July 2024 **Project id: - EIA/3a/2024/HZLPantnagar/Uttarakhand**

Environment Clearance Application

(*EMP Report*)

FOR

PROPOSED EXPANSION OF PRODUCTION CAPACITY OFREFINED SILVER FROM 800 TPA TO 1120 TPA IN TWO PHASES AT PANTNAGAR SILVER PLANT, UTTARAKHAND

(Area: 18.0 Hectare or 44.48 Acres)

Located at

Plot No. Plot No. 2 & 3, Sector 14, IIE, State Industrial Development Corporation Uttarakhand Limited (SIDCUL), Pantnagar, Kichha tehsil, Udham Singh Nagar district, Uttarakhand state

By

M/s Hindustan Zinc Limited (HZL)

Unit Head- Pantnagar Silver Plant: - Anamika Jha

Plot No 2 & 3, Sector 14, IIE, SIDCUL, Pantnagar, Rudrapur, Uttarakhand

Submitted to

The Member Secretary,

State Environment Impact Assessment Authority

(SEIAA), Uttarakhand

ENVIRONMENT CONSULTANT

Rian Enviro Private Limited (REPL)

QCI – NABET Certificate No: NABET/EIA/2124/SA 0197

Patna Office: 202 & 402, Mangal Market, Sheikhpura, Raja Bazar, Patna, Bihar- 800 014**Contact Nos.:** +919716173106; www.rianenviro.in | info@rianenviro.in

Table of Content

List of Tables

List of Figures

1 INTRODUCTION

1.1 THE PROJECT

M/s Hindustan Zinc Limited (HZL) is a prominent lead-zinc integrated producer and a leading silver producer, with over 50+ years of experience in mining and smelting. M/s Hindustan Zinc Limited (HZL) at Plot No.-2&3, Sector-14, IIE, State Industrial Development Corporation Uttarakhand Limited (SIDCUL), Village-Pantnagar, Tehsil-Kichha, District-Udham Singh Nagar, State-Uttarakhand is an existing silver refinery metal plant which is engaged in production of refined silver 800 TPA. HZL now proposes to expand the Pantnagar silver plant's refined silver production capacity from 800 TPA to 1120 TPA, to be executed in two phases (Phase-1 at 20% and Phase-2 at an additional 20%). The existing industrial unit has received an "Environmental Clearance" for a production capacity of 800 TPA, documented in EC No.- 10-9(10)/2018, dated February 8, 2019 (Annexure II). The plant has also obtained CTE and CTO from the SPCB, and the relevant documentation is attached (Annexure I). Currently, the plant is operating with a valid CTO.

Total land area is 18.0 Ha. (44.48 acres). The estimated cost of the proposed unit will be Rs. 20 Crore including R&M Expenses.

Project falls under Category B-2 as Metallurgical Industries (secondary metallurgical processing) Item 3(a) of the schedule of EIA notification of Sept 14, 2006 issued by MOEF & CC and as per updated notification published on 07/06/2024 vide S.O. 2215(E). So we are hereby preparing the EMP report.

1.2 PROJECT PROPONENT

M/s Hindustan Zinc Limited (HZL)
Anamika Jha
Unit Head- Pantnagar Silver Plant
Plot No 2 & 3, Sector 14, IIE, SIDCUL, Pantnagar, Rudrapur, Uttarakhand

1.3 DETAILS OF THE PROJECT

TABLE 1-1: PROJECT DETAILS

S. No	Parameters	Description
1	Identification of project	Project falls under Category B-2 as Metallurgical Industries (secondary metallurgical processing) Item 3(a) of the schedule of EIA notification of Sept 14, 2006 issued by MOEF & CC and as per updated notification published on of 07/06/2024 with S.O. 2215(E).

S. No	Parameters	Description
2	Project Proponent	**Pantnagar Silver Plant of M/s Hindustan Zinc Limited (HZL)**
3	Brief description of nature of the project	Existing capacity of plant is 800 TPA of silver refinery plant. Now, the company is planning to change the production capacity from 800 TPA to 1120 TPA capacity in two phases (Phase-1 20% and Phase-2 another 20%) with auxiliary facilities of silver refinery plant.

TABLE 1-2: PROJECT FEATURES

Sr. No.	Description	As per Present EC	After Proposed Expansion	
			Phase-1 (800 to 960)	**Phase-2 (960 to 1120)**
1	Land/Land-Use	Plot No 2 & 3, Sector 14, IIE, Industrial Area-SIDCUL Pantnagar, Uttarakhand	No change	No change
2	Raw material	Anode Slime/ Dore Silver/HGM 4680 TPA	Anode Slime/HGM 5686 TPA	Anode Slime/HGM 6692 TPA
3	Plant capacity	800 TPA Noble furnace (1 No 14 TPD), Cupel furnace (2 No 2.5 TPD each), Induction furnace (2x 1TPD+ 1x 1.5 TPD), Junker furnace (1 No 4 TPD), BBOC furnace (1 No 4 TPD)	960 TPA Noble furnace (1 No 14 TPD), Cupel furnace (2 No 2.5 TPD each), Induction furnace (2x 1TPD+ 1x 1.5 TPD), Junker furnace (1 No 4 TPD), BBOC furnace (1 No 4 TPD)	1120 TPA Noble furnace (1 No 14 TPD), Cupel furnace (2 No 2.5 TPD each), Induction furnace (2x 1TPD+ 1x 1.5 TPD), Junker furnace (2 No 4 TPD), BBOC furnace (1 No 4 TPD)
4	Plant process	Pyro-metallurgical refining Hydro-metallurgical refining	No Change	No Change
5	Power requirement	2 MW	No change	No change
6	Power source	Uttarakhand State Power Corporation Limited (UPCL)	No change	No change

Sr. No.	Description	As per Present EC	After Proposed Expansion	
			Phase-1 (800 to 960)	**Phase-2 (960 to 1120)**
7	Water requirement & its source	260 m3/day (Borewell)	No change	No change
8	Manpower	100	120	140
9	Project cost	Rs. 100 Cr	Rs. 8 Cr	Rs. 12 Cr
10	Environment protection cost	Rs. 4 Cr		

2 DESCRIPTION OF ENVIRONMENT

2.1 INTRODUCTION

As a precursor for the prediction of various types of environmental impacts likely to rise due to implementation of the project, it is essential to establish the baseline environmental data of the physico-chemical, biological and socio-cultural, and environmental parameters along the project and within the project influence area (Core zone). Details of the baseline environmental parameters are required for assessing background environmental quality, and also for decision making for the project design, implementation and operation from the environmental point of views. The data is generated through primary data collection (direct monitoring) and secondary sources (published literatures/ report etc.).

