

Visiontek Consultancy Services Pvt. Ltd.

(Committed For Better Environment)

Certified for : ISO 9001:2015, ISO 14001:2015, ISO 45001:2018 (OH&S), ISO/IEC 17025:2017

Accredited by : NABET-A Grade, MOEF & CC/CPCB & SPCB-A Grade

Laboratory Services

Environment Lab
Food Lab
Material Lab
Soil Lab
Mineral Lab
&
Microbiology Lab

● Infrastructure Engineering
● Water Resource Management
● Environmental & Social Study

● Surface & Sub-Surface Investigation
● Quality Control & Project Management
● Renewable Energy

● Agricultural Development
● Information Technology
● Public Health Engineering

● Mine Planning & Design
● Mineral/Sub-Soil Exploration
● Waste Management Services

Ref : Envlab/22/R- 8573

Date : 08.11.2022

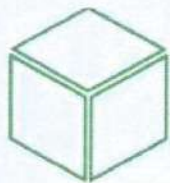
AMBIENT AIR QUALITY (CORE ZONE) MONITORING REPORT- OCT 2022

1. Name of Client : M/s FERRO ALLOYS CORPORATION LIMITED , BHADRAK
2. Name of the Project : OSTAPAL CHROMITE MINES , KALIAPANI, JAJPUR
3. Monitoring Instruments : RDS (APM 460 BL), FPS (APM 550) Envirotech, CO Monitor, VOC Sampler
4. Sample Collected by : VCSPL Representative in presence of Client's Representative

Monitoring Date	PM ₁₀ (µg/m ³)	PM _{2.5} (µg/m ³)	SO ₂ (µg/m ³)	NO _x (µg/m ³)	CO (mg/m ³)	O ₃ (µg/m ³)	NH ₃ (µg/m ³)	C ₆ H ₆ (µg/m ³)	Bap (ng/m ³)	Pb (µg/m ³)	Ni (ng/m ³)	As (ng/m ³)
AAQMS-1: Near Office Building												
04.10.2022	70.8	41.1	13.5	16.4	1.22	20.6	6.8	BDL	BDL	BDL	BDL	BDL
07.10.2022	72.2	42.5	13.2	16.7	1.23	22.1	6.5	BDL	BDL	BDL	BDL	BDL
11.10.2022	71.9	40.6	13.4	16.9	1.25	21.2	6.9	BDL	BDL	BDL	BDL	BDL
14.10.2022	73.6	42.7	13.8	16.5	1.20	21.8	7.0	BDL	BDL	BDL	BDL	BDL
18.10.2022	72.9	43.2	13.6	16.2	1.22	22.4	6.6	BDL	BDL	BDL	BDL	BDL
21.10.2022	72.5	41.8	13.9	16.6	1.24	23.6	7.1	BDL	BDL	BDL	BDL	BDL
25.10.2022	73.1	42.7	13.5	16.3	1.21	22.9	6.9	BDL	BDL	BDL	BDL	BDL
28.10.2022	70.6	43.1	13.7	16.8	1.26	21.6	6.8	BDL	BDL	BDL	BDL	BDL
NAAQ Standard	100	60	80	80	4	100	400	5	01	01	20	06
Monitoring Date	PM ₁₀ (µg/m ³)	PM _{2.5} (µg/m ³)	SO ₂ (µg/m ³)	NO _x (µg/m ³)	CO (mg/m ³)	O ₃ (µg/m ³)	NH ₃ (µg/m ³)	C ₆ H ₆ (µg/m ³)	Bap (ng/m ³)	Pb (µg/m ³)	Ni (ng/m ³)	As (ng/m ³)
AAQMS-2: Near ETP												
04.10.2022	55.9	31.2	11.6	7.6	1.12	16.1	5.9	BDL	BDL	BDL	BDL	BDL
07.10.2022	54.8	33.6	10.9	7.8	1.15	15.8	6.1	BDL	BDL	BDL	BDL	BDL
11.10.2022	56.6	32.7	11.2	8.1	1.19	15.7	6.2	BDL	BDL	BDL	BDL	BDL
14.10.2022	57.3	30.9	11.4	8.0	1.13	16.3	5.8	BDL	BDL	BDL	BDL	BDL
18.10.2022	56.9	31.5	11.9	7.5	1.16	16.5	6.6	BDL	BDL	BDL	BDL	BDL
21.10.2022	54.8	32.4	12.1	7.4	1.12	16.2	6.7	BDL	BDL	BDL	BDL	BDL
25.10.2022	55.2	32.8	12.3	7.9	1.17	16.4	6.3	BDL	BDL	BDL	BDL	BDL
28.10.2022	59.7	33.1	11.7	7.3	1.18	16.6	6.5	BDL	BDL	BDL	BDL	BDL
NAAQ Standard	100	60	80	80	4	100	400	5	01	01	20	06
Testing Method	Gravimetric	Gravimetric	Improved West and Gaeke method	Modified Jacob & Hochheiser (Na-Arsenite)	NDIR Spectroscopy	Chemical Method	Indo Phenol Blue Method	Absorption & Desorption followed by GC	Solvent Extraction Followed by GC	AAS Method	AAS Method	AAS Method

BDL (Below Detection Limit) PM10 <20 µg/m³, PM 2.5<10 µg/m³, SO₂<4 µg/m³, NO₂<6 µg/m³, O₃<4 µg/m³, NH₃<20 µg/m³, C₆H₆<4 µg/m³, Bap <0.5 ng/m³, As < 1 ng/m³, Ni < 2.5 ng/m³, Pb <0.02 µg/m³





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Ref : Envlab/22/R-8574

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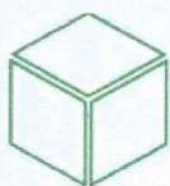
AMBIENT AIR QUALITY (CORE ZONE) MONITORING REPORT- OCT 2022

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2. Name of the Project : OSTAPAL CHROMITE MINES , KALIAPANI, JAJPUR
3. Monitoring Instruments : RDS (APM 460 BL), FPS (APM 550) Envirotech, CO Monitor, VOC Sampler
4. Sample Collected by : VCSPL Representative in presence of Client's Representative

Monitoring Date	PM ₁₀ (µg/m ³)	PM _{2.5} (µg/m ³)	SO ₂ (µg/m ³)	NO _x (µg/m ³)	CO (mg/m ³)	O ₃ (µg/m ³)	NH ₃ (µg/m ³)	C ₆ H ₆ (µg/m ³)	Bap (ng/m ³)	Pb (µg/m ³)	Ni (ng/m ³)	As (ng/m ³)
AAQMS-3: Near Electrical Substation												
04.10.2022	65.1	39.7	12.8	15.9	1.25	21.5	6.1	BDL	BDL	BDL	BDL	BDL
07.10.2022	66.0	38.6	13.2	14.7	1.28	21.9	5.8	BDL	BDL	BDL	BDL	BDL
11.10.2022	64.9	38.5	13.5	15.2	1.25	22.0	6.3	BDL	BDL	BDL	BDL	BDL
14.10.2022	66.2	36.7	12.7	15.5	1.24	21.7	6.0	BDL	BDL	BDL	BDL	BDL
18.10.2022	65.7	38.9	13.1	15.8	1.29	21.6	5.9	BDL	BDL	BDL	BDL	BDL
21.10.2022	65.3	39.2	12.9	16.1	1.31	22.2	6.1	BDL	BDL	BDL	BDL	BDL
25.10.2022	66.3	39.4	13.5	15.8	1.26	22.1	6.4	BDL	BDL	BDL	BDL	BDL
28.10.2022	65.9	38.6	13.3	16.2	1.30	21.8	6.2	BDL	BDL	BDL	BDL	BDL
NAAQ Standard	100	60	80	80	4	100	400	5	01	01	20	06
Monitoring Date	PM ₁₀ (µg/m ³)	PM _{2.5} (µg/m ³)	SO ₂ (µg/m ³)	NO _x (µg/m ³)	CO (mg/m ³)	O ₃ (µg/m ³)	NH ₃ (µg/m ³)	C ₆ H ₆ (µg/m ³)	Bap (ng/m ³)	Pb (µg/m ³)	Ni (ng/m ³)	As (ng/m ³)
AAQMS-4: Near Weigh Bridge												
04.10.2022	64.9	35.7	12.8	14.8	1.26	21.2	5.5	BDL	BDL	BDL	BDL	BDL
07.10.2022	62.7	38.1	13.1	14.9	1.22	20.7	5.8	BDL	BDL	BDL	BDL	BDL
11.10.2022	63.3	36.7	13.3	15.2	1.25	21.3	5.6	BDL	BDL	BDL	BDL	BDL
14.10.2022	65.2	34.9	12.9	15.4	1.29	20.9	5.9	BDL	BDL	BDL	BDL	BDL
18.10.2022	63.9	35.5	13.6	14.7	1.26	21.4	6.2	BDL	BDL	BDL	BDL	BDL
21.10.2022	64.1	36.7	12.0	14.5	1.28	21.5	6.0	BDL	BDL	BDL	BDL	BDL
25.10.2022	65.2	35.8	12.7	14.9	1.22	22.1	5.7	BDL	BDL	BDL	BDL	BDL
28.10.2022	65.7	37.2	13.2	15.3	1.27	22.3	6.1	BDL	BDL	BDL	BDL	BDL
NAAQ Standard	100	60	80	80	4	100	400	5	01	01	20	06
Testing Method	Gravimetric	Gravimetric	Improved West and Geake method	Modified Jacob & Hochheiser (Na-Arsenite)	NDIR Spectroscopy	Chemical Method	Indo Phenol Blue Method	Absorption & Desorption followed by GC	Solvent Extraction Followed by GC	AAS Method	AAS Method	AAS Method

BDL (Below Detection Limit) PM10 <20 µg/m³, PM 2.5<10 µg/m³, SO₂<4 µg/m³, NO_x<6 µg/m³, O₃<4 µg/m³, NH₃<20 µg/m³, C₆H₆<4 µg/m³, Bap <0.5 ng/m³, As < 1 ng/m³, Ni < 2.5 ng/m³, Pb <0.02 µg/m³





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Ref : Envlab/22/R-8575

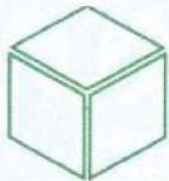
Date : 08.11.2022

AMBIENT AIR QUALITY (BUFFER ZONE) MONITORING REPORT- OCT 2022

- 1 Name of Client : M/s FERRO ALLOYS CORPORATION LIMITED , BHADRAK
- 2 Name of the Project : OSTAPAL CHROMITE MINES , KALIAPANI, JAJPUR
- 3 Monitoring Instruments : RDS (APM 460 BL), FPS (APM 550) Envirotech, CO Monitor, VOC Sampler
- 4 Sample Collected by : VCSPL Representative in presence of Client's Representative

Monitoring Date	PM ₁₀ (µg/m ³)	PM _{2.5} (µg/m ³)	SO ₂ (µg/m ³)	NO _x (µg/m ³)	CO (mg/m ³)	NH ₃ (µg/m ³)	O ₃ (µg/m ³)	C ₆ H ₆ (µg/m ³)	Bap (ng/m ³)	Pb (µg/m ³)	Ni (ng/m ³)	As (ng/m ³)
AAQMS-1: Near Village Ostia												
19.10.2022	65.1	37.2	8.5	14.2	0.55	BDL	6.2	BDL	BDL	BDL	BDL	BDL
AAQMS-2: Near Village Kaposi												
20.10.2022	54.4	33.4	8.4	12.7	0.61	BDL	6.1	BDL	BDL	BDL	BDL	BDL
AAQMS-3: Near Village Kaliapani Township												
19.10.2022	62.3	38.5	9.2	13.4	1.02	BDL	6.4	BDL	BDL	BDL	BDL	BDL
AAQMS-4: Near Village Ostapal												
20.10.2022	55.7	37.2	7.7	12.5	0.56	BDL	5.6	BDL	BDL	BDL	BDL	BDL





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Ref : Envlab/22/R- 8576

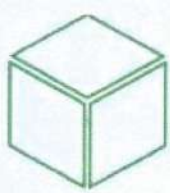
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AMBIENT AIR QUALITY (BUFFER ZONE) MONITORING REPORT- OCT 2022

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Monitoring Date	PM ₁₀ (µg/m ³)	PM _{2.5} (µg/m ³)	SO ₂ (µg/m ³)	NO _x (µg/m ³)	CO (mg/m ³)	NH ₃ (µg/m ³)	O ₃ (µg/m ³)	C ₆ H ₆ (µg/m ³)	Bap (ng/m ³)	Pb (µg/m ³)	Ni (ng/m ³)	As (ng/m ³)
AAQMS-1: Near Village Ostia												
24.10.2022	65.3	35.7	8.3	14.4	0.55	BDL	5.6	BDL	BDL	BDL	BDL	BDL
AAQMS-2: Near Village Kaposi												
25.10.2022	54.5	32.3	8.1	13.5	0.63	BDL	6.2	BDL	BDL	BDL	BDL	BDL
AAQMS-3: Near Village Kaliapani Township												
24.10.2022	62.7	37.8	9.3	13.3	1.06	BDL	6.5	BDL	BDL	BDL	BDL	BDL
AAQMS-4: Near Village Ostapal												
25.10.2022	55.4	37.6	8.5	12.8	0.57	BDL	5.7	BDL	BDL	BDL	BDL	BDL





