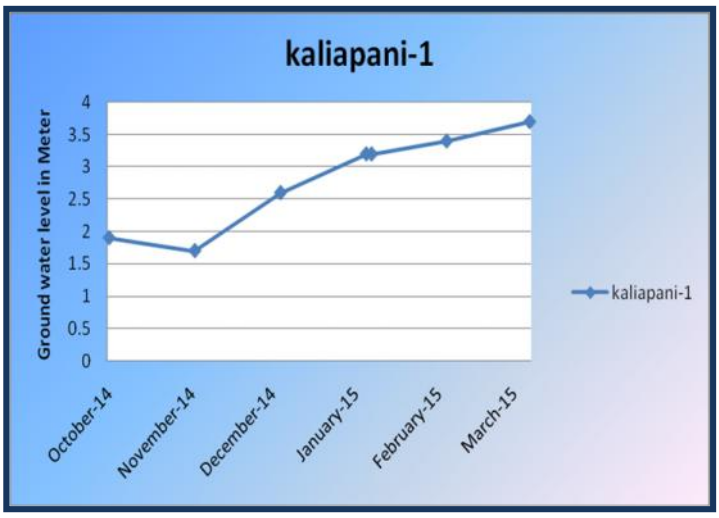
Report of Ground water level and quality are given in **Table-8,9** & **10** respectively.

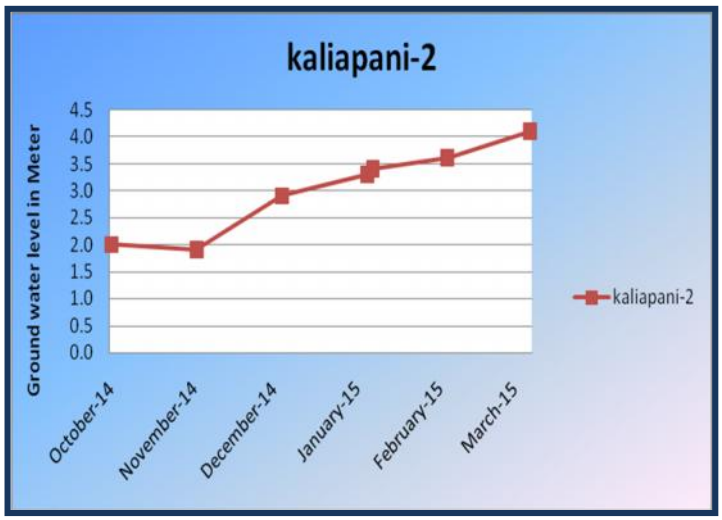
However monitoring report reveals that there is no significant impact on ground water table due to mining activity.

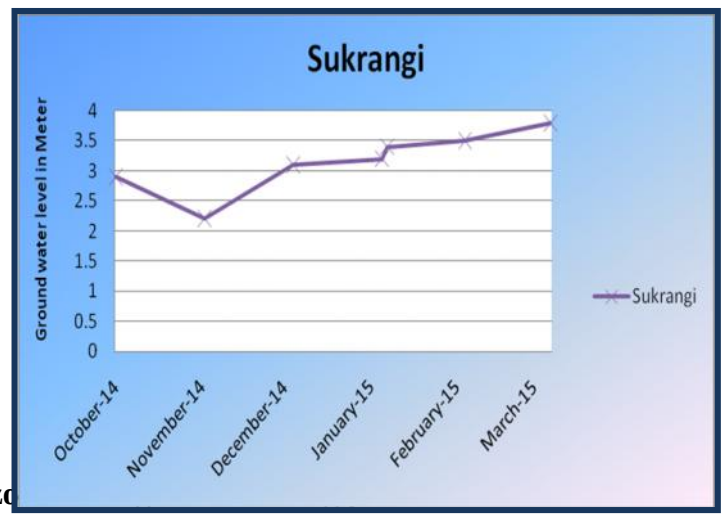
[Table-8: Ground water level in buffer zone]

Ground Water Level report for the period October 2014- March 2015							
M/S Balasore Alloys Ltd, Kaliapani Chromite Mines							
Village	Water Table (MBGL) October-14	Water Table (MBGL) November-14	Water Table (MBGL) December-14	Water Table (MBGL) January-15	Water Table (MBGL) February-15	Water Table (MBGL) March-15	Water Table (MBGL) April-15
Buffer Zone							
kaliapani-1	1.9	1.7	2.6	3.2	3.2	3.4	3.7
kaliapani-2	2.0	1.9	2.9	3.3	3.4	3.6	4.1
Tisco Hutting	4.1	4.0	4.6	4.8	4.7	4.8	6.4
Sukrangi	2.9	2.2	3.1	3.2	3.4	3.5	3.8

Figure-5: Graph showing ground water level in buffer zone



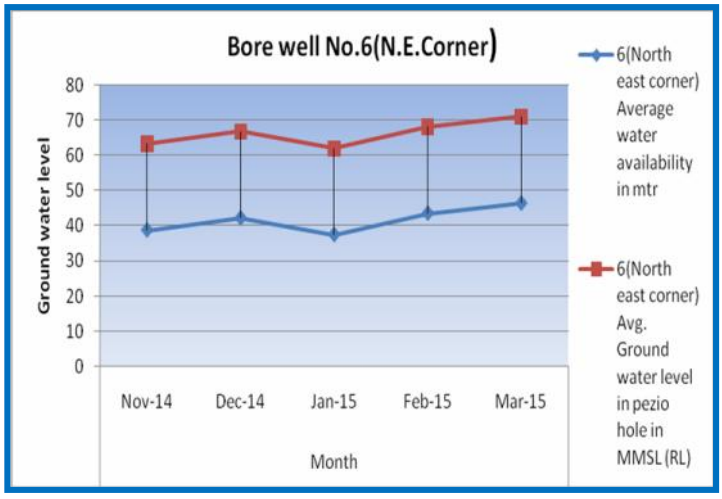


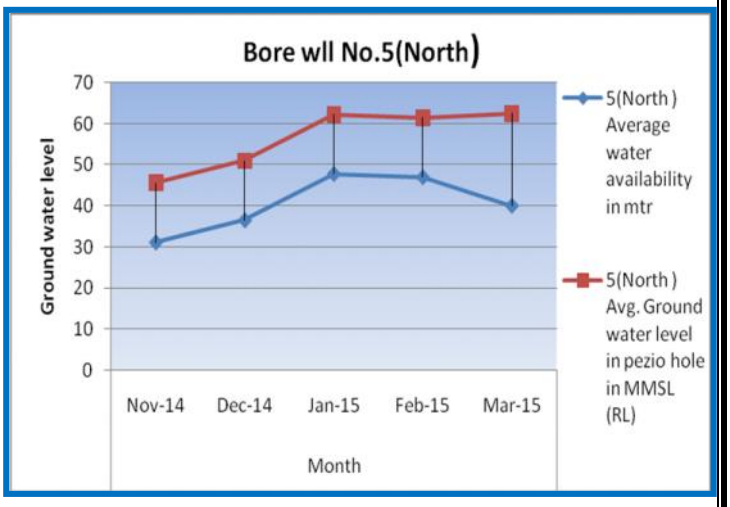


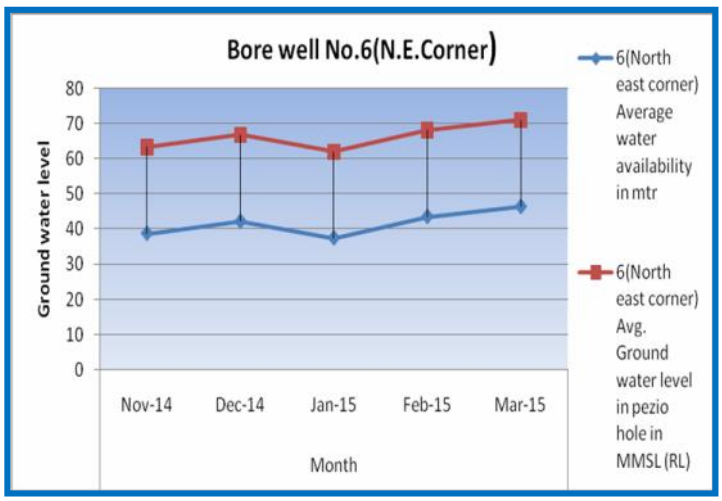
[Table-9: Ground water level in core zone]

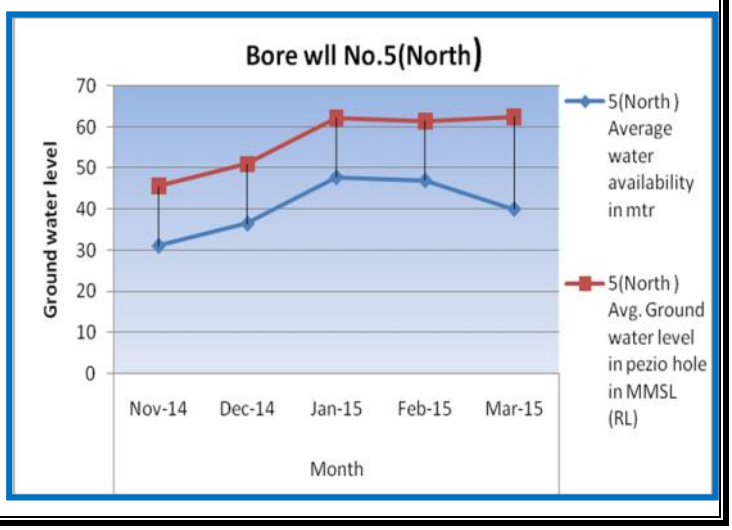
Ground water level through piezometer reading November 2014 to March 2015 M/s Balasore Alloys Ltd, Kaliapani Chromite Mines							
Location	**Particulars**	**Month**					**Average**
		Nov-14	**Dec-14**	**Jan-15**	**Feb-15**	**Mar-15**	
3(east DG side)	Average water availability in mtr	22.775	27.3	26.225	26.78	26.78	**25.97**
	Avg. Ground water level in pezio hole in MMSL (RL)	66.134	70.659	69.584	70.139	70.139	**69.33**
1(soth west corner)	Average water availability in mtr	28.4	29.975	68.593	28.86	27.14	**36.59**
	Avg. Ground water level in pezio hole in MMSL (RL)	67.018	68.593	68.593	67.478	65.758	**67.49**
6(north east corner)	Average water availability in mtr	38.775	42.225	37.45	43.62	46.5	**41.71**
	Avg. Ground water level in pezio hole in MMSL (RL)	63.377	66.827	62.052	68.222	71.102	**66.32**
5(north)	Average water availability in mtr	31.025	36.425	47.7	46.925	39.975	**40.41**
	• Avg. Ground water level in pezio hole in MMSL (RL)	45.588	50.988	62.263	61.488	62.538	**56.57**

Figure-6: Graph showing ground water level in core zone through establishing peizo meters









[Table-10: Ground water Quality Analysis Result]

Kaliapani Chromite Mines, M/s Balasore Alloys Ltd									
GROUND WATER QUALITY									
Period- POST-MONSOON (NOVEMBER 2014) 2014-15									
Date of Sampling- 24.11.2014									
Sl No.	PARAMETERS	Unit	STANDARDS (IS:10500)	Results of Post- Monsoon period -2014-15					
				GW1	GW2	GW3	GW4	GW5	GW6
1	pH	....	6.5-8.5	7.52	6.54	6.88	7.26	7.39	7.58
2	Odour	....	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	....	Agreeable	AL	AL	AL	AL	AL	AL
5	Turbidity,	NTU	5(Max)	5.0	3.0	4.0	2.0	5.0	3.0
6	Chloride (as Cl)	mg/l	250(Max)	9.6	8.5	10.8	9.6	11.2	10.9
7	Residual Free Chlorine	mg/l	0.2(Min)	ND	ND	ND	ND	ND	ND
8	Total Dissolved Solids	mg/l	500(Max)	125	119	182	178	122	118
9	Total Hardness	mg/l	300(Max)	66	58	64	52	54	58
10	Iron as Fe	mg/l	0.3(Max)	0.22	0.19	0.17	0.22	0.25	0.22
11	Calcium(as Ca)	mg/l	75(Max)	14.20	13.50	12.80	14.60	11.60	14.10
12	Magnesium(as Mg)	mg/l	30(Max)	8.20	9.70	9.20	7.60	8.70	8.90
13	Sulphates(as SO4)	mg/l	200(Max)	16.60	14.70	13.40	14.70	12.80	12.40
14	Manganese(as Mn)	mg/l	0.1(Max)	BDL	BDL	BDL	BDL	BDL	BDL
15	Nitrate(as NO3)	mg/l	45(Max)	0.65	0.49	0.57	0.60	0.55	0.70
16	Alkalinity as CaCO3	mg/l	200(Max)	24	38	26	29	27	24
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)	0.11	0.14	0.22	0.21	0.23	0.21
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	….	0.65	0.59	0.60	0.55	0.63	0.58