This chapter contains information on existing environmental scenario for the following parameters.

1. Land Environment
2. Meteorology
3. Air Environment
4. Noise Environment
5. Water Environment
6. Soil Environment
7. Biological Environment
8. Socio-economic Environment

2.2 ENVIRONMENTAL BASELINE DATA COLLECTION

Baseline data for the project was collected during the pre-monsoon season from 1st April 2024 to 30th April 2024 to assess the present environmental scenario of the study area.

2.2.1 Source of Primary Data

The Primary data has been collected by ENVIRO-TECH SERVICES. NABL & MOEF accredited Lab. Correspondence address & Lab: -Plot No. 1/32, South Side G.T. Road Industrial Area Ghaziabad (UP)-201001. Head Office: - G-232, M.G. Road Industrial Area, Harpur, Ghaziabad (UP)-201015.

2.2.2 Instrument used for Environmental Baseline Data Collection

The following instruments were used at the site for environmental baseline data collection work.

1. Respirable Dust Sampler with attachment for gaseous Pollutants.
2. Fine Particulate Matter (FPM) Sampler

3. Weather Monitoring Station.

4. Global Positioning System (GPS).

5. Digital D.O. Meter.

6. Sound Level Meter Model

2.2.3 Secondary Data

The secondary data collected from different Department has been mentioned in Table 2-1.

TABLE 2-1: SOURCE OF SECONDARY DATA

Sl. No	Description	Source
1	Land Use & Topography	Survey of India (SOI) Maps, Google Maps and Google earth, GIS, Land Revenue Record,
2	Hydrology	District Hand book and district CGWA reports
3	Geology	District Hand book,
4	Meteorology	Indian Metrological Department (IMD),
5	Ecology and Biodiversity	Forest department, Fisheries department, reports of ZSI, BSI & IUCN, Published literatures, etc.
6	Socio-Economic data	Census 2011 Administrative Atlas, and DSR, etc.

2.3 LOCATION & SURROUNDING FEATURES

M/s Hindustan Zinc Limited (HZL) is situated at Plot No.-2&3, Sector-14, IIE, State Industrial Development Corporation Uttarakhand Limited (SIDCUL), Village-Pantnagar, Tehsil-Kichha, District-Udham Singh Nagar, State-Uttarakhand having Latitude 29°1'56.023"N-29°2'11.686"N & Longitude 79°23'38.618"E-79°23'57.097"E in 264 m. above from the MSL. It is about 9 kms from district head quarter Pantnagar and is well connected by NH-109 and rail with rest of the country. The site is well connected by road and railways. The nearest railway station is Chhatarpur Railway Station about 100 m in SE direction & Haldi Railway Station at 5.97 km in East direction. The Nearest Airport is Pantnagar Airport about 7.0 km in East direction from project site. The present plant is an existing unit which is run by the proponent since 2010. The plant has an area of 18.0 ha which is owned by the project proponent.

2.4 GEOLOGY

Geology plays an important role in shaping the groundwater scenario of an area. So, it becomes imperative to know the geology of District Udham Singh Nagar. Piedmont alluvial deposits represent the geology of the study area. Broadly, it can be divided into two formations viz. Bhabar and Tarai. These are characterized by distinct lithology, grain size distribution, variation of degree of sorting etc. a generalized geological succession, of the area.

2.5 CLIMATE & RAINFALL

The climate varies from Sub-tropical and sub-humid with three distinct seasons i.e. summer, monsoon (rainy season) and winter. The rainy season starts from the month of middle June to September end, and followed by the winter season, which starts from the end of October and goes up to February. The winter rains are generally experienced in late December or early January, which brings down the temperature and that's how December and January are the coldest months in the district. The summer season starts from March and it goes upto June. The hottest months of the year are May and June. The maximum temperature inthe district goes up to 42ºC during the summers and the minimum temperature is between 1and 4ºC, further north of the district, the temperature comes down to 0.4ºC in winter season.

Rainfall, spatially, is highly variable depending upon the altitude. The intensity of the rainfall increases from south to north and the amount of rainfall decreases in generally from west to east. About 90% of the rainfall received during the monsoon period, and the remaining 10% of the rainfall in non-monsoon period. The average annual rainfall is 1296.85 mm (Year; 2004).

Source: https://cgwb.gov.in/sites/default/files/2022-10/udhamsinghnagar.pdf.

2.6 SOIL CLASSIFICATION

The soil types are controlled by the topography and rock types. Based on the National bureau of soil Survey and Land Use Planning (ICAR) Nagpur, the soils of the district Udham Singh Nagar can be classified into Udifluventic Ustochrepts, Typic Ustipsamments, Udic Ustochrepts, Udic Haplusstolls, Typic Ustochrepts as determined by their diagnostic properties. The Bhabar soils lay at the northern extremity of Khatima and Bazpur blocks, part of the alluvial fan deposits. Soils are shallow with sandy to loamy texture, poorly sorted, comprising mainly of gravel, sand, silt, clay with pebbles etc.

The Tarai soils run all along the northern extremity of the district, form continuous fringe with the Bhabar Zone. Bhabar formation is found in extreme northern parts of the Khatima and Bazpur blocks, boundary demarcated by the contact of Tarai and Bhabar. The Tarai belt is 8–25 km in width, and the general slope is <1% towards south. Soil is calcareous, moderately productive and suitable for extensive cultivation of high yielding variety of crops like rice and sugar cane. Soils typify marshy and swampy environment.

Source- https://cgwb.gov.in/sites/default/files/2022-10/udhamsinghnagar.pdf.

2.7 SEISMOLOGY

The project is located in the seismic zone-IV, indicating its vulnerability to major earthquakes, but earthquakes have not been common in recent history. Patna district and its northern part (from east to west) also falls in the risk zone for floods and cyclones.

2.8 DRAINAGE PATTERN OF THE AREA

District Udham Singh Nagar has a dense network of the drainage pattern. The rivers of the district belong to the Ganges drainage system. Of these, Sarada, Kosi, Gola and Phikka river and their tributaries are Sawaldeh, Bour, Nandhour,Bhak, Kailash etc. drain the district. The unique feature of the area is debouching of major rivers into the plains from Lower Himalayas. The overall flow direction of these rivers generally north–south trend or northeast–southwest and flows to south till its confluences with the Ganga River. The major rivers are perennial, whereas their tributaries originating from sub-Himalayan zone are ephemeral and remain dry during the non-monsoon seasons. The overall drainage pattern in the study area sub dendritic to sub parallel.

