

PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA HATIA, RANCHI-834003 (JHARKHAND) GST NO:-20AAECE9713D124

### ENGINEERING SERVICES PVT. LTD.

Email: info@elespl.co.in , eles.ranchi@gmail.com

Phone no.: 0651-2290103 Website: www.elespl.co.in



TC-883

### TEST REPORT

Test Report No.	: ELES/RNC/2023/3844	Report Release Date	: 18.10.2023	
Work Order No.	: 13572310670	Work Order Date	; 27.09.2023	
ULR No.	: TC883923000002517F			

<b>CUSTOMER DET</b>	AILS	SAMPLE DETAILS		
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/3562	
		Location	: Mines Office Near VTC	
Address	: Kathautia Open Cast Coal Mines,		(Core Zone)	
	Post- Naudiha, P.S. Pandwa,	Sampling Date	: 26.09.2023 to 27.09.2023	
	Daltongang, Dist- Palamu	Sample Received Date	: 30.09.2023	
	Jharkhand, Pin-822123	Type of Sample	: Ambient Air	
		Sampling Procedure	: ELES/DOC/SMPL/02	
Plant Status	: Operational	Sample Drawn By	: ELES Pvt. Ltd.	
Period of Analysis	: 30.09.2023 to 09.10.2023	Sample Condition	: Sealed & Preserved	

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 27	2	Barometric Pressure (mmHg)	: 745
3	Relative Humidity (%)	: 66	4	Weather Condition	: Partly Cloudy
5	Longitude	: 84°04′48.08″E	6	Latitude	: 24°07′41.61″N

Discipline : 0	Atmospheric Pollution			
Parameter	Unit	Unit Test Protocol Re		Regulatory Limit
Particulate Matter (PM10)	μg/m³	IS 5182 (Part-23): 2006; RA2022	53	100 (24hrs)
Particulate Matter (PM2.5)	μg/m³	IS 5182 (Part- 24): 2019	28	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	μg/m³	IS 5182 (Part-2): 2001; RA2022	8.5	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	μg/m³	IS 5182 (Part-6): 2006; RA2022	21.1	80 (24hrs)
Carbon Monoxide (CO)	mg/m³	IS 5182 (Part-10): 1999; RA2019	<1,0	2 (8hrs)

Reviewed by

\*\*\*\*End of Report\*\*\*\*

Authorised Signatory

Dr. Deependra Kumar Sinha Ph. D. Environmental Engg.

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PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA HATIA, RANCHI-834003 (JHARKHAND) GST NO:- 20AAECE9713D124

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### **TEST REPORT**

Test Report No.	: ELES/RNC/2023/3845	Report Release Date	: 18.10.2023	
Work Order No.	: 13572310670	Work Order Date	: 27.09.2023	
ULR No.	:TC883923000002518F			

CUSTOMER DET.	AILS	SAMPLE DETAILS		
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/3563	
		Location	: Near DG Stack (Core Zone)	
Address : Kathautia Open Cast Coal Mines, Post- Naudiha, P.S. Pandwa, Poltongona, Piet, Polemy,	Sampling Date	: 26.09.2023 to 27.09.2023		
	Post- Naudiha, P.S. Pandwa, Daltongang, Dist- Palamu	Sample Received Date	: 30.09.2023	
	Jharkhand, Pin-822123	Type of Sample	: Ambient Air	
	marking, 1 III-022123	Sampling Procedure	: ELES/DOC/SMPL/02	
Plant Status	: Operational	Sample Drawn By	: ELES Pvt. Ltd.	
Period of Analysis	: 30.09.2023 to 09.10.2023	Sample Condition	: Sealed & Preserved	

MI	TEOROLOGICAL INFOR	RMATION			
1	Average Temperature (°C)	: 27	2	Barometric Pressure (mmHg)	: 745
3	Relative Humidity (%)	: 66	4	Weather Condition	: Partly Cloudy
5	Longitude	: 84°04′50.48″E	6	Latitude	: 24°07′42.06″N

NABL Accredited							
Discipline :	Chemical	Group : A	tmospheric Pol	lution			
Parameter	Unit	Test Protocol	Result	Regulatory Limit			
Particulate Matter (PM10)	μg/m³	IS 5182 (Part-23): 2006; RA2022	52	100 (24hrs)			
Particulate Matter (PM2.5)	μg/m³	IS 5182 (Part- 24): 2019	26	60 (24hrs)			
Sulphur Di-Oxide (SO <sub>2</sub> )	μg/m³	IS 5182 (Part-2): 2001; RA2022	7.2	80 (24hrs)			
Nitrogen Di-Oxide (NO <sub>2</sub> )	μg/m³	IS 5182 (Part-6): 2006; RA2022	19.7	80 (24hrs)			
Carbon Monoxide (CO)	mg/m³	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)			

Reviewed by

\*\*\*\*End of Report\*\*\*\*

Authorised Signatory

Dr. Deependra Kumar Sinha
Ph. D. Environmental Engg.
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PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA HATIA, RANCHI-834003 (JHARKHAND) GST NO:- 20AAECE9713D1Z4

### ENGINEERING SERVICES PVT. LTD.

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### TEST REPORT

Test Report No.	: ELES/RNC/2023/3846	Report Release Date	: 18.10.2023	
Work Order No.	: 13572310670	Work Order Date	: 27.09.2023	
ULR No.	: TC883923000002519F			

<b>CUSTOMER DET</b>	AILS	SAMPLE DETAILS		
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/3564	
		Location	: Near Substation (Core Zone)	
Post- Naudiha, P.S. Pandwa	: Kathautia Open Cast Coal Mines,	Sampling Date	: 26.09.2023 to 27.09.2023	
		Sample Received Date	: 30.09.2023	
	Daltongang, Dist- Palamu Jharkhand, Pin-822123	Type of Sample	: Ambient Air	
	Jiminima, I III-022123	Sampling Procedure	: ELES/DOC/SMPL/02	
Plant Status	: Operational	Sample Drawn By	: ELES Pvt. Ltd.	
Period of Analysis	: 30.09.2023 to 09.10.2023	Sample Condition	: Sealed & Preserved	

M	METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 27	2	Barometric Pressure (mmHg)	: 745	
3	Relative Humidity (%)	: 66	4	Weather Condition	: Partly Cloudy	
5	Longitude	: 84°05′05.36″E	6	Latitude	: 24°07′40.83″N	

NABL Accredited							
Discipline :	Chemical	Group : A	tmospheric Pol	lution			
Parameter	Unit	Test Protocol	Result	Regulatory Limit			
Particulate Matter (PM10)	μg/m³	IS 5182 (Part-23): 2006; RA2022	56	100 (24hrs)			
Particulate Matter (PM2.5)	μg/m³	IS 5182 (Part- 24): 2019	30	60 (24hrs)			
Sulphur Di-Oxide (SO <sub>2</sub> )	μg/m³	IS 5182 (Part-2): 2001; RA2022	10.8	80 (24hrs)			
Nitrogen Di-Oxide (NO2)	μg/m³	IS 5182 (Part-6): 2006; RA2022	24.1	80 (24hrs)			
Carbon Monoxide (CO)	mg/m³	IS 5182 (Part-10): 1999; RA2019	1.08	2 (8hrs)			

Reviewed by

\*\*\*\*End of Report\*\*\*\*

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PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA HATIA, RANCHI-834003 (JHARKHAND) GST NO:- 20AAECE9713D124

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### **TEST REPORT**

Test Report No.	: ELES/RNC/2023/3847	Report Release Date	: 18.10.2023
Work Order No.	: 13572310670	Work Order Date	: 27.09.2023
ULR No.	: TC883923000002520F		

CUSTOMER DET.	AILS	SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/3565
		Location	: R & R Colony, Chandan Nagar
Address	: Kathautia Open Cast Coal Mines,		(Buffer Zone)
	Post- Naudiha, P.S. Pandwa,	Sampling Date	: 26.09.2023 to 27.09.2023
	Daltongang, Dist- Palamu	Sample Received Date	: 30.09.2023
	Jharkhand, Pin-822123	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
Plant Status	: Operational	Sample Drawn By	: ELES Pvt. Ltd.
Period of Analysis	: 30.09.2023 to 09.10.2023	Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 27	2	Barometric Pressure (mmHg)	: 745
3	Relative Humidity (%)	: 66	4	Weather Condition	: Partly Cloudy
5	Longitude	: 84°03′56.22″E	6	Latitude	: 24°07′27.95″N

Discipline :	Chemical	Group: A	tmospheric Pol	lution
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	μg/m³	IS 5182 (Part-23): 2006; RA2022	47	100 (24hrs)
Particulate Matter (PM2.5)	μg/m³	IS 5182 (Part- 24): 2019	29	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	μg/m³	IS 5182 (Part-2): 2001; RA2022	7.9	80 (24hrs)
Nitrogen Di-Oxide (NO₂)	μg/m³	IS 5182 (Part-6): 2006; RA2022	22.8	80 (24hrs)
Carbon Monoxide (CO)	mg/m³	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)

Reviewed by

\*\*\*\*End of Report\*\*\*\*

Authorised Signatory

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CIN: U74999JH2018PTC011125

## ENVIRONMENTAL LABORATORIES &

PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA HATIA, RANCHI-834003 (JHARKHAND) GST NO:- 20AAECE9713D1Z4

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TC-883

#### TEST REPORT

Test Report No.	: ELES/RNC/2023/3848	Report Release Date	: 18.10.2023	
Work Order No.	: 13572310670	Work Order Date	: 27.09.2023	
ULR No.	: TC883923000002521F			

CUSTOMER DETA	AILS	SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/3566
		Location	: Kathautia Village (Buffer Zone)
Address	: Kathautia Open Cast Coal Mines,	Sampling Date	: 27.09.2023 to 28.09.2023
Daltongang, Dist- Pal	Post- Naudiha, P.S. Pandwa,	Sample Received Date	: 30.09.2023
	Jharkhand, Pin-822123	Type of Sample	: Ambient Air
	li test	Sampling Procedure	: ELES/DOC/SMPL/02
Plant Status	: Operational	Sample Drawn By	: ELES Pvt. Ltd.
Period of Analysis	: 30.09.2023 to 09.10.2023	Sample Condition	: Sealed & Preserved

M	ETEOROLOGICAL INFOR	RMATION			
1	Average Temperature (°C)	: 26	2	Barometric Pressure (mmHg)	: 745
3	Relative Humidity (%)	: 72	4	Weather Condition	: Cloudy
5	Longitude	: 84°04′12.09″E	6	Latitude	: 24°07′18.89″N

NABL Accredited				
Discipline :	tmospheric Pol	spheric Pollution		
Parameter Unit		Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	μg/m³	IS 5182 (Part-23): 2006; RA2022	43	100 (24hrs)
Particulate Matter (PM2.5)	μg/m³	IS 5182 (Part- 24): 2019	21	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	μg/m³	IS 5182 (Part-2): 2001; RA2022	5.8	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	μg/m³	IS 5182 (Part-6): 2006; RA2022	16.2	80 (24hrs)
Carbon Monoxide (CO)	mg/m³	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)

Reviewed by

\*\*\*\*End of Report\*\*\*\*

**Authorised Signatory** 

Dr. Deependra Kumar Sinha
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PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA HATIA, RANCHI-834003 (JHARKHAND) GST NO:- 20AAECE9713D1Z4

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TC-8839

#### **TEST REPORT**

Test Report No.	: ELES/RNC/2023/3849	Report Release Date	: 18.10.2023	
Work Order No.	: 13572310670	Work Order Date	: 27.09.2023	
ULR No.	: TC883923000002522F			

CUSTOMER DETA	AILS	SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/3567
		Location	: Sikka Village (Buffer Zone)
Address	: Kathautia Open Cast Coal Mines,	Sampling Date	: 27.09.2023 to 28.09.2023
	Post- Naudiha, P.S. Pandwa, Daltongang, Dist- Palamu	Sample Received Date	: 30.09.2023
	Jharkhand, Pin-822123	Type of Sample	: Ambent Air
DI 4.04.4		Sampling Procedure	: ELES/DOC/SMPL/02
Plant Status	: Operational	Sample Drawn By	: ELES Pvt. Ltd.
Period of Analysis	: 30.09.2023 to 09.10.2023	Sample Condition	: Sealed & Preserved

M	METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 26	2	Barometric Pressure (mmHg)	: 745	
3	Relative Humidity (%)	: 72	4	Weather Condition	: Cloudy	
5	Longitude	: 84°05′16.76″E	6	Latitude	: 24°07′03.60″N	

NABL Accredited						
Discipline : 0	Chemical	Group : A	Group: Atmospheric Pollution			
Parameter Unit		Test Protocol	Result	Regulatory Limit		
Particulate Matter (PM10)	μg/m³	IS 5182 (Part-23): 2006; RA2022	43	100 (24hrs)		
Particulate Matter (PM2.5)	μg/m³	IS 5182 (Part- 24): 2019	21	60 (24hrs)		
Sulphur Di-Oxide (SO <sub>2</sub> )	μg/m³	IS 5182 (Part-2): 2001; RA2022	6.3	80 (24hrs)		
Nitrogen Di-Oxide (NO <sub>2</sub> )	μg/m³	IS 5182 (Part-6): 2006; RA2022	15.7	80 (24hrs)		
Carbon Monoxide (CO)	mg/m³	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)		