Kaliapani Chromite Mines, M/s BALASORE ALLOYS LTD

GROUND WATER QUALITY

Period- WINTER (JANUARY 2015) 2014-15

Date of Sampling- 10.01.2015

Sl No.	PARAMETERS	Unit	STANDARDS (IS:10500)	Results of Winter period -2014-15					
				GW1	GW2	GW3	GW4	GW5	GW6
1	pH	….	6.5-8.5	7.24	7.35	6.87	6.49	7.48	7.63
2	Odour	….	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	….	Agreeable	AL	AL	AL	AL	AL	AL
5	Turbidity,	NTU	5(Max)	4.0	6.0	2.0	3.0	4.0	2.0
6	Chloride (as Cl)	mg/l	250(Max)	9.1	7.2	9.4	9.6	11.4	8.9
7	Residual Free Chlorine	mg/l	0.2(Min)	ND	ND	ND	ND	ND	ND
8	Total Dissolved Solids	mg/l	500(Max)	113	98	167	154	107	92
9	Total Hardness	mg/l	300(Max)	62	50	58	48	52	56
10	Iron as Fe	mg/l	0.3(Max)	0.18	0.17	0.14	0.20	0.22	0.19
11	Calcium(as Ca)	mg/l	75(Max)	13.4	12.2	10.8	12.4	10.4	12.2
12	Magnesium(as Mg)	mg/l	30(Max)	7.90	9.20	8.60	6.90	8.40	8.60
13	Sulphates(as SO4)	mg/l	200(Max)	16.20	13.40	12.80	12.60	10.60	11.60
14	Manganese(as Mn)	mg/l	0.1(Max)	BDL	BDL	BDL	BDL	BDL	BDL
15	Nitrate(as NO3)	mg/l	45(Max)	0.58	0.44	0.53	0.54	0.51	0.60
16	Alkalinity as CaCO3	mg/l	200(Max)	22	30	22	27	23	18
17	Chromium(as Cr+6)	mg/l	0.05	0.022	0.034	0.026	0.012	0.024	0.026
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)	0.10	0.12	0.19	0.16	0.21	0.17
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	….	0.56	0.52	0.59	0.50	0.60	0.54

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

GW- GROUND WATER
U/O- UNOBJECTIONABLE
CL- COLOURLESS
ND- NOT DETECTED
BDL- BELOW DETECTION LIMIT

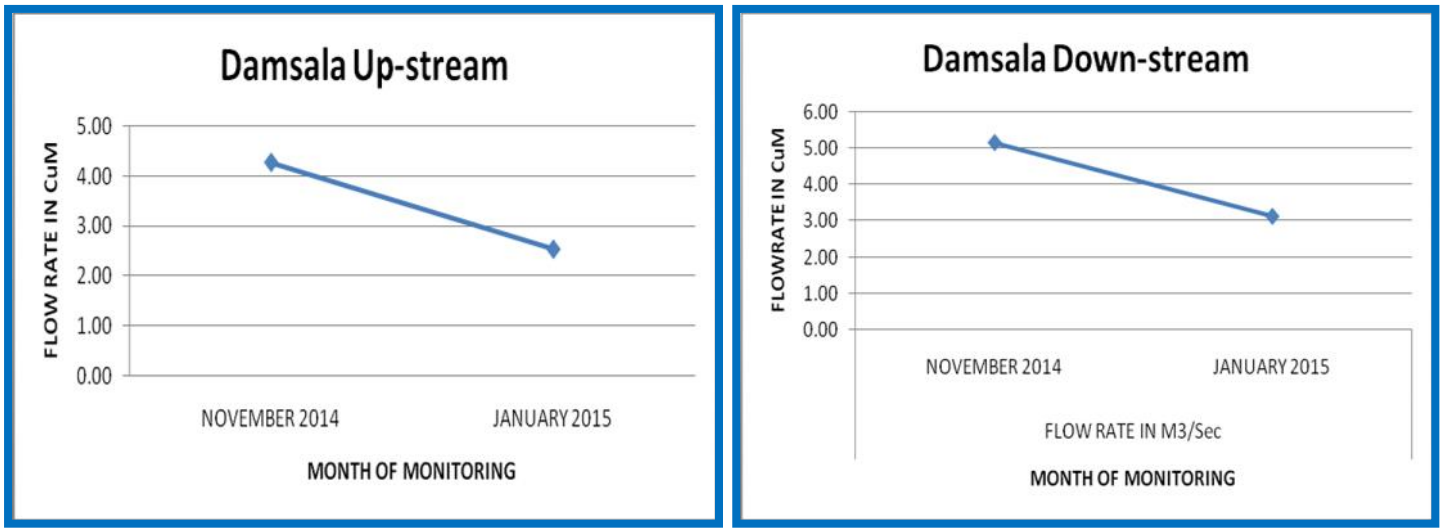
xiv. The project proponent shall regularly monitor the flow rate of the natural water streams flowing adjacent to the mine lease and maintain the records.

Status- The flow rate of Damsala Nallah is being regularly monitored at both upstream and downstream on quarterly basis and record has maintained. The flow rate in post-monsoon (November'2014) and winter (January'2015) season is given in the **Table-11.**

[Table-11: Flow rate of up-stream & down-stream at Damsala Nallah]

Flow rate of up-stream & down-stream at Damsala Nallah					
Kaliapani Chromite Mines of M/s Balasore Alloys Limited					
Sl No	**Location**	**Co-ordinate of the location**	**Month of Monitoring**	**Flow rate m^3/s**	**Flow rate IN CUSEC**
1	**Damsala U/S**	**$21^0$02'35.9"N $85^0$45'27.01"E**	**Nov-14**	**4.27**	**150.66**
2	**Damsala D/S**	**$21^0$02'10.47"N $85^0$44'31.92"E**		**5.16**	**182.22**
3	**Damsala U/S**	**$21^0$02'35.9"N $85^0$45'27.01"E**	**Jan-15**	**2.54**	**89.53**
4	**Damsala D/S**	**$21^0$02'10.47"N $85^0$44'31.92"E**		**3.14**	**110.72**

Figure-7: Graph showing Flow rate of Damsala nallah at up-stream & down-stream



xv. The reclaimed and rehabilitated area shall be afforested. Monitoring and management of rehabilitated areas shall continue until the vegetation becomes self-sustaining. Compliance status shall be submitted to the Ministry of Environment & Forests and its Regional Office located at Bhubaneswar on six monthly basis.

Status- Total 33100 Sqm area of dump slope has been covered by Geotextile and 10200 Sqm area covered with grass turffing**.** Year wise afforestation has been undertaken. The details of the same is given in **Table- 12 & 13.**
Photo of Plantation, coirmatting and Grass turffing attached as Photo 6,7 & 8.
Regular Monitoring and management of rehabilitated areas is being done. Six monthly report of the same is being submitted to respective authority regularly.

[Table- 12: Details of Coir matting and grass turffing on dump slope]

DETAILS OF COIR MATTING & GRASS TURFING ON DUMP SLOPE
KALIAPANI CHROMITE MINES,M/s BALASORE ALLOYS LIMITED

DETAILS OF COIRMATTING		
YEAR	**LOCATION**	**AREA (SQM)**
2010-11	Dump 2	5000
2011-12	Dump-3(IMFA side)	4500
2012-13	Dump-3(IMFA side)	4500
2013-14	Dump-3(Mahagiri side)	8600
2014-15	Dump-1 (North)	8500
2015-16	Dump 3 (North side)	2000
Total		**33100**
DETAILS OF GRASS TURFING		
YEAR	**LOCATION**	**AREA (SQM)**
2013-14	Dump-1 (Access road) slope	5000
2014-15	Dump-1 (Access road) slope	5200
Total		**10200**

[Table-13: Details of Plantation inside ML area]

DETAILS OF INSIDE ML AREA PLANTATION					
M/s BALASORE ALLOYS LIMITED					
KALIAPANI CHROMITE MINES					
YEAR	**LOCATION**	**AREA (Ha.)**	**NOS.**	**SURVIVAL %**	**SPECIES**
2010-11	Dump-1	2	11020	87%	Acacia, Rain tree, Alstonia, C siamia, Pongamia,, Golmohur, Cashew, Teak, Jamun, Mango, Guava, Polyalthia, Thivetia, Citrus, Jackfruit, Albizzia, Neem & Bamboo)
	Inside mines premises (COB, Canteen & weigh bridge)		95	87%	
2011-12	Dump-3	0.8	1600	97%	C siamia, Pongamia, Albizzia, Bamboo, Sisoo, Teak, Casuarina, T chebula, Babul, Simuli, Bombax, Gmelina, Neem, Acacia, A mangium, Jackfruit, Guava, Citrus, Cashew, Pomegranate, Sapota and Alstonia
	Dump-1	1.2	8375	97%	
2012-13	Dump-3	0.2	250		C siamea, Pongamia, Albizzia, Bamboo, Sisoo, Teak, Jamun, Casuarina, Golmohur, Peltophorum, Alstonia, Neem, Gmelina, Acacia, Mimosups, Mango, Jackfruit, Guava, Citrus, Pomegranate, Sapota, Cashew and A mangium
	Dum-1	1.8	8150		
2013-14	Dump-3, slope	0.8	6882	95%	Peltophorum, Acacia, Albizzia, Pongamia, Tamarind, Almond, Neem and Arjun
	Safety zone, Dump-3	0.5	3018	95%	
	Dump-1 (Access road)	0.7	2085	97%	
2014-15	Dump-1 (Access road) slope and safety zone	1	2565	96%	Peltophorum, Acacia, A mangium, C siamia, Albizzia, Mango, Custard apple, Guava
	Dump-1 (North)	1.25	4000	96%	Peltophorum, Acacia, Albizzia, Bouganvillea, Simarouba, Gliricidia and Arjun
	Dump-2 slope and safety zone	4	12000	98%	Peltophorum, Acacia, Albizzia, Bouganvillea, Simarouba, Gliricidia, A mangium, Eucalyptus, Bamboo, Subbabul and Arjun
TOTAL			**60040**		

PHOTO-7: SHOWING PLANTATION INSIDE ML AREA

PHOTO-8: SHOWING COIR MATTING OVER DUMP SLOPE

PHOTO-9: SHOWING GRASS TURFING OVER DUMP SLOPE

xvi. Dimension of the retaining wall at the toe of temporary over burden dumps and OB benches within the mine to check run-off and siltation shall be based on the rain fall data.