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Ref : Envlab/22/R-0124

Date : 07.12.2022

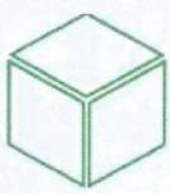
AMBIENT AIR QUALITY (CORE ZONE) MONITORING REPORT- NOV 2022

- Name of Client : M/s FERRO ALLOYS CORPORATION LIMITED , BHADRAK
- Name of the Project : OSTAPAL CHROMITE MINES , KALIAPANI, JAJPUR
- Monitoring Instruments : RDS (APM 460 BL), FPS (APM 550) Envirotech, CO Monitor, VOC Sampler
- Sample Collected by : VCSPL Representative in presence of Client's Representative

Monitoring Date	PM ₁₀ (µg/m ³)	PM _{2.5} (µg/m ³)	SO ₂ (µg/m ³)	NO _x (µg/m ³)	CO (mg/m ³)	O ₃ (µg/m ³)	NH ₃ (µg/m ³)	C ₆ H ₆ (µg/m ³)	Bap (ng/m ³)	Pb (µg/m ³)	Ni (ng/m ³)	As (ng/m ³)
AAQMS-1: Near Office Building												
01.11.2022	72.5	40.3	13.5	16.4	1.22	20.6	6.8	BDL	BDL	BDL	BDL	BDL
04.11.2022	71.6	40.9	13.2	16.7	1.23	22.1	6.5	BDL	BDL	BDL	BDL	BDL
08.11.2022	73.5	40.2	13.4	16.9	1.25	21.2	6.9	BDL	BDL	BDL	BDL	BDL
11.11.2022	69.4	39.6	13.8	16.5	1.20	21.8	7.0	BDL	BDL	BDL	BDL	BDL
15.11.2022	71.2	40.5	13.6	16.2	1.22	22.4	6.6	BDL	BDL	BDL	BDL	BDL
18.11.2022	71.6	40.5	13.9	16.6	1.24	23.6	7.1	BDL	BDL	BDL	BDL	BDL
22.11.2022	72.3	41.3	13.5	16.3	1.21	22.9	6.9	BDL	BDL	BDL	BDL	BDL
25.11.2022	71.5	41.5	13.7	16.8	1.26	21.6	6.8	BDL	BDL	BDL	BDL	BDL
29.11.2022	70.8	41.1	13.6	16.4	1.23	21.2	6.6	BDL	BDL	BDL	BDL	BDL
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AAQMS-2: Near ETP												
01.11.2022	56.3	32.1	11.7	7.5	1.13	16.2	5.8	BDL	BDL	BDL	BDL	BDL
04.11.2022	55.8	31.9	10.8	7.9	1.16	15.7	6.2	BDL	BDL	BDL	BDL	BDL
08.11.2022	57.4	32.7	11.3	8.2	1.20	15.7	6.3	BDL	BDL	BDL	BDL	BDL
11.11.2022	58.3	33.3	11.5	8.1	1.14	16.3	5.9	BDL	BDL	BDL	BDL	BDL
15.11.2022	57.4	32.7	11.8	7.6	1.17	16.5	6.7	BDL	BDL	BDL	BDL	BDL
18.11.2022	55.8	31.8	12.2	7.5	1.13	16.2	6.8	BDL	BDL	BDL	BDL	BDL
22.11.2022	56.4	32.2	12.4	7.8	1.18	16.4	6.4	BDL	BDL	BDL	BDL	BDL
25.11.2022	60.3	34.3	11.8	7.4	1.19	16.6	6.6	BDL	BDL	BDL	BDL	BDL
29.11.2022	60.6	33.9	12.3	7.6	1.16	15.9	6.4	BDL	BDL	BDL	BDL	BDL
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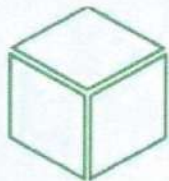
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15.11.2022	65.6	37.3	13.2	15.9	1.28	21.7	5.8	BDL	BDL	BDL	BDL	BDL
18.11.2022	66.3	37.7	12.8	16.2	1.32	22.3	6.2	BDL	BDL	BDL	BDL	BDL
22.11.2022	67.5	38.4	13.6	15.9	1.27	22.2	6.5	BDL	BDL	BDL	BDL	BDL
25.11.2022	66.3	37.7	13.4	16.3	1.32	21.9	6.3	BDL	BDL	BDL	BDL	BDL
29.11.2022	66.9	38.1	13.2	16.4	1.33	21.8	6.4	BDL	BDL	BDL	BDL	BDL
NAAQ Standard	100	60	80	80	4	100	400	5	01	01	20	06
Monitoring Date	PM ₁₀ (µg/m ³)	PM _{2.5} (µg/m ³)	SO ₂ (µg/m ³)	NO _x (µg/m ³)	CO (mg/m ³)	O ₃ (µg/m ³)	NH ₃ (µg/m ³)	C ₆ H ₆ (µg/m ³)	Bap (ng/m ³)	Pb (µg/m ³)	Ni (ng/m ³)	As (ng/m ³)
AAQMS-4: Near Weigh Bridge												
01.11.2022	64.8	36.9	12.9	14.9	1.27	21.3	5.6	BDL	BDL	BDL	BDL	BDL
04.11.2022	63.5	36.1	13.2	14.8	1.21	20.8	5.9	BDL	BDL	BDL	BDL	BDL
08.11.2022	64.5	36.7	13.4	15.3	1.23	21.4	5.7	BDL	BDL	BDL	BDL	BDL
11.11.2022	66.3	37.7	12.8	15.5	1.28	20.8	5.8	BDL	BDL	BDL	BDL	BDL
15.11.2022	64.5	36.7	13.7	14.8	1.27	21.5	6.3	BDL	BDL	BDL	BDL	BDL
18.11.2022	65.3	37.2	12.2	14.6	1.29	21.6	6.1	BDL	BDL	BDL	BDL	BDL
22.11.2022	66.8	38.1	12.8	14.8	1.23	22.2	5.8	BDL	BDL	BDL	BDL	BDL
25.11.2022	66.7	38.2	13.3	15.3	1.28	22.4	6.2	BDL	BDL	BDL	BDL	BDL
29.11.2022	66.3	37.4	13.1	15.2	1.27	22.1	6.1	BDL	BDL	BDL	BDL	BDL
NAAQ Standard	100	60	80	80	4	100	400	5	01	01	20	06
Testing Method	Gravimetric	Gravimetric	Improved West and Geake method	Modified Jacob & Hochheiser (Na-Arsenite)	NDIR Spectroscopy	Chemical Method	Indo Phenol Blue Method	Absorption & Desorption followed by GC	Solvent Extraction Followed by GC	AAS Method	AAS Method	AAS Method

BDL (Below Detection Limit) PM₁₀ < 20 µg/m³, PM_{2.5} < 10 µg/m³, SO₂ < 4 µg/m³, NO_x < 6 µg/m³, O₃ < 4 µg/m³, NH₃ < 20 µg/m³, C₆H₆ < 4 µg/m³, Bap < 0.5 ng/m³, As < 1 ng/m³, Ni < 2.5 ng/m³, Pb < 0.02 µg/m³





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Ref : Envlab/22/R-0126

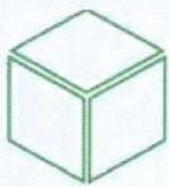
Date : 07.12.2022

AMBIENT AIR QUALITY (BUFFER ZONE) MONITORING REPORT- NOV 2022

- 5 Name of Client : M/s FERRO ALLOYS CORPORATION LIMITED , BHADRAK
 6 Name of the Project : OSTAPAL CHROMITE MINES , KALIAPANI, JAJPUR
 7 Monitoring Instruments : RDS (APM 460 BL), FPS (APM 550) Envirotech, CO Monitor, VOC Sampler
 8 Sample Collected by : VCSPL Representative in presence of Client's Representative

Monitoring Date	PM ₁₀ (µg/m ³)	PM _{2.5} (µg/m ³)	SO ₂ (µg/m ³)	NO _x (µg/m ³)	CO (mg/m ³)	NH ₃ (µg/m ³)	O ₃ (µg/m ³)	C ₆ H ₆ (µg/m ³)	Bap (ng/m ³)	Pb (µg/m ³)	Ni (ng/m ³)	As (ng/m ³)
AAQMS-1: Near Village Ostia												
16.11.2022	65.3	37.6	8.8	15.3	0.57	BDL	6.7	BDL	BDL	BDL	BDL	BDL
AAQMS-2: Near Village Kaposi												
17.11.2022	54.8	34.5	8.9	13.2	0.62	BDL	6.3	BDL	BDL	BDL	BDL	BDL
AAQMS-3: Near Village Kaliapani Township												
16.11.2022	63.7	38.9	9.5	14.2	1.07	BDL	6.8	BDL	BDL	BDL	BDL	BDL
AAQMS-4: Near Village Ostapal												
17.11.2022	56.4	38.2	7.9	12.8	0.59	BDL	5.8	BDL	BDL	BDL	BDL	BDL





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● Mineral/Sub-Soil Exploration
● Waste Management Services

Ref : Envlab/22/R-0127

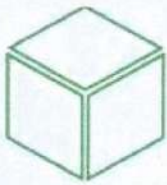
Date : 07.12.2022

AMBIENT AIR QUALITY (BUFFER ZONE) MONITORING REPORT- NOV 2022

- 5 Name of Client : M/s FERRO ALLOYS CORPORATION LIMITED , BHADRAK
 6 Name of the Project : OSTAPAL CHROMITE MINES , KALIAPANI, JAJPUR
 7 Monitoring Instruments : RDS (APM 460 BL), FPS (APM 550) Envirotech, CO Monitor, VOC Sampler
 8 Sample Collected by : VCSPL Representative in presence of Client's Representative

Monitoring Date	PM ₁₀ (µg/m ³)	PM _{2.5} (µg/m ³)	SO ₂ (µg/m ³)	NO _x (µg/m ³)	CO (mg/m ³)	NH ₃ (µg/m ³)	O ₃ (µg/m ³)	C ₆ H ₆ (µg/m ³)	Bap (ng/m ³)	Pb (µg/m ³)	Ni (ng/m ³)	As (ng/m ³)
AAQMS-1: Near Village Ostia												
24.11.2022	65.7	35.8	8.9	15.2	0.57	BDL	5.9	BDL	BDL	BDL	BDL	BDL
AAQMS-2: Near Village Kaposi												
25.11.2022	54.8	32.7	8.4	13.7	0.65	BDL	6.7	BDL	BDL	BDL	BDL	BDL
AAQMS-3: Near Village Kaliapani Township												
24.11.2022	62.9	37.7	9.5	13.7	1.08	BDL	6.9	BDL	BDL	BDL	BDL	BDL
AAQMS-4: Near Village Ostapal												
25.11.2022	55.7	36.9	8.7	13.9	0.59	BDL	5.8	BDL	BDL	BDL	BDL	BDL





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Ref : Envlab/22/R- 1557

Date : 08.01.2023

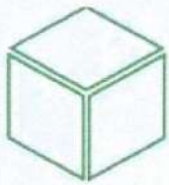
AMBIENT AIR QUALITY (CORE ZONE) MONITORING REPORT- DEC 2022

Name of Client : M/s FERRO ALLOYS CORPORATION LIMITED , BHADRAK
 Name of the Project : OSTAPAL CHROMITE MINES , KALIAPANI, JAJPUR
 Monitoring Instruments : RDS (APM 460 BL), FPS (APM 550) Envirotech, CO Monitor, VOC Sampler
 Sample Collected by : VCSPL Representative in presence of Client's Representative