2.8.1 Hydrogeology

Generally the groundwater flows from north to south in the study area. Based on the behavior and occurrence of groundwater, the district can be broadly categorized into two broad hydrogeomorphic units namely (1) Bhabar and (2) Tarai, which have significantly different Hydrogeological attributes.

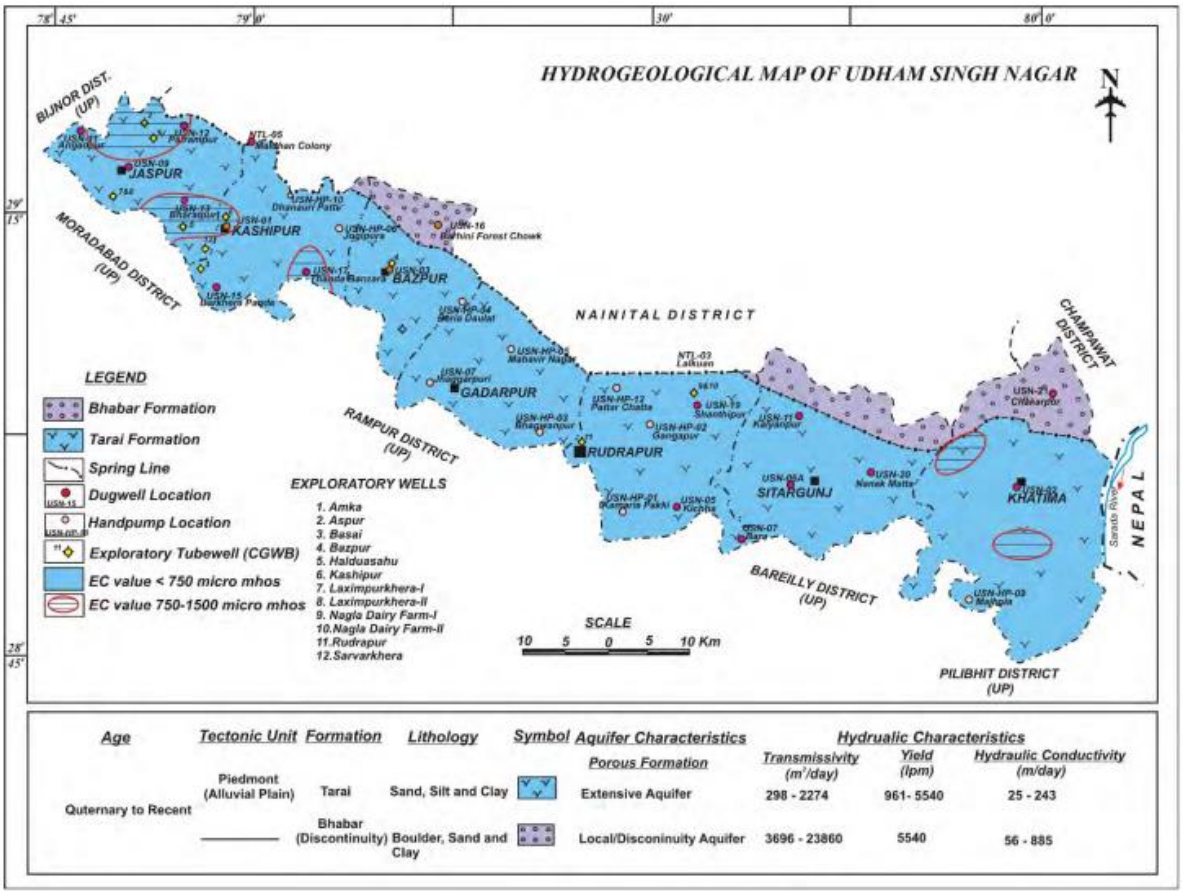


FIGURE 2-1: HYDROGEOLOGICAL MAP OF THE DISTRICT UDHAM SINGH NAGAR, UTTARAKHAND

2.9 LAND ENVIRONMENT

Studies on land use aspects of eco-system play an important role for identifying sensitive issues, if any, and taking appropriate actions for maintaining the ecological balance in the development of the region.

Land use Based on Secondary Data

Based on the census report, 10 km radius distance around this plant boundary has been considered in the study. These areas were studied in detail to get the idea of land use pattern in the study area.

TABLE 2-2: LAND USE PATTERN IN THE STUDY AREA

Sr. No.	Particulars of Land use	0-3 km	3-7 km	7-10 km	0-10 km	(%)
1.	Forest area	96.26	4876.72	5513.58	10486.56	39.24
2.	**Land under Cultivation**					

	a) Irrigation land	770.82	3074.50	5860.29	9705.61	36.31
	b) Un Irrigated land	0.00	0.81	23.32	24.13	0.09
	c) c) Land under miscellaneous tree crops etc.	0.00	0.00	60.68	60.68	0.23
3.	Area not Available for Cultivation					
	a) Area under non-agricultural uses	**1207.33**	**640.11**	**1484.35**	**3331.79**	**12.47**
	b) Barren & un-cultivable land area	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
	c) Permanent pastures and other grazing land area	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
4.	Fallows land other than current fallows area	0.00	36.14	55.29	91.43	0.34
5.	Current fallows area	259.87	141.94	398.11	799.92	2.99
6.	Cultivable waste land area	2.52	80.24	386.17	468.93	1.75
7.	Urban area	0.00	706.24	1051.16	1757.40	6.58
	Total Geographical Area	**2336.80**	**9556.70**	**14832.95**	**26726.45**	**100.00**

2.9.1 Land Use Pattern based on Remote Sensing Data

Remote sensing satellite imageries were collected and interpreted for the 10 km radius study area for analyzing the land use pattern of the study area. Based on the satellite data land use/land cover maps have been prepared.

TABLE 2-3: LANDUSE BREAK-UP BASED ON IRS RS-2 LISS IV FX DATA

Sr.No.	Land Use	Area (Hectares)	Percentage (%)
Built-up Land/Other Development			
A	Settlement	20.724	6.6
B	Industrial area	17.584	5.6
	Sub-total	**38.308**	**12.2**
Water Bodies			
C	Tank / river/reservoir etc.	6.594	2.1
Forest			
D	Scrub forest	52.752	16.8
Crop Land			
E	Single crop	124.03	39.5
F	Double crop	27.004	8.6
G	Plantation	49.926	15.9

	Sub-total	**200.96**	**64**
Wastelands			
G	Land with scrub	13.502	4.3
H	Land without scrub	1.884	0.6
	Sub-total	**15.386**	**4.9**
	TOTAL	**314**	**100**

As per satellite imagery, the built-up land is 12.2 %, forest land occupies 16.8 %, agricultural land is about 64 %, water body is 2.1 % and remaining land is either area available for cultivation or cultivable waste land.