Reviewed by

\*\*\*\*End of Report\*\*\*\*

**Authorised Signatory** 

Dr. Deependra Kumar Sinha
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PLOT NO-30, MANSAROVAR ENCLAYE, TUPUDANA HATIA, RANCHI-834003 (JHARKHAND) GST NO:- 20AAECE9713D124

#### ENGINEERING SERVICES PVT. LTD.

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#### TEST REPORT

Test Report No.	: ELES/RNC/2023/3850	Report Release Date	: 18.10.2023	
Work Order No.	: 13572310670	Work Order Date	: 27.09.2023	
ULR No.	: TC883923000002523F			

CUSTOMER DETAILS		SAMPLE DETAILS		
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/3568	
		Location	: Batsara Village (Buffer Zone)	
Address	: Kathautia Open Cast Coal Mines,	Sampling Date	: 27.09.2023 to 28.09.2023	
Post- Naudiha, P.S. Pandwa,	Sample Received Date	: 30.09.2023		
	Daltongang, Dist- Palamu Jharkhand, Pin-822123	Type of Sample	: Ambient Air	
	Jilaikiana, 1 m-622125	Sampling Procedure	: ELES/DOC/SMPL/02	
Plant Status	: Operational	Sample Drawn By	: ELES Pvt. Ltd.	
Period of Analysis	: 30.09.2023 to 09.10.2023	Sample Condition	: Sealed & Preserved	

M	METEOROLOGICAL INFORMATION						
1	Average Temperature (°C)	: 26	2	Barometric Pressure (mmHg)	: 745		
3	Relative Humidity (%)	: 72	4	Weather Condition	: Cloudy		
5	Longitude	: 84°05′16.76″E	6	Latitude	: 24°07′03.60″N		

NABL Accredited				
Discipline: Chemical Group: Atmospheric Pollution				
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	μg/m³	IS 5182 (Part-23): 2006; RA2022	46	100 (24hrs)
Particulate Matter (PM2.5)	μg/m³	IS 5182 (Part- 24): 2019	21	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	μg/m³	IS 5182 (Part-2): 2001; RA2022	7.2	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	μg/m³	IS 5182 (Part-6): 2006; RA2022	19.3	80 (24hrs)
Carbon Monoxide (CO)	mg/m³	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)

Reviewed by

\*\*\*\*End of Report\*\*\*\*

**Authorised Signatory** 

Dr. Deependra Kumar Sinha
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PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA HATIA, RANCHI-834003 (JHARKHAND) GST NO:- 20AAECE9713D124

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### **TEST REPORT**

Test Report No.	: ELES/RNC/2023/3851	Report Release Date	: 18.10.2023
Work Order No.	: 13572310670	Work Order Date	: 27.09.2023
ULR No.	: TC883923000002524F		

CUSTOMER DETAILS		SAMPLE DETAILS		
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/3569	
		Location	: Near Main Gate (Core Zone)	
Address	Post- Naudiha, P.S. Pandwa,	Sampling Date	: 27.09.2023 to 28.09.2023	
		Sample Received Date	: 30.09.2023	
	Daltongang, Dist- Palamu Jharkhand, Pin-822123	Type of Sample	: Ambient Air	
	Jilaikilaiki, I III-022123	Sampling Procedure	: ELES/DOC/SMPL/02	
Plant Status	: Operational	Sample Drawn By	: ELES Pvt. Ltd.	
Period of Analysis	: 30.09.2023 to 09.10.2023	Sample Condition	: Sealed & Preserved	

M	METEOROLOGICAL INFORMATION						
1	Average Temperature (°C)	: 26	2	Barometric Pressure (mmHg)	: 745		
3	Relative Humidity (%)	: 72	4	Weather Condition	: Cloudy		
5	Longitude	: 84°04′46.77″E	6	Latitude	: 24°07′41.19″N		

NABL Accredited						
Discipline : 0	Chemical	Group : A	Group: Atmospheric Pollution			
Parameter	Unit	Test Protocol	Result	Regulatory Limit		
Particulate Matter (PM10)	μg/m <sup>3</sup>	IS 5182 (Part-23): 2006; RA2022	59	100 (24hrs)		
Particulate Matter (PM2.5)	μg/m³	IS 5182 (Part- 24): 2019	28	60 (24hrs)		
Sulphur Di-Oxide (SO <sub>2</sub> )	μg/m³	IS 5182 (Part-2): 2001; RA2022	12.3	80 (24hrs)		
Nitrogen Di-Oxide (NO <sub>2</sub> )	μg/m³	IS 5182 (Part-6): 2006; RA2022	25.1	80 (24hrs)		
Carbon Monoxide (CO)	mg/m³	IS 5182 (Part-10): 1999; RA2019	1.1	2 (8hrs)		

Reviewed by

\*\*\*\*End of Report\*\*\*\*

**Authorised Signatory** 

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PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA HATIA, RANCHI-834003 (JHARKHAND) GST NO:- 20AAECE9713D1Z4

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### **TEST REPORT**

Test Report No.	: ELES/RNC/2023/3864	Report Release Date	: 18.10.2023	
Work Order No.	: 13572310670	Work Order Date	: 27.09.2023	
ULR No.	: TC883923000002529F			

<b>CUSTOMER DET</b>	AILS	SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/SW/3588
		Sampling Date	: 29.09.2023
Address	: Kathautia Open Cast Coal Mines	Sample Received Date	: 30.09.2023
	Post- Naudiha, P.S Pandwa,	Type of Sample	: Surface Water
	Daltongang, Dist- Palamu, Jharkhand, Pin-822123	Source of Sample	: Pit- C
	Jnarknand, Pin-822123	Sampling Procedure	: ELES/DOC/SMPL/01
Plant Status	: Operational	Sample Collected By	: ELES Pvt. Ltd.
Period of Analysis	: 30.09.2023 to 10.10.2023	Sample Condition	: Sealed & Preserved

Discipline: Chemical		Grou	p: Water	Tolerance Limits
Parameter	Unit	Test Protocol	Result	as per IS 2296-1992 Class C (Inland Surface Water)
pH (at 24.7°C)	-	IS 3025 (Part 11): 2022	7.89	6.5-8.5
Colour	Hazen	IS 3025 (Part -4): 2021	5.0	300
Odour	-	IS 3025 (Part-5): 2018	Agreeable	
Biochemical Oxygen Demand (BOD) (@ 20°C for 5 days)	mg/L	APHA 23 <sup>rd</sup> Ed.2017; 5210B	2.2	3.0
Total Dissolved Solids (TDS)	mg/L	IS 3025 (Part 16):1984; RA2017	312	1500
Oil & Grease	mg/L	IS 3025 (Part-39): 2021	<0.1	0.1
Fluoride (as F)	mg/L	IS 3025 (Part-60) :2008; RA2019	0.218	1.5
Sulphate (as SO <sub>4</sub> )	mg/L	IS 3025 (Part 24): 1986; RA2019	50.2	400
Cyanide (as CN)	mg/L	APHA 23 <sup>rd</sup> Ed.2017, 4500 CN-E	<0.012	0.05
Chloride (as Cl)	mg/L	IS 3025 (Part-32) :1988; RA2019	14.2	600
Total Hardness (as CaCO <sub>3</sub> )	mg/L	IS 3025 (Part-21): 2009; RA2019	169	an co
Nitrate (as NO <sub>3</sub> )	mg/L	APHA 23 <sup>rd</sup> Ed.2017, 4500 NO <sub>3</sub> -B	<0.5	50
Phenols Compounds (as C <sub>6</sub> H <sub>3</sub> OH)	mg/L	IS 3025 (Part-43) :1992; RA2019	<0.0005	0.005
Free Ammonia (as NH <sub>3</sub> )	mg/L	IS 3025 (Part 34) :1988; RA2019	<0.1	

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PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA HATIA, RANCHI-834003 (JHARKHAND) GST NO:- 20AAECE9713D124

### ENGINEERING SERVICES PVT. LTD

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TC-8839

### **TEST REPORT**

 Test Report No.
 : ELES/RNC/2023/3864
 Report Release Date
 : 18.10.2023

 Work Order No.
 : 13572310670
 Work Order Date
 : 27.09.2023

 ULR No.
 : TC883923000002529F

Discipline: Chem	ical	Group: Wate	ľ	Tolerance Limits
Parameter U		Test Protocol	Result	as per IS 2296-1982 Class C (Inland Surface Water)
Dissolved Oxygen (DO)	mg/L	IS 3025 (Part-38) :1989, RA2019	7.0	4(min)
Calcium (as Ca)	mg/L	IS 3025 (Part-40):1991, RA2019	44	
Discipline	: Chemic	cal Group	: Residues i	n Water
Arsenic (as As)	mg/L	APHA 23 <sup>rd</sup> Ed 2017, 3500 As B	<0.005	0.2
Barium (as Ba)	mg/L	IS 15302 : 2003; RA2018	<0.1	
Boron (as B)	mg/L	IS 3025 (Part-57) :2021	<0.2	_
Cadmium (as Cd)	mg/L	APHA23 <sup>rd</sup> Ed 2017; 3111B	<0.003	0.01
Total Chromium (as Cr)	mg/L	APHA23 <sup>rd</sup> Ed 2017; 3111B, & 3280 Cr B	<0.03	0.05
Copper (as Cu)	mg/L	APHA23 <sup>rd</sup> Ed 2017; 3111B	<0.03	1.5
Iron (as Fe)	mg/L	APHA23 <sup>rd</sup> Ed 2017; 3111B, & 3500 Fe B	0.144	50
Lead (as Pb)	mg/L	APHA 23 <sup>rd</sup> Ed 2017, 3111 B, & 3500 Pb B	<0.01	0.1
Manganese (as Mn)	m <b>g</b> /L	APHA 23 <sup>rd</sup> Ed 2017; 3111 B, &3500 Mn B	<0.05	
Mercury (as Hg)	mg/L	IS 3025 (Part-48) :1994; RA 2019	<0.001	***
Selenium (as Se)	mg/L	IS 3025 (Part-56) :2003; RA 2019	<0.01	0.05
Zinc (as Zn)	mg/L	APHA 23 <sup>rd</sup> Ed 2017, 3111 B & 3500 Zn B	<0.1	15
Silver (as Ag)	mg/L	Annex-J of IS 13428 :2005; RA 2018	<0.1	<u>-</u>
Magnesium (as Mg)	mg/L	IS 3025 (Part-46): 1994; RA2019	16.2	

Remarks: 1. pH done at Lab.

Limit).

Reviewed by

\*\*\*\*End of Report\*\*\*\*

Authorised Signatory

Dr. Deependra Kumar Sinha

Ph. D. Environmental From

ELES Pvt. Ltd. Technical Manager

Page 2 of 2



Plant Status

Period of Analysis

## ENVIRONMENTAL LABORATORIES &

PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA HATIA, RANCHI-834003 (JHARKHAND) GST NO:- 20AAECE9713D124

THE TROUBLE STATE OF THE PROPERTY OF THE PROPE

: Operational

: 30.09.2023 to 16.10.2023

## ENGINEERING SERVICES PVT. LTD.

Email: <u>info@elespl.co.in</u>, <u>eles.ranchl@gmail.com</u> Phone no.: 0651-2290103 Website: www.elespl.co.in

: ELES/DOC/SMPL/01

: Sealed & Preserved

: ELES Pvt. Ltd.

#### TEST REPORT

Test Report No.	: ELES/RNC/2023/3864	Report Release Date	: 18.10.2023
Work Order No.	: 13572310670	Work Order Date	: 27.09,2023
CUSTOMER DET	TAILS	SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/SW/3588
		Sampling Date	: 29.09.2023
Address	: Kathautia Open Cast Coal Mines	Sample Received Date	: 30.09.2023
	Post- Naudiha, P.S Pandwa,	Type of Sample	: Surface Water
	Daltongang, Dist- Palamu, Jharkhand, Pin-822123	Source of Sample	: Pit- C

Sampling Procedure

Sample Collected By

Sample Condition

Discipline: Chemical Group: Y			ater
Parameter	Unit	Test Protocol	Result
Anionic Surfactants (as MBAS)*	mg/L	Annex K of IS 13428 : 2005	<0.05
Mineral Oil*	mg/L	IS:3025(Part-39):2021, Clause 6 Infrared Spectroscopic method.	<0.01
Polynuclear Aromatic Hydrocarbons (PAH)*	μg/L	SO-IN-MUL-TE-023	<0.05
Free CO <sub>2</sub>	mg/L	IS 3025 (Part-61): 2008	20
SAR	mg/L	Calculative	<2.0
Percent Sodium	%	IS 3025 (Part-45): 1993; RA2019	0.0055
Taste	-	APHA 23 <sup>rd</sup> Ed.2017, 2160 C	N/A
Pesticides			
DDT(o,p and p,p-isomers of DDT,DDEand DDD)*	μg/L	SO-IN-MUL-TE-020	<0.01
Gamma HCH (Lindane)*	μg/L	SO-IN-MUL-TE-020	<0.01
Alpha HCH*	μg/L	SO-IN-MUL-TE-020	<0.01
Beta HCH*	μg/L	SO-IN-MUL-TE-020	<0.01
Delta HCH*	μg/L	SO-IN-MUL-TE-020	<0.01
Endosulfan (alpha, beta and sulphate)*	μg/L	SO-IN-MUL-TE-020	<0.01
Alachor*	μg/L	SO-IN-MUL-TE-020	<0.01

Page 1 of 2



PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA HATIA, RANCHI-834003 (JHARKHAND) GST NO:- 20AAECE9713D1Z4 ENGINEERING SERVICES PVT. LTD.