Monitoring Date	PM ₁₀ (µg/m ³)	PM _{2.5} (µg/m ³)	SO ₂ (µg/m ³)	NO _x (µg/m ³)	CO (mg/m ³)	NH ₃ (µg/m ³)	O ₃ (µg/m ³)	C ₆ H ₆ (µg/m ³)	Bap (ng/m ³)	Pb (µg/m ³)	Ni (ng/m ³)	As (ng/m ³)
AAQMS-1: Near Office Building												
02.12.2022	69.4	41.1	13.3	16.6	1.21	21.4	7.1	BDL	BDL	BDL	BDL	BDL
06.12.2022	71.2	40.6	13.5	16.9	1.25	20.9	6.8	BDL	BDL	BDL	BDL	BDL
09.12.2022	70.6	39.8	13.9	17.2	1.22	20.5	6.3	BDL	BDL	BDL	BDL	BDL
13.12.2022	68.5	40.5	14.1	16.8	1.19	21.2	6.9	BDL	BDL	BDL	BDL	BDL
16.12.2022	69.9	40.1	12.9	15.9	1.24	21.7	7.2	BDL	BDL	BDL	BDL	BDL
20.12.2022	67.2	41.3	14.2	16.6	1.17	20.6	7.5	BDL	BDL	BDL	BDL	BDL
23.12.2022	70.5	42.1	13.6	16.2	1.18	21.1	6.7	BDL	BDL	BDL	BDL	BDL
27.12.2022	72.1	41.8	13.3	17.1	1.22	21.4	6.4	BDL	BDL	BDL	BDL	BDL
30.12.2022	70.6	40.6	13.7	16.7	1.16	21.9	6.9	BDL	BDL	BDL	BDL	BDL
NAAQ Standard	100	60	80	80	4	100	400	5	01	01	20	06
Monitoring Date	PM ₁₀ (µg/m ³)	PM _{2.5} (µg/m ³)	SO ₂ (µg/m ³)	NO _x (µg/m ³)	CO (mg/m ³)	NH ₃ (µg/m ³)	O ₃ (µg/m ³)	C ₆ H ₆ (µg/m ³)	Bap (ng/m ³)	Pb (µg/m ³)	Ni (ng/m ³)	As (ng/m ³)
AAQMS-2: Near ETP												
02.12.2022	58.8	31.6	12.4	7.8	1.15	20.1	6.1	BDL	BDL	BDL	BDL	BDL
06.12.2022	59.4	32.3	12.1	8.1	1.11	20.5	5.7	BDL	BDL	BDL	BDL	BDL
09.12.2022	57.6	32.5	10.7	8.4	1.14	21.3	6.3	BDL	BDL	BDL	BDL	BDL
13.12.2022	58.2	31.9	11.1	7.6	1.23	20.9	5.9	BDL	BDL	BDL	BDL	BDL
16.12.2022	56.4	33.3	11.8	7.5	1.18	21.2	6.2	BDL	BDL	BDL	BDL	BDL
20.12.2022	55.8	32.6	11.5	8.2	1.21	21.8	6.1	BDL	BDL	BDL	BDL	BDL
23.12.2022	58.9	31.7	10.9	8.6	1.16	22.3	6.5	BDL	BDL	BDL	BDL	BDL
27.12.2022	60.1	32.2	11.8	8.3	1.11	21.6	6.7	BDL	BDL	BDL	BDL	BDL
30.12.2022	59.3	32.5	12.3	8.1	1.15	20.9	6.4	BDL	BDL	BDL	BDL	BDL
NAAQ Standard	100	60	80	80	4	100	400	5	01	01	20	06
Testing Method	Gravimetric	Gravimetric	Improved West and Geake method	Modified Jacob & Hochheiser (Na-Arsenite)	NDIR Spectroscopy	Chemical Method	Indo Phenol Blue Method	Absorption & Desorption followed by GC	Solvent Extraction Followed by GC	AAS Method	AAS Method	AAS Method

BDL (Below Detection Limit) PM₁₀ <20 µg/m³, PM_{2.5} <10 µg/m³, SO₂ <4 µg/m³, NO_x <6 µg/m³, O₃ <4 µg/m³, NH₃ <20 µg/m³, C₆H₆ <4 µg/m³, Bap <0.5 ng/m³, As < 1 ng/m³, Ni < 2.5 ng/m³, Pb <0.02 µg/m³





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- Waste Management Services

Ref : Envlab/22/R- 1558

Date : 08.01.2023

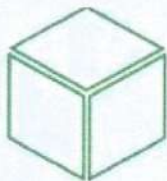
AMBIENT AIR QUALITY (CORE ZONE) MONITORING REPORT- DEC 2022

9. Name of Client : M/s FERRO ALLOYS CORPORATION LIMITED , BHADRAK
 10. Name of the Project : OSTAPAL CHROMITE MINES , KALIAPANI, JAJPUR
 11. Monitoring Instruments : RDS (APM 460 BL), FPS (APM 550) Envirotech, CO Monitor, VOC Sampler
 12. Sample Collected by : VCSPL Representative in presence of Client's Representative

Monitoring Date	PM ₁₀ (µg/m ³)	PM _{2.5} (µg/m ³)	SO ₂ (µg/m ³)	NO _x (µg/m ³)	CO (mg/m ³)	NH ₃ (µg/m ³)	O ₃ (µg/m ³)	C ₆ H ₆ (µg/m ³)	Bap (ng/m ³)	Pb (µg/m ³)	Ni (ng/m ³)	As (ng/m ³)
AAQMS-3: Near Electrical Substation												
02.12.2022	66.5	38.3	13.4	16.3	1.21	22.2	6.2	BDL	BDL	BDL	BDL	BDL
06.12.2022	65.7	37.6	12.8	15.9	1.26	21.6	6.6	BDL	BDL	BDL	BDL	BDL
09.12.2022	65.1	36.9	12.6	15.2	1.31	21.5	6.9	BDL	BDL	BDL	BDL	BDL
13.12.2022	66.2	37.3	13.3	16.1	1.33	20.9	6.5	BDL	BDL	BDL	BDL	BDL
16.12.2022	66.6	37.8	13.5	15.7	1.38	20.8	7.1	BDL	BDL	BDL	BDL	BDL
20.12.2022	65.8	38.1	12.9	15.9	1.22	21.1	7.4	BDL	BDL	BDL	BDL	BDL
23.12.2022	64.9	38.5	13.4	16.1	1.29	20.6	6.8	BDL	BDL	BDL	BDL	BDL
27.12.2022	65.6	36.7	14.1	15.2	1.34	21.7	6.3	BDL	BDL	BDL	BDL	BDL
30.12.2022	66.1	37.2	14.5	15.9	1.31	21.4	6.1	BDL	BDL	BDL	BDL	BDL
NAAQ Standard	100	60	80	80	4	100	400	5	01	01	20	06
Monitoring Date	PM ₁₀ (µg/m ³)	PM _{2.5} (µg/m ³)	SO ₂ (µg/m ³)	NO _x (µg/m ³)	CO (mg/m ³)	NH ₃ (µg/m ³)	O ₃ (µg/m ³)	C ₆ H ₆ (µg/m ³)	Bap (ng/m ³)	Pb (µg/m ³)	Ni (ng/m ³)	As (ng/m ³)
AAQMS-4: Near Weigh Bridge												
02.12.2022	66.5	37.3	13.1	14.9	1.21	22.1	6.1	BDL	BDL	BDL	BDL	BDL
06.12.2022	65.9	35.8	12.8	15.1	1.25	20.7	5.5	BDL	BDL	BDL	BDL	BDL
09.12.2022	65.3	35.2	12.5	15.5	1.31	21.6	6.9	BDL	BDL	BDL	BDL	BDL
13.12.2022	66.2	36.3	13.4	15.3	1.22	21.2	6.3	BDL	BDL	BDL	BDL	BDL
16.12.2022	64.8	36.1	13.9	15.8	1.28	22.3	6.7	BDL	BDL	BDL	BDL	BDL
20.12.2022	66.9	35.4	13.3	15.4	1.37	21.5	7.2	BDL	BDL	BDL	BDL	BDL
23.12.2022	67.1	34.9	12.7	15.1	1.18	20.9	6.4	BDL	BDL	BDL	BDL	BDL
27.12.2022	66.2	35.7	12.2	14.7	1.21	21.4	7.3	BDL	BDL	BDL	BDL	BDL
30.12.2022	65.6	36.1	13.1	14.5	1.15	21.1	6.6	BDL	BDL	BDL	BDL	BDL
NAAQ Standard	100	60	80	80	4	100	400	5	01	01	20	06
Testing Method	Gravimetric	Gravimetric	Improved West and Geake method	Modified Jacob & Hochheiser (Na-Arsenite)	NDIR Spectroscopy	Chemical Method	Indo Phenol Blue Method	Absorption & Desorption followed by GC	Solvent Extraction Followed by GC	AAS Method	AAS Method	AAS Method

BDL (Below Detection Limit) PM10 <20 µg/m³, PM 2.5<10 µg/m³, SO₂<4 µg/m³, NO_x<6 µg/m³, O₃<4 µg/m³, NH₃<20 µg/m³, C₆H₆<4 µg/m³, Bap <0.5 ng/m³, As < 1 ng/m³, Ni < 2.5 ng/m³, Pb <0.02 µg/m³





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- Mine Planning & Design
- Mineral/Sub-Soil Exploration
- Waste Management Services

Ref : Envlab/22/R- 1559

Date : 08.01.2023

AMBIENT AIR QUALITY (BUFFER ZONE) MONITORING REPORT- DEC 2022

Name of Client : M/s FERRO ALLOYS CORPORATION LIMITED , BHADRAK

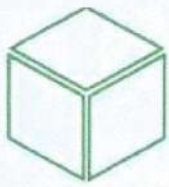
Name of the Project : OSTAPAL CHROMITE MINES , KALIAPANI, JAJPUR

Monitoring Instruments : RDS (APM 460 BL), FPS (APM 550) Envirotech, CO Monitor, VOC Sampler

Sample Collected by : VCSPL Representative in presence of Client's Representative

Monitoring Date	PM ₁₀ (µg/m ³)	PM _{2.5} (µg/m ³)	SO ₂ (µg/m ³)	NO _x (µg/m ³)	CO (mg/m ³)	NH ₃ (µg/m ³)	O ₃ (µg/m ³)	C ₆ H ₆ (µg/m ³)	Bap (ng/m ³)	Pb (µg/m ³)	Ni (ng/m ³)	As (ng/m ³)
AAQMS-1: Near Village Ostia												
12.12.2022	65.9	37.3	8.7	15.9	0.54	BDL	6.6	BDL	BDL	BDL	BDL	BDL
AAQMS-2: Near Village Kaposi												
13.12.2022	56.3	34.2	8.5	12.6	0.63	BDL	6.8	BDL	BDL	BDL	BDL	BDL
AAQMS-3: Near Village Kaliapani Township												
12.12.2022	64.1	38.3	9.2	14.5	1.11	BDL	6.8	BDL	BDL	BDL	BDL	BDL
AAQMS-4: Near Village Ostapal												
13.12.2022	57.6	38.5	7.7	12.5	0.56	BDL	5.9	BDL	BDL	BDL	BDL	BDL





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● Mineral/Sub-Soil Exploration
● Waste Management Services

Ref : Envlab/22/R- 1560

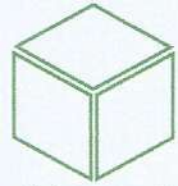
Date : 08.01.2023

AMBIENT AIR QUALITY (BUFFER ZONE) MONITORING REPORT- DEC 2022

Name of Client : M/s FERRO ALLOYS CORPORATION LIMITED , BHADRAK
Name of the Project : OSTAPAL CHROMITE MINES , KALIAPANI, JAJPUR
Monitoring Instruments : RDS (APM 460 BL), FPS (APM 550) Envirotech, CO Monitor, VOC Sampler
Sample Collected by : VCSPL Representative in presence of Client's Representative

Monitoring Date	PM ₁₀ (µg/m ³)	PM _{2.5} (µg/m ³)	SO ₂ (µg/m ³)	NO _x (µg/m ³)	CO (mg/m ³)	NH ₃ (µg/m ³)	O ₃ (µg/m ³)	C ₆ H ₆ (µg/m ³)	Bap (ng/m ³)	Pb (µg/m ³)	Ni (ng/m ³)	As (ng/m ³)
AAQMS-1: Near Village Ostia												
26.12.2022	65.1	35.8	8.8	15.7	0.55	BDL	5.8	BDL	BDL	BDL	BDL	BDL
AAQMS-2: Near Village Kaposi												
27.12.2022	55.6	32.9	8.5	14.1	0.63	BDL	6.2	BDL	BDL	BDL	BDL	BDL
AAQMS-3: Near Village Kaliapani Township												
26.12.2022	62.9	37.7	9.2	13.4	1.14	BDL	6.5	BDL	BDL	BDL	BDL	BDL
AAQMS-4: Near Village Ostapal												
27.12.2022	56.2	36.2	8.7	13.8	0.63	BDL	5.5	BDL	BDL	BDL	BDL	BDL





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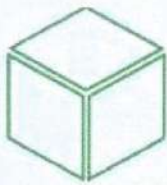
Ref. no: Envlab/22/R-1538

Date: 08.01.2023

GROUND WATER QUALITY ANALYSIS REPORT- DEC 2022

- Name of Client : M/s FERRO ALLOYS CORPORATION LIMITED , BHADRAK
- Name of the Project : OSTAPAL CHROMITE MINES , KALIAPANI, JAJPUR
- Sampling Location : GW1: Bore well Near Work Shop of the Mines
GW2: Bore Well Near Main Gate of OCM
GW3: Open Well Near Ostia Village
- Method of Sampling : APHA 1060 B
- Date of Sampling : 21.12.2022
- Date of Analysis : 22.12.2022 TO 28.12.2022
- Sample Collected by : VCSPL Representative in presence of Client's Representative