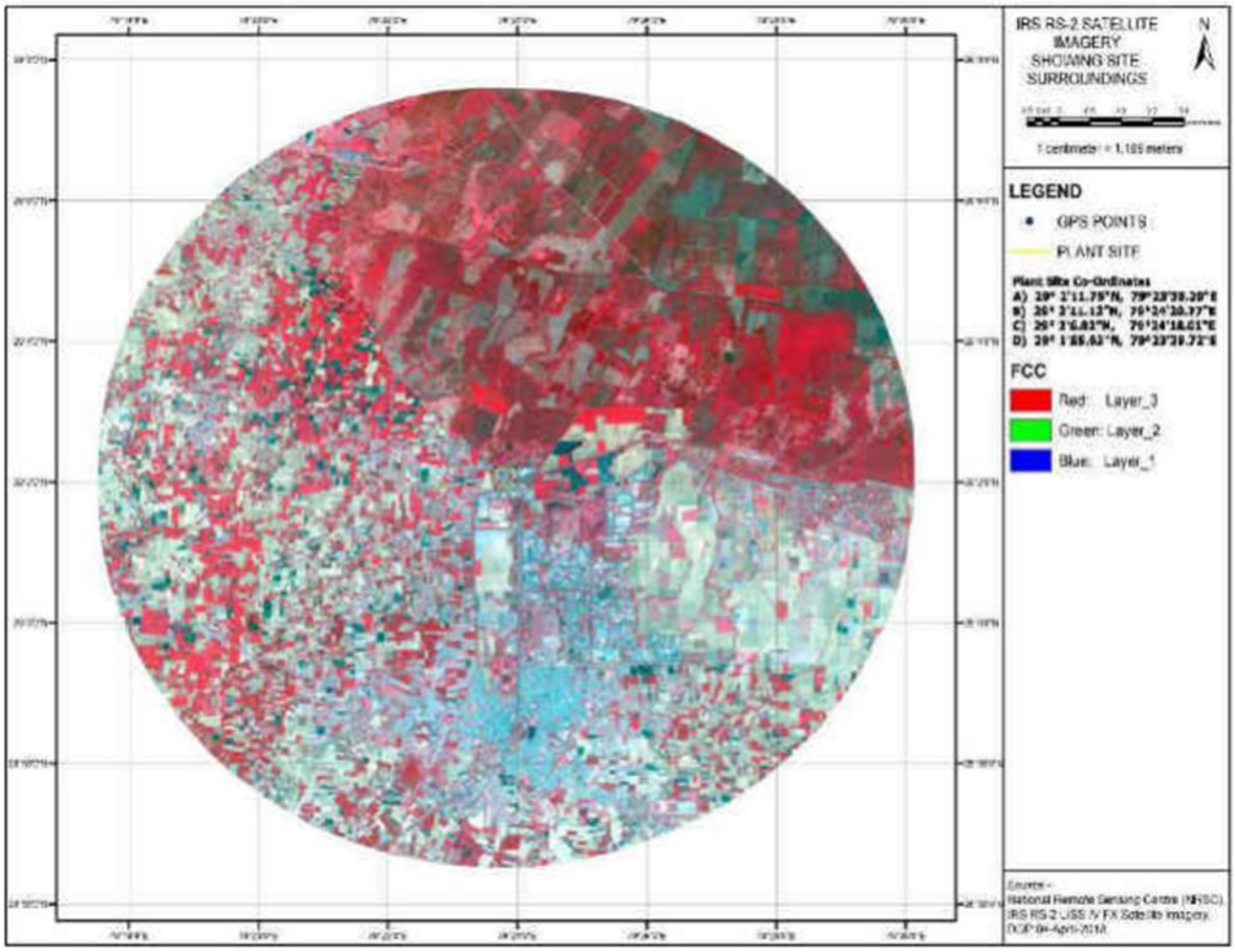


FIGURE 2-2: THEMATIC MAP OF STUDY AREA IRS RS- 2 LISS IV FX SATELLITE IMAGERY

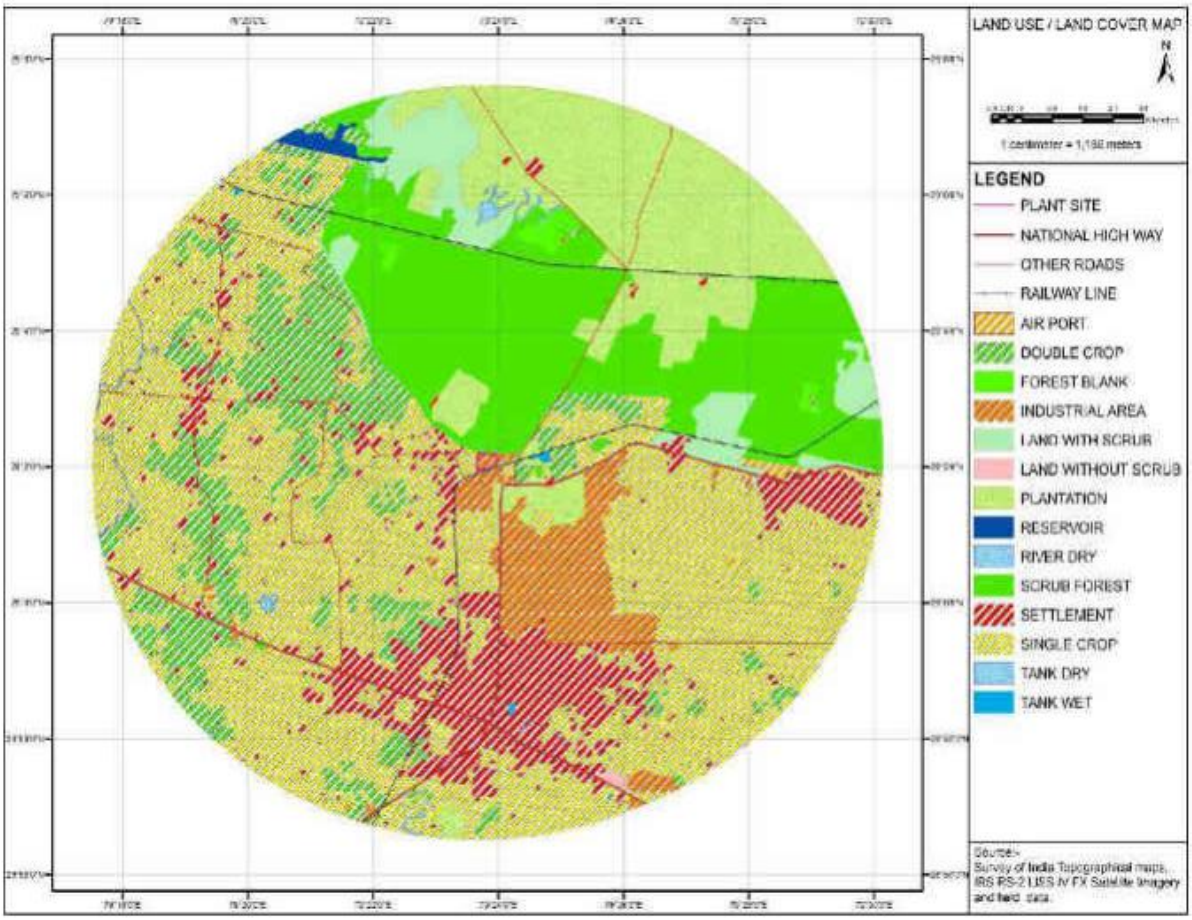


FIGURE 2-3: LAND USE PATTERN BASED ON SATELLITE DATA

2.10 REGIONAL METEOROLOGY

The maximum and minimum temperatures recorded at site during study period were 45.5 0C and 14.0 oC. The relative humidity was observed to range from 29% – 59% during the study period.

2.10.1 Wind Rose

The wind direction is predominantly from East to West during pre-monsoon season study period. The wind rose diagram prepared from data collected at site is shown in **Fig.2-4.**