Email: <u>info@elespl.co.in</u> , <u>eles.ranchi@gmail.com</u> Phone no.: 0651-2290103

Website : www.elespl.co.in

#### TEST REPORT

Test Report No.	: ELES/RNC/2023/3864	Report Release Date	: 18.10.2023	
Work Order No.	: 13572310670	Work Order Date	: 27.09.2023	

Discipline : Chemie	eal	Group : Water	
Parameter	Unit	Test Protocol	Result
Pesticides			
Aldrin/Dieldrin*	μ <b>g</b> /L	SO-IN-MUL-TE-020	<0.01
Butachlor*	μg/L	SO-IN-MUL-TE-020	<0.01
Isoproturon*	μg/L	SO-IN-MUL-TE-020	<0.01
2,4-Dichlorophenoxyacetic acid*	μg/L	SO-IN-MUL-TE-020	<0.01
Ethion *	μg/L	SO-IN-MUL-TE-020	<0.01
Monocrotophos*	μg/L	SO-IN-MUL-TE-020	<0.01
Atrazine*	μg/L	SO-IN-MUL-TE-020	<0.01
Chlorpyriphos*	μg/L	SO-IN-MUL-TE-020	<0.01
Methyl Parathion*	μg/L	SO-IN-MUL-TE-020	<0.01
Malathion*	μg/L	SO-IN-MUL-TE-020	<0.01
Phorate*	μg/L	SO-IN-MUL-TE-020	<0.01
Discipline : Biologie	al	Group : Water	
Parameter	Unit	Test Protocol	Result
Total Coliform	CFU/100 mL	IS 15185:2016; RA 2021	$6.36 \times 10^{3}$

Remarks:1. (\*) - Parameters are outsourced to NABL Accredited Lab.

Reviewed by

& Eng.

\*\*\*\*End of Report\*\*\*\*

Authorised Signatory

Dr. Deependra Kumar Sinha
Ph. D. Environmental Engg.
ELES Pvt. Ltd. Technical Manager

Page 2 of 2



PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA HATIA, RANCHI-834003 (JHARKHAND) GST NO:- 20AAECE9713D1Z4

### ENGINEERING SERVICES PVT. LTD

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Phone no.: 0651-2290103 Website: www.elespl.co.in



### **TEST REPORT**

 Test Report No.
 : ELES/RNC/2023/3865
 Report Release Date
 : 18.10.2023

 Work Order No.
 : 13572310670
 Work Order Date
 : 27.09.2023

 ULR No.
 : TC883923000002530F

CUSTOMER DET	AILS	SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/SW/3589
		Sampling Date	: 29.09.2023
Address	: Kathautia Open Cast Coal Mines	Sample Received Date	: 30.09.2023
	Post- Naudiha, P.S Pandwa,	Type of Sample	: Surface Water
	Daltongang, Dist- Palamu, Jharkhand, Pin-822123	Source of Sample	: Pit- D
	Juarkiianu, Pili-622125	Sampling Procedure	: ELES/DOC/SMPL/01
Plant Status	: Operational	Sample Collected By	: ELES Pvt. Ltd.
Period of Analysis	: 30.09.2023 to 10.10.2023	Sample Condition	: Sealed & Preserved

Discipline: Chemical	Tolerance Limits			
Parameter	Unit	Test Protocol	Result	as per IS 2296-1992 Class C (Inland Surface Water)
pH (at 25.1 °C)		IS 3025 (Part 11): 2022	7.97	6.5-8.5
Colour	Hazen	IS 3025 (Part -4): 2021	6.0	300
Odour	-	IS 3025 (Part-5): 2018	Agreeable	
Biochemical Oxygen Demand (BOD) (@ 20°C for 5 days)	mg/L	APHA 23 <sup>rd</sup> Ed.2017; 5210B	2.3	3.0
Total Dissolved Solids (TDS)	mg/L	IS 3025 (Part 16):1984; RA2017	328	1500
Oil & Grease	mg/L	IS 3025 (Part-39): 2021	<0.1	0.1
Fluoride (as F)	mg/L	IS 3025 (Part-60) :2008; RA2019	0.248	1.5
Sulphate (as SO <sub>4</sub> )	mg/L	IS 3025 (Part 24): 1986; RA2019	24.8	400
Cyanide (as CN)	mg/L	APHA 23 <sup>rd</sup> Ed.2017, 4500 CN-E	<0.012	0.05
Chloride (as Cl)	mg/L	IS 3025 (Part-32) :1988; RA2019	13.3	600
Total Hardness (as CaCO <sub>3</sub> )	mg/L	IS 3025 (Part-21): 2009; RA2019	162	
Nitrate (as NO <sub>3</sub> )	mg/L	APHA 23rd Ed.2017, 4500 NO3-B	<0.5	50
Phenols Compounds (as C <sub>6</sub> H <sub>5</sub> OH)	mg/L	IS 3025 (Part-43) :1992; RA2019	<0.0005	0.005
Free Ammonia (as NH <sub>3</sub> )	mg/L	IS 3025 (Part 34):1988; RA2019	<0.1	

Page 1 of 2



PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA HATIA, RANCHI-834003 (JHARKHAND) GST NO:- 20AAECE9713D124

### ENGINEERING SERVICES PVT. LTD.

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TC-8839

#### **TEST REPORT**

 Test Report No.
 : ELES/RNC/2023/3865
 Report Release Date
 : 18.10.2023

 Work Order No.
 : 13572310670
 Work Order Date
 : 27.09.2023

 III.R No.
 : TC883923000002530F

Discipline: Chemical		Group: Water		Tolerance Limits	
Parameter Unit		Test Protocol	Result	as per IS 2296-198 Class C (Inland Surface Wate	
Dissolved Oxygen (DO)	mg/L	IS 3025 (Part-38) :1989, RA2019	5.9	4(min)	
Calcium (as Ca)	mg/L	IS 3025 (Part-40) :1991, RA2019	42		
Discipline : Chen	nical	Group : Resid	ues in Wateı		
Arsenic (as As)	mg/L	APHA 23 <sup>rd</sup> Ed 2017, 3500 As B	<0.005	0.2	
Barium (as Ba)	mg/L	IS 15302 : 2003; RA2018	<0.1		
Boron (as B)	mg/L	IS 3025 (Part-57) :2021	<0.2		
Cadmium (as Cd)	mg/L	APHA23 <sup>rd</sup> Ed 2017; 3111B	<0.003	0.01	
Total Chromium (as Cr)	mg/L	APHA23 <sup>rd</sup> Ed 2017; 3111B, & 3280 Cr B	<0.03	0.05	
Copper (as Cu)	mg/L	APHA23 <sup>rd</sup> Ed 2017; 3111B	<0.03	1.5	
Iron (as Fe)	mg/L	APHA23 <sup>rd</sup> Ed 2017; 3111B, & 3500 Fe B	0.148	50	
Lead (as Pb)	mg/L	APHA 23 <sup>rd</sup> Ed 2017, 3111 B, & 3500 Pb B	<0.01	0.1	
Manganese (as Mn)	mg/L	APHA 23 <sup>rd</sup> Ed 2017; 3111 B, &3500 Mn B	<0.05		
Mercury (as Hg)	mg/L	IS 3025 (Part-48) :1994; RA 2019	<0.001		
Selenium (as Se)	mg/L	IS 3025 (Part-56) :2003; RA 2019	<0.01	0.05	
Zinc (as Zn)	mg/L	APHA 23 <sup>id</sup> Ed 2017, 3111 B & 3500 Zn B	<0.1	15	
Silver (as Ag)	mg/L	Annex-J of IS 13428 :2005; RA 2018	<0.1	PF PF	
Magnesium (as Mg)	mg/L	IS 3025 (Part-46): 1994; RA2019	15.5	BH	

Remarks: 1. pH done at Lab.

Reviewed by

\*\*\*\*End of Report\*\*\*\*

**Authorised Signatory** 

Dr. Deependra Kumar Sinha

Page 2 of 2 Ph. D. Environmental Engl



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**Plant Status** 

Period of Analysis

## ENVIRONMENTAL LABORATORIES &

PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA HATIA. RANCHI-834003 (JHARKHAND) GST NO:- 20AAECE9713D1Z4

. TI TODNOMO MOCE

Daltongang, Dist-Palamu,

: 30.09.2023 to 16.10.2023

### GINEERING SERVICES PVT. LTD.

: Pit- D

: Sealed & Preserved

Email: info@elespl.co.in, eles.ranchi@gmall.com Phone no.: 0651-2290103 Website: www.elespl.co.in

#### TEST REPORT

rest Keport No.	. ELEGIKI(C/2023/3003	Report Release Date	: 18.10.2023
Work Order No.	: 13572310670	Work Order Date	: 27.09.2023
CUSTOMER DET	AILS	SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/SW/3589
		Sampling Date	: 29.09.2023
Address	: Kathautia Open Cast Coal Mines	Sample Received Date	: 30.09.2023
	Post- Naudiha, P.S Pandwa,	Type of Sample	: Surface Water

Jharkhand, Pin-822123 Sampling Procedure : ELES/DOC/SMPL/01 : Operational Sample Collected By : ELES Pvt. Ltd.

Source of Sample

Sample Condition

Discipline: Chemical Group: Water **Parameter** Unit Test Protocol Result Anionic Surfactants (as MBAS)\* Annex K of IS 13428 : 2005 mg/L < 0.05 IS:3025(Part-39):2021, Mineral Oil\* mg/L < 0.01 Clause 6 Infrared Spectroscopic method. Polynuclear Aromatic Hydrocarbons μg/L SO-IN-MUL-TE-023 < 0.05 (PAH)\* Free CO2 mg/L IS 3025 (Part-61): 2008 21.4 SAR mg/L Calculative <2.0 Percent Sodium IS 3025 (Part-45): 1993; RA2019 % 0.0051 APHA 23rd Ed.2017, 2160 C Taste N/A **Pesticides** DDT(o,p and p,p-isomers of μg/L SO-IN-MUL-TE-020 < 0.01 DDT DDEand DDD)\* Gamma HCH (Lindane)\* μg/L SO-IN-MUL-TE-020 < 0.01 Alpha HCH\* μg/L SO-IN-MUL-TE-020 < 0.01 Beta HCH\* μg/L SO-IN-MUL-TE-020 < 0.01 Delta HCH SO-IN-MUL-TE-020 μg/L < 0.01 Endosulfan SO-IN-MUL-TE-020 μg/L < 0.01 (alpha, beta and sulphate)\* Alachor\* SO-IN-MUL-TE-020 μg/L < 0.01

Page 1 of 2



PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA HATIA, RANCHI-834003 (JHARKHAND) GST NO:- 20AAECE9713D1Z4 ENGINEERING SERVICES PVT. LTD.

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Phone no.: 0651-2290103
Website: www.elespl.co.in

#### TEST REPORT

Test Report No.	: ELES/RNC/2023/3865	Report Release Date	: 18.10.2023	
Work Order No.	: 13572310670	Work Order Date	: 27.09.2023	

Discipline : Chemi	cal	Group : Water	
Parameter	Unit	Test Protocol	Result
Pesticides			
Aldrin/Dieldrin*	μg/L	SO-IN-MUL-TE-020	<0.01
Butachlor*	μg/L	SO-IN-MUL-TE-020	<0.01
Isoproturon*	μg/L	SO-IN-MUL-TE-020	<0.01
2,4-Dichlorophenoxyacetic acid*	μg/L	SO-IN-MUL-TE-020	<0.01
Ethion *	μg/L	SO-IN-MUL-TE-020	<0.01
Monocrotophos*	μ <b>g</b> /L	SO-IN-MUL-TE-020	<0.01
Atrazine*	μg/L	SO-IN-MUL-TE-020	<0.01
Chlorpyriphos*	μg/L	SO-IN-MUL-TE-020	<0.01
Methyl Parathion*	μg/L	SO-IN-MUL-TE-020	<0.01
Malathion*	μg/L	SO-IN-MUL-TE-020	<0.01
Phorate*	μg/L	SO-IN-MUL-TE-020	<0.01
Discipline : Biologic	cal	Group : Water	•
Parameter	Unit	Test Protocol	Result
Total Coliform	CFU/100 mL	IS 15185:2016; RA 2021	5.09 × 10 <sup>3</sup>

Remarks:1. (\*) - Parameters are outsourced to NABL Accredited Lab.