Status- Dimension of the retaining wall at the toe of temporary over burden dumps and OB benches within the mine to check run-off and siltation are based on the rain fall data. The details of the structures dump wise is given in **Table- 14.** Photo of the same is attached as **Photo- 9 & 10.**

[Table- 14: Dimensional details of garland drain, retaining wall and settling pond]

DETAILS OF ENVIRONMENTAL PROTECTION MEASURES DUMP WISE							
Sl. No.	Location	Area	Garland Drain		Retaining Wall		Settling Pit
			Running Length in Mtr.	Breadth X Depth in Mtr.	Running Length in Mtr.	Breadth X Height In Mtr.	
1	Dump 1	12.74 Ha	Nil	NA	224	1 x 2	90 Cum & 192 CUM
2	Dump 2	5.22 Ha	116	1 X 1	116	1 x 2	Nil
3	Dump 3	13.64 Ha	830	1 X 1	694	1 x 2	972 Cum & 288 Cum

PHOTO- 10: SHOWING RETAINING WALL & GARLAND DRAIN

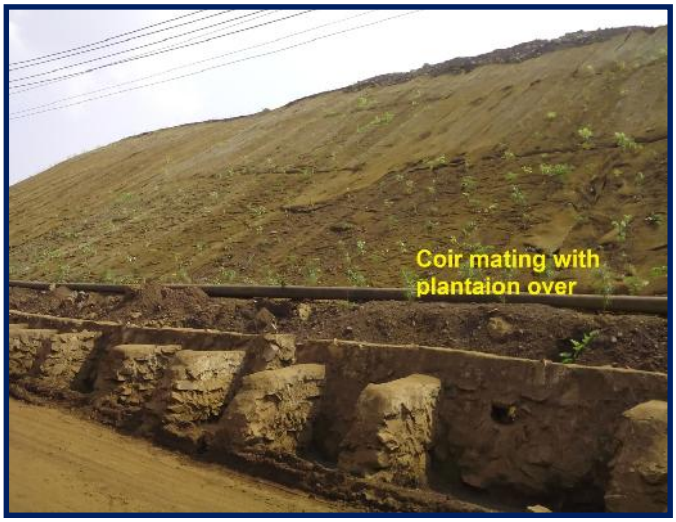


PHOTO- 11: SHOWING SETTLING POND

xvii. Plantation shall be raised in an area of 36.156 Ha. including a 7.5m wide green belt in the safety zone around the mining lease, backfilled and reclaimed area, around the higher benches of excavated void to be converted in to water body, roads etc. by planting the native species in consultation with the local DFO/Agriculture Department. The density of the trees should be around 2500 plants per Ha.

Status- Year wise plantation programme is being undertaken on dump slopes and safety zone area. The details of the plantation year wise is given in **Table- 13.**
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.

xviii. Effective safeguard measures such as regular water sprinkling shall be carried out in critical areas prone to air pollution and having high levels of SPM and RPM such as haul road, loading and unloading point and transfer points. It shall be ensured that the Ambient Air Quality parameters conform to the norms prescribed by the Central Pollution Control Board in this regard.

Status- Regular water sprinkling is being done by deploying two no 12 KL mobile water tanker and one nos of 10 KL mobile water tankers in critical areas prone to air pollution and having high levels of SPM & RPM such as loading and unloading point, transfer points, haul road & stack area etc. Fixed type of sprinklers also installed near COB plant to arrest the fugitive dust.

Ambient air quality monitoring is being done by establishing 6 ambient air monitoring stations in core and buffer zone of the lease area. The analysis result of all the parameters conform to the norms prescribed by the Central Pollution Control Board. The monitoring data for the period October 2014 to March 2015 is given in **Table-7**.

xix. Process water discharge and/or any waste water shall be properly treated to meet the prescribed standards before reuse/discharge. The runoff from temporary OB dumps and other surface run off shall be analyzed for iron and in case its concentration is found higher than the permissible limit, the waste water should be treated before discharge/reuse.

Status- Process water in COB plant is completely reused and the treated water from the ETP is used as make-up quantity. However the quantity of water dewatered from mine pit is properly treated through an up graded Effluent Treatment Plant of capacity 445KL/Hr established with the recommendation of IIT, Kharagpur. The treated water has been monitored on daily basis and meeting the prescribed standards before reuse/discharge. The analysis report of treated water is given in **Table-1.**

Run off from OB dumps and other surface run-off are being analyzed on fortnightly basis during monsoon period at two different station inside ML area and same will be followed in upcoming monsoon also with the analysis of the iron concentration in surface run-off. However channelization of all surface run-off water to ETP for proper treatment is on progress through settling pit and pumping arrangement. Report of the surface runoff analysis of last monsoon(July'2014-September'2014) given in **Table-3.**

xx. The decanted water from the beneficiation plant and slime/tailing pond shall be re-circulated within the mine and there shall be zero discharge from the mine.

Status- Total decanted water from the beneficiation plant & tailing/slime pond is reused in COB plant; hence no discharge of decanted effluents from the same.

xxi. Regular monitoring of the flow rate of the springs and perennial nallahs shall be carried out and records maintained.

Status- The flow rate of Damsala Nallah is being regularly monitored and record has maintained. The flow rate in post-monsoon (November'2014) and winter (January'2015) season is given in the **Table-11.**

xxii. Regular monitoring of water quality, upstream and downstream of natural water bodies shall be carried out and record of monitoring data should be maintained and submitted to Ministry of Environment and Forests, its Regional Office, Bhubaneswar, Central Groundwater Authority, Regional Director, Central Ground Water Board, State Pollution Control Board and Central Pollution Control Board.

Status- Monitoring of water quality, upstream and downstream of natural water bodies i.e Damsala Nallah is being carried out and record of monitoring data is maintained and submitted to Ministry of Environment and Forests, its Regional Office, Bhubaneswar, Central Groundwater Authority, Regional Director, Central Ground Water Board, State Pollution Control Board and Central Pollution Control Board. The analysis report of the same is given in **Table-15.**

[Table- 15: Surface water analysis result]

Kaliapani Chromite Mines

M/s BALASORE ALLOYS LTD

SURFACE WATER QUALITY

Period-Post Monsoon (NOVEMBER 2014) 2014-15

Date of Sampling: 24.11.2014

Sl No.	PARAMETERS	Unit	STANDARDS (IS:2296 CLASS C)	Results of Post-Monsoon period -2013		
				SW1	SW2	SW3
1	Colour	Hazen	300	Colourless	Colourless	Colourless
2	pH	....	6.5-8.5	7.26	7.44	7.57
3	Iron as Fe	mg/l	50	0.44	0.49	0.38
4	Chloride (as Cl)	mg/l	600	15.4	14.5	13.4
5	Fluoride as F	mg/l	1.5	0.08	0.09	0.07
6	Total Dissolved Solids	mg/l	1500	143	129	145
7	Total Suspended Solids	mg/l	.....	52	58	47
8	Manganese(as Mn)	mg/l	.....	0.045	0.038	0.052
9	Sulphates(as SO4)	mg/l	400	15.2	13.8	14.6
10	Nitrate(as NO3)	mg/l	50	0.46	0.37	0.45
11	Phenolic Compound as C_6H_5OH	mg/l	0.005	BDL	BDL	BDL
12	Mercury(as Hg)	mg/l	.....	BDL	BDL	BDL
13	Cadmium(as Cd)	mg/l	0.01	BDL	BDL	BDL
14	Chromium(as Cr+6)	mg/l	0.05	0.035	0.029	0.033
15	Total Chromium	mg/l	.....	0.48	0.44	0.54
16	Selenium(as Se)	mg/l	0.05	BDL	BDL	BDL
17	Arsenic(as As)	mg/l	0.2	BDL	BDL	BDL
18	Cyanide(as CN)	mg/l	0.05	BDL	BDL	BDL
19	Lead(as Pb)	mg/l	0.1	BDL	BDL	BDL
20	Zinc (as Zn)	mg/l	15	BDL	BDL	BDL
21	Nickel as Ni	mg/l	.....	0.31	0.29	0.23
22	Oil & Grease	mg/l	0.1	ND	ND	ND
23	Free Ammonia (NH_3	mg/l	.....	0.1	0.09	0.11
24	Coliform Organism	MPN/100 ml	5000	197	168	184
25	Bio-Assay Test	.....	90% of survival of fish after 96 hours in 100% effluent	98.00%	98.00%	98.00%

26	Dissolved Oxygen as O_2	mg/l	4	5.8	6.3	5.6
27	BOD, 3 days at 27^0C	mg/l	3	1.9	2.2	1.6
28	COD	mg/l	.....	5.4	6.2	5.4
29	Electrical Conductivity	µmhos/ms	.....	144	156	138
30	Phosphorous as P	mg/l	.....	0.38	0.29	0.35

Kaliapani Chromite Mines, M/s BALASORE ALLOYS LTD

SURFACE WATER QUALITY

Period-WINTER (JANUARY 2015) 2014-15, Date of Sampling: 14.01.2015

Sl No.	PARAMETERS	Unit	STANDARDS (IS:2296 CLASS C)	Results of Winter period -2014-15		
				SW1	SW2	SW3
1	Colour	Hazen	300	Colourless	Colourless	Colourless
2	pH	....	6.5-8.5	7.54	7.21	7.68
3	Iron as Fe	mg/l	50	0.36	0.38	0.32
4	Chloride (as Cl)	mg/l	600	14.2	12.5	11.2
5	Fluoride as F	mg/l	1.5	0.06	0.07	0.05
6	Total Dissolved Solids	mg/l	1500	134	123	129
7	Total Suspended Solids	mg/l	.....	46	56	42
8	Manganese(as Mn)	mg/l	.....	0.041	0.034	0.046
9	Sulphates(as SO4)	mg/l	400	15.2	13.2	11.6
10	Nitrate(as NO3)	mg/l	50	0.42	0.3	0.42
11	Phenolic Compound as C_6H_5OH	mg/l	0.005	BDL	BDL	BDL
12	Mercury(as Hg)	mg/l	.....	BDL	BDL	BDL
13	Cadmium(as Cd)	mg/l	0.01	BDL	BDL	BDL
14	Chromium(as Cr+6)	mg/l	0.05	0.028	0.024	0.03
15	Total Chromium	mg/l	.....	0.44	0.3	0.48
16	Selenium(as Se)	mg/l	0.05	BDL	BDL	BDL
17	Arsenic(as As)	mg/l	0.2	BDL	BDL	BDL
18	Cyanide(as CN)	mg/l	0.05	BDL	BDL	BDL
19	Lead(as Pb)	mg/l	0.1	BDL	BDL	BDL
20	Zinc (as Zn)	mg/l	15	BDL	BDL	BDL
21	Nickel as Ni	mg/l	.....	0.24	0.26	0.21
22	Oil & Grease	mg/l	0.1	ND	ND	ND
23	Free Ammonia (NH_3	mg/l	.....	0.08	0.11	0.06
24	Coliform Organism	MPN/10	5000	162	154	172

		0ml				
25	Bio-Assay Test	.....	90% of survival of fish after 96 hours in 100% effluent	98.00%	98.00%	98.00%
26	Dissolved Oxygen as O_2	mg/l	4	5.4	5.9	5.2
27	BOD, 3 days at 27^0C	mg/l	3	1.7	2	1.2
28	COD	mg/l	.....	4.8	5.8	4.8
29	Electrical Conductivity	µmhos/ ms	.....	132	148	128
30	Phosphorous as P	mg/l	.....	0.36	0.26	0.31

STATION	CODE	CO-ORDINATE	RL
DAMSALA NALLAH NEAR CHIRIGUNIA U/S	SW1	N21^{0}02'39.1'' E85^{0}46'21.4''	102
DAMSALA NALLAH NEAR CHINGUDIAPALA D/S	SW2	N21^{0}02'8.8'' E85^{0}44'27.8''	84
NEAR MINE BOUNDARY DISCHARGE	SW3	N21^{0}02'18.1'' E85^{0}45'33.2''	81

ABBREVIATIONS
SW- SURFACE WATER
U/O- UNOBJECTIONABLE
CL- COLOURLESS
ND- NOT DETECTED
BDL- BELOW DETECTION LIMIT

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

Status- Rooftop rain water harvesting structure has implemented to augment ground water resources in the area in consultation with the Regional Director, Central Ground Water Board. Photo of the same is given as **Photo-5.**

xxiv. Vehicular emissions shall be kept under control and regularly monitored. Measures shall be taken for maintenance of vehicles used in mining operations and in transportation of mineral from mine face to the beneficiation plant. The vehicles shall be covered with a tarpaulin and shall not be overloaded.

Status- Periodical maintenance of the vehicles used in mining operations and in transportation of mineral from mine face to the beneficiation plant is being ensured. Regular monitoring of vehicular emission also being done . For outside trucks carrying mineral from mine to plant are ensured valid Pollution Under Control Certificate. 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 PUC certificate of truck carrying material is attached as **Annexure-IV & Vehicular emission report given in table -16.** Photographs showing vehicles covered with tarpaulin is given as **Photo-12**.