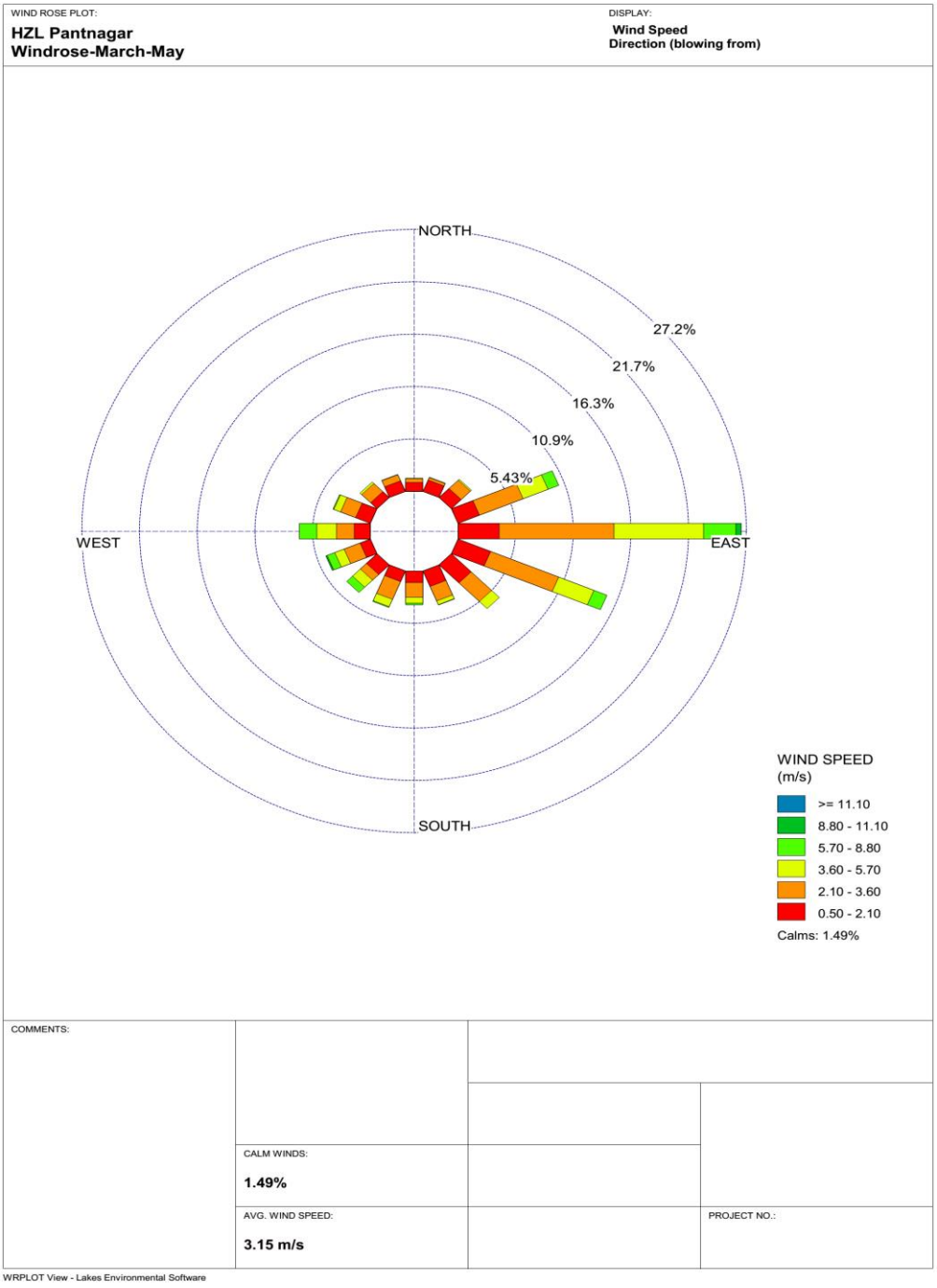


FIGURE 2-4: WIND-ROSE DIAGRAM

2.10.2 Interpretation of Micro-meteorological Data

Based on micrometeorological data of wind direction and wind speed it is interpreted that chances of maximum dispersion of pollutants will be in West during the period 15th March-2024 to 15th June-2024.

2.11 AIR ENVIRONMENT

The locations for AAQM study were selected within the 10 km radius of the project. Ambient air quality was monitored on 08 locations to generate representative ambient air quality data.