Reviewed by

\*\*\*\*End of Report\*\*\*\*

Authorised Signatory

Dr. Deependra Kumar Sinha Ph. D. Environmental Engg. ELES Pvt. Ltd. Technical Manager

Page 2 of 2



PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA HATIA, RANCHI-834003 (JHARKHAND) GST NO:- 20AAECE9713D124

### ENGINEERING SERVICES PVT. LTD.

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TC-8839

#### TEST REPORT

Test Report No.	: ELES/RNC/2023/3860	Report Release Date	: 18.10.2023
Work Order No.	: 13572310670	Work Order Date	: 27.09.2023
ULR No.	: TC883923000002525F		

CUSTOMER DI	ETAILS	SAMPLE DETAILS	4.
Customer Name	: Hindalco Industries Limited	Sampling Date	: 26.09.2023 to 27.09.2023
		Sampling Received Date	: 30.09.2023
Address	: Kathautia Open Cast Coal Mines,	Type of Sample	: Ambient Noise
	Post- Naudiha, P.S. Pandwa,		(Inside Plant)
	Daltongang, Dist- Palamu	Sampling procedure	: ELES/DOC/SMPL/03
	Jharkhand, Pin-822123	Sample Drawn By	: ELES Pvt. Ltd.
Plant Status	: Operational	Period of Analysis	: 30.09.2023 to 07.10.2023

M	ETEOROLOGICAL INFORMATION			
1	Average Temperature (°C) : 27	2	Barometric Pressure (mmHg)	: 745
3	Relative Humidity (%) : 66	4	Weather Condition	: Partly Cloudy

Discipline	: Chemical		Group	: Atmosph	eric Pollution
Location	Unit	Test Protocol	Resu	lt	Regulatory Limit
			Time	$L_{eq}$	
Mines Office Near VTC	dB(A)	IS 9989:1981;	Day Time	63	
Sample ID: ELES/RNC/2023/AN/3578		RA 2020	Night Time	51	
Latitude: 24°07'41.61"N	Longitude:	84°04′48.08″E	Tright Time		75 dB(A) Day Time
Near Main Gate	IS 998		Time	$L_{o_i}$	
		IS 9989:1981; RA 2020	Day Time	70	
Sample ID: ELES/RNC/2023/AN/3579	dB(A)		Night Time	49	& 70 dB(A)
Latitude: 24°07′41.19″N	Longitude:	84°04′46.77″E	1118		Night Time
			Time	Leq	
Near DG Stack  dB(A)	IS 9989:1981;	Day Time	63		
Sample ID: ELES/RNC/2023/AN/3580	uD(A)	RA 2020	Night Time	47	
Latitude: 24°07'42.06"N	Longitude:	84°04′50.48″E			

Page 1 of 2



PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA HATIA, RANCHI-834003 (JHARKHAND) GST NO:- 20AAECE9713D124

### ENGINEERING SERVICES PVT. LTD.

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Website: www.elespi.co.in



TC-8839

### TEST REPORT

Test Report No.	: ELES/RNC/2023/3860	Report Release Date	: 18.10.2023	
Work Order No.	: 13572310670	Work Order Date	: 27.09.2023	
TILR No.	: TC883923000002525F			

Discipline	: Chemical		Group :	Atmospher	ric Pollution
Location	Unit	Test Protocol	Resu	lt	Regulatory Limit
27 01 4 /	JD(A)	Time IS 9989:1981; Day Time	Time	Leq	75 dB(A) Day Time
Near Substation			Day Time	60	
Sample ID:	dB(A)	RA 2020	Day Timo 00		
ELES/RNC/2023/AN/3581		Night Time		45	70 dB(A) Night Time
Latitude: 24°07'40.83"N	Longitude: 84°05'05.36"E		141giit Tillio	10	141Rut 1 mme

Reviewed by

\*\*\*\*End of Report\*\*\*\*

**Authorised Signatory** 

Dr. Deependra Kumar Sinha Ph. D. Environmental Engg. ELES Pvt. Ltd. Technical Manager

Page 2 of 2



PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA HATIA, RANCHI-834003 (JHARKHAND) GST NO:- 20AAECE9713D1Z4

### ENGINEERING SERVICES PVT. LTD.

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TC-883

#### TEST REPORT

Test Report No.	: ELES/RNC/2023/3861	Report Release Date	: 18.10.2023
Work Order No.	: 13572310670	Work Order Date	: 27.09.2023
ULR No.	: TC883923000002526F	\$()	

CUSTOMER DE	TAILS	SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sampling Date	: 27.09.2023 to 28.09.2023
		Sampling Received Date	: 30.09.2023
Address	: Kathautia Open Cast Coal Mines,	Type of Sample	: Ambient Noise
	Post- Naudiha, P.S. Pandwa,		(Outside Plant)
	Daltongang, Dist-Palamu	Sampling procedure	: ELES/DOC/SMPL/03
	Jharkhand, Pin-822123	Sample Drawn By	: ELES Pvt. Ltd.
Plant Status	: Operational	Period of Analysis	: 30.09.2023 to 07.10.2023

M	ETEOROLOGICAL INFORMATION			
1	Average Temperature (°C) : 26	2	Barometric Pressure (mmHg)	: 745
3	Relative Humidity (%) : 72	4	Weather Condition	: Cloudy

Discipline	: Chemical		Group	: Atmosph	eric Pollution
Location	Unit	Test Protocol	Resu	lt	Regulatory Limit
R & R Colony, Chandan Nagar		IS 9989:1981;	Time	Lei	
Sample ID: ELES/RNC/2023/AN/3582	dB(A)	RA 2020	Day Time	54	
Latitude: 24°07′27.95″N	Longitude:	84°03′56.22″E	Night Time	41	
Kathautiya Village		IS 9989:1981; RA 2020	Time	Lei	55 dB(A)
Sample ID:	dB(A)		Day Time	52	Day Time &
ELES/RNC/2023/AN/3583			Night Time	39	45 dB(A)
Latitude: 24°07′18.89″N	Longitude:	84°04′12.09″E	Tright Thio		Night Time
Datage Village			Time	Leq	
Batsara Village	JDCAN	- IS 9989:1981;	Day Time	50	
Sample ID: ELES/RNC/2023/AN/3584	dB(A)	RA 2020	-		
Latitude: 24°07′03.60″N	Longitude:	84°05′16.76″E	Night Time	45	

#### Page 1 of 2



PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA HATIA, RANCHI-834003 (JHARKHAND) GST NO:- 20AAECE9713D1Z4

### ENGINEERING SERVICES PVT. LTD.

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Website: www.elespi.co.in



### TEST REPORT

Test Report No.	: ELES/RNC/2023/3861	Report Release Date	: 18.10.2023
Work Order No.	: 13572310670	Work Order Date	: 27.09.2023
ULR No.	: TC883923000002526F		

NABL Accredited					
Discipline	: Chemical		Group :	Atmospher	ric Pollution
Location	Unit	Test Protocol	Resu	ılt	Regulatory Limit (Residential Zone)
09.1 X791 .	dB(A)	Time IS 9989:1981; Day Time	Time	$\mathbf{L}_{eq}$	55 dB(A) Day Time
Sikka Village			Day Time	51	
Sample ID:	W(A)	RA 2020	Duy Timo	Duy Thio 31	
ELES/RNC/2023/AN/3585			Night Time	39	45 dB(A)
Latitude: 24°07′03.60″N	Longitude	Longitude: 84°05′16.76″E		37	Night Time

Reviewed by

\*\*\*\*End of Report\*\*\*\*

**Authorised Signatory** 

Dr. Deependra Kumar Sinha
Ph. D. Environmental Engg.
ELES Pvt. Ltd. Technical Manager

Page 2 of 2



PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA HATIA, RANCHI-834003 (JHARKHAND) 6ST NO:- 20AAECE9713D1Z4

### ENGINEERING SERVICES PVT. LTD

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CIN: U74999JH2018PTC011125

### **TEST REPORT**

Test Report No.	: ELES/RNC/2023/3866	Report Release Date	: 18.10.2023	
Work Order No.	: 13572310670	Work Order Date	: 27.09.2023	
ULR No.	: TC883923000002531F	1/		

<b>CUSTOMER DET</b>	CAILS	SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/EF/3590
		Sampling Date	: 29.09.2023
Address : Kathautia Open Cast Coal Mines Post- Naudiha, P.S Pandwa, Deltongang, Diet. Palamu	Sample Received Date	: 30.09.2023	
	Post- Naudiha, P.S Pandwa, Daltongang, Dist- Palamu, Jharkhand, Pin-822123	Type of Sample	: Effluent Water
		Source of Sample	: STP Outlet
		Sampling Procedure	: ELES/DOC/SMPL/01
Plant Status : Operational		Sample Collected By	: ELES Pvt. Ltd.
Period of Analysis	: 30.09.2023 to 11.10.2023	Sample Condition	: Sealed & Preserved

Discipline: Chemical		Group: Pollution & Environment		Discharge Limits – CPCB EPR, 1986 Schedule VI	
Parameter	Unit	Test Protocol	Result	Inland Surface Water	Land for Irrigation
pH (at 24.8°C)	-	APHA 23rd Ed.2017,4500-H'B	7.16	5.5-9.0	5.5-9.0
Colour	Hazen	IS 3025 (Part -4): 2021	9.0	Should be re	moved
Total Suspended Solids (TSS)	mg/L	IS 3025 (Part 17):2022	7.8	100	200
Total Dissolved Solids (TDS)	mg/L	IS 3025 (Part 16): 1984; RA2017	636		
Chemical Oxygen Demand (COD)	mg/L	IS 3025 (Part-58): 2006; RA2022	58.8	250	
Biochemical Oxygen Demand (BOD) (at 27 °C for 3 days)	mg/L	IS 3025 (Part-44): 1993: RA2019	4.8	30	100
Temperature	°C	APHA 23 <sup>rd</sup> Ed.2017, 2550 B	25.2	Shall Not Exceed 5°C Above the Receiving Water Temperature	
Oil & Grease	mg/L	IS 3025 (Part-39): 2021	2.4	10	10
Fluoride (as F)	mg/L	IS 3025 (Part-60): 2008; RA2019	0.218	2.0	1.5
Phenols Compounds (as C <sub>6</sub> H <sub>5</sub> OH)	mg/L	IS 3025(Part-43): 1992; RA2019	<1.0	1.0	
Dissolved Phosphate (as P)	mg/L	IS 3025 (Part-31): 1988; RA2021	0.284	5.0	

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PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA HATIA, RANCHI-834003 (JHARKHAND) GST NO:- 20AAECE9713D1Z4

### UMG SERVICES PVT. I.TD

Email: info@elespl.co.in , eles.ranchl@gmail.com Phone no.: 0651-2290103 Website: www.elespi.co.in

TC-RR39

### TEST REPORT

: ELES/RNC/2023/3866 Test Report No. Report Release Date : 18.10.2023 Work Order No. : 13572310670 Work Order Date : 27.09.2023 : TC883923000002531F ULR No.

Discipline: Chemical Group: Residues in Water			Discharge Limits – CPC EPR, 1986 Schedule VI		
Parameter	Unit	Test Protocol R		Inland Surface Water	Land for Irrigation
Arsenic (as As)	mg/L	APHA 23 <sup>rd</sup> Ed.2017, 3500 As B	<0.005	0.2	0.2
Cadmium (as Cd)	mg/L	APHA23 <sup>rd</sup> Ed.2017; 3111B	<0.003	2.0	
Total Chromium (as Cr)	mg/L	APHA23 <sup>rd</sup> Ed.2017; 3111B, & 3280 Cr B	0.148	2.0	
Copper (as Cu)	mg/L	APHA23 <sup>rd</sup> Ed.2017; 3111B	<0.03	3.0	
Lead (as Pb)	mg/L	APHA 23 <sup>rd</sup> Ed.2017, 3111 B & 3500 Pb B	<0.01	0.1	un siò
Mercury (as Hg)	mg/L	IS 3025 (Part-48) :1994; RA 2019	<0.001	0.01	
Selenium (as Se)	mg/L	IS 3025 (Part-56) :2003; RA 2019	<0.01	0.05	
Zinc (as Zn)	mg/L	APHA 23 <sup>rd</sup> Ed.2017, 3111 B & 3500 Zn B	<0.1	5.0	

Remarks: 1. pH done at Lab.