Sl. No.	Parameter	Unit	TEST METHOD	Standard as per IS -10500:2012 Amended on 2015 & 2018	GW1	GW2	GW3
				Permissible Limit			
Physical Parameter							
1	Colour	Hazen,Max	APHA 23 rd Ed,2017 : 2120 B, C	5	<5	<5	<5
2	Odour	--	APHA 23 rd Ed,2017 :2120 B	Agreeable	Agreeable	Agreeable	Agreeable
3	Taste	--	APHA 23 rd Ed,2017 : 2160 C	Agreeable	Agreeable	Agreeable	Agreeable
4	Turbidity	NTU,Max	APHA 2130 B	1	0.4	0.3	0.3
5	pH at 25 ^o C	--	APHA 23 rd Ed,2017 : 4500H ⁺ B	6.5-8.5	6.68	6.89	6.93
6	Dissolved Solids	mg/l,Max	APHA 23 rd Ed,2017 : 2540 C	500	278	326	275
CHEMICAL PARAMETER							
1	Total Hardness (as CaCO ₃)	mg/l,Max	APHA 23 rd Ed,2017 : 2340 C	200	186	191	196
2	Iron (as Fe)	mg/l,Max	APHA 23 rd Ed,2017 : 3111, B	1.0	0.24	0.26	0.23
3	Chloride (as Cl)	mg/l,Max	APHA 23 rd Ed,2017 : 4500Cl ⁻ B	250	45	55	40
4	Residual, free Chlorine	mg/l,Min	APHA 4500 Cl ⁻ B	0.2	ND	ND	ND
5	Calcium (as Ca)	mg/l,Max	APHA 23 rd Ed,2017 : 3500Ca B	75	45.8	46.4	49.3
6	Magnesium (as Mg)	mg/l,Max	APHA 3500 Mg B	30	17.4	18.3	17.7
7	Copper (as Cu)	mg/l,Max	APHA 3111 B,C	0.05	BDL	BDL	BDL
8	Manganese (as Mn)	mg/l,Max	APHA 3500Mn B	0.1	BDL	BDL	BDL
9	Sulphate (as SO ₄) _s	mg/l,Max	APHA 4500 SO ₄ ²⁻ E	200	28.7	30.3	31.2
10	Nitrate (as NO ₃)	mg/l,Max	APHA 4500 NO ₃ ⁻ E	45	8.1	7.4	6.7
11	Fluoride (as F)	mg/l,Max	APHA 4500 F,C	1.0	0.14	0.15	0.21
12	Phenolic Compounds(as C ₆ H ₅ OH)	mg/l,Max	APHA 5530 B,D	0.001	BDL	BDL	BDL
13	Anionic Detergents (as MBAS)	mg/l,Max	APHA 5540 C	0.2	ND	ND	ND
14	Chromium (as Cr ⁺⁶)	mg/l,Max	APHA 3500Cr B	0.05	<0.01	<0.01	<0.01
15	Mineral Oil	mg/l,Max	APHA 5520 B	0.5	BDL	BDL	BDL
16	Alkalinity	mg/l,Max	APHA 2320 B	200	155	190	185
17	Aluminium as(Al)	mg/l,Max	APHA 3500Al B	0.03	BDL	BDL	BDL
18	Boron (as B)	mg/l,Max	APHA 4500 B,B	0.5	BDL	BDL	BDL
19	Polyaromatic hydrocarbons	mg/l,Max	APHA 23 rd Ed,2017	0.0001	ND	ND	ND



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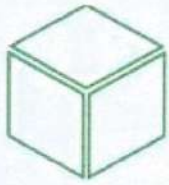
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- Waste Management Services

	(PAH)		:6440 B				
20	Zinc (as Zn)	mg/l,Max	APHA 23 rd Ed,2017: 3111 B	5	1.5	2.1	2.4
21	Selenium (as Se)	mg/l,Max	APHA 23 rd Ed,2017: 3500 Se C	0.01	BDL	BDL	BDL
22	Mercury as (Hg)	mg/l,Max	APHA 23 rd Ed,2017: 3111 B	0.001	BDL	BDL	BDL
23	Cadmium as(Cd)	mg/l,Max	APHA 23 rd Ed,2017: 3111 B	0.003	BDL	BDL	BDL
24	Arsenic as (As)	mg/l,Max	APHA 23 rd Ed,2017: 3114 B	0.2	BDL	BDL	BDL
25	Cyanide as (CN-)	mg/l,Max	APHA 23 rd Ed,2017: 4500 CN ⁻ C,D	0.05	BDL	BDL	BDL
26	Lead as(Pb)	mg/l,Max	APHA 23 rd Ed,2017 3111 B	0.1	BDL	BDL	BDL
27	Total Coliform	MPN/100 ml	APHA 23 rd Ed,2017: 9221 B	Shall not be detectable in any 100 ml sample	ND	ND	ND
PESTICIDES							
1	Endosulfan à	µg/l,Max	APHA 23 rd edition: 6630 C	0.4	<0.005	<0.005	<0.005
2	Endosulfan ß	µg/l,Max	APHA 23 rd edition: 6630 C	0.4	<0.005	<0.005	<0.005
3	Endosulfan sulphate	µg/l,Max	APHA 23 rd edition: 6630 C	0.4	<0.005	<0.005	<0.005
4	Alachlor	µg/l, Max	APHA 23 rd edition: 6630 C	20	<0.01	<0.01	<0.01
5	Atrazine	µg/l, Max	APHA 23 rd edition: 6630 C	2.0	<0.01	<0.01	<0.01
6	Aldrin	µg/l, Max	APHA 23 rd edition: 6630 C	0.03	<0.01	<0.01	<0.01
8	Alpha HCH	µg/l, Max	APHA 23 rd edition: 6630 C	0.01	<0.01	<0.01	<0.01
9	Beta HCH	µg/l, Max	APHA 23 rd edition: 6630 C	0.04	<0.01	<0.01	<0.01
10	Delta HCH	µg/l, Max	APHA 23 rd edition: 6630 C	0.04	<0.01	<0.01	<0.01
11	Butachlor	µg/l, Max	APHA 23 rd edition: 6630 C	125.0	<0.01	<0.01	<0.01
12	Chloropyriphos	µg/l, Max	APHA 23 rd edition: 6630 C	30.0	<0.01	<0.01	<0.01
13	2,4-Dichlorophenoxyacetic acid	µg/l, Max	APHA 23 rd edition: 6630 C	30.0	<0.05	<0.05	<0.05
14	p p DDE	µg/l, Max	APHA 23 rd edition: 6630 C	1.0	<0.05	<0.05	<0.05
15	p p DDD	µg/l, Max	APHA 23 rd edition: 6630 C	1.0	<0.05	<0.05	<0.05
16	p p DDT	µg/l, Max	APHA 23 rd edition: 6630 C	1.0	<0.05	<0.05	<0.05
17	o p DDE	µg/l, Max	APHA 23 rd edition: 6630 C	1.0	<0.05	<0.05	<0.05
18	o p DDD	µg/l, Max	APHA 23 rd edition: 6630 C	1.0	<0.05	<0.05	<0.05
19	o p DDT	µg/l, Max	APHA 23 rd edition: 6630 C	1.0	<0.05	<0.05	<0.05
20	Ethion	µg/l, Max	APHA 23 rd edition: 6630 C	3.0	<0.01	<0.01	<0.01
21	Lindane	µg/l, Max	APHA 23 rd edition: 6630 C	2.0	<0.01	<0.01	<0.01

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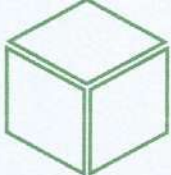
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22	Isoproturon	µg/l, Max	APHA 23rd edition: 6630 C	9.0	<0.01	<0.01	<0.01
23	Malathion	µg/l, Max	APHA 23rd edition: 6630 C	190.0	<0.01	<0.01	<0.01
24	Methyl parathion	µg/l, Max	APHA 23rd edition: 6630 C	0.3	<0.01	<0.01	<0.01
25	Monocrotophos	µg/l, Max	APHA 23rd edition: 6630 C	1.0	<0.01	<0.01	<0.01
26	Phorate	µg/l, Max	APHA 23rd edition: 6630 C	2.0	<0.01	<0.01	<0.01





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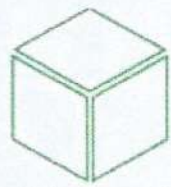
Ref. no: Envlab/22/R-1539

Date: 08.01.2023

GROUND WATER QUALITY ANALYSIS REPORT- DEC 2022

1. Name of Client : M/s FERRO ALLOYS CORPORATION LIMITED , BHADRAK
2. Name of the Project : OSTAPAL CHROMITE MINES , KALIAPANI, JAJPUR
3. Sampling Location : GW4: Open Well Near Ostapal Village
GW5: Tube Well inside the Shiva Temple of Village Gurujanga
GW6: Tube Well outside Shiva Temple of Village Gurujanga
4. Method of Sampling : APHA 1060 B
5. Date of Sampling : 21.12.2022
6. Date of Analysis : 22.12.2022 TO 28.12.2022
7. Sample Collected by : VCSPL Representative in presence of Client's Representative

Sl. No.	Parameter	Unit	TEST METHOD	Standard as per IS -10500:2012 Amended on 2015 & 2018	GW4	GW5	GW6
				Permissible Limit			
Physical Parameter							
1	Colour	Hazen,Max	APHA 23 rd Ed,2017 : 2120 B, C	5	<5	<5	<5
2	Odour	--	APHA 23 rd Ed,2017 :2120 B	Agreeable	Agreeable	Agreeable	Agreeable
3	Taste	--	APHA 23 rd Ed,2017 : 2160 C	Agreeable	Agreeable	Agreeable	Agreeable
4	Turbidity	NTU,Max	APHA 2130 B	1	0.7	0.5	0.3
5	pH at 25 ^o C	--	APHA 23 rd Ed,2017 : 4500H ⁺ B	6.5-8.5	7.18	7.33	7.29
6	Dissolved Solids	mg/l,Max	APHA 23 rd Ed,2017 : 2540 C	500	191	137	115
CHEMICAL PARAMETER							
1	Total Hardness (as CaCO ₃)	mg/l,Max	APHA 23 rd Ed,2017 : 2340 C	200	108	96	72
2	Iron (as Fe)	mg/l,Max	APHA 23 rd Ed,2017 : 3111, B	1.0	0.24	0.20	0.18
3	Chloride (as Cl)	mg/l,Max	APHA 23 rd Ed,2017 : 4500Cl ⁻ B	250	40	55	50
4	Residual, free Chlorine	mg/l,Min	APHA 4500 Cl B	0.2	ND	ND	ND
5	Calcium (as Ca)	mg/l,Max	APHA 23 rd Ed,2017 : 3500Ca B	75	31.4	32.8	20.9
6	Magnesium (as Mg)	mg/l,Max	APHA 3500 Mg B	30	7.2	3.8	4.8
7	Copper (as Cu)	mg/l,Max	APHA 3111 B,C	0.05	BDL	BDL	BDL
8	Manganese (as Mn)	mg/l,Max	APHA 3500Mn B	0.1	BDL	BDL	BDL
9	Sulphate (as SO ₄)	mg/l,Max	APHA 4500 SO ₄ ²⁻ E	200	4.4	3.8	4.2
10	Nitrate (as NO ₃)	mg/l,Max	APHA 4500 NO ₃ ⁻ E	45	1.56	0.83	0.69
11	Fluoride (as F)	mg/l,Max	APHA 4500 F,C	1.0	0.016	0.019	0.015
12	Phenolic Compounds(as C ₆ H ₅ OH)	mg/l,Max	APHA 5530 B,D	0.001	BDL	BDL	BDL
13	Anionic Detergents (as MBAS)	mg/l,Max	APHA 5540 C	0.2	ND	ND	ND
14	Chromium (as Cr ⁺⁶)	mg/l,Max	APHA 3500Cr B	0.05	<0.01	<0.01	<0.01
15	Mineral Oil	mg/l,Max	APHA 5520 B	0.5	BDL	BDL	BDL
16	Alkalinity	mg/l,Max	APHA 2320 B	200	145	185	180
17	Aluminium as(Al)	mg/l,Max	APHA 3500Al B	0.03	BDL	BDL	BDL



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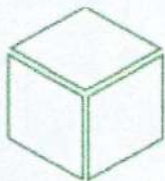
18	Boron (as B)	mg/l,Max	APHA 4500 B,B	0.5	BDL	BDL	BDL
19	Polyaromatic hydrocarbons (PAH)	mg/l,Max	APHA 23 rd Ed,2017 :6440 B	0.0001	ND	ND	ND
20	Zinc (as Zn)	mg/l,Max	APHA 23 rd Ed,2017: 3111 B	5	2.2	2.3	2.2
21	Selenium (as Se)	mg/l,Max	APHA 23 rd Ed,2017: 3500 Se C	0.01	BDL	BDL	BDL
22	Mercury as (Hg)	mg/l,Max	APHA 23 rd Ed,2017: 3111 B	0.001	BDL	BDL	BDL
23	Cadmium as(Cd)	mg/l,Max	APHA 23 rd Ed,2017: 3111 B	0.003	BDL	BDL	BDL
24	Arsenic as (As)	mg/l,Max	APHA 23 rd Ed,2017: 3114 B	0.2	BDL	BDL	BDL
25	Cyanide as (CN-)	mg/l,Max	APHA 23 rd Ed,2017: 4500 CN C,D	0.05	BDL	BDL	BDL
26	Lead as(Pb)	mg/l,Max	APHA 23 rd Ed,2017 3111 B	0.1	BDL	BDL	BDL
27	Total Coliform	MPN/100 ml	APHA 23 rd Ed,2017: 9221 B	Shall not be detectable in any 100 ml sample	ND	ND	ND
PESTICIDES							
1	Endosulfan à	µg/l,Max	APHA 23rd edition: 6630 C	0.4	<0.005	<0.005	<0.005
2	Endosulfan ß	µg/l,Max	APHA 23rd edition: 6630 C	0.4	<0.005	<0.005	<0.005
3	Endosulfan sulphate	µg/l,Max	APHA 23rd edition: 6630 C	0.4	<0.005	<0.005	<0.005
4	Alachlor	µg/l, Max	APHA 23rd edition: 6630 C	20	<0.01	<0.01	<0.01
5	Atrazine	µg/l, Max	APHA 23rd edition: 6630 C	2.0	<0.01	<0.01	<0.01
6	Aldrin	µg/l, Max	APHA 23rd edition: 6630 C	0.03	<0.01	<0.01	<0.01
8	Alpha HCH	µg/l, Max	APHA 23rd edition: 6630 C	0.01	<0.01	<0.01	<0.01
9	Beta HCH	µg/l, Max	APHA 23rd edition: 6630 C	0.04	<0.01	<0.01	<0.01
10	Delta HCH	µg/l, Max	APHA 23rd edition: 6630 C	0.04	<0.01	<0.01	<0.01
11	Butachlor	µg/l, Max	APHA 23rd edition: 6630 C	125.0	<0.01	<0.01	<0.01
12	Chloropyrifos	µg/l, Max	APHA 23rd edition: 6630 C	30.0	<0.01	<0.01	<0.01
13	2,4-Dichlorophenoxyacetic acid	µg/l, Max	APHA 23rd edition: 6630 C	30.0	<0.05	<0.05	<0.05
14	p p DDE	µg/l, Max	APHA 23rd edition: 6630 C	1.0	<0.05	<0.05	<0.05
15	p p DDD	µg/l, Max	APHA 23rd edition: 6630 C	1.0	<0.05	<0.05	<0.05
16	p p DDT	µg/l, Max	APHA 23rd edition: 6630 C	1.0	<0.05	<0.05	<0.05
17	o p DDE	µg/l, Max	APHA 23rd edition: 6630 C	1.0	<0.05	<0.05	<0.05
18	o p DDD	µg/l, Max	APHA 23rd edition: 6630 C	1.0	<0.05	<0.05	<0.05
19	o p DDT	µg/l, Max	APHA 23rd edition: 6630 C	1.0	<0.05	<0.05	<0.05
20	Ethion	µg/l, Max	APHA 23rd edition: 6630 C	3.0	<0.01	<0.01	<0.01
21	Lindane	µg/l, Max	APHA 23rd edition: 6630 C	2.0	<0.01	<0.01	<0.01
22	Isoproturon	µg/l, Max	APHA 23rd edition:	9.0	<0.01	<0.01	<0.01