TABLE 2-4: AMBIENT AIR QUALITY MONITORING LOCATIONS

S.No.	Location	Distance & Direction	Co-ordinate
AAQ1	Project Site	--	29° 2'9.50"N 79°23'43.97"E
AAQ2	Under 500 meter	250 meter in West	29° 2'10.82"N 79°23'31.75"E
AAQ3	Kali Mandir, Udaynagar	3.08 km, West	29° 1'54.52"N 79°21'47.68"E
AAQ4	Siklai Gaon	4.11 km, ENE	29° 2'36.67"N 79°26'20.13"E
AAQ5	Govt. School, Pantnagar, Tanda Range	7.77 km, East	29° 1'43.04"N 79°28'41.46"E
AAQ6	Govt.Senior Secondary School, Rudrapur, Jagatpura,	5.40 km, SSE	28°59'15.35"N 79°24'50.67"E
AAQ7	Jagdishpur Market	4.38 km, NW	29° 3'24.78"N 79°21'29.02"E
AAQ8	Dineshpur	7.49 km, West	29° 2'42.26"N 79°19'8.35"E

TABLE 2-5: SUMMARY OF AMBIENT AIR QUALITY IN STUDY AREA

Parameter		AQ1	AQ2	AQ3	AQ4	AQ5	AQ6	AQ7	AQ8	NAAQS
		Project Site	Under 500 meter	Kali Mandir, Udaynagar	Siklai Gaon	Govt. School, Pantnagar, Tanda Range	Govt.Senior Secondary School, Rudrapur, Jagatpura	Jagdishpur Market	Dineshpur	
PM_{10} ($\mu g/m^3$)	Min.	62.7	64.0	65.8	61.4	73.8	58.9	52.1	51.5	100
	Max.	76.3	74.7	80.2	73.8	85.6	68.8	66.0	65.3	
	Mean	73.2	69.7	73.4	68.9	80.1	63.6	59.9	57.6	
	98 %*	76.3	74.5	79.9	73.6	85.4	68.4	65.5	64.6	
$PM_{2.5}$ ($\mu g/m^3$)	Min.	34.2	30.4	30.5	32.7	35.2	29.3	27.7	28.4	60
	Max.	40.5	41.5	46.2	38.5	52.7	38.6	33.8	36.2	
	Mean	38.2	36.9	36.4	35.3	44.7	34.9	31.1	31.6	
	98 %*	40.5	41.5	45.4	38.3	52.5	38.4	33.6	35.7	
SO_2 ($\mu g/m^3$)	Min.	12.4	8.6	9.4	8.9	8.5	8.2	7.2	6.8	80
	Max.	16.7	12.6	13.7	16.1	17.0	13.4	12.6	9.7	
	Mean	14.1	10.4	11.4	12.4	14.0	10.3	9.6	8.3	
	98 %*	16.6	12.5	13.6	15.9	16.9	13.1	12.4	9.6	
NO_X ($\mu g/m^3$)	Min.	15.6	15.3	16.5	14.2	18.9	13.9	18.4	19.8	80
	Max.	22.2	21.4	27.8	26.1	30.7	19.4	27.3	25.3	
	Mean	19.8	19.0	21.1	19.3	24.4	17.2	22.8	22.1	
	98 %*	22.2	21.4	27.2	25.3	30.0	19.3	27.0	25.0	
(CO) (mg/m^3)	Min.	0.47	0.38	0.49	0.37	0.58	0.44	0.50	0.46	1 Hrs.=04
	Max.	0.83	0.70	0.88	0.74	0.81	0.76	0.91	0.88	
	Mean	0.65	0.51	0.69	0.55	0.70	0.57	0.66	0.65	
	98 %*	0.82	0.70	0.87	0.73	0.80	0.75	0.90	0.87	

2.12 Noise Environment

Noise standards have been designated as per the Noise Pollution (Regulation & Control) Rules, 2000, notified by the Ministry of Environment and Forests, New Delhi, February 14, 2000. The ambient noise standards are presented in equivalent noise levels (Leq.) that have been measured twice a week during the study period of April 2024.

A total of 08 sampling locations were selected for ambient noise monitoring in the study area. The details of the locations are given in Table 2-6.

TABLE 2-6: AMBIENT NOISE QUALITY MONITORING LOCATIONS

S.No.	Location	Distance & Direction	Co-ordinate
NQ1	Project Site	--	29° 2'9.50"N 79°23'43.97"E
NQ2	Under 500 meter	250 meter in West	29° 2'10.82"N 79°23'31.75"E
NQ3	Kali Mandir, Udaynagar	3.08 km, West	29° 1'54.52"N 79°21'47.68"E
NQ4	Siklai Gaon	4.11 km, ENE	29° 2'36.67"N 79°26'20.13"E
NQ5	Chhatarpur	0.92 km, SSW	29° 1'35.99"N 79°23'16.23"E
NQ6	Govt.Senior Secondary School, Rudrapur, Jagatpura,	5.40 km, SSE	28°59'15.35"N 79°24'50.67"E
NQ7	Jagdishpur Market	4.38 km, NW	29° 3'24.78"N 79°21'29.02"E
NQ8	Government Primary School, Patharchatta	1.58 km, ESE	29° 1'48.12"N 79°24'51.61"E

TABLE 2-7: AMBIENT NOISE QUALITY IN THE STUDY AREA

Sr. No.	Name of the Location	Category of Area/zone	Day Time In Leq dB (A)	CPCB standards in respect of Noise (Day time)	Night Time In Leq dB (A)	CPCB standards in respect of Noise (Night time)
1	Project Site	Industrial Area	**72.5**	75	**57.3**	70
2	Under 500 meter	Residential Area	47.5	55	36.3	45
3	Kali Mandir, Udaynagar	Residential Area	50.6	55	42.3	45
4	Siklai Gaon	Residential Area	48.2	55	36.6	45
5	Chhatarpur	Residential Area	50.3	55	41.7	45
6	Govt.Senior Secondary School, Rudrapur, Jagatpura,	Silence Zone	48.5	50	32.2	40
7	Jagdishpur Market	Residential Area	47.6	55	35.1	45
8	Government Primary School, Patharchatta	Silence Zone	46.0	50	33.1	40

2.13 WATER ENVIRONMENT

District Udham Singh Nagar has a dense network of the drainage pattern. The rivers of the district belong to the Ganges drainage system. Of these, Sarada, Kosi, Gola and Phikka river and their tributaries are Sawaldeh, Bour, Nandhour,Bhak, Kailash etc. drain the district. The unique feature of the area is debouching of major rivers into the plains from Lower Himalayas. The overall flow direction of these rivers generally north–south trend or northeast–southwest and flows to south till its confluences with the Ganga River. Drainage map of the study area is shown in the figure 2-5.