Reviewed by

\*\*\*\*End of Report\*\*\*\*

**Authorised Signatory** 

Dr. Deependra Kumar Sinha Ph. D. Environmental Engg. ELES Pvt. Ltd. Technical Manager

Page 2 of 2



PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA HATIA, RANCHI-834003 (JHARKHAND) GST NO:- 20AAECE9713D124

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#### **TEST REPORT**

Test Report No.	: ELES/RNC/2023/3866	Report Release Date	: 18.10.2023	
Work Order No.	: 13572310670	Work Order Date	: 27.09.2023	

CUSTOMER DET	CUSTOMER DETAILS		
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/EF/3590
		Sampling Date	: 29.09.2023
Address	: Kathautia Open Cast Coal Mines Post- Naudiha, P.S Pandwa,	Sample Received Date	: 30.09.2023
		Type of Sample	: Effluent Water
	Daltongang, Dist- Palamu, Jharkhand, Pin-822123	Source of Sample	: STP Outlet
	Silaikilailo, I III-022125	Sampling Procedure	: ELES/DOC/SMPL/01
Plant Status	: Operational	Sample Collected By	: ELES Pvt. Ltd.
Period of Analysis	: 30.09.2023 to 11.10.2023	Sample Condition	: Sealed & Preserved

Discipline: Chemical		Group: Pollution & Environment		Discharge Limits – CPCB EPR, 1986 Schedule VI	
Parameter	Unit	Test Protocol	Result	Inland Surface Water	Land for Irrigation
Free Residual Chlorine (RFC)	mg/L	IS 3025 (Part-26): 2021	<0.1	1.0	
Odour	-	IS 3025 (Part-5): 2018	Agreeable	Should be removed	

Reviewed by

\*\*\*\*End of Report\*\*\*\*

Authorised Signatory
Dr. Deependra Kumar Sinha
Ph. D. Environmental Engg.

ELES Pvt. Ltd. Technical Manager

Page 1 of 1



PLOT NO-30, MANSAROVAR ENCLAYE, TUPUDANA HATIA, RANCHI-834003 (HARKHAND) GST NO:- 20AAECE9713D124

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TC-883

#### TEST REPORT

Test Report No.	: ELES/RNC/2023/3867	Report Release Date	: 18.10.2023	
Work Order No.	: 13572310670	Work Order Date	: 27.09.2023	
ULR No.	: TC883923000002532F			

CUSTOMER DET.	AILS	SAMPLE DETAILS		
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/EF/3591	
		Sampling Date	: 29.09.2023	
Post- Naudiha, P.S	: Kathautia Open Cast Coal Mines	Sample Received Date	: 30.09.2023	
	Post- Naudiha, P.S Pandwa, Daltongang, Dist- Palamu,	Type of Sample	: Effluent Water	
		Source of Sample	: ETP Outlet	
	Jharkhand, Pin-822123	Sampling Procedure	: ELES/DOC/SMPL/01	
Plant Status	: Operational	Sample Collected By	: ELES Pvt. Ltd	
Period of Analysis	: 30.09.2023 to 11.10.2023	Sample Condition	: Sealed & Preserved	

NABL Accredited				Discharge Limit	- CPCR
Discipline: Chemical Group: Pollution & Envi		ironment	Discharge Limits – CPCB EPR, 1986 Schedule VI		
Parameter	Unit Test Protocol		Result	Inland Surface Water	Land for Irrigation
pH (at 24.8°C)	- 1	APHA 23rd Ed.2017,4500-H'B	7.27	5.5-9.0	5.5-9.0
Colour	Hazen	IS 3025 (Part -4): 2021	8.0	Should be re	moved
Total Suspended Solids (TSS)	mg/L	IS 3025 (Part 17):2022	9.8	100	200
Total Dissolved Solids (TDS)	mg/L	IS 3025 (Part 16): 1984; RA2017	628		
Chemical Oxygen Demand (COD)	mg/L	IS 3025 (Part-58): 2006; RA2022	78.8	250	
Biochemical Oxygen Demand (BOD) (at 27 °C for 3 days)	mg/L	IS 3025 (Part-44): 1993: RA2019	6.6	30	100
Temperature	°C	APHA 23 <sup>rd</sup> Ed.2017, 2550 B	25.1	Shall Not Exceed 5°C Above the Receiving Water Temperature	
Oil & Grease	mg/L	IS 3025 (Part-39): 2021	2.6	10	10
Fluoride (as F)	mg/L	IS 3025 (Part-60): 2008; RA2019	0.193	2.0	
Phenols Compounds (as C <sub>6</sub> H <sub>5</sub> OH)	mg/L	IS 3025(Part-43): 1992; RA2019	<1.0	1.0	
Dissolved Phosphate (as P)	mg/L	IS 3025 (Part-31): 1988; RA2021	0.206	5.0	

Page 1 of 2



PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA HATIA, RANCHI-834003 (JHARKHAND) GST NO:- 20AAECE9713D1Z4

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### **TEST REPORT**

 Test Report No.
 : ELES/RNC/2023/3867
 Report Release Date
 : 18.10.2023

 Work Order No.
 : 13572310670
 Work Order Date
 : 27.09.2023

 ULR No.
 : TC883923000002532F

NABL Accredited					
Discipline: Chemical		Group: Pollution & Envi	Group: Pollution & Environment		its – CPCB hedule VI
Parameter	Unit	Test Protocol Resu		Inland Surface Water	Land for Irrigation
Arsenic (as As)	mg/L	APHA 23 <sup>rd</sup> Ed 2017, 3500-As B	<0.005	0.2	0.2
Cadmium (as Cd)	mg/L	APHA23 <sup>rd</sup> Ed 2017; 3111B	<0.003	2.0	
Total Chromium (as Cr)	mg/L	APHA23 <sup>rd</sup> Ed 2017; 3111B, & 3280 Cr B	0.109	2.0	_
Copper (as Cu)	mg/L	APHA23 <sup>rd</sup> Ed 2017; 3111B	<0.03	3.0	-
Lead (as Pb)	mg/L	APHA 23 <sup>rd</sup> Ed 2017, 3111 B, & 3500 Pb B	<0.01	0.1	ti w
Mercury (as Hg)	mg/L	IS 3025 (Part-48) :1994; RA 2019	<0.001	0.01	
Selenium (as Se)	mg/L	IS 3025 (Part-56) :2003; RA 2019	<0.01	0.05	
Zinc (as Zn)	mg/L	APHA 23 <sup>rd</sup> Ed 2017, 3111 B & 3500 Zn B	<0.1	5.0	-

Remarks: 1. pH done at Lab.

Reviewed by

\*\*\*\*\*

\*\*\*\*End of Report\*\*\*\*

**Authorised Signatory** 

Dr. Deependra Kumar Sinha
Ph. D. Environmental Engg.
ELES Pvt. Ltd. Technical Manager

Page 2 of 2



PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA HATIA, RANCHI-834003 (JHARKHAND) GST NO:- 20AAECE9713D1Z4

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### TEST REPORT

Test Report No.	: ELES/RNC/2023/3867	Report Release Date	: 18.10.2023	
Work Order No.	: 13572310670	Work Order Date	: 27.09.2023	

CUSTOMER DETAILS		SAMPLE DETAILS		
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/EF/3591	
		Sampling Date	: 29.09.2023	
Address : Kathautia Open Cast Coal Mines	Sample Received Date	: 30.09.2023		
	Post- Naudiha, P.S Pandwa, Daltongang, Dist- Palamu,	Type of Sample	: Effluent Water	
	Jharkhand, Pin-822123	Source of Sample	: ETP Outlet	
	7144 Mariana 1 M 722123	Sampling Procedure	: ELES/DOC/SMPL/01	
Plant Status	: Operational	Sample Collected By	: ELES Pvt. Ltd	
Period of Analysis	: 30.09.2023 to 11.10.2023	Sample Condition	: Sealed & Preserved	

Discipline: Chemical		Group: Pollution & Environment		Discharge Limits – CPCB EPR, 1986 Schedule VI	
Parameter	Unit	Test Protocol	Result	Inland Surface Water	Land for Irrigation
Free Residual Chlorine (RFC)	mg/L	IS 3025 (Part-26): 2021	<0.1	1.0	
Odour	-	IS 3025 (Part-5): 2018	Agreeable	Should be r	emoved

Reviewed by

\*\*\*\*End of Report\*\*\*\*

Authorised Signatory
Dr. Deependra Kumar Sinha
Ph. D. Environmental Engg.

ELES Pvt. Ltd. Technical Manager

Page 1 of 1



CIN: U74999JH2018FTC011125

# ENVIRONMENTAL LABORATORIES &

PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA HATIA, RANCHI-834003 (JHARKHAND) GST NO:- 20AAECE9713D1Z4

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TC-8839

### TEST REPORT

Test Report No.	: ELES/RNC/2023/3862	Report Release Date	: 18.10.2023
Work Order No.	: 13572310670	Work Order Date	: 27.09.2023
ULR No.	: TC883923000002527F		

<b>CUSTOMER DET</b>	TAILS	SAMPLE DETAILS		
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/GW/3586	
		Sampling Date	: 29.09.2023	
Address	: Kathautia Open Cast Coal Mines,	Sample Received Date	: 30.09.2023	
	Post- Naudiha, P.S. Pandwa,	Type of Sample	: Ground Water	
	Daltongang, Dist- Palamu	Source of Sample	: Tap Water	
	Jharkhand, Pin-822123	Location of Sample	: AMPL Barrick	
		Sampling Procedure	: ELES/DOC/SMPL/01	
Plant Status	: Operational	Sample Collected By	: ELES Pvt. Ltd.	
Period of Analysis	: 30.09.2023 to 09.10.2023	Sample Condition	: Sealed & Preserved	

Discipline : Chem	ical	Group : Water		Regulatory Limit as per IS 10500:2012	
Parameter	Unit	Unit Test Protocol I		Acceptable Limit	Permissible Limit
pH (at 24.7°C)	-	APHA 23 <sup>rd</sup> Ed.2017, 4500-H <sup>+</sup> -B	6.54	6.5-8.5	No Relaxation
Odour	-	IS 3025 (Part-5) :2018	Agreeable	Agreeable	Agreeable
Colour	Hazen	APHA 23 <sup>rd</sup> Ed.2017, 2120B&D	1.0	5	15
Turbidity	NTU	APHA 23 <sup>rd</sup> Ed.2017, 2130 B	. 0.14	1.0	5.0
Total Dissolved Solids (TDS)	mg/L	APHA 23 <sup>rd</sup> Ed.2017, 2540B,C&D	612	500	2000
Chloride (as Cl)	mg/L	APHA 23 <sup>rd</sup> Ed.2017, 4500 CI-B	36.1	250	1000
Total Alkalinity (as CaCO <sub>3</sub> )	mg/L	IS 3025 (Part-23):1986; RA2019	195.8	200	600
Total Hardness (as CaCO <sub>3</sub> )	mg/L	APHA 23 <sup>rd</sup> Ed.2017, 2340 C	349	200	600
Sulphate (as SO <sub>4</sub> )	mg/L	APHA 23 <sup>rd</sup> Ed.2017, 4500 SO <sub>4</sub> -2-E	104	200	400
Cyanide (as CN)	mg/L	APHA 23rd Ed.2017, 4500 CN-E	<0.012	0.05	No Relaxation
Fluoride (as F)	mg/L	APHA 23 <sup>rd</sup> Ed.2017, 4500 F-D	<0.1	1.0	1.5
Residual Free Chlorine (RFC)	mg/L	IS 3025 (Part-26):2021	<0.1	0.2(Min)	1.0(Min)
Nitrate( as NO <sub>3</sub> )	mg/L	APHA 23 <sup>rd</sup> Ed.2017, 4500 NO <sub>3</sub> -B	<0.5	45	No Relaxation

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PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA HATIA, RANCHI-834003 (JHARKHAND) GST NO:- 20AAECE9713D1Z4

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TEST REPORT

Test Report No. : ELES/RNC/2023/3862 Report Release Date : 18.10.2023

Work Order No. : 13572310670 | Work Order Date : 27.09.2023

ULR No. : TC883923000002527F

Discipline : Ch	emical	Group : Water	Group : Water		tory Limit 10500:2012
Parameter	Unit	Test Protocol		Acceptable Limit	Permissible Limit
Phenolic Compound (as C <sub>6</sub> H <sub>5</sub> OH)	mg/L	IS 3025 (Part-43):1992;RA2019	<0.0005	0.001	0.002
Calcium (as Ca)	mg/L	IS 3025 (Part-40):1991;RA2019	84	75	200
Discipline : Cl	nemical	Group : Residu	ues in Wat	er	
Aluminum (as Al)	mg/L	IS 3025 (Part-55) :2003; RA2019	<0.02	0.03	0.2
Arsenic (as As)	mg/L	APHA 23 <sup>rd</sup> Ed.2017; 3500-As B	<0.005	0.01	0.01
Boron (as B)	mg/L	IS 3025 (Part-57) :2021	<0.2	0.5	2.4
Cadmium (as Cd)	mg/L	APHA 23 <sup>rd</sup> Ed.2017; 3111B	<0.003	0.003	No Relaxation
Total Chromium (as Cr)	mg/L	APHA 23 <sup>rd</sup> Ed 2017; 3111B, & 3280 Cr B	<0.03	0.05	No Relaxation
Copper (as Cu)	mg/L	APHA23 <sup>rd</sup> Ed 2017; 3111B	<0.03	0.05	1.5
Iron (as Fe)	mg/L	APHA23 <sup>rd</sup> Ed 2017; 3111B, & 3500 Fe B	0.166	1.0	1.0
Lead (as Pb)	mg/L	APHA 23 <sup>rd</sup> Ed 2017; 3111B & 3500 Pb B	<0.01	0.01	No Relaxation
Manganese (as Mn)	mg/L	APHA 23 <sup>rd</sup> Ed 2017; 3111B &3500 Mn B	<0.05	0.1	0.3
Mercury (as Hg)	mg/L	IS 3025 (Part-48) :1994; RA2019	<0.001	0.001	No Relaxation
Selenium (as Se)	mg/L	IS 3025 (Part-56) :2003; RA2019	<0.01	0.01	No Relaxation
Zinc (as Zn)	mg/L	APHA 23 <sup>rd</sup> Ed.2017; 3111B & 3500 Zn B	<0.1	5	15

Remarks: 1. pH and RFC done at Lab.