Plot No.- M-22 & 23, Chandaka Industrial Estate, Patia, Bhubaneswar, Khurda, Odisha-751024, India Tel.:

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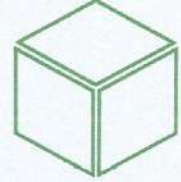
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			6630 C				
23	Malathion	µg/l, Max	APHA 23rd edition: 6630 C	190.0	<0.01	<0.01	<0.01
24	Methyl parathion	µg/l, Max	APHA 23rd edition: 6630 C	0.3	<0.01	<0.01	<0.01
25	Monocrotophos	µg/l, Max	APHA 23rd edition: 6630 C	1.0	<0.01	<0.01	<0.01
26	Phorate	µg/l, Max	APHA 23rd edition: 6630 C	2.0	<0.01	<0.01	<0.01





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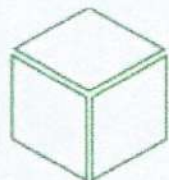
Ref. no: Envlab/22/R-1540

Date: 08.01.2023

GROUND WATER QUALITY ANALYSIS REPORT- DEC 2022

1. Name of Client : M/s FERRO ALLOYS CORPORATION LIMITED , BHADRAK
2. Name of the Project : OSTAPAL CHROMITE MINES , KALIAPANI, JAJPUR
3. Sampling Location : GW7: Eastern Side of the Quarry (PZ-1)
GW8: Southern Side of the Quarry (PZ-2)
GW9: Western Side of the Quarry (PZ-3)
4. Method of Sampling : APHA 1060 B
5. Date of Sampling : 21.12.2022
6. Date of Analysis : 22.12.2022 TO 28.12.2022
7. Sample Collected by : VCSPL Representative in presence of Client's Representative

Sl. No.	Parameter	Unit	TEST METHOD	Standard as per IS -10500:2012 Amended on 2015 & 2018	GW7	GW8	GW9
				Permissible Limit			
Physical Parameter							
1	Colour	Hazen,Max	APHA 23 rd Ed,2017 : 2120 B, C	5	<5	<5	<5
2	Odour	--	APHA 23 rd Ed,2017 :2120 B	Agreeable	Agreeable	Agreeable	Agreeable
3	Taste	--	APHA 23 rd Ed,2017 : 2160 C	Agreeable	Agreeable	Agreeable	Agreeable
4	Turbidity	NTU,Max	APHA 2130 B	1	0.3	0.7	0.6
5	pH at 25 ^o C	--	APHA 23 rd Ed,2017 : 4500H ⁺ B	6.5-8.5	7.28	7.34	7.31
6	Dissolved Solids	mg/l,Max	APHA 23 rd Ed,2017 : 2540 C	500	227	188	160
CHEMICAL PARAMETER							
1	Total Hardness (as CaCO ₃)	mg/l,Max	APHA 23 rd Ed,2017 : 2340 C	200	120	104	92
2	Iron (as Fe)	mg/l,Max	APHA 23 rd Ed,2017 : 3111, B	1.0	0.23	0.25	0.16
3	Chloride (as Cl)	mg/l,Max	APHA 23 rd Ed,2017 : 4500Cl ⁻ B	250	40	52.5	47.5
4	Residual, free Chlorine	mg/l,Min	APHA 4500 Cl ⁻ B	0.2	ND	ND	ND
5	Calcium (as Ca)	mg/l,Max	APHA 23 rd Ed,2017 : 3500Ca B	75	29.6	30.4	28.2
6	Magnesium (as Mg)	mg/l,Max	APHA 3500 Mg B	30	11.2	6.8	5.25
7	Copper (as Cu)	mg/l,Max	APHA 3111 B,C	0.05	BDL	BDL	BDL
8	Manganese (as Mn)	mg/l,Max	APHA 3500Mn B	0.1	BDL	BDL	BDL
9	Sulphate (as SO ₄)	mg/l,Max	APHA 4500 SO ₄ ²⁻ E	200	4.4	4.1	4.17
10	Nitrate (as NO ₃) ⁻	mg/l,Max	APHA 4500 NO ₃ ⁻ E	45	1.46	0.85	0.77
11	Fluoride (as F)	mg/l,Max	APHA 4500 F,C	1.0	0.017	0.012	0.014
12	Phenolic Compounds(as C ₆ H ₅ OH)	mg/l,Max	APHA 5530 B,D	0.001	BDL	BDL	BDL
13	Anionic Detergents (as MBAS)	mg/l,Max	APHA 5540 C	0.2	ND	ND	ND
14	Chromium (as Cr ⁺⁶)	mg/l,Max	APHA 3500Cr B	0.05	<0.01	<0.01	<0.01
15	Mineral Oil	mg/l,Max	APHA 5520 B	0.5	BDL	BDL	BDL
16	Alkalinity	mg/l,Max	APHA 2320 B	200	60	45	50
17	Aluminium as (Al)	mg/l,Max	APHA 3500Al B	0.03	BDL	BDL	BDL
18	Boron (as B)	mg/l,Max	APHA 4500 B,B	0.5	BDL	BDL	BDL
19	Polyaromatic	mg/l,Max	APHA 23 rd Ed,2017	0.0001	ND	ND	ND



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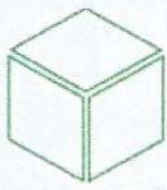
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	hydrocarbons (PAH)		:6440 B				
20	Zinc (as Zn)	mg/l,Max	APHA 23 rd Ed,2017: 3111 B	5	3.2	4.1	4.2
21	Selenium (as Se)	mg/l,Max	APHA 23 rd Ed,2017: 3500 Se C	0.01	BDL	BDL	BDL
22	Mercury as (Hg)	mg/l,Max	APHA 23 rd Ed,2017: 3111 B	0.001	BDL	BDL	BDL
23	Cadmium as(Cd)	mg/l,Max	APHA 23 rd Ed,2017: 3111 B	0.003	BDL	BDL	BDL
24	Arsenic as (As)	mg/l,Max	APHA 23 rd Ed,2017: 3114 B	0.2	BDL	BDL	BDL
25	Cyanide as (CN-)	mg/l,Max	APHA 23 rd Ed,2017: 4500 CN C,D	0.05	BDL	BDL	BDL
26	Lead as(Pb)	mg/l,Max	APHA 23 rd Ed,2017 3111 B	0.1	BDL	BDL	BDL
27	Total Coliform	MPN/100 ml	APHA 23 rd Ed,2017: 9221 B	Shall not be detectable in any 100 ml sample	ND	ND	ND
PESTICIDES							
1	Endosulfan à	µg/l,Max	APHA 23rd edition: 6630 C	0.4	<0.005	<0.005	<0.005
2	Endosulfan ß	µg/l,Max	APHA 23rd edition: 6630 C	0.4	<0.005	<0.005	<0.005
3	Endosulfan sulphate	µg/l,Max	APHA 23rd edition: 6630 C	0.4	<0.005	<0.005	<0.005
4	Alachlor	µg/l, Max	APHA 23rd edition: 6630 C	20	<0.01	<0.01	<0.01
5	Atrazine	µg/l, Max	APHA 23rd edition: 6630 C	2.0	<0.01	<0.01	<0.01
6	Aldrin	µg/l, Max	APHA 23rd edition: 6630 C	0.03	<0.01	<0.01	<0.01
8	Alpha HCH	µg/l, Max	APHA 23rd edition: 6630 C	0.01	<0.01	<0.01	<0.01
9	Beta HCH	µg/l, Max	APHA 23rd edition: 6630 C	0.04	<0.01	<0.01	<0.01
10	Delta HCH	µg/l, Max	APHA 23rd edition: 6630 C	0.04	<0.01	<0.01	<0.01
11	Butachlor	µg/l, Max	APHA 23rd edition: 6630 C	125.0	<0.01	<0.01	<0.01
12	Chloropyriphos	µg/l, Max	APHA 23rd edition: 6630 C	30.0	<0.01	<0.01	<0.01
13	2,4-Dichlorophenoxyacetic acid	µg/l, Max	APHA 23rd edition: 6630 C	30.0	<0.05	<0.05	<0.05
14	p p DDE	µg/l, Max	APHA 23rd edition: 6630 C	1.0	<0.05	<0.05	<0.05
15	p p DDD	µg/l, Max	APHA 23rd edition: 6630 C	1.0	<0.05	<0.05	<0.05
16	p p DDT	µg/l, Max	APHA 23rd edition: 6630 C	1.0	<0.05	<0.05	<0.05
17	o p DDE	µg/l, Max	APHA 23rd edition: 6630 C	1.0	<0.05	<0.05	<0.05
18	o p DDD	µg/l, Max	APHA 23rd edition: 6630 C	1.0	<0.05	<0.05	<0.05
19	o p DDT	µg/l, Max	APHA 23rd edition: 6630 C	1.0	<0.05	<0.05	<0.05
20	Ethion	µg/l, Max	APHA 23rd edition: 6630 C	3.0	<0.01	<0.01	<0.01
21	Lindane	µg/l, Max	APHA 23rd edition: 6630 C	2.0	<0.01	<0.01	<0.01
22	Isoproturon	µg/l, Max	APHA 23rd edition: 6630 C	9.0	<0.01	<0.01	<0.01
23	Malathion	µg/l, Max	APHA 23rd edition: 6630 C	190.0	<0.01	<0.01	<0.01

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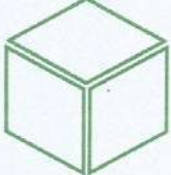
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24	Methyl parathion	µg/l, Max	APHA 23rd edition: 6630 C	0.3	<0.01	<0.01	<0.01
25	Monocrotophos	µg/l, Max	APHA 23rd edition: 6630 C	1.0	<0.01	<0.01	<0.01
26	Phorate	µg/l, Max	APHA 23rd edition: 6630 C	2.0	<0.01	<0.01	<0.01





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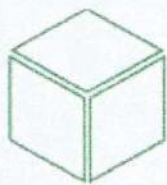
Ref. no: Envlab/22/R-1541

Date: 08.01.2023

DRINKING WATER QUALITY ANALYSIS REPORT- DEC 2022

1. Name of Client : M/s FERRO ALLOYS CORPORATION LIMITED , BHADRAK
2. Name of the Project : OSTAPAL CHROMITE MINES , KALIAPANI, JAJPUR
3. Sampling Location : DW1: Administration Building
DW2: Canteen
DW3: COB
4. Method of Sampling : APHA 1060 B
5. Date of Sampling : 21.12.2022
6. Date of Analysis : 22.12.2022 TO 28.12.2022
7. Sample Collected by : VCSPL Representative in presence of Client's Representative