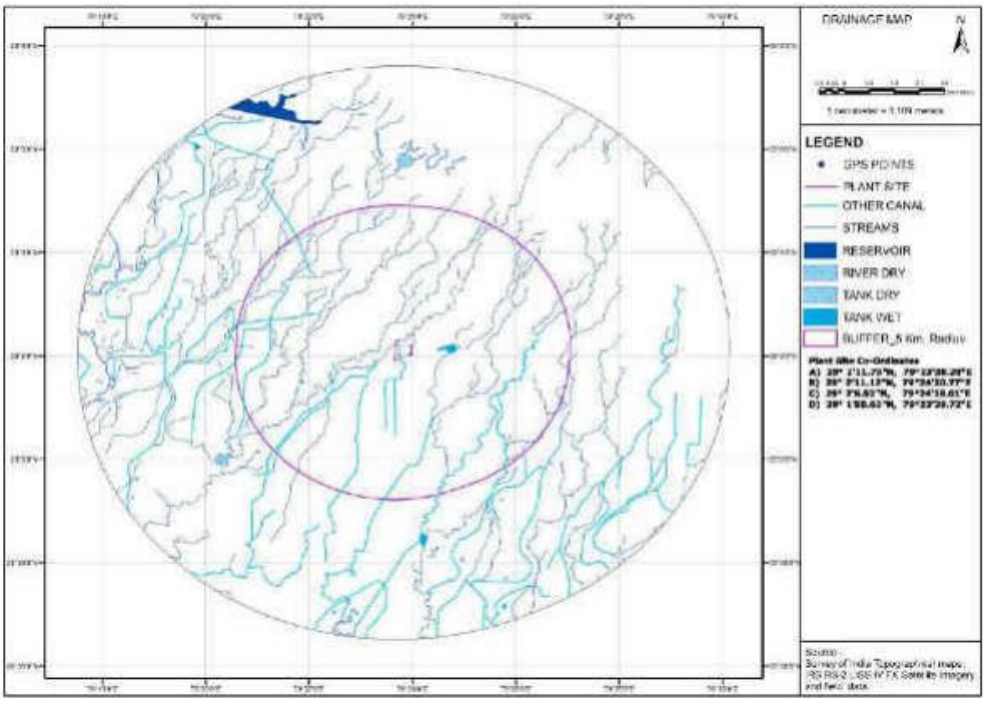


FIGURE 2- 1 THE DRAINAGE MAP OF THE STUDY AREA IS SHOWN IN MAP

2.13.1 Water Quality

The water resources in the study area were divided into two categories, SW and GW, to get an ideal upshot of the baseline status of the water quality in the region.

The information required has been collected through primary data collection and secondary sources. Eight (08) groundwater sources covering 10 km of radial distance were examined for physio-chemical, heavy metals, and bacteriological parameters. The samples were collected and analyzed once during the study period. The samples were analyzed as per IS-10500:2012 and the procedures specified in 'Standard Methods for the Examination of Water and Wastewater' published by the American Public Health Association (APHA).

2.13.2 Surface Water

The surface water quality monitoring is carried out in the study area (10 km buffer) based on the land use pattern and ground truth of nearby villages. Surface water samples were collected from one location during the study period of April 2024 and analyzed for a number of physico-chemical parameters. The details of surface water sampling locations are presented in Table 2-8.

TABLE 2- 1 SURFACE WATER SAMPLING LOCATIONS

S.No.	Location	Distance & Direction	Co-ordinate
SW1	Paradise Lake	6.50 m, South	28°58'30.63"N 79°24'15.85"E

TABLE 2-8: SURFACE WATER MONITORING RESULTS

S.No.	Parameter	Unit	SW1	Test Method
1	Colour	Hazen	<5.0	IS:3025 (Pt-4)
2	Odour	---	Agreeable	IS:3025 (Pt-5)
3	pH	---	7.82	IS:3025 (Pt-11)
4	Turbidity	NTU	12.10	IS:3025 (Pt-10)
5	Total Dissolve Solid (TDS)	mg/L	286.5	IS:3025 (Pt-16)
6	Total Alkalinity (CaCO3)	mg/L	150.4	IS:3025 (Pt-23)
7	Total Hardness(CaCO3)	mg/L	270.5	IS:3025 (Pt-21)
8	Chloride (Cl)	mg/L	68.6	IS:3025 (Pt-32)
9	Calcium (Ca)	mg/L	47.7	IS:3025 (Pt-40)
10	Mineral Oil	mg/L	<0.01	IS:3025 (Pt-39)
11	Sulphate (SO4)	mg/L	42.2	IS:3025 (Pt-24)
12	Nitrate (NO3)	mg/L	0.86	IS:3025 (Pt-34)
13	Fluoride (F)	mg/L	0.42	IS:3025 (Pt-60)
14	Iron (Fe)	mg/L	0.18	IS:3025 (Pt-53)
15	Aluminium (Al)	mg/L	<0.01	APHA-3500 (B)
16	Selenium (Se)	mg/L	<0.01	APHA-3113 (B)
17	Cyanide (Cn)	mg/L	<0.02	APHA-4500 (C)
18	Copper(Cu)	mg/L	<0.05	APHA-3111(B)
19	Magnesium (Mg)	mg/L	27.2	IS:3025 (Pt-45)
20	Manganese(Mn)	mg/L	<0.1	APHA-3111(B)
21	Zinc(Zn)	mg/L	0.76	APHA-3111 (B)
22	Cadmium(Cd)	mg/L	<0.001	APHA-3111 (B)
23	Lead(Pb)	mg/L	<0.01	APHA-3111 (B)
24	Boron	Mg/L	<0.05	IS:3026(Pt-57)
25	Mercury(Hg)	mg/L	<0.001	APHA-3112 (B)
26	Molybdenum(mo.)	mg/L	<0.05	IS:3025(Pt-2)
27	Nickel (Ni)	mg/L	<0.01	APHA-3111 (B)
28	Arsenic(As)	mg/L	<0.01	APHA-3500 (B)

29	Chromium (Cr+6)	mg/L	<0.01	APHA-3500 Cr-B
30	Conductivity (25 °C)	µs/Cm	410.6	APHA-2510
31	Chemical Oxygen Demand (COD)	mg/L	18.2	APHA-5220 (B)
32	Biological Oxygen Demand (BOD at 27OC for 3 day)	mg/L	3.05	APHA-4500 (D)
33	Dissolve Oxygen (DO)	mg/L	7.16	APHA-5210
34	E. Coli	MPN/100ml	270.0	IS:1622-1981
35	Total Coliform	MPN/100ml	490.0	IS:1622-1981

2.13.3 Ground Water

Ground water samples were collected from 08 locations during the study period of April 2024 and analyzed for a number of physico-chemical parameters.