Reviewed by

\*\*\*\*End of Report\*\*\*\*

**Authorised Signatory** 

Dr. Deependra manner

Ph. D. Environmental Force.

Page 2of 2 ELES Pvt. Ltd. Technical Mana

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Save Environment, Save Future



PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA HATIA, RANCHI-834003 (JHARKHAND) GST NO:- 20AAECE9713D1Z4

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### **TEST REPORT**

Test Report No.	: ELES/RNC/2023/3862	Report Release Date	: 18.10.2023	
Work Order No.	: 13572310670	Work Order Date	: 27.09.2023	

CUSTOMER DET	TAILS	SAMPLE DETAILS		
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/GW/3586	
		Sampling Date	: 29.09.2023	
Address	: Kathautia Open Cast Coal Mines,	Sample Received Date	: 30.09.2023	
	Post- Naudiha, P.S. Pandwa,	Type of Sample	: Ground Water	
	Daltongang, Dist-Palamu	Source of Sample	: Tap Water	
	Jharkhand, Pin-822123	Location of Sample	: AMPL Barrick	
		Sampling Procedure	: ELES/DOC/SMPL/01	
Plant Status	: Operational	Sample Collected By	: ELES Pvt. Ltd.	
Period of Analysis	: 30.09.2023 to 16.10.2023	Sample Condition	: Sealed & Preserved	

Discipline : Chemic	al	Group : Water		Regulatory Limit		
		Group . Water		as per IS 10500:2012		
Parameter	Unit	Test Protocol	Result	Acceptable Limit	Permissible Limit	
Anionic Surfactants (as MBAS)*	mg/L	Annex K of IS 13428:2005	<0.05	0.2	1.0	
Mineral Oil*	mg/L	IS 3025 (Part-39):2021, Clause 6 Infrared Spectroscopic Method	<0.01	0.5	No Relaxation	
Polynuclear Aromatic Hydrocarbons (PAH)*	μg/L	SO-IN-MUL-TE-023	<0.05	0.1	No Relaxation	
Taste	- 1	APHA 23rd Ed.2017, 2160C	Agreeable	Agreeable	Agreeable	
Pesticides						
DDT(o,p and p,p-isomers of DDT,DDEand DDD)*	μg/L	SO-IN-MUL-TE-020	<0.01		1.0	
Gamma HCH (Lindane)*	μg/L	SO-IN-MUL-TE-020	<0.01	-	2.0	
Alpha HCH*	μg/L	SO-IN-MUL-TE-020	<0.01		0.01	
Beta HCH*	μg/L	SO-IN-MUL-TE-020	<0.01		0.04	
Delta HCH*	μg/L	SO-IN-MUL-TE-020	<0.01		0.04	
Endosulfan (alpha, beta and sulphate)*	μg/L	SO-IN-MUL-TE-020	<0.01		0.40	
Alachor*	μg/L	SO-IN-MUL-TE-020	<0.01		20	
Aldrin/Dieldrin*	μg/L	SO-IN-MUL-TE-020	<0.01		0.03	
Butachlor*	μg/L	SO-IN-MUL-TE-020	<0.01	_	125	

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PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA HATIA, RANCHI-834003 (JHARKHAND) GST NO:- 20AAECE9713D1Z4

## ENGINEERING SERVICES PVT. LTD.

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#### TEST REPORT

 Test Report No.
 : ELES/RNC/2023/3862
 Report Release Date
 : 18.10.2023

 Work Order No.
 : 13572310670
 Work Order Date
 : 27.09.2023

Discipline : Chemical		Group	: Water	Regulate	ory Limit
		Gloup : water		as per IS 10500:2012	
Parameter	Unit	Test Protocol	Result	Acceptable Limit	Permissible Limit
Pesticides			-17-		
Isoproturon*	μg/L	SO-IN-MUL-TE-020	<0.01		9
2,4-Dichlorophenoxyacetic acid*	μg/L	SO-IN-MUL-TE-020	<0.01		30
Ethion *	μg/L	SO-IN-MUL-TE-020	<0.01		3.0
Monocrotophos*	μg/L	SO-IN-MUL-TE-020	<0.01		1
Atrazine*	μg/L	SO-IN-MUL-TE-020	<0.01		2
Chlorpyriphos*	μg/L	SO-IN-MUL-TE-020	<0.01		30
Methyl parathion*	μg/L	SO-IN-MUL-TE-020	<0.01	_	0.30
Malathion*	μg/L	SO-IN-MUL-TE-020	<0.01	_	190
Phorate*	μg/L	SO-IN-MUL-TE-020	<0.01		2
Discipline : B	iological		Group : Wate	er	
Total Coliform	Per 100 mL	IS 15185:2016; RA2021	Not Detected	01 11	
Escherichia Coli (E. Coli)	Per 100 mL	IS 15185:2016; RA2021	Not Detected	Shall not b	e detected

Remarks: 1. (\*) - Parameters are outsourced to NABL Accredited Lab.

Reviewed by 🕏

\*\*\*\*End of Report\*\*\*\*

Authorised Signatory

Dr. Deependra Kumar Sinha Ph. D. Environmental Engg. ELES Pvt. Ltd. Technical Manager

Page 2 of 2



PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA HATIA, RANCHI-834003 (JHARKHAND) GST NO:- 20AAECE9713D1Z4

### ENGINEERING SERVICES PVT. LTD.

Email: <u>info@elespl.co.in</u>, <u>eles.ranchl@gmail.com</u> Phone no.: 0651-2290103 Website: www.elespl.co.in



TC-8839

### TEST REPORT

 Test Report No.
 : ELES/RNC/2023/3863
 Report Release Date
 : 18.10.2023

 Work Order No.
 : 13572310670
 Work Order Date
 : 27.09.2023

 ULR No.
 : TC883923000002528F

<b>CUSTOMER DET</b>	TAILS	SAMPLE DETAILS		
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/GW/3587	
		Sampling Date	: 29.09.2023	
Address	: Kathautia Open Cast Coal Mines,	Sample Received Date	: 30.09.2023	
	Post- Naudiha, P.S. Pandwa,	Type of Sample	: Ground Water	
	Daltongang, Dist- Palamu	Source of Sample	: Tap Water	
	Jharkhand, Pin-822123	Location of Sample	: Office VTC	
		Sampling Procedure	: ELES/DOC/SMPL/01	
Plant Status	: Operational	Sample Collected By	: ELES Pvt. Ltd.	
Period of Analysis	: 30.09.2023 to 09.10.2023	Sample Condition	: Sealed & Preserved	

Discipline : Chen	nical	Group : Water			tory Limit
		Group I Water	Oroup I Water		10500:2012
Parameter	Unit	Test Protocol	Result	Acceptable Limit	Permissible Limit
pH (at 24.6 °C)		APHA 23 <sup>rd</sup> Ed.2017, 4500-H <sup>+</sup> -B	6.61	6.5-8.5	No Relaxation
Odour	-	IS 3025 (Part-5) :2018	Agreeable	Agreeable	Agreeable
Colour	Hazen	APHA 23 <sup>rd</sup> Ed.2017, 2120B&D	1.0	5	15
Turbidity	NTU	APHA 23 <sup>rd</sup> Ed.2017, 2130 B	0.16	1.0	5.0
Total Dissolved Solids (TDS)	mg/L	APHA 23 <sup>rd</sup> Ed.2017, 2540B,C& D	572	500	2000
Chloride (as Cl)	mg/L	APHA 23 <sup>rd</sup> Ed.2017, 4500 CI-B	21.8	250	1000
Total Alkalinity (as CaCO <sub>3</sub> )	mg/L	IS 3025 (Part-23):1986; RA2019	197.8	200	600
Total Hardness (as CaCO <sub>3</sub> )	mg/L	APHA 23 <sup>rd</sup> Ed.2017, 2340 C	292	200	600
Sulphate (as SO <sub>4</sub> )	mg/L	APHA 23 <sup>rd</sup> Ed.2017, 4500 SO <sub>4</sub> -2-E	108	200	400
Cyanide (as CN)	mg/L	APHA 23 <sup>rd</sup> Ed.2017, 4500 CN-E	<0.012	0.05	No Relaxation
Fluoride (as F)	mg/L	APHA 23 <sup>rd</sup> Ed.2017, 4500 F-D	<0.1	1.0	1.5
Residual Free Chlorine (RFC)	mg/L	IS 3025 (Part-26):2021	<0.1	0.2(Min)	1.0(Min)
Nitrate( as NO <sub>3</sub> )	mg/L	APHA 23 <sup>rd</sup> Ed.2017, 4500 NO <sub>3</sub> -B	<0.5	45	No Relaxation

Page 1 of 2



PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA HATIA, RANCHI-834003 (JHARKHAND) GST NO:- 20AAECE9713D1Z4

### ENGINEERING SERVICES PUT. LTD.

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Pnone no.: 0651-2290103 Website : www.elespl.co.in



TC-8839

#### TEST REPORT

 Test Report No.
 : ELES/RNC/2023/3863
 Report Release Date
 : 18.10.2023

 Work Order No.
 : 13572310670
 Work Order Date
 : 27.09.2023

 ULR No.
 : TC883923000002528F

Discipline : Ch	emical	Group : Water	Group : Water		
Parameter	Unit	Test Protocol	Result	Acceptable Limit	10500:2012 Permissible Limit
Phenolic Compound (as C <sub>6</sub> H <sub>5</sub> OH)	mg/L	IS 3025 (Part-43):1992;RA2019	<0.0005	0.001	0.002
Calcium (as Ca)	mg/L	IS 3025 (Part-40):1991;RA2019	70.6	75	200
Discipline : Cl	hemical	Group : Resid	ues in Wate	er	
Aluminum (as Al)	mg/L	IS 3025 (Part-55) :2003; RA2019	<0.02	0.03	0.2
Arsenic (as As)	mg/L	APHA 23 <sup>rd</sup> Ed.2017; 3500-As B	<0.005	0.01	0.01
Boron (as B)	mg/L	IS 3025 (Part-57) :2021	<0.2	0.5	2.4
Cadmium (as Cd)	mg/L	APHA 23 <sup>rd</sup> Ed.2017; 3111B	<0.003	0.003	No Relaxation
Total Chromium (as Cr)	mg/L	APHA 23 <sup>rd</sup> Ed 2017; 3111B, & 3280 Cr B	<0.03	0.05	No Relaxation
Copper (as Cu)	mg/L	APHA23 <sup>rd</sup> Ed 2017; 3111B	<0.03	0.05	1.5
Iron (as Fe)	mg/L	APHA23 <sup>rd</sup> Ed 2017; 3111B, & 3500 Fe B	0.155	1.0	1.0
Lead (as Pb)	mg/L	APHA 23 <sup>rd</sup> Ed 2017; 3111B & 3500 Pb B	<0.01	0.01	No Relaxation
Manganese (as Mn)	mg/L	APHA 23 <sup>rd</sup> Ed 2017; 3111B &3500 Mn B	<0.05	0.1	0.3
Mercury (as Hg)	mg/L	IS 3025 (Part-48) :1994; RA2019	<0.001	0.001	No Relaxation
Selenium (as Se)	mg/L	IS 3025 (Part-56) :2003; RA2019	<0.01	0.01	No Relaxation
Zinc (as Zn)	mg/L	APHA 23 <sup>rd</sup> Ed.2017; 3111B & 3500 Zn B	<0.1	5	15

Remarks: 1. pH and RFC done at Lab.