Sl. No.	Parameter	Unit	TEST METHOD	Standard as per IS -10500:2012 Amended on 2015 & 2018	GW7	GW8	GW9
				Permissible Limit			
Physical Parameter							
1	Colour	Hazen,Max	APHA 23 rd Ed,2017 : 2120 B, C	5	<5	<5	<5
2	Odour	--	APHA 23 rd Ed,2017 :2120 B	Agreeable	Agreeable	Agreeable	Agreeable
3	Taste	--	APHA 23 rd Ed,2017 : 2160 C	Agreeable	Agreeable	Agreeable	Agreeable
4	Turbidity	NTU,Max	APHA 2130 B	1	1.1	1.0	1.2
5	pH at 25 ^o C	--	APHA 23 rd Ed,2017 : 4500H ⁺ B	6.5-8.5	7.22	7.36	7.39
6	Dissolved Solids	mg/l,Max	APHA 23 rd Ed,2017 : 2540 C	500	23	116	115
CHEMICAL PARAMETER							
1	Total Hardness (as CaCO ₃)	mg/l,Max	APHA 23 rd Ed,2017 : 2340 C	200	124	112	109
2	Iron (as Fe)	mg/l,Max	APHA 23 rd Ed,2017 : 3111, B	1.0	0.14	0.24	0.22
3	Chloride (as Cl)	mg/l,Max	APHA 23 rd Ed,2017 : 4500Cl B	250	40	35	50
4	Residual, free Chlorine	mg/l,Min	APHA 4500 Cl B	0.2	ND	ND	ND
5	Calcium (as Ca)	mg/l,Max	APHA 23 rd Ed,2017 : 3500Ca B	75	44.7	40.6	38.5
6	Magnesium (as Mg)	mg/l,Max	APHA 3500 Mg B	30	3.0	2.58	3.13
7	Copper (as Cu)	mg/l,Max	APHA 3111 B,C	0.05	BDL	BDL	BDL
8	Manganese (as Mn)	mg/l,Max	APHA 3500Mn B	0.1	BDL	BDL	BDL
9	Sulphate (as SO ₄)	mg/l,Max	APHA 4500 SO ₄ ²⁻ E	200	4.33	4.51	4.37
10	Nitrate (as NO ₃) ^N	mg/l,Max	APHA 4500 NO ₃ ⁻ E	45	1.9	0.84	0.78
11	Fluoride (as F)	mg/l,Max	APHA 4500 F,C	1.0	0.02	0.02	0.03
12	Phenolic Compounds(as C ₆ H ₅ OH)	mg/l,Max	APHA 5530 B,D	0.001	BDL	BDL	BDL
13	Anionic Detergents (as MBAS)	mg/l,Max	APHA 5540 C	0.2	ND	ND	ND
14	Chromium (as Cr ⁺⁶)	mg/l,Max	APHA 3500Cr B	0.05	<0.01	<0.01	<0.01
15	Mineral Oil	mg/l,Max	APHA 5520 B	0.5	BDL	BDL	BDL
16	Alkalinity	mg/l,Max	APHA 2320 B	200	60	40	45
17	Aluminium as(Al)	mg/l,Max	APHA 3500Al B	0.03	BDL	BDL	BDL
18	Boron (as B)	mg/l,Max	APHA 4500 B,B	0.5	BDL	BDL	BDL
19	Polyaromatic	mg/l,Max	APHA 23 rd Ed,2017	0.0001	ND	ND	ND



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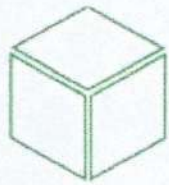
	hydrocarbons (PAH)		:6440 B				
20	Zinc (as Zn)	mg/l,Max	APHA 23 rd Ed,2017: 3111 B	5	2.39	3.12	2.25
21	Selenium (as Se)	mg/l,Max	APHA 23 rd Ed,2017: 3500 Se C	0.01	BDL	BDL	BDL
22	Mercury as (Hg)	mg/l,Max	APHA 23 rd Ed,2017: 3111 B	0.001	BDL	BDL	BDL
23	Cadmium as(Cd)	mg/l,Max	APHA 23 rd Ed,2017: 3111 B	0.003	BDL	BDL	BDL
24	Arsenic as (As)	mg/l,Max	APHA 23 rd Ed,2017: 3114 B	0.2	BDL	BDL	BDL
25	Cyanide as (CN-)	mg/l,Max	APHA 23 rd Ed,2017: 4500 CN ⁻ C,D	0.05	BDL	BDL	BDL
26	Lead as(Pb)	mg/l,Max	APHA 23 rd Ed,2017 3111 B	0.1	BDL	BDL	BDL
27	Total Coliform	MPN/100 ml	APHA 23 rd Ed,2017: 9221 B	Shall not be detectable in any 100 ml sample	ND	ND	ND
PESTICIDES							
1	Endosulfan à	µg/l,Max	APHA 23rd edition: 6630 C	0.4	<0.005	<0.005	<0.005
2	Endosulfan ß	µg/l,Max	APHA 23rd edition: 6630 C	0.4	<0.005	<0.005	<0.005
3	Endosulfan sulphate	µg/l,Max	APHA 23rd edition: 6630 C	0.4	<0.005	<0.005	<0.005
4	Alachlor	µg/l, Max	APHA 23rd edition: 6630 C	20	<0.01	<0.01	<0.01
5	Atrazine	µg/l, Max	APHA 23rd edition: 6630 C	2.0	<0.01	<0.01	<0.01
6	Aldrin	µg/l, Max	APHA 23rd edition: 6630 C	0.03	<0.01	<0.01	<0.01
8	Alpha HCH	µg/l, Max	APHA 23rd edition: 6630 C	0.01	<0.01	<0.01	<0.01
9	Beta HCH	µg/l, Max	APHA 23rd edition: 6630 C	0.04	<0.01	<0.01	<0.01
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11	Butachlor	µg/l, Max	APHA 23rd edition: 6630 C	125.0	<0.01	<0.01	<0.01
12	Chloropyriphos	µg/l, Max	APHA 23rd edition: 6630 C	30.0	<0.01	<0.01	<0.01
13	2,4-Dichlorophenoxyacetic acid	µg/l, Max	APHA 23rd edition: 6630 C	30.0	<0.05	<0.05	<0.05
14	p p DDE	µg/l, Max	APHA 23rd edition: 6630 C	1.0	<0.05	<0.05	<0.05
15	p p DDD	µg/l, Max	APHA 23rd edition: 6630 C	1.0	<0.05	<0.05	<0.05
16	p p DDT	µg/l, Max	APHA 23rd edition: 6630 C	1.0	<0.05	<0.05	<0.05
17	o p DDE	µg/l, Max	APHA 23rd edition: 6630 C	1.0	<0.05	<0.05	<0.05
18	o p DDD	µg/l, Max	APHA 23rd edition: 6630 C	1.0	<0.05	<0.05	<0.05
19	o p DDT	µg/l, Max	APHA 23rd edition: 6630 C	1.0	<0.05	<0.05	<0.05
20	Ethion	µg/l, Max	APHA 23rd edition: 6630 C	3.0	<0.01	<0.01	<0.01
21	Lindane	µg/l, Max	APHA 23rd edition: 6630 C	2.0	<0.01	<0.01	<0.01
22	Isoproturon	µg/l, Max	APHA 23rd edition: 6630 C	9.0	<0.01	<0.01	<0.01
23	Malathion	µg/l, Max	APHA 23rd edition: 6630 C	190.0	<0.01	<0.01	<0.01

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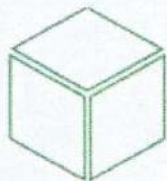
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24	Methyl parathion	µg/l, Max	APHA 23rd edition: 6630 C	0.3	<0.01	<0.01	<0.01
25	Monocrotophos	µg/l, Max	APHA 23rd edition: 6630 C	1.0	<0.01	<0.01	<0.01
26	Phorate	µg/l, Max	APHA 23rd edition: 6630 C	2.0	<0.01	<0.01	<0.01

N.B: All Parameters are within standard, so it is potable water





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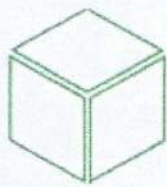
Ref : Envlab/22/R- 1542

Date : 08.01.2023

EFFLUENT WATER ANALYSIS REPORT SEPT 2022

1. Name of the Client : M/s FERRO ALLOYS CORPORATION LIMITED , BHADRAK
2. Name of the Project : OSTAPAL CHROMITE MINES , KALIAPANI, JAJPUR
3. Sampling Location : WW-1: ETP Inlet
4. Method of sampling : APHA 1060 B
5. Date of Sampling : 21.09.2022
6. Date of Analysis : 22.09.2022 to 28.09.2022
7. Sample Collected by : VCSPL Representative in presence of Client representative

Sl No	Test Parameter	Test Method	Unit	WW-1
1	Color	Visual Comparison Method APHA 23 RD Ed,2017 : 2120 B, C	Hazen	10
2	Odour	Threshold Odour Test APHA 23 RD Ed,2017 :2150 B		Pungent Smell
3	pH at 25 ^o C	pH Meter APHA 23 RD Ed,2017 : 4500H+ B	--	9.76
4	Total Suspended Solids (as TSS)	Gravimetric Method APHA 23 RD Ed,2017 : 2540 D	mg/l	55
5	Copper (as Cu)	By AAS Method APHA 23 RD Ed,2017 3111 B	mg/l	BDL
6	Fluoride (as F)	Distillation followed by Spectrophotometric Method APHA 23 RD Ed,2017: 4500F- C	mg/l	0.47
7	Total Residual Chloride	Iodometric Method APHA 23 RD Ed,2017 : 4500Cl, B	mg/l	0.2
8	Iron (as Fe)	By AAS Method APHA 23 RD Ed,2017 : 3111, B	mg/l	1.63
9	Manganese (as Mn)	Persulfate Method APHA 23 RD Ed,2017: 3500Mn B	mg/l	BDL
10	Nitrate Nitrogen (as NO ₃)	By UV-Screen Method APHA 23 RD Ed,2017: 4500 NO ₃ E	mg/l	12.9
11	Phenolic Compound (as C ₆ H ₅ OH)	Chloroform Extraction by Colorimetric Method APHA 23 RD Ed,2017: 5530 B,D	mg/l	BDL
12	Selenium (as Se)	By AAS Method APHA 23 RD Ed,2017: 3500 Se C	mg/l	BDL
13	Cadmium (as Cd)	AAS Method APHA 23 RD Ed,2017: 3111 B	mg/l	BDL
14	Cyanide (as CN)	Distillation followed by Spectrophotometric Method APHA 23 RD Ed,2017: 4500 CN- C,D	mg/l	BDL
15	Lead (as Pb)	By AAS Method APHA 23 RD Ed,2017 3111 B	mg/l	BDL
16	Mercury (as Hg)	AAS Method APHA 23 RD Ed,2017: 3112 B	mg/l	BDL
17	Nickel (as Ni)	By AAS Method APHA 23 RD Ed,2017 3111 B	mg/l	BDL
18	Arsenic (as As)	By AAS Method APHA 23 RD Ed,2017: 3114 B	mg/l	BDL
19	Total Chromium (as Cr)	By AAS Method APHA 23 RD Ed,2017 3111 B	mg/l	1.38
20	Zinc (as Zn)	By AAS Method APHA 23 RD Ed,2017 3111 B	mg/l	0.40
21	Hexavalent Chromium (as Cr ⁺⁶)	Diphenyl Carbazide Method APHA 23 RD Ed,2017: 3500Cr B	mg/l	0.65



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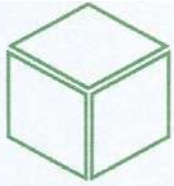
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22	Vanadium (as V)	By AAS Method APHA 23 RD Ed,2017 3111 D	mg/l	BDL
23	Temperature	By Thermometer APHA 23 RD Ed,2017 2550 B		35
24	Dissolved Oxygen	Modified Winkler Method APHA 23 RD Ed,2017: 4500 O, C		6.8
25	Biochemical Oxygen Demand as BOD(3days at 27 ⁰ C)	IS 3025(P-44) : 1993 RA 2003	mg/l	12.4
26	Chemical Oxygen Demand (as COD)	Open Reflux Method APHA 23 RD Ed,2017: 5220 C	mg/l	240
27	Oil & Grease (as O & G)	Gravimetric Method (Solvent Extraction) APHA 23 RD Ed,2017:5520-B	mg/l	12.0
28	Ammonical Nitrogen (as NH ₃ -N)	TKN Instrument (Distillation) followed by Titrimetric Method APHA 23 RD Ed,2017 : 4500NH ₃ C	mg/l	7.9
29	Total Kjeldahl Nitrogen (as N)	TKN Instrument (Digestion) APHA 23 RD Ed,2017: 4500 N _{ORG} C	mg/l	12.6
30	Sulphide (as S)	Iodometric Method APHA 23 RD Ed,2017 : 4500 S ²⁻	mg/l	BDL
31	Free Ammonia (as NH ₃)	By Calculation	mg/l	6.6
32	Particulate Size of Suspended Solids	Gravimetric Method APHA 23 RD Ed,2017 : 2540 D	μ	<850
33	Bio- assay Test	IS 6582 (Part 2) 2001, Ed.2.1 (2002-12)	%	No fish Survived after 96 hours in 100% effluent

CL - Colorless, ND - Not detected.