Table:-16: Vehicular Emission Result

Sl.No.	Vehicle No.	Engine Make & Model	CO (%)	HC (ppm)	NOx (%)	Smoke (HSU)
1	OD-04-B-8780	MAN D-0836	0.010	63	25.38	34.56
2	OD-04-B-8779	MAN D-0836	0.016	82	34.21	42.58
3	OD-04-B-8782	MAN D-0836	0.027	56	32.58	55.01
4	OD-04-B-8778	MAN D-0836	0.047	86	39.47	56.55
5	OD-04-B-8784	MAN D-0836	0.066	35	40.52	61.25
6	OD-04-B-8785	MAN D-0836	0.053	42	22.96	44.37
7	OD-04-B-8781	MAN D-0836	0.062	97	32.30	36.21
8	OD-04-B-8783	MAN D-0836	0.081	67	25.57	33.41
9	OD-04-B-8776	MAN D-0836	0.116	112	48.21	56.84
10	OD-04-B-8777	MAN D-0836	0.024	46	23.58	32.12
Standard			3.0	1500	--	65

HOTO- 12: SHOWING VEHICLE COVERED WITH TARPAULINE

xxv. Sewage treatment plant shall be installed for the colony. ETP shall also be provided for workshop and wastewater generated during mining operation.

Status- We have no colony within the lease area. However for the treatment of the canteen waste water and organic waste installation of one STP of 40 KLD capacity is on progress.
The waste water generated during mining operation is properly treated through an up graded Effluent Treatment Plant of capacity 445 KL/Hr established with the recommendation of IIT, Kharagpur. The treated water has been monitored on daily basis and meeting the prescribed standards before reuse/discharge.

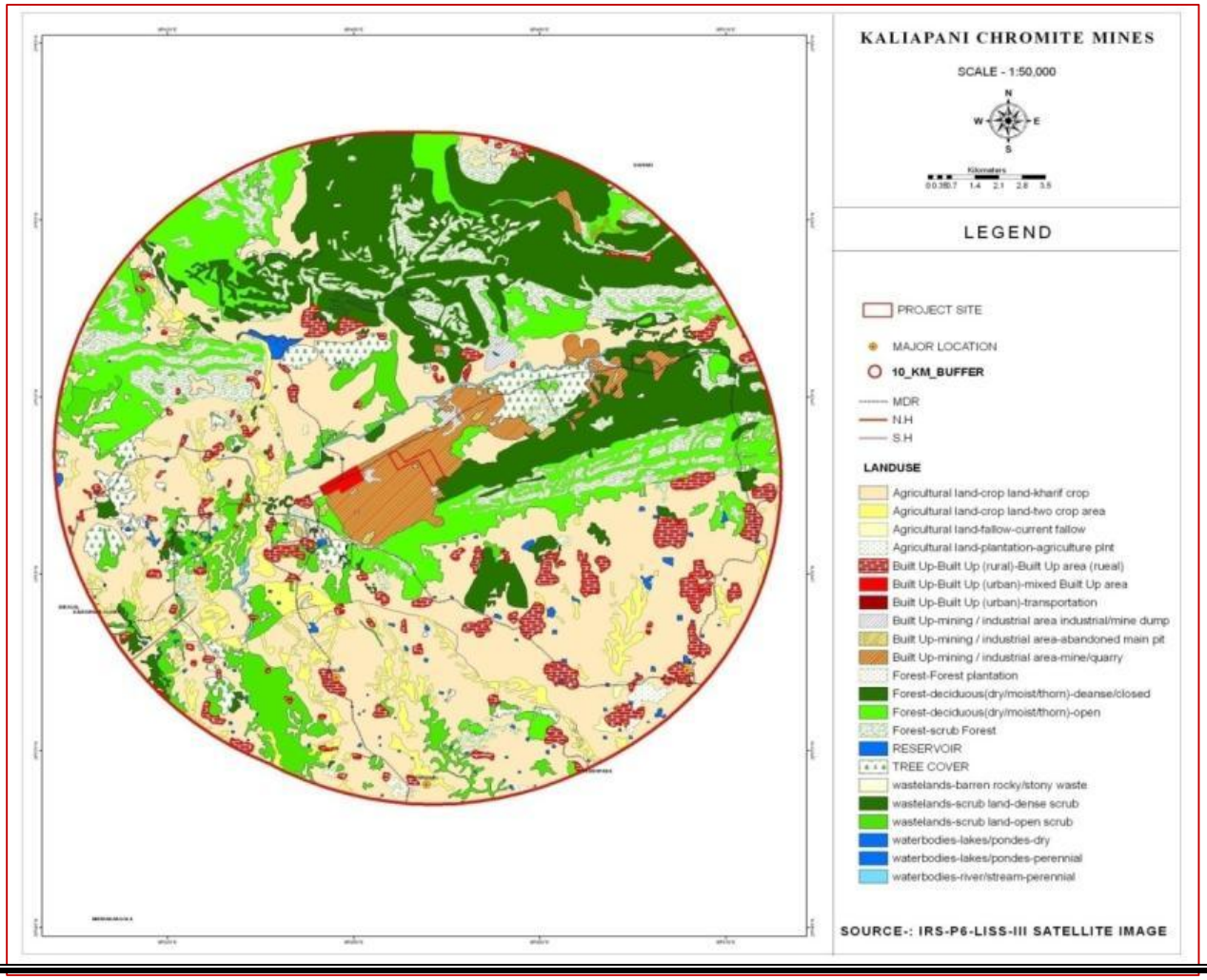
Oil and Grease trap has been Installed at discharge of workshop effluents which is working efficiently. Photo of same is attached as **Photo-14.**

PHOTO-13: SHOWING VEHICLE SERVICING CENTER WITH OIL & GREASE TRAP

xxvi. Digital processing of the entire lease area using remote sensing technique shall be carried out regularly once in three years for monitoring land use pattern and report submitted to Ministry of Environment and Forests and its Regional Office, Bhubaneswar.

Status- Digital processing of the entire lease area using remote sensing technique shall be carried out once in three years for monitoring land use pattern and report will be submitted to Ministry of Environment and Forests and its Regional Office, Bhubaneswar. However, the satellite image of the study area during the baseline study period is given as **Figure- 8.**

Figure- 8: Showing satellite image of study area during baseline study



xxvii. Pre-placement medical examination and periodical medical examination of the workers engaged in the project shall be carried out and records maintained. For the purpose, schedule of health examination of the workers should be drawn and followed accordingly.

Status- Pre-placement medical examination and periodical medical examination of the workers engaged in the project is being carried out and records maintained. The details of IME & PME is given in **Table- 16.**

[Table-16: Details of IME & PME status]

DETAILS OF IME & PME AS ON 31.03.2015						
KALIAPANI CHROMITE MINES, M/S BALASORE ALLOYS LTD						
SL NO	**CATEGORY**	**MAN POWER**	**IME EXECUTED**	**PME EXECUTED**	**IME TO BE DONE**	**PME TO BE DONE**
1	BAL	241	138	61	42	0
2	DRM	39	39	NA	0	NA
3	RETAINER	7	1	NA	6	NA
NOTE: NA STANDS FOR NOT APPLICABLE AS THE CANDIDATE IS WORKING LESS THAN FIVE YEARS OR NOT ELIGIBLE FOR PME						

xxviii. The project proponent shall take all precautionary measures during mining operation for conservation and protection of endangered fauna spotted in the study area. Action plan for conservation of flora and fauna shall be prepared and implemented in consultation with the State Forest and Wildlife Department. Necessary allocation of funds for implementation of the conservation plan shall be made and the funds so allocated shall be included in the project cost. All the safeguard measures brought out in the Wildlife Conservation Pan so prepared specific to the project site shall be effectively implemented. A copy of action plan shall be submitted to the Ministry of Environment and Forests and its Regional Office, Bhubaneswar.

Status- Site Specific Wildlife Consevation Plan has been prepared and approved by PCCF(WL) & Chief Wild Life warden ,Odisha Vide Memo 8478/1WL(C)-SSP-425/2014 Dated 7th Nove-2014. Copy of same is attached as **Annexure- V**.

In addition to that a sum of Rs 12, 89,260 was deposited towards payment for implementation of Regional Wildlife Management Plan. Acknowledgement regarding the same is given in **Annexure VI.**

xxix. A Final Mine Closure Plan along with details of Corpus Fund shall 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.

xxx. The project proponent shall undertake all the commitments made during the public hearing and effectively address the concerns raised by the locals in the public hearing as well as during consideration of the project, while implementing the project.

Status- All the commitments made during public hearing are being undertaken by incorporating in the CSR activities. CSR activities taken up during the period of Oct.2014 to March.2015 given below in **Table-18.** The photos of the same is shown as **photo-14,15,16 & 17.**

[Table- 18: CSR DETAILS OF FOR THE PERIOD OCT.2014 TO MARCH.2015]

Sl. No.	Activity	Amount
1	Installation of 04 nos. Tube well at Ransol, Kaliapani, Chingudipal & Kansa G.Ps.	427000
2	Reimbursement of Elect. Bill for Drinking water Supply Project at Kaliapani & Ghagia Sahi	78016
3	Handing over ceremony of Kaliapani Water Supply Project	50500
4	Installation of 03 nos. Bore well with water vat at Aradapal, Kantabania Harijan Sahi & Majhi Sahi of Chingudipal G.P.	678693
5	Organization of Mega Health Camp at Kaliapani	172642
6	Organization of Mobile Health Services	60000
7	Contribution for Flood Relief to the District Administration, Jajpur	50000
8	Supply of Cattle Feeds to the Flood Affected Area, Sukinda	12900
9	Supply of materials to Chandimata Youth Club, Kaliapani & Samrat Youth Club, Chirigunia	153200
10	Distribution of 100 nos. Coconut trees	25800
11	Development of Adivasi Sports	40000
12	Makara Mela	20000
13	Distribution of gift on Virsha Munda Jayanti	42800
14	Distribution of Blankets & Mosquitos 200 nos. each	103600
15	Installation of Street Lights in Mangalpur-Toka Road	675000
16	White Washing for Pimpudia High School	47000
17	Distribution of 171 nos. School bags among Chandimata M.E.School & Kaliapani U.P.School, Kaliapani	48000
18	Distribution of Cricket Kits among 15 nos local Cricket Teams from 07 G.P.s & sports materials distibuted among SRCKMS, Samrat Club, Chandimata Club members for foot ball & tenis Tournament and Financial assistance for organizing tournaments	289536
19	Conducted Press Meeting of local journalists for updation of CSR activities	12000
Total		**2986687**

Photo-14: Showing distribution of blankets

Photo-15: Showing inauguration of drinking water project

Photo-15: Showing celebration of Birsha jayanti

Photo-15: Showing distribution of saplings

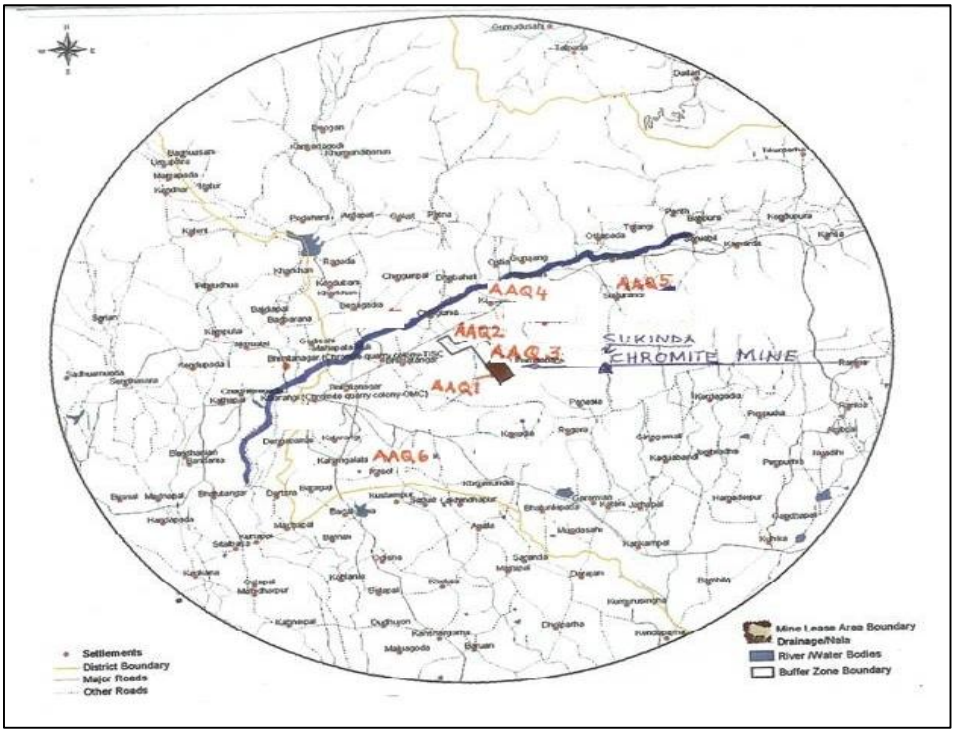
General Conditions & their Status:

i. **No change in Chrome Ore Processing/Beneficiation technology and scope of working should be made without prior approval of the Ministry of Environment & Forests.**
Status- Chrome ore Mining method practiced in the project is both opencast & underground fully mechanized. There is/will be no change in Chrome Ore Processing/Beneficiation technology and scope of working shall be made without prior approval of the Ministry of Environment & Forests.