Reviewed by

\*\*\*\*End of Report\*\*\*\*

Authorised Signatory

Dr. Deependra Kumar Sinha

Ph D Environmental Enga

Page 2of 2

**ELES Pvt. Ltd. Technical Manager** 



PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA HATIA, RANCHI-834003 (JHARKHAND) GST NO:- 20AAECE9713D1Z4

## ENGINEERING SERVICES PVT. LTD.

Email: <u>info@elespl.co.in</u>, <u>eles.ranchi@gmail.com</u> Phone no.: 0651-2290103 Website: www.elespl.co.in

### TEST REPORT

Test Report No.	: ELES/RNC/2023/3863	Report Release Date	: 18.10.2023	
Work Order No.	: 13572310670	Work Order Date	: 27.09.2023	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/GW/3587
		Sampling Date	: 29.09.2023
	: Kathautia Open Cast Coal Mines,	Sample Received Date	: 30.09.2023
	Post- Naudiha, P.S. Pandwa,	Type of Sample	: Ground Water
	Daltongang, Dist- Palamu	Source of Sample	: Tap Water
	Jharkhand, Pin-822123	Location of Sample	: Office VTC
		Sampling Procedure	: ELES/DOC/SMPL/01
Plant Status	: Operational	Sample Collected By	: ELES Pvt. Ltd.
Period of Analysis	: 30.09.2023 to 16.10.2023	Sample Condition	: Sealed & Preserved

Discipline : Chemic	al	Group : Water			ory Limit
		Older Water			10500:2012
Parameter Unit		Test Protocol	Result	Acceptable Limit	Permissible Limit
Anionic Surfactants (as MBAS)*	mg/L	Annex K of IS 13428:2005	<0.05	0.2	1.0
Mineral Oil*	mg/L	IS 3025 (Part-39):2021, Clause 6 Infrared Spectroscopic Method	<0.01	0.5	No Relaxation
Polynuclear Aromatic Hydrocarbons (PAH)*	μg/L	SO-IN-MUL-TE-023	<0.05	0.1	No Relaxation
Taste	-	APHA 23 <sup>rd</sup> Ed.2017, 2160C	Agreeable	Agreeable	Agreeable
Pesticides					
DDT(o,p and p,p-isomers of DDT,DDEand DDD)*	μg/L	SO-IN-MUL-TE-020	<0.01		1.0
Gamma HCH (Lindane)*	μg/L	SO-IN-MUL-TE-020	<0.01	-	2.0
Alpha HCH*	μg/L	SO-IN-MUL-TE-020	<0.01		0.01
Beta HCH*	μg/L	SO-IN-MUL-TE-020	<0.01	_	0.04
Delta HCH*	μg/L	SO-IN-MUL-TE-020	<0.01		0.04
Endosulfan (alpha, beta and sulphate)*	μg/L	SO-IN-MUL-TE-020	_<0.01		0,40
Alachor*	μg/L	SO-IN-MUL-TE-020	<0.01	_	20
Aldrin/Dieldrin*	μg/L	SO-IN-MUL-TE-020	<0.01		0.03
Butachlor*	μg/L	SO-IN-MUL-TE-020	<0.01		125

Page 1 of 2



PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA HATIA, RANCHI-834003 (JHARKHAND) GST NO:- 20AAECE9713D124 ENGINEERING SERVICES PVT. LTD.

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Website: www.elespi.co.in

#### TEST REPORT

 Test Report No.
 : ELES/RNC/2023/3863
 Report Release Date
 : 18.10.2023

 Work Order No.
 : 13572310670
 Work Order Date
 : 27.09.2023

Discipline : Chemical		Group	: Water	Regulate	ory Limit
		Group	as per IS 10500:2012		
Parameter	Unit	Test Protocol	Result	Acceptable Limit	Permissible Limit
Pesticides					
Isoproturon*	μg/L	SO-IN-MUL-TE-020	<0.01		9
2,4-Dichlorophenoxyacetic acid*	μg/L	SO-IN-MUL-TE-020	<0.01	Min dan	30
Ethion *	μg/L	SO-IN-MUL-TE-020	<0.01		3.0
Monocrotophos*	μg/L	SO-IN-MUL-TE-020	<0.01		1
Atrazine*	μg/L	SO-IN-MUL-TE-020	<0.01		2
Chlorpyriphos*	μg/L	SO-IN-MUL-TE-020	<0.01		30
Methyl parathion*	μg/L	SO-IN-MUL-TE-020	<0.01	-	0.30
Malathion*	μg/L	SO-IN-MUL-TE-020	<0.01	_	190
Phorate*	μg/L	SO-IN-MUL-TE-020	<0.01		2
Discipline : B	iological		Group : Wate	r	
Total Coliform	Per 100 mL	IS 15185:2016; RA2021	Not Detected	01 11	
Escherichia Coli (E. Coli)	Per 100 mL	IS 15185:2016; RA2021	Not Detected	Shall not b	e detected

Remarks: 1. (\*) - Parameters are outsourced to NABL Accredited Lab.

Reviewed by

\*\*\*\*End of Report\*\*\*\*

Authorised Signatory

Dr. Deependra Kumar Sinha Ph. D. Environmental Engg. ELES Pvt. Ltd. Technical Manager

Page 2 of 2



PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA HATIA, RANCHI-834003 (JHARKHAND) GST NO:- 20AAECE9713D174

GINEERING SERVICES PVT. LTD.

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Website: www.elespi.co.in

### TEST REPORT

ELES/RNC/2023/3852	Report Release Date	• 18 10 2023
13572310670		: 27.09,2023
	ELES/RNC/2023/3852 13572310670	Acpoit Release Date

CUSTOMER DETAILS		SAMPLE DETAILS		
Customer Name Address	: Hindalco Industries Limited  : Kathautia Open Cast Coal Mines, Post- Naudiha, P.S. Pandwa, Daltongang, Dist- Palamu Jharkhand, Pin-822123	Sample Ref. No. Location Sampling Date Sample Received Date Type of Sample	: ELES/RNC/2023/WA/3570 : Mining Phase Pit "A" : 26.09.2023 : 30.09.2023 : Workzone Air	
Plant Status	: Operational	Sampling Procedure	: ELES/DOC/SMPL/02	
Period of Analysis	: 30.09.2023 to 07.10.2023	Sample Drawn By Sample Condition	: ELES Pvt. Ltd. : Sealed & Preserved	

M	ETEOROLOGICAL INFO	RMATION			
1	Average Temperature (°C)	: 28	2	Barometric Pressure (mmHg)	: 744
3	Relative Humidity (%)	: 64	4	Weather Condition	: Partly Cloudy
5	Longitude	: 84°05′32.30″E	6	Latitude	: 24°07′59.50″N

Discipline : Chemical		Group: Atmospheri	e Pollution
Parameter	Unit	Test Protocol	Result
Suspended Particulate Matter (SPM)	μg/m³	IS:5182 (Part-4):1999; RA 2019	301

Reviewed b

\*\*\*\*End of Report\*\*\*\*

**Authorised Signatory** 

Dr. Deependra Kumar Sinha Ph. D. Environmental Engg. ELES Pvt. Ltd. Technical Manager

Page 1 of 1



PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA HATIA, RANCHI-834003 (JHARKHAND) GST NO:- 20AAECE9713D1Z4

## ENGINEERING SERVICES PVT. LTD.

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## TEST REPORT

Test Report No.	: ELES/RNC/2023/3853	Report Release Date	: 18.10,2023	
Work Order No.	: 13572310670	Work Order Date	: 27.09.2023	

CUSTOMER DET.	AILS	SAMPLE DETAILS	
Customer Name Address	: Hindalco Industries Limited  : Kathautia Open Cast Coal Mines, Post- Naudiha, P.S. Pandwa, Daltongang, Dist- Palamu Jharkhand, Pin-822123	Sample Ref. No. Location Sampling Date Sample Received Date Type of Sample	: ELES/RNC/2023/WA/3571 : Mining Phase Pit "B" : 26.09.2023 : 30.09.2023 : Workzone Air
Plant Status : Operational	Sampling Procedure Sample Drawn By	: ELES/DOC/SMPL/02	
Period of Analysis	: 30.09.2023 to 07.10.2023	Sample Condition	: ELES Pvt. Ltd. : Sealed & Preserved

M	ETEOROLOGICAL INFOR	RMATION			
1	Average Temperature (°C)	: 28	2	Barometric Pressure (mmHg)	: 744
3	Relative Humidity (%)	: 64		Weather Condition	: Partly Cloudy
5	Longitude	: 84°05′03.69″E	6	Latitude	: 24°08′22.43″N

Discipline: Chemical		Group: Atmospher.	ic Pollution
Parameter	Unit	Test Protocol	Result
Suspended Particulate Matter (SPM)	μg/m³	IS:5182 (Part-4):1999; RA 2019	300

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**Authorised Signatory** 

Dr. Deependra Kumar Sinha Ph. D. Environmental Engg. ELES Pvt. Ltd. Technical Manager

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PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA HATIA, RANCHI-834003 (JHARKHAND) GST NO:- 20AAECE9713D1Z4

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### TEST REPORT

854 Report Release Date	: 18.10.2023	
Work Order Date		
3		Report Resease Date : 10.10.2023

CUSTOMER DET.	AILS	SAMPLE DETAILS	
Customer Name Address	: Hindalco Industries Limited : Kathautia Open Cast Coal Mines,	Sample Ref. No. Location	: ELES/RNC/2023/WA/3572 : Mining Phase Pit "C"
	Post- Naudiha, P.S. Pandwa, Daltongang, Dist- Palamu Jharkhand, Pin-822123	Sampling Date Sample Received Date Type of Sample	: 26.09.2023 : 30.09.2023 : Workzone Air
Plant Status	: Operational	Sampling Procedure	: ELES/DOC/SMPL/02
Period of Analysis	: 30.09.2023 to 07.10.2023	Sample Drawn By Sample Condition	: ELES Pvt. Ltd. : Sealed & Preserved

MI	ETEOROLOGICAL INFOR	RMATION			
1	Average Temperature (°C)	: 28	2	Barometric Pressure (mmHg)	: 744
3	Relative Humidity (%)	: 64		Weather Condition	: Partly Cloudy
5	Longitude	: 84°04′56.22″E	6	Latitude	: 24°08′41.63″N

Discipline: Chemical	Group: Atmospheric P	ollution	
Parameter	Unit	Test Protocol	Result
Suspended Particulate Matter (SPM)	μg/m³	IS:5182 (Part-4):1999; RA 2019	311

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\*\*\*\*End of Report\*\*\*\*

**Authorised Signatory** 

Dr. Deependra Kumar Sinha
Ph. D. Environmental Engg.
ELES Pvt. Ltd. Technical Manager

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## EERING SERVICES PVT. LTD.

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Website: www.elespl.co.in

### TEST REPORT

Test Report No. : ELES/RNC/2023/3855	Report Release Date : 18.10.2023
Work Order No. : 13572310670	Work Order Date : 27.09.2023

CUSTOMER DET.	AILS	SAMPLE DETAILS	
Customer Name Address	: Hindalco Industries Limited  : Kathautia Open Cast Coal Mines, Post- Naudiha, P.S. Pandwa, Daltongang, Dist- Palamu Jharkhand, Pin-822123	Sample Ref. No. Location Sampling Date Sample Received Date Type of Sample	: ELES/RNC/2023/WA/3573 : Dump Yard External : 27.09.2023 : 30.09.2023 : Workzone Air
Plant Status	: Operational	Sampling Procedure	: ELES/DOC/SMPL/02
Period of Analysis	: 30.09.2023 to 07.10.2023	Sample Drawn By Sample Condition	: ELES Pvt. Ltd. : Sealed & Preserved

2	Barometric Pressure (mmHg)	: 744
4		: Partly Cloudy
6		: 24°08′05.80″N
	4	2 Barometric Pressure (mmHg) 4 Weather Condition 5 Latitude

Discipline: Chemical		Group: Atmospheric Pollution	
Parameter	Unit	Test Protocol	Result
Suspended Particulate Matter (SPM)	μg/m³	IS:5182 (Part-4):1999; RA 2019	312

Reviewed by

\*\*\*\*End of Report\*\*\*

**Authorised Signatory** 

Dr. Deependra Kumar Sinha Ph. D. Environmental Engg. **ELES Pvt. Ltd. Technical Manager** 

Page 1 of 1



PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA HATIA, RANCHI-834003 (JHARKHAND) GST NO:- 20AAECE9713D1Z4

GINEERING SERVICES PVT. LTD.

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### TEST REPORT

Test Report No.	: ELES/RNC/2023/3856	Report Release Date	: 18.10.2023
Work Order No.	: 13572310670	Work Order Date	: 27.09,2023
		Work Order Date	: 27.07.2023

CUSTOMER DETA	AILS	SAMPLE DETAILS	
Customer Name Address	: Hindalco Industries Limited  : Kathautia Open Cast Coal Mines, Post- Naudiha, P.S. Pandwa, Daltongang, Dist- Palamu Jharkhand, Pin-822123	Sample Ref. No. Location Sampling Date Sample Received Date Type of Sample	: ELES/RNC/2023/WA/3574 : Haul Road : 27.09.2023 : 30.09.2023 : Workzone Air
Plant Status	: Operational	Sampling Procedure	: ELES/DOC/SMPL/02
Period of Analysis	: 30.09.2023 to 07.10.2023	Sample Drawn By Sample Condition	: ELES Pvt. Ltd. : Sealed & Preserved

Barometric Pressure (mmHg)	: 744
Weather Condition	: Partly Cloudy
	: 24°07′55.74″N
	Latitude

Discipline: Chemical		Group: Atmospheric Pollution	
Parameter	Unit	Test Protocol	Result
Suspended Particulate Matter (SPM)	μg/m³	IS:5182 (Part-4):1999; RA 2019	283

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\*\*\*\*End of Report\*\*\*\*

Authorised Signatory

Dr. Deependra Kumar Sinha Ph. D. Environmental Engg. ELES Pvt. Ltd. Technical Manager

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PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA HATIA, RANCHI-834003 (JHARKHAND) GST NO:- 20AAECE9713D1Z4 ENGINEERING SERVICES PVT. LTD.