BDL (Below detection limit) Values : (Cu<0.02 mg/l, Mn<0.025 mg/l, C₆H₅OH<0.05 mg/l, Hg<0.004mg/l, Cd<0.01 mg/l, Se<0.001 mg/l, As<0.004 mg/l,Pb<0.02 mg/l, Zn<0.03 mg/l, Cr⁶⁺<0.01 mg/l, Al<0.1 mg/l, B<0.1 mg/l, NO₃1 mg/l)





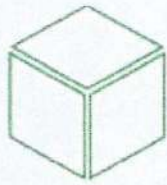
Ref : Envlab/22/R-1543

Date : 08.01.2023

EFFLUENT WATER DISCHARGE ANALYSIS REPORT DEC 2022

- Name of the Client : M/s FERRO ALLOYS CORPORATION LIMITED , BHADRAK
- Name of the Project : OSTAPAL CHROMITE MINES , KALIAPANI, JAJPUR
- Sampling Location : WW-1: ETP Mines Final Discharge Water
- Method of sampling : APHA 1060 B
- Date of Sampling : 21.12.2022
- Date of Analysis : 22.12.2022 to 28.12.2022
- Sample Collected by : VCSPL Representative in presence of Client representative

Sl. No.	Parameters	Testing Methods	Unit	Standards (In land Surface water)	Analysis Results
					EW-1
1	Colour	Visual Comparison Method APHA 2120 B; 23 rd Edition, 2017	Hazen	Colourless	10
2	Odour	Threshold Odour Method APHA 2150 B; 23 rd Edition, 2017	--	Odourless	pungent smell
3	pH at 25°C	pH Meter APHA 4500 H'B; 23 rd Edition, 2017	--	5.5-9.0	7.79
4	Total Suspended Solids	Gravimetric Method APHA 2540 D; 23 rd Edition, 2017	mg/l	100	37
5	Copper as Cu	By AAS Method APHA 3111 B; 23 rd Edition, 2017	mg/l	3	BDL
6	Fluoride as F	Distillation followed by Spectrophotometric Method APHA 4500 F' C,D; 23 rd Edition, 2017	mg/l	2	0.32
7	Total Residual Chlorine	Iodometric Method APHA 23RD Ed,2017 : 4500Cl, B	mg/l	1	ND
8	Iron as Fe	By AAS Method APHA 3111 B; 23 rd Edition, 2017	mg/l	3	0.40
9	Manganese as Mn	By AAS Method APHA 3111 B; 23 rd Edition, 2017	mg/l	2	BDL
10	Nitrate as NO ₃	By UV-Screen Method APHA 4500 NO ₃ B; 23 rd Edition, 2017	mg/l	10	7.18
11	Phenolic Compounds as C ₆ H ₅ OH	Distillation Followed by Spectrophotometric Method APHA 5530-B, D; 23 rd Edition, 2017	mg/l	1	BDL
12	Selenium as Se	By AAS Method APHA 3500 Se C; 23 rd Edition, 2017	mg/l	0.05	BDL
13	Cadmium as Cd	By AAS Method APHA 3111 B; 23 rd Edition, 2017	mg/l	2.0	BDL
14	Cyanide as CN	Distillation Followed by Spectrophotometric Method APHA 4500 -CN-C,E; 23 rd Edition, 2017	mg/l	0.2	BDL
15	Lead as Pb	By AAS Method APHA 3111 B; 23 rd Edition, 2017	mg/l	0.1	BDL
16	Mercury as Hg	By AAS Method APHA 3112 B; 23 rd Edition, 2017	mg/l	0.01	BDL
17	Nickel as Ni	By AAS Method APHA 3111 B; 23 rd Edition, 2017	mg/l	3	BDL
18	Arsenic as As	By AAS Method APHA 3114 B; 23 rd Edition, 2017	mg/l	0.2	BDL
19	Total Chromium as Cr	By AAS Method APHA 3111 B; 23 rd Edition, 2017	mg/l	2	0.24
20	Zinc as Zn	By AAS Method APHA 3111 B; 23 rd Edition, 2017	mg/l	5	0.025
21	Hexavalent Chromium as Cr ⁺⁶	By AAS Method APHA 3500 Cr B; 23 rd Edition, 2017	mg/l	0.05	<0.01
22	Vanadium as V	By AAS Method APHA 3500 V; 23 rd Edition, 2017	mg/l	0.2	BDL



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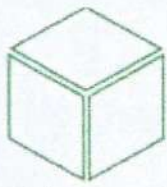
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23	Temperature	By Thermometer APHA 2550 B; 23 rd Edition, 2017	°C	Shall not exceed 5°C above the receiving water temperature	32
24	Dissolved Oxygen	Modified Winkler Method APHA 4500 O. C; 23 rd Edition, 2017	mg/l	--	6.6
25	Biochemical Oxygen Demand as BOD	Oxygen Depletion Method IS 3025 (Part 44):2003	mg/l	30	4.2
26	Chemical Oxygen Demand as COD	Open Reflux Method APHA 5220 B; 23 rd Edition, 2017	mg/l	250	32
27	Oil & Grease	Gravimetric Method (Solvent Extraction) APHA 5520 B; 23 rd Edition, 2017	mg/l	10	6.0
28	Ammonical Nitrogen as N	By TKN Method APHA 4500-NH ₃ C; 23 rd Edition, 2017	mg/l	50	4.2
29	Total Kjeldahl Nitrogen as N	By TKN Method APHA 4500-N _{org} C; 23 rd Edition, 2017	mg/l	100	4.2
30	Sulphide as S	By Methylene Blue Method APHA 4500-S D; 23 rd Edition, 2017	mg/l	2	BDL
31	Free Ammonia as NH ₃	By Calculation	mg/l	10	4.4
32	Particulate Size of Suspended Solids	Gravimetric Method APHA 2540 D; 23 rd Edition, 2017	μ	Shall pass 850 micron IS Sieve	<850
33	Bio-assay Test	Evaluating Acute Toxicity IS 6582 (P-2) 2008	%	90% survival of fish after 96 hours in 100% effluent	96% Survival of Fish after 96 Hrs in 100% Effluent

CL – Colorless, ND – Not detected.

BDL (Below detection limit) Values : (Cu<0.02 mg/l, Mn<0.025 mg/l, C₆H₅OH<0.05 mg/l, Hg<0.004mg/l, Cd<0.01 mg/l, Se<0.001 mg/l, As<0.004 mg/l, Pb<0.02 mg/l, Zn<0.03 mg/l, Cr⁶⁺<0.01 mg/l, Al<0.1 mg/l, B<0.1 mg/l, NO₃1 mg/l)





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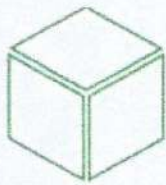
SOIL QUALITY ANALYSIS REPORT- DEC 2022

1. Name of Client : M/s FERRO ALLOYS CORPORATION LIMITED , BHADRAK
2. Name of the Project : OSTAPAL CHROMITE MINES , KALIAPANI, JAJPUR
3. Sampling Location : S1 : East Side Quarry
S2 : West Side Quarry
S3 : North Side Quarry
S4 : South Side Quarry
4. Date of Sampling : 21.12.2022
5. Date of Analysis : 22.12.2022 to 28.12.2022
6. Sample Collected by : VCSPL Representative in presence of Client's Representative

Sl. No.	Name of the Parameters	Unit	Testing Method	Analysis Result			
				S1	S2	S3	S4
1	Mercury as Hg	mg/kg	EPA 3050B, 7000B Rev 02, 1996	ND	ND	ND	ND
2	Nickel as Ni	mg/kg	EPA 3050B, 7000B Rev 02, 1996	ND	ND	ND	ND
3	Cobalt as Co	mg/kg	EPA 3050B, 7000B Rev 02, 1996	ND	ND	ND	ND
4	Arsenic as As	mg/kg	EPA 3050B, 7000B Rev 02, 1996	ND	ND	ND	ND

BDL Value : Ni <50 mg/kg, Co < 10 mg/kg, As < 10 mg/kg, Hg <10 mg/kg





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Ref : Envlab/22/R-1545

Date : 08.01.2023

NOISE QUALITY ANALYSIS REPORT- DEC 2022

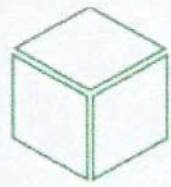
1. Name of Client : M/s FERRO ALLOYS CORPORATION LIMITED , BHADRAK
2. Name of the Project : OSTAPAL CHROMITE MINES , KALIAPANI, JAJPUR
3. Date of Sampling : 21.12.2022
4. Sample Collected by : VCSPL Representative in presence of Client's Representative

Location ID	Location	Result in dB (A)	
		Day Time (6.00 am to 10.00pm)	Night Time (10.00pm to 6.00 am)
N1	Open Cast Quarry	70	61
N2	COB Plant	65	58
N3	Mines Loading & Unloading	65.1	60.2
N4	At Project Site	67.9	60.1
N5	Ostapal Village	56.3	48.9
N6	Gurujanga Village	52.5	49.2
N7	Gurujanga Village II	52.3	48.1
N8	Sukurangi Village	54.1	47.6
N9	Talangi Village	50.6	45.4
N10	Sukurangi Village II	52.1	46.2
N11	Kaliapani Village	51.3	45.8
N12	Kaliapani Colony	51.8	45.7
N13	Ostia Village	50.5	44.3

AMBIENT NOISE LEVEL STANDARD

Category Area/Zone	Limit in dB (A)	
	Day Time (6.00 am to 10.00pm)	Night Time (10.00pm to 6.00 am)
Industrial Area	75	70
Residential Area	55	45
Commercial Area	65	55
Silence Zone	50	40





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Ref : Envlab/22/R - 1546

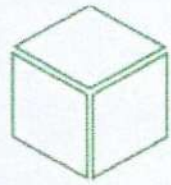
Date : 08.01.2023

GROUND WATER LEVEL REPORT- DEC 2022

1. Name of Client : M/s FERRO ALLOYS CORPORATION LIMITED , BHADRAK
2. Name of the Project : OSTAPAL CHROMITE MINES , KALIAPANI, JAJPUR
3. Date of Sampling : 21.12.2022
4. Sample Collected by : VCSPL Representative in presence of Client's Representative

SL. No.	Locations	Unit	DOS	Analysis Result
1	Bore well Near Workshop of Mines	mt/bgl	21.12.2022	11.5
2	Bore well Near Main Gate of OCM	mt/bgl	21.12.2022	10.7
3	Open Well Near Ostia Village	mt/bgl	21.12.2022	5.4
4	Open Well Near Ostapal Village	mt/bgl	21.12.2022	5.5
5	Tube well inside Shiva Temple of the Village Gurujanga	mt/bgl	21.12.2022	11.2
6	Tube well outside Shiva Temple of the Village Gurujanga	mt/bgl	21.12.2022	11.4
7	Eastern side of the Quarry (PZ-1)	mt/bgl	21.12.2022	5.5
8	Southern side of the Quarry (PZ-2)	mt/bgl	21.12.2022	4.8
9	Watstern side of the Quarry (PZ-3)	mt/bgl	21.12.2022	5.1





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Ref : Envlab/22/R- 1547

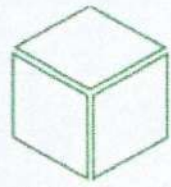
Date : 08.01.2023

FUGITIVE EMISSION ANALYSIS REPORT- DEC 2022

1. Name of Client : M/s FERRO ALLOYS CORPORATION LIMITED , BHADRAK
2. Name of the Project : OSTAPAL CHROMITE MINES , KALIAPANI, JAJPUR
3. Sampling Location : F1- Near Mines Ore Plot Area
F2- Near COB Plant Area
F3- Near Mines Loading & Unloading Point
4. Method of Sampling : IS 5182(P-5) 1975 RA 2014
5. Date of Sampling : 21.12.2022
6. Date of Analysis : 22.12.2022 to 24.12.2022
7. Sample Collected by : VCSPL Representative in presence of Client's Representative

SL. No.	Test Parameters	Test Method	Unit	Analysis Result		
				F1	F2	F3
1	Suspended Particulate Matter as SPM	IS 5182 (P-4)1999 RA 2014 Gravimetric Method	µg/m ³	142	225	181





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Ref : Envlab/22/R-1548

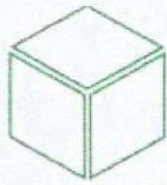
Date : 08.01.2023

DUST FALL ANALYSIS REPORT- DEC 2022

1. Name of Client : M/s FERRO ALLOYS CORPORATION LIMITED , BHADRAK
2. Name of the Project : OSTAPAL CHROMITE MINES , KALIAPANI, JAJPUR
3. Sampling Location : DF1- Near Roof Top of Office Building
4. Date of Sampling : 21.12.2022
5. Sample Collected by : VCSPL Representative in presence of Client's Representative

SL.No.	Parameters	Unit (mg of deposit per square meter per day)	Analysis Result
			DF1
1	Mercury as Hg	mg/m ² d	ND
2	Nickel as Ni	mg/m ² d	ND
3	Cobalt as CO	mg/m ² d	ND
4	Arsenic as As	mg/m ² d	ND





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Ref : Envlab/22/R- 1549

Date : 08.01.2023

MEASUREMENT OF GROUND WATER QUALITY ANALYSIS REPORT DEC 2022

- Name of Client : M/s FERRO ALLOYS CORPORATION LIMITED , BHADRAK
- Name of the Project : OSTAPAL CHROMITE MINES , KALIAPANI, JAJPUR
- Sampling Location : GW1: Bore well Near Workshop of the Mines
GW2: Bore well Near Main Gate
GW3: Open Well Near Ostia Village
GW4: Open Well Near Ostapal Village
GW5: Tube Well Inside Shiv Temple of Gurujanga Village
- Method of Sampling : APHA 1060 B
- Date of Sampling : 21.12.2022
- Date of Analysis : 22.12.2022 to 23.12.2022
- Sample Collected by : VCSPL Representative in presence of Client's Representative

Sl. No.	Parameter	Testing Method	Unit	Standard as per IS -10500:2012 Amended on 2015 & 2018		Analysis Result				
				Acceptable Limit	Permissible Limit	GW1	GW2	GW3	GW4	GW5
1	Hexavalent Chromium as Cr ⁶⁺	By AAS Method APHA 23 RD Ed,2017: 3500 Cr B	mg/l	--	--	<0.01	<0.01	<0.01	<0.01	<0.01