ii. **No change in the calendar plan including Processing/Beneficiation of mineral chrome ore and waste should be made.**
Status- No change in the calendar plan including Processing/Beneficiation of mineral chrome ore and waste shall be made.

iii. **At least four ambient air quality-monitoring stations should be established in the core zone as well as in the buffer zone for RSPM (Particulate matter with size less than 10 micron i.e., PM10) and NOX monitoring. Location of the stations should be decided based on the meteorological data, topographical features and environmentally and ecologically sensitive targets and frequency of monitoring should be undertaken in consultation with the State Pollution Control Board. The data so recorded should be regularly submitted to the Ministry including its Regional office located at Bhubaneswar and the State Pollution Control Board / Central Pollution Control Board once in six months.**
Status- Air quality monitoring for the parameters viz PM10,PM2.5, SO_2 , NOx,CO,NH_3 &O_3 are being done by establishing 6 ambient air monitoring stations on the basis of meteorological data, topographical features after consultation with SPCB in the core & Buffer zone. The data so recorded is being regularly submitted to the Ministry including its Regional office located at Bhubaneswar and the State Pollution Control Board / Central Pollution Control Board once in six months. The monitoring data for the period October 2014 to March 2015 is given in **Table-7**.
Location showing AAQ monitoring stations shown as **Figure- 9**

Figure-9: Showing location of Ambient Air Quality Monitoring Stations



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

Status- Maintenance of all HeMM are being carried out on regular basis to suppress the Noise generation**.** 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 in **Table 18.**
Photographs showing use of PPEs are given as **Photo-13.**

Photo-13: SHOWING WORKERS WORKING WITH PPE

[Table-19: Noise level monitoring result]

AMBIENT NOISE LEVEL (OCTOBER 2014 TO MARCH 2015)

Kaliapani Chromite Mines

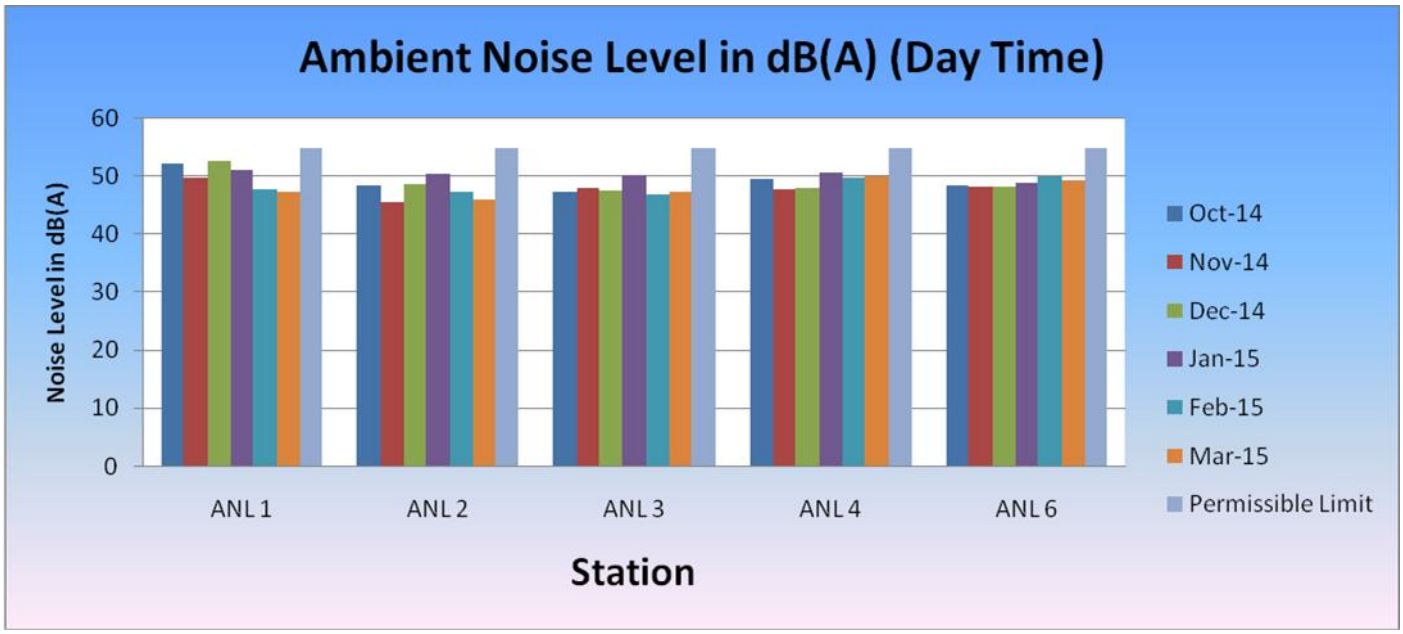
M/s BALASORE ALLOYS LIMITED

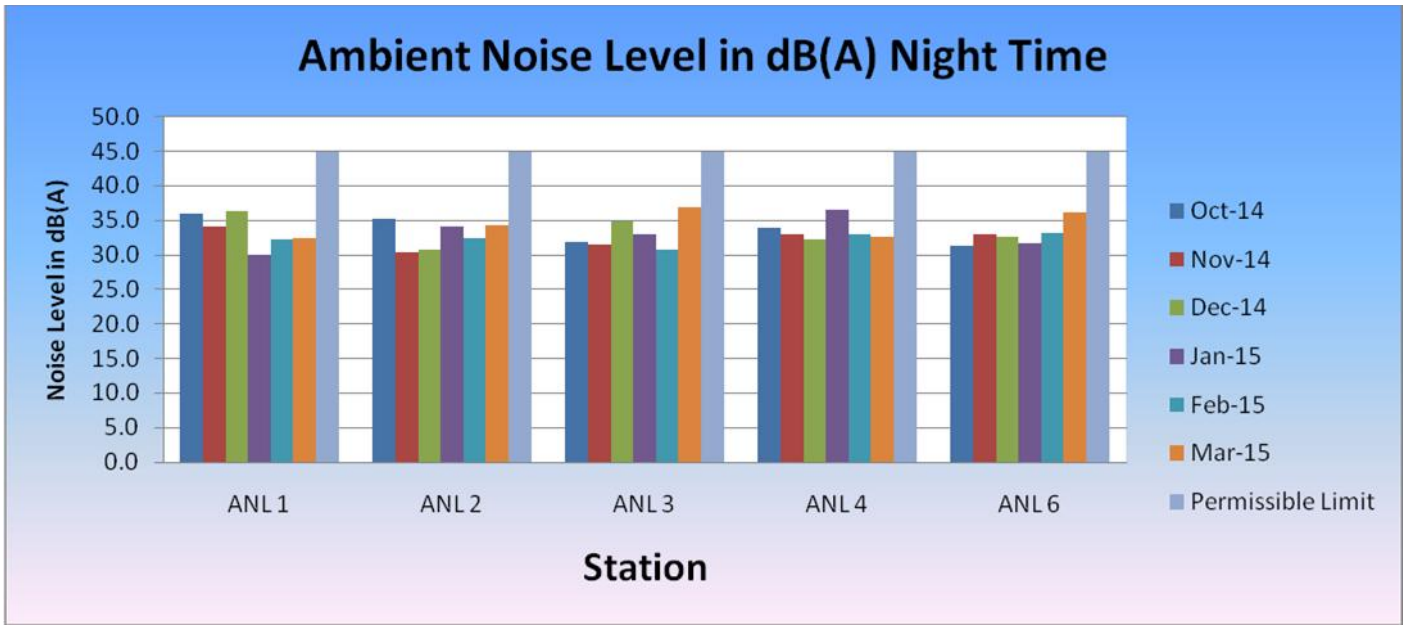
Sl. No	Location	Station Code	MONTHWISE NOISE LEVEL											
			DAY	NIGHT	DAY	NIGHT	DAY	NIGHT	DAY	NIGHT	DAY	NIGHT	DAY	NIGHT
Month			OCTOBER 2014		NOVEMBER 2014		DECEMBER 2014		JANUARY 2015		FEBRUARY 2015		MARCH 2015	
1	Mines Office	ANL 1	52.3	36.0	49.7	34.1	52.7	36.4	51.1	30.1	47.7	32.3	47.3	32.5
2	Village Kaliapani	ANL 2	48.4	35.3	45.5	30.5	48.7	30.7	50.4	34.1	47.4	32.4	45.9	34.3
3	Village Sukrangi	ANL 3	47.4	31.9	48.1	31.6	47.5	34.9	50.2	33.0	47.0	30.7	47.4	37.0
4	Village Ransol	ANL 4	49.6	33.9	47.8	33.0	48	32.2	50.6	36.6	49.8	33.0	50.1	32.7
5	Village Purunaposi	ANL 5	49.7	29.9	47.5	30.0	47.7	31.6	50.3	34.4	….	….	….	16.8
6	Village Tisco Hutting	ANL 6	48.5	31.4	48.2	33.0	48.2	32.6	49.0	31.7	49.9	33.2	49.3	36.2

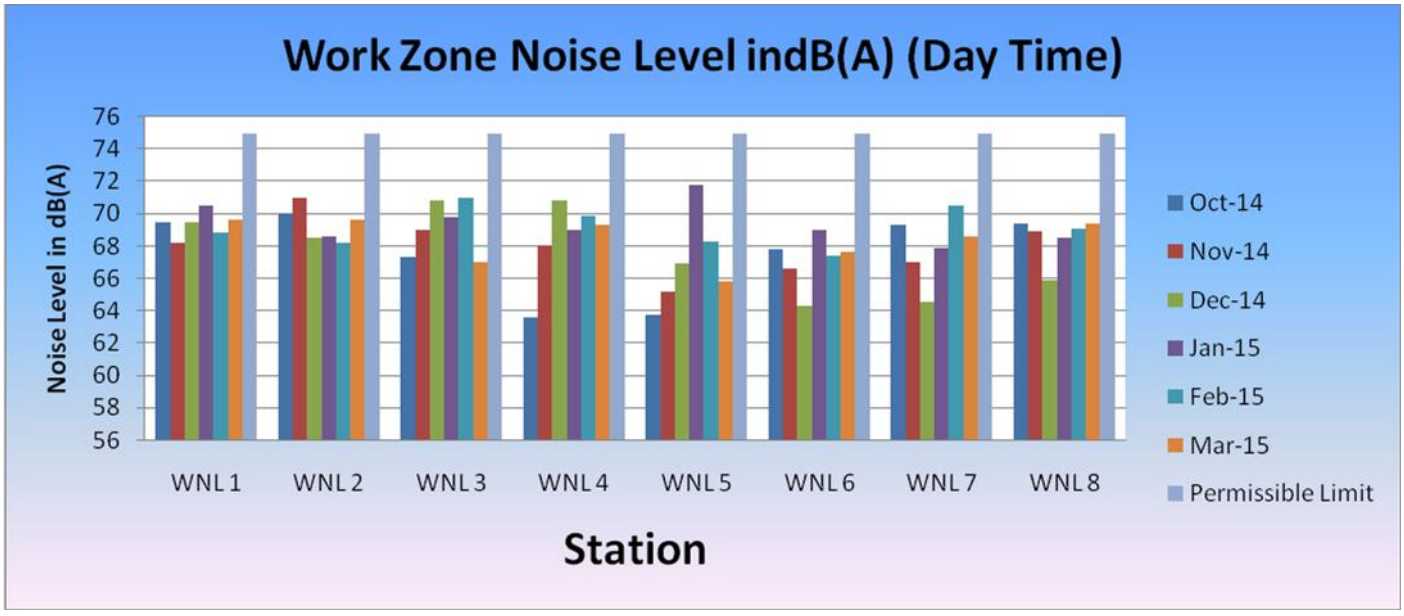
WORK ZONE NOISE LEVEL(OCTOBER 2014 TO MARCH 2015)