Email: <u>info@elespi.co.in</u>, <u>eles.ranchi@gmail.com</u> Phone no.: 0651-2290103 Website: www.elespi.co.in

### **TEST REPORT**

Test Report No.	: ELES/RNC/2023/3857	Report Release Date	: 18.10.2023
Work Order No.	: 13572310670	Work Order Date	: 27.09.2023
			. A 1.07.4023

<b>CUSTOMER DET</b>	AILS	SAMPLE DETAILS	
Customer Name Address	: Hindalco Industries Limited : Kathautia Open Cast Coal Mines,	Sample Ref. No. Location	: ELES/RNC/2023/WA/3575 : Coal Stock Yard
	Post- Naudiha, P.S. Pandwa, Daltongang, Dist- Palamu Jharkhand, Pin-822123	Sampling Date Sample Received Date Type of Sample	: 27.09.2023 : 30.09.2023 : Workzone Air
Plant Status : Operational Samp		Sampling Procedure	: ELES/DOC/SMPL/02
Period of Analysis	: 30.09.2023 to 07.10.2023	Sample Drawn By Sample Condition	: ELES Pvt. Ltd. : Sealed & Preserved

2	Barometric Pressure (mmHg)	
	Daronichic Pressure (mmHo)	: 744
4		: Partly Cloudy
6		: 24°07′58.72″N
	4	4 Weather Condition 6 Latitude

Discipline: Chemical		Group: Atmospheric Pollution	
Parameter	Unit	Test Protocol	Result
Suspended Particulate Matter (SPM)	μg/m³	IS:5182 (Part-4):1999; RA 2019	405

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Authorised Signatory

Dr. Deependra Kumar Sinha
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ELES Pvt. Ltd. Technical Manager

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### **TEST REPORT**

Test Report No. :	ELES/RNC/2023/3858	Report Release Date	; 18.10.2023
Work Order No. :	13572310670	Work Order Date	: 27.09,2023

CUSTOMER DET	AILS	SAMPLE DETAILS	
Customer Name Address Plant Status	: Hindalco Industries Limited  : Kathautia Open Cast Coal Mines, Post- Naudiha, P.S. Pandwa, Daltongang, Dist- Palamu Jharkhand, Pin-822123  : Operational	Sample Ref. No. Location Sampling Date Sample Received Date Type of Sample Sampling Procedure Sample Drawn By	: ELES/RNC/2023/WA/3576 : Truck Parking Zone : 28.09.2023 : 30.09.2023 : Workzone Air : ELES/DOC/SMPL/02 : ELES Pvt. Ltd.
Period of Analysis	: 30.09.2023 to 07.10.2023	Sample Condition	: Sealed & Preserved

M	TEOROLOGICAL INFO	RMATION			
1	Average Temperature (°C)	: 27	2	Barometric Pressure (mmHg)	: 744
3	Relative Humidity (%)	: 68	4	Weather Condition	: Cloudy
5	Longitude	: 84°04′25.48″E	6	Latitude	: 24°08′05.80″N

Discipline: Chemical		Group: Atmospheric Pollution	
Parameter	Unit	Test Protocol	Result
Suspended Particulate Matter (SPM)	$\mu g/m^3$	IS:5182 (Part-4):1999; RA2019	377

Reviewed by

\*\*\*\*End of Report\*\*\*\*

Authorised Signatory

Dr. Deependra Kumar Sinha
Ph. D. Environmental Engg.
ELES Pvt. Ltd. Technical Manager

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PLOT NO-30, MANSAROVAR ENCLAVE. TUPUDANA HATIA, RANCHI-834003 (JHARKHAND) GST NO: 20AAECE9713D1Z4

## NGINEERING SERVICES PVT. LTD.

Email: info@elespl.co.in , eles.ranchi@amail.com Phone no.: 0651-2290103 Website: www.elespi.co.in

### TEST REPORT

Test Report No.	: ELES/RNC/2023/3859	Report Release Date : 18.10.2023		
Work Order No. :	: 13572310670	Work Order Date	: 27.09.2023	
			. 27.07.2023	

<b>CUSTOMER DET</b>	AILS	SAMPLE DETAILS	
Customer Name Address	: Hindalco Industries Limited  : Kathautia Open Cast Coal Mines, Post- Naudiha, P.S. Pandwa, Daltongang, Dist- Palamu Jharkhand, Pin-822123	Sample Ref. No. Location Sampling Date Sample Received Date Type of Sample	: ELES/RNC/2023/WA/3577 : Rajhara railway Siding : 28.09.2023 : 30.09.2023 : Workzone Air
Plant Status	: Operational	Sampling Procedure	: ELES/DOC/SMPL/02
Period of Analysis	: 30.09.2023 to 07.10.2023	Sample Drawn By Sample Condition	: ELES Pvt. Ltd. : Sealed & Preserved

	ETEOROLOGICAL INFO				
1	Average Temperature (°C)	: 27	2	Barometric Pressure (mmHg)	: 744
3	Relative Humidity (%)	: 68	4	Weather Condition	: Cloudy
5	Longitude	: 84°03′03,55″E	6	Latitude	: 24°09′31.86″N

Discipline: Chemical		Group: Atmospheric Pollution	
Parameter	Unit	Test Protocol	Result
Suspended Particulate Matter (SPM)	μg/m³	IS:5182 (Part-4):1999; RA 2019	324

Reviewed by

\*\*\*\*End of Report\*\*\*\*

Authorised Signatory

Dr. Deependra Kumar Sinha Ph. D. Environmental Engg. ELES Pvt. Ltd. Technical Manager

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PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA HATIA, RANCHI-834003 (JHARKHAND) GST NO:- 20AAECE9713D124

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Website: www.eiespl.co.in



### TEST REPORT

Test Report No.	: ELES/RNC/2023/3868	Report Release Date	: 18.10.2023
Work Order No.	: 13572310670	Work Order Date	: 27.09.2023
ULR No.	: TC883923000002533F		

<b>CUSTOMER DET</b>	AILS	SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/SL/3592
		Sampling Date	: 29.09.2023
Address	: Kathautia Open Cast Coal Mines	Sample Received Date	: 30.09.2023
	Post- Naudiha, P.S Pandwa,	Type of Sample	: Soil
	Daltongang, Dist- Palamu, Jharkhand, Pin-822123	Location of Sample	: Near Office
	Juarkiland, Till-622125	Sampling Procedure	: ELES/DOC/SMPL/05
Plant Status	: Operational	Sample Collected By	: ELES Pvt. Ltd.
Period of Analysis	: 30.09.2023 to 11.10.2023	Sample Condition	: Sealed & Preserved

Discipline: Chemical		Group: Pollution & En	& Environment		
Parameter	Unit	Test Protocol	Result		
pH (1:2) at 24.8 °C	-	IS 2720 (Part 26):1987; RA2021	6.77		
Conductivity (1:2) at 24.8 °C	μS/cm	IS 14767: 2000; RA2021	184		
Total Organic Carbon (TOC)	%	Soil Testing in India: 2011 (Walkley & Black Method)	0.4017		
Available Phosphorus (as P) (1:10)	kg/ha	Soil Testing in India; 2011	0.548		
Potassium (as K)	mg/kg	IS 9497:1980; RA 2020	136		
Available Nitrogen	%	Soil Testing in India: 2011	7,28		
Chloride (1:2)	%	ELES/SOIL/SOP/01	0.0071		
Lead (as Pb)	mg/kg	US EPA 3050 A&B: 1996	21.5		
Cadmium (as Cd)	mg/kg	US EPA 3050 A&B: 1996	100		
Mercury (as Hg)	mg/kg	US EPA 7473 : 2007	<0.01		
Magnesium (as Mg)	mg/kg	Soil Testing in India: 2011	6920		

Remarks: 1. pH done at Lab.

Reviewed by

\*\*\*\*End of Report\*\*\*\*

Authorised Signatory
Dr. Deependra Kumar Sinha

Ph D Environmental From

1 ELES Pvt. Ltd. Technical Manager

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#### TEST REPORT

Test Report No.	: ELES/RNC/2023/3868	Report Release Date	: 18.10.2023
Work Order No.	: 13572310670	Work Order Date	: 27.09.2023

CUSTOMER DET	TAILS	SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/SL/3592
		Sampling Date	: 29.09.2023
Address	: Kathautia Open Cast Coal Mines	Sample Received Date	: 30.09.2023
	Post- Naudiha, P.S Pandwa, Daltongang, Dist- Palamu,	Type of Sample	: Soil
	Jharkhand, Pin-822123	Location of Sample	: Near Office
	_	Sampling Procedure	: ELES/DOC/SMPL/05
Plant Status	: Operational	Sample Collected By	: ELES Pvt. Ltd.
Period of Analysis	: 30.09.2023 to 11.10.2023	Sample Condition	: Sealed & Preserved

Discipline: Chemical		Group: Pollution & En	Environment	
Parameter	Unit	Test Protocol	Result	
Arsenic (as As)	mg/kg	APHA 23 <sup>rd</sup> Ed 2017, 3500-As B	<0.005	
Selenium (as Se)	mg/kg	IS 3025 (Part-56) :2003; RA 2019	<0.01	

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\*\*\*\*End of Report\*\*\*\*

**Authorised Signatory** 

Dr. Deependra Kumar Sinha
Ph. D. Environmental Engg.
ELES Pvt. Ltd. Technical Manager

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(C-003:

### TEST REPORT

Test Report No.	: ELES/RNC/2023/3869	Report Release Date	: 18.10.2023
Work Order No.	: 13572310670	Work Order Date	: 27.09.2023
ULR No.	: TC883923000002534F		

<b>CUSTOMER DET</b>	TAILS	SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/SL/3593
		Sampling Date	: 29.09.2023
Address	: Kathautia Open Cast Coal Mines	Sample Received Date	: 30.09.2023
	Post- Naudiha, P.S Pandwa,	Type of Sample	: Soil
	Daltongang, Dist- Palamu, Jharkhand, Pin-822123	Location of Sample	: Near STP
	Jilaikilanu, 1 m-622125	Sampling Procedure	: ELES/DOC/SMPL/05
Plant Status	: Operational	Sample Collected By	: ELES Pvt. Ltd.
Period of Analysis	: 30.09.2023 to 11.10.2023	Sample Condition	: Sealed & Preserved

Discipline: Chemical		Group: Pollution & En	ivironment
Parameter	Unit	Test Protocol	Result
pH (1:2) at 24.8 °C	-	IS 2720 (Part 26):1987; RA2021	6.59
Conductivity (1:2) at 24.8 ℃	μS/cm	IS 14767: 2000; RA2021	162
Total Organic Carbon (TOC)	%	Soil Testing in India: 2011 (Walkley & Black Method)	0.1673
Available Phosphorus (as P) (1:10)	kg/ha	Soil Testing in India; 2011	1.049
Potassium (as K)	mg/kg	IS 9497:1980; RA 2020	124
Available Nitrogen	%	Soil Testing in India: 2011	5.04
Chloride (1:2)	%	ELES/SOIL/SOP/01	0.0355
Lead (as Pb)	mg/kg	US EPA 3050 A&B: 1996	28.9
Cadmium (as Cd)	mg/kg	US EPA 3050 A&B: 1996	6.9
Mercury (as Hg)	mg/kg	US EPA 7473 : 2007	<0.01
Magnesium (as Mg)	mg/kg	Soil Testing in India: 2011	7720

Remarks: 1. pH done at Lab.

Reviewed by

\*\*\*\*End of Report\*\*\*\*

Authorised Signatory
Dr. Deependra Kumar Sinha

Ph. D. Environmental Fnoo

Page 1 of 1 ELES Pvt. Ltd. Technical Manager



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Website : www.elespl.co.in

### **TEST REPORT**

Test Report No.	: ELES/RNC/2023/3869	Report Release Date	: 18.10.2023	
Work Order No.	: 13572310670	Work Order Date	: 27.09.2023	

CUSTOMER DET	AILS	SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Sampling Date	: ELES/RNC/2023/SL/3593 : 29.09.2023
Address	: Kathautia Open Cast Coal Mines Post- Naudiha, P.S Pandwa, Daltongang, Dist- Palamu, Jharkhand, Pin-822123	Sample Received Date Type of Sample Location of Sample Sampling Procedure	: 30.09.2023 : Soil : Near STP : ELES/DOC/SMPL/05
Plant Status	: Operational	Sample Collected By	: ELES Pvt. Ltd.
Period of Analysis	: 30.09.2023 to 11.10.2023	Sample Condition	: Sealed & Preserved

Discipline: Chemical		Group: Pollution & En	nvironment	
Parameter	Unit	Test Protocol	Result	
Arsenic (as As)	mg/kg	APHA 23 <sup>rd</sup> Ed 2017, 3500-As B	<0.005	
Selenium (as Se)	mg/kg	IS 3025 (Part-56) :2003; RA 2019	<0.01	

Reviewed by

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Authorised Signatory
Dr. Deependra Kumar Sinha

Ph. D. Environmental Engg.
ELES Pvt. Ltd. Technical Manager

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