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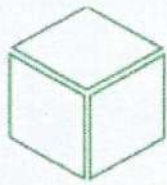
Date : 08.01.2023

MEASUREMENT OF GROUND WATER QUALITY ANALYSIS REPORT DEC 2022

- Name of Client : M/s FERRO ALLOYS CORPORATION LIMITED , BHADRAK
- Name of the Project : OSTAPAL CHROMITE MINES , KALIAPANI, JAJPUR
- Sampling Location : GW6 : Tube Well Outside Shiv Temple of Gurujanga Village
GW7: Eastern Side of the Quarry (PZ-1)
GW8: Southern Side of the Quarry (PZ-2)
GW9: Western Side of the Quarry (PZ-3)
- Method of Sampling : APHA 1060 B
- Date of Sampling : 21.12.2022
- Date of Analysis : 22.12.2022 to 23.12.2022
- Sample Collected by : VCSPL Representative in presence of Client's Representative

Sl. No.	Parameter	Testing Method	Unit	Standard as per IS -10500:2012 Amended on 2015 & 2018		Analysis Result			
				Acceptable Limit	Permissible Limit	GW6	GW7	GW8	GW9





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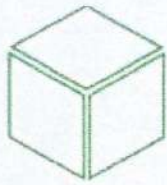
Ref : Envlab/22/R- 1551

Date : 08.01.2023

SURFACE WATER QUALITY ANALYSIS REPORT- DEC 2022

- Name of Client : M/s FERRO ALLOYS CORPORATION LIMITED , BHADRAK
- Name of the Project : OSTAPAL CHROMITE MINES , KALIAPANI, JAJPUR
- Sampling Location : SW1: Damsala Nallah Upstream Water (100 mtr Up)
SW2: Damsala Nallah Downstream Water (100 mtr Down)
(With impact of other mines discharge)
- Method of Sampling : APHA 1060 B
- Date of Sampling : 21.12.2022
- Date of Analysis : 22.12.2022 to 28.12.2022
- Sample Collected by : VCSPL Representative in presence of Client's Representative

Sl. No	Parameter	Testing Method	Unit	Standards as per IS-2296:1992 Class -'C'	Analysis Results	
					SW-1	SW-2
1	Colour (max)	Visual Comparison Method APHA 23 RD Ed,2017 : 2120 B, C	Hazen	300	<5	5
2	pH Value at 25°C	pH Meter APHA 23 RD Ed,2017 : 4500H ⁺ B	--	6.0-9.0	7.29	7.33
3	Suspended solids	Gravimetric Method APHA 23 RD Ed,2017 : 2540 D	mg/l	--	51	64
4	Dissolved Oxygen (minimum)	Modified Winkler Method APHA 23 RD Ed,2017 : 2540 C	mg/l	4.0	6.2	6.1
5	Turbidity	Nephelometric Method APHA 23 RD Ed,2017: 2130 B	NTU	--	5.4	8.9
6	Chloride (max)	Titrimetric Method APHA 23 RD Ed,2017: 4500C ⁻ B	mg/l	600	15	20
7	Total Dissolved Solids	Gravimetric Method APHA 23 RD Ed,2017: 2540 C	mg/l	1500	86	120
8	BOD (3) days at 27°C (max)	IS 3025(P-44) : 1993 RA 2003	mg/l	3.0	BDL	BDL
9	Arsenic as As	By AAS Method APHA 23 RD Ed,2017: 3114 B	mg/l	0.2	BDL	BDL
10	Lead as Pb(max)	By AAS Method APHA 23 RD Ed,2017 3111 B	mg/l	0.1	BDL	BDL
11	Cadmium as Cd (max)	By AAS Method APHA 23 RD Ed,2017: 3111 B	mg/l	0.01	BDL	BDL
12	Hexa Chromium as Cr ⁺⁶	Diphenyl Carbazide Method APHA 23 RD Ed,2017: 3500C ⁺ B	mg/l	0.05	<0.01	<0.01
13	Copper as Cu (max)	By AAS Method APHA 23 RD Ed,2017: 3111 B	mg/l	1.5	BDL	BDL
14	Zinc as Zn(max)	By AAS Method APHA 23 RD Ed,2017: 3111 B	mg/l	15	BDL	BDL
15	Selenium as Se (max)	By AAS Method APHA 23 RD Ed,2017: 3500 Se C	mg/l	0.05	BDL	BDL
16	Cyanide as CN (max)	Distillation followed by Spectrophotometric Method APHA 23 RD Ed,2017: 4500 CN ⁻ C,D	mg/l	0.05	BDL	BDL
17	Fluoride as F (max)	Distillation followed by Spectrophotometric Method APHA 23 RD Ed,2017: 4500F C	mg/l	1.5	0.12	0.16
18	Sulphates (SO ₄) (max)	Turbidimetric Method APHA 23 RD Ed,2017: 4500 SO ₄ ²⁻ E	mg/l	400	0.52	0.67



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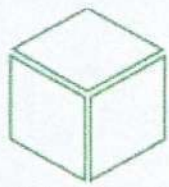
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- Waste Management Services

19	Phenolic Compounds as C ₆ H ₅ OH (max)	Chloroform Extraction By Colorimetric Method APHA 23 RD Ed,2017: 5530 B,D	mg/l	0.005	BDL	BDL
20	Iron as Fe (max)	By AAS Method APHA 23 RD Ed,2017: 3500Fe, B	mg/l	0.5	0.36	0.05
21	Nitrate as NO ₃ , (max)	By UV-Screen Method APHA 23 RD Ed,2017: 4500 NO ₃ E	mg/l	50	1.5	1.2
22	Anionic Detergents (max)	Anionic Surfactants as MBAS APHA 23 RD Ed,2017: 5540 C	mg/l	1.0	ND	ND
23	Total Coli form	By Multiple Tube Fermentation Technique APHA 23 RD Ed,2017: 9221 B	MPN/ 100 ml	5000	540	920

CL – Colorless, ND – Not detected.

BDL (Below detection limit) Values : (Cu<0.02 mg/l, Mn<0.025 mg/l, C₆H₅OH<0.05 mg/l, Hg<0.004mg/l, Cd<0.01 mg/l, Sc<0.001 mg/l, As<0.004 mg/l,Pb<0.02 mg/l, Zn<0.03 mg/l, Cr⁶⁺<0.01 mg/l, Al<0.1 mg/l, B<0.1 mg/l, NO₃1 mg/l)





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Ref : Envlab/22/R- 1552

Date : 08.01.2023

STP WATER QUALITY ANALYSIS REPORT- DEC 2022

Name of Client : M/s FERRO ALLOYS CORPORATION LIMITED , BHADRAK

Name of the Project : OSTAPAL CHROMITE MINES , KALIAPANI, JAJPUR

Sampling Location: W1: 20 KLD STP Near Dispensary

W2: 10 KLD STP Near Office

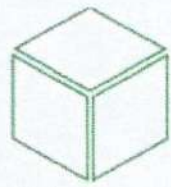
Method of Sampling: APHA 1060 B

Date of Sampling: 21.12.2022

Date of Analysis: 22.12.2022 to 26.12.2022

SL. NO	PARAMETERS	Unit of Measurement	Method of Testing	MOEF & CC Standard Dt:13.10.2017	RESULTS	
					W1	W2
1	pH Value (at 25°C)	--	APHA 4500H ⁺ B	6.5-9.0	7.16	7.22
2	SuspendedSolids	mg/l	APHA 2540 D	<100	95	82
3	Oil&Grease	mg/l	APHA 5520 B	--	4.4	3.6
4	BOD(3)daysat27 ^o C	mg/l	APHA 5210 B	30	6.2	5.4
5	COD	mg/l	APHA 5220 C	--	14	8
6	TotalChromium(as Cr)	mg/l	APHA 3111 B	--	<0.01	<0.01
7	FeecalColiform	MPN/100ml	APHA 9221 E	<1000	26	24





Visiontek Consultancy Services Pvt. Ltd.

(Committed For Better Environment)

Certified for : ISO 9001:2015, ISO 14001:2015, ISO 45001:2018 (OH&S), ISO/IEC 17025:2017

Accredited by : NABET-A Grade, MOEF & CC/CPCB & SPCB-A Grade

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Ref : Envlab/22/R- 1553

Date : 08.01.2023

STP MBBR BASIN WATER QUALITY ANALYSIS REPORT- DEC 2022

Name of Client : M/s FERRO ALLOYS CORPORATION LIMITED , BHADRAK

Name of the Project : OSTAPAL CHROMITE MINES , KALIAPANI, JAJPUR

Sampling Location: : W1: MBBR BASIN 20 KLD STP Near Dispensary

W2: MBBR BASIN 10 KLD STP Near Office

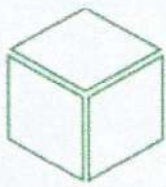
Method of Sampling: APHA 1060 B

Date of Sampling: 21.12.2022

Date of Analysis: 22.12.2022 to 26.12.2022

SL.NO.	Parameters	Unit of Measurement	Standard Operating Range	W1	W2
1	pH Value (at 25°C)	--	6.5-8.0	6.68	6.71
2	MLSS	mg/l	2300-2500	2347	2334
3	MLVSS	mg/l	2700-3200	2811	2807
4	DO	mg/l	1.0-2.0	1.4	1.2





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Ref : Envlab/22/R- 1554

Date : 08.01.2023

Silica Content in AAQ

Name of Client : M/s FERRO ALLOYS CORPORATION LIMITED , BHADRAK

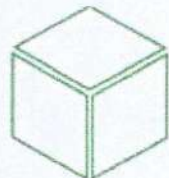
Name of the Project : OSTAPAL CHROMITE MINES , KALIAPANI, JAJPUR

Sample Collected By : VCSPL representative in presence of Client's representative

Sl. No.	Date of monitoring	Sampler attached to person	Personal Respirable Dust (mg/m ³)	Respirable free Silica (%)
1	19.12.2022	DINABANDHU MAHANATA	0.56	2.3
2	19.12.2022	RANA PINGUA	0.65	2.4
3	19.12.2022	BUDHURAM LINGU	0.72	1.8
4	19.12.2022	PURNA CHANDRA DEHURY	0.63	2.2

DGMS Standards: Average concentration during each shift 3 mg/m³ where free silica in air borne dust is 5% or less.





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Ref : Envlab/22/R-1555

Date : 08.01.2023

SOURCE EMISSION ANALYSIS REPORT-DECEMBER 2022

Name & Address of the Client: Ostapal Chromite Mines (M/S Ferro Alloys Corporation Limited), Sukinda, Jajpur

Sample Type : Stack Sample

Date of Sampling : 15.12.2022

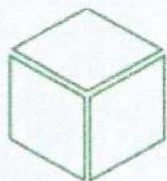
Date of Analysis : 16.12.2022 to 19.12.2022

Sampling Done by : VISIONTEK CONSULTANCY SERVICE PVT LTD

Sl.No.	Parameters	Stack-1 COB DG I	Stack-1 COB DG II	Stack-1 COB DG III	CPCB Standard for DG \geq 800KW (\geq 1000KVA)
		Capacity: 550 KVA	Capacity: 285 KVA	Capacity: 100 KVA	
1	Stack °C	177	175	170	--
2	Stack Velocity m/sec	15.4	14.91	15.21	--
3	Particulate Matter (PM), mg/Nm ³	67	66	66	75g/Nm ³
4	Oxides of Nitrogen (NOx), ppm	69	54	58	710 ppm
5	Carbon Monoxide, mg/Nm ³	52.7	50.4	51.6	150mg/Nm ³
6	Non Methyl Hydro Carbon as C, mg/Nm ³	24.3	22.2	23.5	100mg/Nm ³

The results stated in the test report are refer only to the sample tested. Test report shall not be reproduced in full without written approval of the Company





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Ref : Envlab/22/R- 1556

Date : 08.01.2023

HAZARDOUS WASTE ANALYSIS REPORT

Name of Client : M/s FERRO ALLOYS CORPORATION LIMITED , BHADRAK
 Name of the Sample : S1:Used Oil of Ostapal Chromite Mines
 Date of Sampling : 15.12.2022
 Date of Analysis : 16.12.2022 to 17.12.2022

SL. No.	Name of the Parameters	Unit	Conc. Limit as per schedule-II of Hazardous waste Rule,2016	Analysis Result S1
1	Arsenic	mg/kg	5.0	<0.004
2	Cadmium	mg/kg	1.0	0.56
3	Chromium and/or chromium(III) compound	mg/kg	5.0	1.82
4	Lead	mg/kg	5.0	0.44
5	Manganese	mg/kg	10.0	<0.05
6	Mercury	mg/kg	0.2	<0.002
7	Selenium	mg/kg	1.0	<0.001
8	Cobalt	mg/kg	80.0	<0.05
9	Copper	mg/kg	25.0	0.38
10	Molybdenum	mg/kg	35.0	<1.0
11	Nickel	mg/kg	20.0	0.57
12	Zinc	mg/kg	250.0	<5.0
13	Fluoride	mg/kg	180.0	1.3
14	Polychlorinated Biphenyls (PCBs)	mg/kg	<2	0.4
15	Polyaromatic Hydrocarbons (PAH)	%	6.0	0.7
Hazardous Characteristics as per Schedule-II Class C of Hazardous Waste Rule,2016				
16	Flammable	--	--	Liquid
17	Corrosive(pH)	--	--	5.3
18	Reactive or Explosive	--	--	Reactive