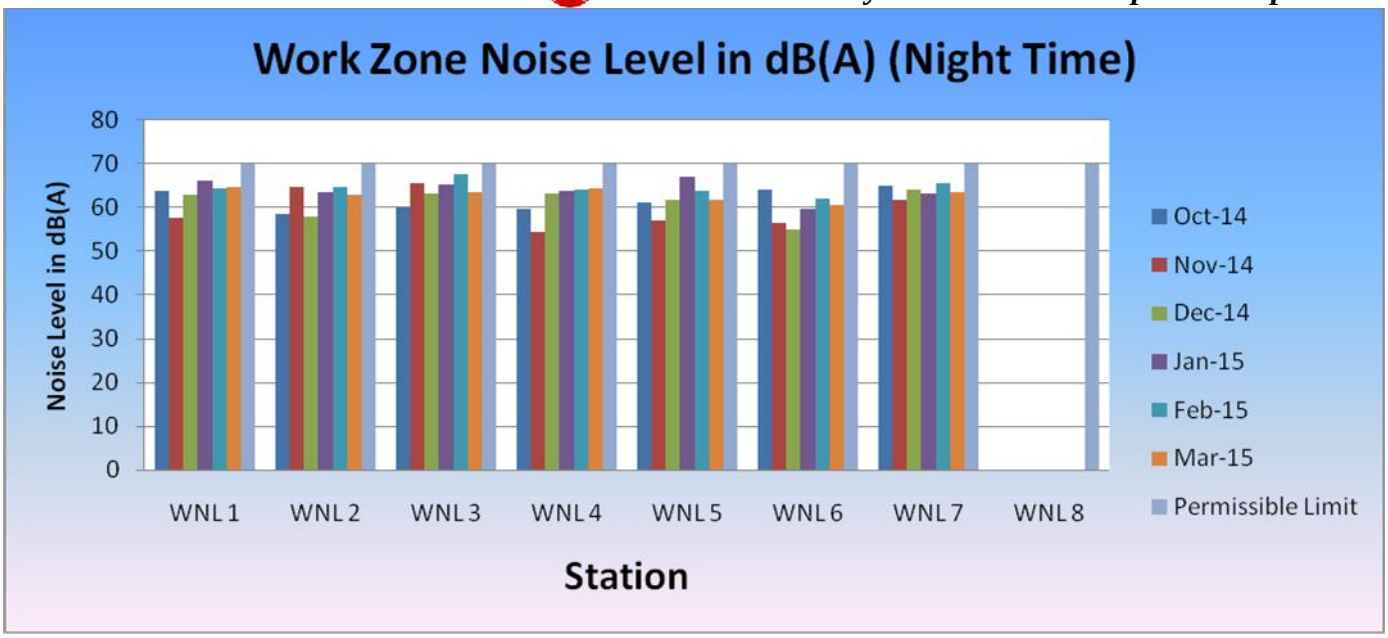
Sl. No	Location	Station Code	MONTHWISE NOISE LEVEL											
			DAY	NIGHT	DAY	NIGHT	DAY	NIGHT	DAY	NIGHT	DAY	NIGHT	DAY	NIGHT
Month			OCTOBER 2014		NOVEMBER 2014		DECEMBER 2014		JANUARY 2015		FEBRUARY 2015		MARCH 2015	
1	O/C Quarry	WNL 1	69.5	63.8	68.2	57.6	69.5	63	70.5	66.3	68.8	64.4	69.6	64.7
2	Dumper Operation	WNL 2	70.0	58.5	71.0	64.7	68.5	57.9	68.6	63.5	68.2	64.7	69.6	62.8
3	Loader Operation	WNL 3	67.3	59.9	69.0	65.6	70.8	63.2	69.8	65.3	71.0	67.5	67.0	63.4
4	DG Set	WNL 4	63.6	59.7	68.0	54.5	70.8	63.1	69.0	63.8	69.9	64.1	69.3	64.5
5	Electric Pump	WNL 5	63.7	61.1	65.2	57.1	66.9	61.8	71.8	67.2	68.3	63.8	65.8	61.8
6	Loading Point	WNL 6	67.8	64.1	66.6	56.6	64.3	54.9	69.0	59.8	67.4	62.2	67.6	60.7
7	COB Plant	WNL 7	69.3	65	67.0	61.9	64.5	64.2	67.9	63.1	70.5	65.5	68.6	63.5
8	Drilling Machine	WNL 8	69.4	….	68.9	….	65.9	…..	68.5	….	69.1	…..	69.4	….

Figure-10: Graph showing Ambient & Work-zone Noise level in Day & Night time









v. There will be zero waste water discharge from the plant.

Status- Total decanted water from the beneficiation plant & tailing/slime pond is reused in COB plant; hence there is zero waste water discharge from the plant.

vi. 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.

Status- Personal protective equipments are being provided to all workers respective to the nature of the job. Initial and periodical awareness training is being imparted to all workers in the Company's Vocational Training Center located within the lease area on Safety and Health Aspects.
Periodical health check up as per DGMS guideline is being carried out for all employees .

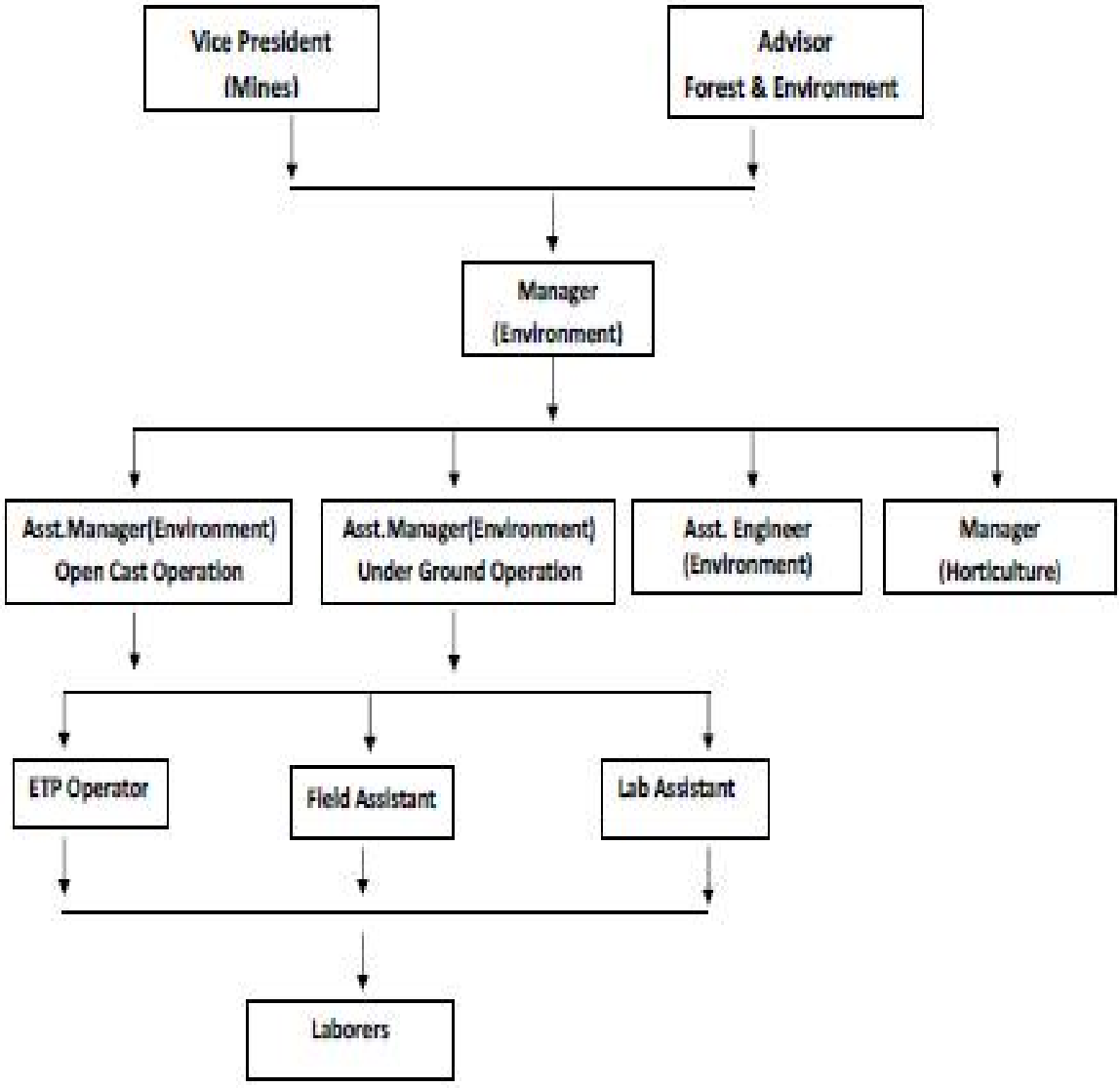
vii. Occupational health surveillance program of the workers should be undertaken periodically to observe any contractions due to exposure to dust and take corrective measures, if needed.

Status- Pre-placement medical examination and periodical medical examination of the workers engaged in the project is being carried out and records maintained for corrective measures.

viii. 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.

Figure- 11: Organization chart showing Environment Management Cell



ix. 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- Separate funds is being earmarked for environmental protection measures. Year wise Expenditure also been reported to Regional Office, MoEF,BBSR. The detail of the expenditure is given in **Table-18.**

[Table-20: Expenditure on EMP]

Sl. No.	Activity	Expenditure in INR	
		April- Sept-2014	**Oct 2014- March-2015**
1	Grass turfing with haul road slope plantation	**13,59,560**	**390868**
2	Development of Green Belt and afforestation.	**34,83,500**	**212375**
3	Application of coir geo textiles	**16,05,500**	**Nil**
4	ETP Operation & Maintenance	**Nil**	**1161028.1**
5	Chemicals for existing ETP	**2,04,000**	**224730**
6	Environmental equipment purchase	**2,92,230**	**Nil**
7	Environmental Monitoring Equipment Maintenance	**21,000**	**11500**
8	Environmental monitoring	**2,68,083**	**531368**
9	Dust suppression (Vehicle with chemical)	**8,38,790**	**16,16,848**
10	Water Cess Payment	**82,326**	**107983**
11	Fixed type water sprinklers/maintenance	**15,000**	**15,000**
12	Maintenance of wetting provision in drilling machine.	**15,000**	**15,000**
13	Construction of settling pit	**50,000**	**2600000**
14	Observation of ME & MC week, 2014-15	**Nil**	**85620**
Total Amount incurred: in Rs		**82,34,989**	**6972320.1**

x. 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 Sept' 2000.

xi. 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- We are abide by the condition and shall extend full cooperation to the officer(s) of regional office by furnishing the requisite data / information/monitoring reports during their monitoring of compliance of the stipulated conditions.

xii. The project proponent shall submit six monthly reports on the status of compliance of the stipulated environmental clearance conditions including results of monitored data (both in hard copies as well as by e-mail) to the Ministry of Environment and Forests, its Regional Office Bhubaneswar, the respective Zonal Office of Central Pollution Control Board and the State Pollution Control Board. The proponent shall upload the status of compliance of the environmental clearance conditions, including results of monitored data on their website and shall update the same periodically. It shall simultaneously be sent to the Regional Office of the Ministry of Environment and Forests, Bhubaneswar, the respective Zonal Officer of Central Pollution Control Board and the State Pollution Control Board.

Status- Six monthly compliance report is being submitted on the status of compliance of the stipulated environmental clearance conditions including results of monitored data (both in hard copies as well as by e-mail) to the Ministry of Environment and Forests, its Regional Office Bhubaneswar, the respective Zonal Office of Central Pollution Control Board and the State Pollution Control Board. The status of compliance of the environmental clearance conditions, including results of monitored data is uploaded on company website periodically. The submission details of the six monthly compliance is given in **Table-19.**

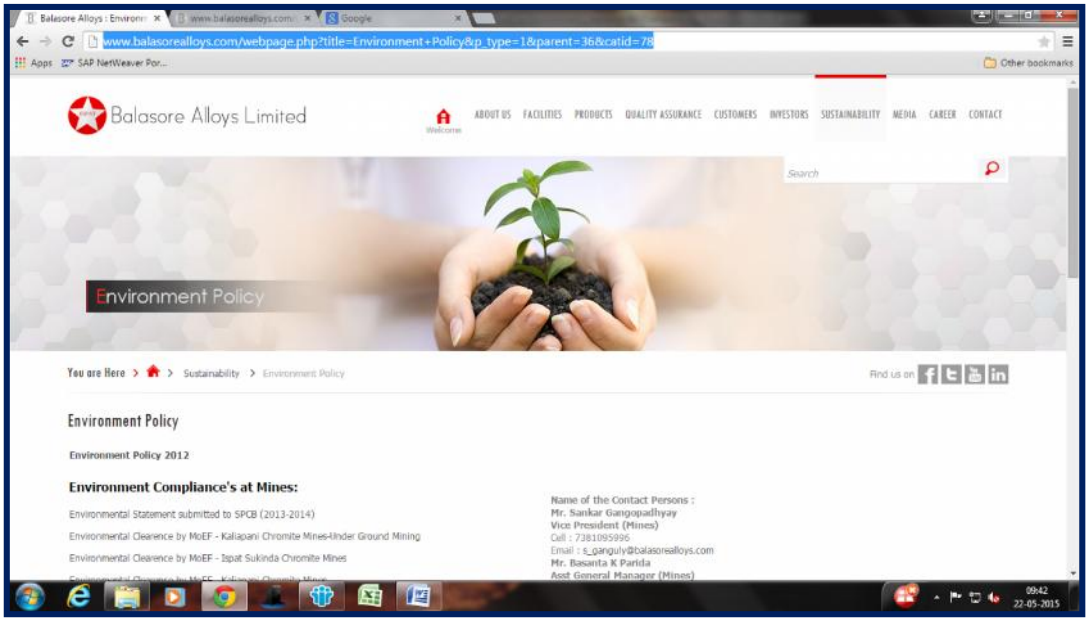
[Table-19: The status of six monthly EC compliance submissions]

Period	Letter no.	Date of submission
April 2014 to September 2014	BAL/MINES/1825/2014	29.11.2014
October 2013 to March 2014	BAL/MINES/161	28.05.2014
April 2013 to September 2013	BAL/MINES/394	30.11.2013
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

xiii. A copy of the clearance letter shall be sent by the proponent to concerned Panchayat, Zila Parisad/ Municipal Corporation, Urban Local Body and the Local NGO, if any, from whom suggestions/ representations, if any, were received while processing the proposal. The clearance letter shall also be put on the website of the Company by the proponent.

Status- Copy of the clearance letter has been sent to concerned Panchayat. The clearance letter also been uploaded on the website of the Company. The copy of letter to panchayat is attached as **Annexure- VI.** The URL for the same is **http://www.balasorealloys.com/webpage.php?title=Environment+Policy&p_type=1&parent=36&catid=78.** The screenshot of the company website showing the clearance letter is given below as **Figure- 12.**

Figure-12: Screenshot of company website showing Environment Clearance letter uploaded



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

Status- Agreed.

xv. The environmental statement for each financial year ending 31st March in Form-V as is mandated to be submitted by the project proponent to the concerned State Pollution Control Board as prescribed under the Environment (Protection) Rules, 1986, as amended subsequently, shall also be put on the website of the company along with the status of compliance of environmental clearance conditions and shall also be sent to the respective Regional Office of the Ministry of Environment and Forests, Bhubaneswar by e-mail.

Status- The environmental statement for each financial year ending 31st March in Form-V is being submitted to the concerned State Pollution Control Board as prescribed under the

Environment (Protection) Rules, 1986, as amended subsequently, also uploaded on the website of the company along with the status of compliance of environmental clearance conditions and also sent to the respective Regional Office of the Ministry of Environment and Forests, Bhubaneswar by e-mail. The copy of the last environmental statement for financial year ending 31st March 2013-14 is attached as **Annexure- VIII.**

xvi. The project authorities should advertise at least in two local newspapers of the District or State in which the project is located and widely circulated, one of which shall be in the vernacular language of the locality concerned, within 7 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 and 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.

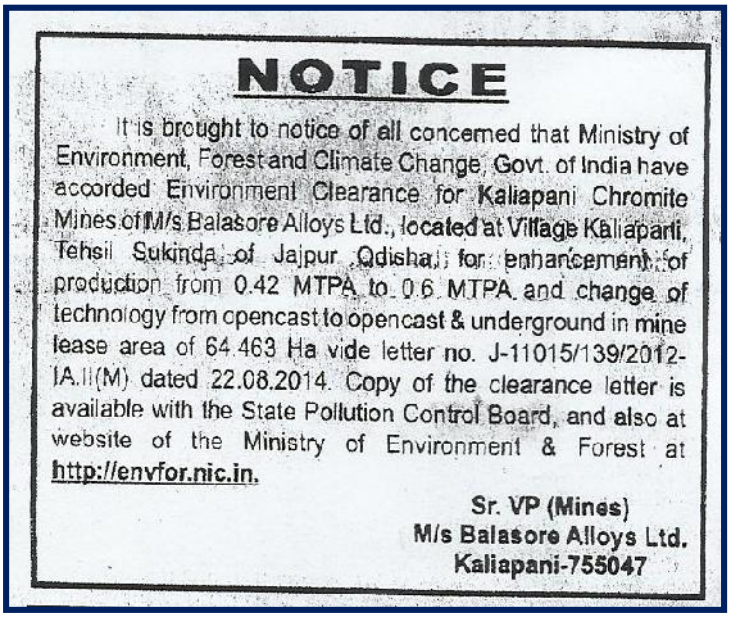
Status- The clearance letter informing that the project has been accorded environmental clearance is advertised in "The Sambad" (Odia daily) & The Pioneer (English daily) newspaper, the copy of which is shown below.

ନୋଟିସ୍

ବିଜ୍ଞପ୍ତି ଜାରି କରାଯାଉଛି ଯେ, ପରିବେଶ, ବନ ଓ ଜଳବାୟୁ ପରିବର୍ତ୍ତନ ମନ୍ତ୍ରାଳୟ J-11015/139/2012-IA II (M) ତାରିଖ 22.08.2014 ଦ୍ୱାରା ଜାଜପୁର ଜିଲ୍ଲା ସୁକିନ୍ଦା ତହସିଲ ଅନ୍ତର୍ଗତ କାଲିଆପାଣି ମୌଜାରେ ଅବସ୍ଥିତ କାଲିଆପାଣି କ୍ରୋମାଇଟ୍ ଖଣି ପାଇଁ ଉତ୍ପାଦନ କ୍ଷମତା ୦.୪୨ ମିଲିୟନ ଟନ୍ ରୁ ୦.୬୦ ମିଲିୟନ ଟନ୍ ପର୍ଯ୍ୟନ୍ତ ବୃଦ୍ଧି ତଥା ଖଣି କାର୍ଯ୍ୟ ପାଇଁ ଖୋଲା ପଡିଆ ରୁ ଖୋଲା ପଡିଆ ଓ ଭୂତଳ ଖଣି ପଦ୍ଧତିରେ ପରିବର୍ତ୍ତନ ପାଇଁ ମଞ୍ଜୁରୀ ପ୍ରଦାନ କରାଯାଇଛି।

ଏହାର ପରିବେଶ ଜନିତ ସର୍ତ୍ତ ପ୍ରତିପାଳନ ବୋର୍ଡ ଠାରେ ଉପଲବ୍ଧ ରହିଥିବା ପରିବେଶ, ବନ ଓ ଜଳବାୟୁ ପରିବର୍ତ୍ତନ ମନ୍ତ୍ରାଳୟର ୱେବସାଇଟ http://envfor.nic.in ରେ ମଧ୍ୟ ଉପଲବ୍ଧ ଅଛି।

ବରିଷ୍ଠ ଉପସଭାପତି (ଖଣି),
କାଲିଆପାଣି କ୍ରୋମାଇଟ୍ ଖଣି,
ମେସର୍ସ ବାଲେଶ୍ୱର ଆଲଏଜ୍ ଲିଃ, କାଲିଆପାଣି



NOTICE

It is brought to notice of all concerned that Ministry of Environment, Forest and Climate Change, Govt. of India have accorded Environment Clearance for Kaliapani Chromite Mines of M/s Balasore Alloys Ltd., located at Village Kaliapani, Tehsil Sukinda of Jajpur Odisha, for enhancement of production from 0.42 MTPA to 0.6 MTPA and change of technology from opencast to opencast & underground in mine lease area of 64.463 Ha vide letter no. J-11015/139/2012-IA.II(M) dated 22.08.2014. Copy of the clearance letter is available with the State Pollution Control Board, and also at website of the Ministry of Environment & Forest at http://envfor.nic.in.

Sr. VP (Mines)
M/s Balasore Alloys Ltd.
Kaliapani-755047

Copy of Environment clearance letter also forwarded to the Regional Office of this Ministry located at Bhubaneswar and the letter attached as Annexure- VIII.

ANNEXURE-I: NOC FOR GROUND WATER WITHDRAWAL

Member Secretary

भारत सरकार
केन्द्रीय भूमि जल प्राधिकरण
जल संसाधन मंत्रालय

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: CONSENT TO ESTABLISH FROM SPCB, ODISHA

BY REGD POST

OFFICE OF THE
STATE POLLUTION CONTROL BOARD, ODISHA
Parivesh Bhawan, A/118, Nilakantha Nagar, Unit-VIII,
Bhubaneswar - 751 012

No. 18196 / IND-II-NOC-5723 Date 08-10-13

OFFICE MEMORANDUM

In consideration of the application for obtaining Consent to Establish for **Kaliapani Chromite Mines of M/s Balasore Alloys Ltd.**, the State Pollution Control Board has been pleased to convey its Consent to Establish under section 25 of Water (Prevention & Control of Pollution) Act, 1974 and section 21 of Air (Prevention & Control of Pollution) Act, 1981 for **enhancement of production capacity of Chrome ore from 0.42 MTPA to 0.6 MTPA and Change of mining from opencast to underground mining, over mining lease hold area of 64.463 ha., At – Kaliapani, Sukinda** in the district of **Jajpur** with the following conditions.

GENERAL CONDITIONS:-

1. **This consent to establish is valid for the product, method of mining and capacity mentioned in the application form. This order is valid for five years, which means the proponent shall commence mining activities for the proposal within a period of five years from the date of issue of this consent to establish order. If the proponent fails to commence mining activities for the proposal within five years then a renewal of this consent to establish shall be sought by the proponent.**
2. Adequate effluent treatment facilities are to be provided such that the quality of sewage and trade effluent satisfies the standards as prescribed under Environment Protection Rule, 1986 or as prescribed by the Central Pollution Control Board and/or State Pollution Control Board or otherwise stipulated in the special conditions.
3. All emission from the mining activities as well as the ambient air quality and noise shall conform to the standards as laid down under Environment (Protection) Act, 1986 or as prescribed by Central Pollution Control Board/State Pollution Control Board or otherwise stipulated in the special conditions.
4. Appropriate method of disposal of solid waste is to be adopted to avoid environmental pollution.
5. The mine shall comply to the provisions of Environment Protection Act, 1986 and the rules made there under with their amendments from time to time such as the Hazardous Waste (Management, Handling & Transboundary Movement) Rules 2008, Hazardous Chemical Rules /Manufacture, Storage and Import of Hazardous Chemical

ANNEXURE-III: CONSENT TO OPERATE OBTAINED FROM OSPCB

CONSENT ORDER
KALIAPANI CHROMITE MINES OF M/S. BALASORE ALLOYS LTD.

BY REGD. POST WITH AD

STATE POLLUTION CONTROL BOARD, ODISHA

A/118, Nilakantha Nagar, Unit-VIII, Bhubaneswar-751012
Phone-2561909, Fax: 2562822, 2560955

CONSENT ORDER

No. 557 / IND-I-CON- 2576 Dt. 12-01-2015

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 online application No. 83616 dated 26.11.2014

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 LTD.

Name of the Occupier & Designation SRI S. GANGOPADHYAY, VICE PRESIDENT (MINE)

Address: AT/PO: KALIAPANI, DIST: JAJPUR

This consent order is valid for the period up to **31/03/2016**

This consent order supersedes the earlier consent order issued vide letter No. 4395 dated 25.03.2014

Details of Products Manufactured

Sl. No	Product	Quantity
01.	Chrome ore(ROM)	0.6 MTPA

Details of Mineral Handing 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.

ANNEXURE-IV: PUC CERTIFICATE

OR09D
1827

COMPUTERISED EMISSION TEST CERTIFICATE
AUTHORISED BY :
CENTRE
MAA CHANDI POLLUTION TESTING CENTRE
KALIAPANI, JAJPUR, ODISHA

ID Number : OR005063
Year Of Registration :2003
Vehicle Registration No :OR09D-1827
Spedometer Reading (Kms) : 0
Engine Number:0000
Chasis Number:0000
Vehicle Color:RED
Vehicle Make:TATA
Vehicle Model :TRUCK- 1613
Type Of Vehicle :6W
Test Station Code : 123
Test Result : Free Acceleration

Licence No. : STA--CTC-POLL-05/2014
Date :29 MARCH-2015
Time :8:30 PM
Owner:S.K.PRADHAN
Driver: D
Fuel: Diesel
Smk cell Temp:58.0
Oil Temp : 106.0
Valid Up To :28-SEP-2015
Grade : A
Validity: 6 Months

No. of K	Kval	Min Rpm	Max Rpm	Interval	Oil Temp	Test Time
1	0.00	1030	3000	4.0	129.0	09:23:34
2	0.00	1000	2970	4.5	127.0	09:23:45
3	0.00	1010	2970	4.5	128.0	09:23:55
4	0.00	1010	3030	5.1	127.0	09:24:06
5	-	-	-	-	-	-
6	-	-	-	-	-	-
7	-	-	-	-	-	-
8	-	-	-	-	-	-
9	-	-	-	-	-	-
10	-	-	-	-	-	-
K Avg	0					
HSU	0					

MAA CHANDI
COMPUTERISED POLLUTION
TESTING CENTRE
KALIAPANI, JAJPUR, ODISHA

Certified that this vehicle's K-Mean and HSU% value conforms to the standards prescribed under Rule 115(2) of CMV Rules 1989, the certificate is valid for 6 months.

ANNEXURE-V: APPROVAL LETTER OF SITE SPECIFIC WILDLIFE CONSERVATION PLAN

OFFICE OF THE PRINCIPAL CHIEF CONSERVATOR OF FORESTS (WILDLIFE)
& CHIEF WILDLIFE WARDEN, ODISHA, BDA APARTMENT, 5TH FLOOR,
PRAKRUTI BHAWAN, NILAKANTHA NAGAR, BHUBANESWAR-12
Ph. No.0674-2564587, FAX No.0674-2565062
(Website:odishawildlife.org, E. mail: odishawildlife@gmail.com)

Memo No.8475 /1 WL(C)SSP-425/2014
Dated, Bhubaneswar, the 7th Nov, 2014

To

The Principal Chief Conservator of Forests, Odisha,
Bhubaneswar

Sub: ***Site specific Wildlife Conservation Plan in respect of Kaliapani Chromite Mines of M/s Balasore Alloys Ltd. in Jajpur District under Cuttack Forest Division***

It is to inform you that M/s Balasore Alloys Ltd. has to implement a site specific wildlife conservation plan for its Kaliapani Chromite Mine in Jajpur District, Odisha in compliance to the General condition No.(iii) stipulated in the Environment Clearance granted by Govt. of India, MoEF vide their letter No.J-11015/341/2006-IA.II(M) dt 3.7.2007.

2. The Site Specific Wildlife Conservation Plan in respect of the above project in Cuttack Forest Division has been approved by the undersigned with financial forecast of **₹254.18 lakh** (Rupees two crore fifty-four lakh eighteen thousand) only for the following activities.

(i)	For activities to be implemented in project area by the User Agency in Cuttack Division	₹64.82 lakh
(ii)	For activities to be implemented by DFO, Cuttack Division in project impact area	₹189.36 lakh
	Grand Total:	**₹254.18 lakh**

3. Various activities in the lease hold area will be executed by the Project proponent under the guidance of the Divisional Forest Officer, Cuttack Divn. A sum of ₹189.36 lakh only may be deposited in the CAMPA fund meant for the purpose for implementation of various activities within the project impact area by the Forest Deptt. as envisaged in the plan.

4. The User Agency may be advised to note the following conditions for future compliance.

- This Plan may be revisited after 5 years and the User Agency will give undertaking to contribute towards the revised cost of the conservation plan till the project period, if any.
- The project proponent has to prepare and submit the Conservation Plan for the next 10 years of their lease period (balance period for which forest land remains diverted) at least one year before the expiry of the present Conservation Plan and deposit the outlay amount upon its approval. In case of delay, the project operation will be automatically stopped.

Encl: 2 copies of approved
site specific WL Conservation Plan

Principal Chief Conservator of Forests (WL)
& Chief Wildlife Warden, Odisha

P.T.O.

-2-

Memo No. 8476 /date 07-11-2014

Copy forwarded to the Divisional Forest Officer, Cuttack Division for information and necessary action with reference to memo No.5063 dt 10.10.2014 of RCCF, Angul Circle.

Encl: 1 copy of approved site specific WL Conservation Plan

Principal Chief Conservator of Forests (WL)
& Chief Wildlife Warden, Odisha

Memo No. 8477 /date 07-11-2014

Copy forwarded to the Regional Chief Conservator of Forests, Angul Circle for information and necessary action with reference to his memo No.5062 dt 10.10.2014.

Principal Chief Conservator of Forests (WL)
& Chief Wildlife Warden, Odisha

Memo No. 8478 /date 07-11-2014

Copy forwarded to M/s Balasore Alloys Ltd., At/PO- Kaliapani, Dist.- Jajpur for information and necessary action.

Encl: 1 copy of approved site specific WL Conservation Plan

Principal Chief Conservator of Forests (WL)
& Chief Wildlife Warden, Odisha

ANNEXURE-VI: LETTER OF SUBMISSION OF EC COPY TO PANCHAYAT

BALASORE ALLOYS LIMITED

Ref: BAL/Mines/268/2014 **Date: 02.09. 2014**

To

The Sarpanch,
Ransol Grama Panchayat,
Jajpur, Odisha

Subject: Submission of Environmental Clearance Order obtained in respect of Kaliapani Chromite Mine (ML Area – 64.463 Ha.) of **M/s. Balasore Alloys. Ltd - for Expansion in Production Capacity from 0.42 MTPA to 0.6 MTPA, Change of technology from Opencast to Underground**, Village: Kaliapani, Tehsil: Sukinda, District: Jajpur (Odisha).

Sir,

With reference to the above subject, we herewith submitting the Environmental Clearance order issued Vide letter No. J-11015/139/2012-IA.II (M) Dated: 22nd August, 2014 with reference to our application for obtaining Environment Clearance in respect of Kaliapani Chromite Mine (ML Area – 64.463 Ha.) of M/s. Balasore Alloys. Ltd in Village: Kaliapani, Tehsil: Sukinda, District: Jajpur (Odisha) for expansion in production capacity from 0.42 MTPA to 0.6 MTPA, change of technology from opencast to opencast & underground, Village :Kaliapani, Tehsil: Sukinda, District: Jajpur (Odisha) on 04.05.2012.

This is for your kind information.

Thanking you and with regards

Yours faithfully
For M/s. Balasore Alloys Ltd.

Bachchan

Agent
Kaliapani Chromite Mines
M/s Balasore Alloys Limited

Encl: As above

S. Nayak
10/11/14
Sarapanch
Ransol G.P

Kaliapani Chromite Mines, At/Po. : Kaliapani - 755047,Dist. : Jajpur, Odisha, Phone : 06726-268297/98, Fax : 06726-268520
E-mail : sukinda_mines@balasorealloys.com, ialmines@yahoo.com, Website : www.balasorealloys.com
BBSR Office : Module C/1, 1st Floor, Fortune Tower,Chandrasekharpur, BBSR - 23, Odisha, (India), Ph. : 0674-2301358, Fax : 0674 - 2301639
Regd. Office & Works : Balgopalpur-756020, Balasore, Odisha, Phone : 06782-275781 to 85, Fax : 275724
CIN-L27101OR1984PLC001354

ANNEXURE-VII: ENVIRONMENT STATEMENT SUBMITTED FOR THE YEAR 2013-14

BALASORE ALLOYS LIMITED ISPAT

o/c

BAL/Mines/294
Dated: 23.09.2014

To

The Member Secretary,
State Pollution Control Board
Paribesh Bhawan
A/118 Nilakantha Nagar Unit-VIII
Bhubaneswar -751012

Sub: Submission of Environmental Statement In Form-V for the financial year 2013-14.

Sir

Please find enclosed herewith the Environmental Statement in Form - V for the financial year 2013-14 with respect to our Kaliapani Chromite Mines, M/S Balasore Alloys Ltd, Kaliapani, Jajpur for your kind perusal.

Series of pressure sand
Filter Press filters

Thanking you

Yours faithfully
For M/s Balasore Alloys Ltd

MINES MANAGER

Received 24/9/14

No. Dt.
RECEIVED
24 SEP 2014
S.P.C. BOARD
BHUBANESWAR

Copy to: The Regional Officer, S. P. C. Board, Kalinganagar

Kaliapani Chromite Mines, Kaliapani, Jajpur, Odisha - 755 047, India, Phone No: (06726) 268298 * Fax No : (06726) 268520
Email : sukinda_mines@balasorealloys.com, ialmines@yahoo.com * Website : www.balasorealloys.com

ANNEXURE-VIII: LETTER SUBMITTED TO REGIONAL OFFICE, MoEF, BBSR FOR THE INFORMATION OF EC GRANT

BALASORE ALLOYS LIMITED ISPAT

Ref: BAL/Mines/ 1576/2014 Date: 3.9.2014

To,

The Director (s).
Ministry of Environment and Forest,
Eastern Regional Office, A/3, Chandrasekharpur,
Bhubaneswar-751023.

Subject: Environmental Clearance Order in respect of Kaliapani Chromite Mine of M/s Balasore Alloys Ltd., Village Kaliapani, Tehsil Sukinda, District Jajpur, Orissa .(64.463 ha ML Area) for expansion of production capacity from 0.42 MTPA to 0.6 MTPA and change in technology from opencast to opencast and underground. Regarding information about advertisement.

Sir,

With reference to the above subject; we would like to inform you that Environmental Clearance for Kaliapani Chromite Mine (ML Area – 64.463 Ha.) - Expansion in Production Capacity from 0.42 MTPA to 0.6 MTPA, Change of technology from Opencast to Underground, Village: Kaliapani, Tehsil: Sukinda, District: Jajpur (Odisha) has been granted vide letter No. No. J-11015/139/2012-IA.II (M) Dated: 22nd August, 2014 (copy attached)by Ministry of Environment, Forests & Climate Change Impact Assessment Division, Ministry of Environment, Forests & Climate Change Impact Assessment Division. The information regarding same order has been published in two news papers viz Dharitri (Odiya Daily News paper) on 1st Sept.2014 and Pioneer(English Daily News paper) on 31st Augast,2014(Copy same attached).

This is for your kind information.

Thanking you and with regards,

Yours faithfully

For M/s. Balasore Alloys Ltd.

S.Gangopadhyay
Vice President (Mine)

Encl: As above

Recd. 12/9/14
PS to APCCF (Central)
GOI, M/o Envt. & Forests
Eastern Regional Office
Bhubaneswar-751023

Kaliapani Chromite Mines, At/Po. : Kaliapani - 755047,Dist. : Jajpur, Odisha, Phone : 06726-268297/98, Fax : 06726-268520
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BBSR Office : Module C/1, 1st Floor, Fortune Tower,Chandrasekharpur, BBSR - 23, Odisha, (India), Ph. : 0674-2301358, Fax : 0674 - 2301639
Regd. Office & Works : Balgopalpur-756020, Balasore, Odisha, Phone : 06782-275781 to 85, Fax : 275724
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