TABLE 2-9: GROUND WATER SAMPLING LOCATIONS IN THE STUDY AREA

Sr.No.	Location	Distance & Direction	Co-ordinate	Source	Environmental Setting
GW1	Project Site	--	29° 2'9.50"N 79°23'43.97"E	Bore well	For sampling of groundwater, nearby private and government. borewells and handpumps have been identified. Those borewells whose depth is more than 100 feet were selected for sampling because they can give a realistic figure of the quality of groundwater in the study area. For the collection of samples, the electric borewells used to run at least for 5 minutes, and after discharging 3 to 4 buckets of water, the sample was collected.
GW2	Under 500 meter	250 meter in West	29° 2'10.82"N 79°23'31.75"E	Bore well	
GW3	Kali Mandir, Udaynagar	3.08 km, West	29° 1'54.52"N 79°21'47.68"E	Bore well	
GW4	Siklai Gaon	4.11 km, ENE	29° 2'36.67"N 79°26'20.13"E	Bore well	
GW5	Chhatarpur	0.92 km, SSW	29° 1'35.99"N 79°23'16.23"E	Bore well	
GW6	Govt.Senior Secondary School, Rudrapur, Jagatpura,	5.40 km, SSE	28°59'15.35"N 79°24'50.67"E	Bore well	
GW7	Jagdishpur Market	4.38 km, NW	29° 3'24.78"N 79°21'29.02"E	Bore well	
GW8	Government Primary School, Patharchatta	1.58 km, ESE	29° 1'48.12"N 79°24'51.61"E	Bore well	

TABLE 2-10: GROUND WATER MONITORING RESULTS

S.No.	Parameter	Unit	GW1	GW2	GW3	GW4	GW5	GW6	GW7	GW8	Drinking Water Standards / Limit (IS:10500 2012)		Test Method
											Desirable	Permissible	
1	Colour	Hazen	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	5	15	IS:3025 (Pt-4)
2	Odour	---	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	IS:3025 (Pt-5)
3	pH	---	7.68	7.68	7.29	7.58	7.41	7.75	7.75	7.08	6.5 - 8.5	No Relaxation	IS:3025 (Pt-11)
4	Taste	---	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	IS:3025 (Pt-8)
5	Turbidity	NTU	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	1	5	IS:3025 (Pt-10)
6	Total Dissolve Solid (TDS)	mg/L	436.1	397.3	210.7	457.1	270.4	374.5	183.3	376.6	500	2000	IS:3025 (Pt-16)
7	Total Alkalinity (CaCO3)	mg/L	154.8	160.1	104.6	142.1	115.8	139.4	98.5	117.3	200	600	IS:3025 (Pt-23)
8	Total Hardness(CaCO3)	mg/L	167.4	181.5	145.2	167.2	157.2	171.6	114.6	148.6	200	600	IS:3025 (Pt-21)
9	Chloride (Cl)	mg/L	57.0	52.6	56.3	80.4	63.1	61.4	46.8	71.5	250	1000	IS:3025 (Pt-32)
10	Calcium (Ca)	mg/L	42.0	41.3	42.8	38.5	46.9	47.6	34.5	43.8	75	200	IS:3025 (Pt-40)
11	Mineral Oil	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.5	No Relaxation	IS:3025 (Pt-39)
12	Sulphate (SO4)	mg/L	34.0	27.7	29.8	32.3	30.9	30.9	31.6	32.3	200	400	IS:3025 (Pt-24)

S.No.	Parameter	Unit	GW1	GW2	GW3	GW4	GW5	GW6	GW7	GW8	Drinking Water Standards / Limit (IS:10500 2012)		Test Method
											Desirable	Permissible	
13	Nitrate (NO3)	mg/L	0.83	0.63	0.74	1.07	0.89	1.19	0.73	0.82	45	No Relaxation	IS:3025 (Pt-34)
14	Fluoride (F)	mg/L	0.19	0.29	0.25	0.25	0.25	0.27	0.24	0.21	1	1.5	IS:3025 (Pt-60)
15	Iron (Fe)	mg/L	0.24	0.77	0.23	0.83	0.86	0.15	0.20	0.14	0.3	No Relaxation	IS:3025 (Pt-53)
16	Aluminium (Al)	mg/L	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.03	0.2	APHA-3500 (B)
17	Selenium (Se)	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	No. Relaxation	APHA-3113 (B)
18	Cyanide (Cn)	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.05	No. Relaxation	APHA-4500 (C)
19	Copper(Cu)	mg/L	0.07	0.06	0.11	0.11	0.01	0.13	0.10	0.02	0.05	1.5	APHA-3111(B)
20	Magnesium (Mg)	mg/L	20.0	25.8	23.0	29.3	30.7	32.8	13.5	22.7	30	100	IS:3025 (Pt-45)
21	Manganese(Mn)	mg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	0.3	APHA-3111(B)
22	Zinc(Zn)	mg/L	0.53	0.45	0.55	0.39	0.38	0.23	0.44	0.48	5	15	APHA-3111 (B)
23	Cadmium(Cd)	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.003	No. Relaxation	APHA-3111 (B)
24	Lead(Pb)	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	No. Relaxation	APHA-3111 (B)
25	Mercury(Hg)	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	No. Relaxation	APHA-3112 (B)
26	Nickel (Ni)	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.02	No. Relaxation	APHA-3111 (B)

S.No.	Parameter	Unit	GW1	GW2	GW3	GW4	GW5	GW6	GW7	GW8	Drinking Water Standards / Limit (IS:10500 2012)		Test Method
											Desirable	Permissible	
27	Arsenic(As)	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	0.05	APHA-3500 (B)
28	Chromium (Cr+6)	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.05	No. Relaxation	APHA-3500 Cr-B
29	Phenolic Compound (C6H5OH)	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	0.002	APHA-5530
30	Conductivity (25 °C)	mhos/cm	602.7	549.2	390.29	632.17	422.51	418.2	319.25	523.95	Not Specified	Not Specified	APHA-2510
31	E. Coli	Coli/100ml	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Shall Not Be Detectable		IS:1622-1981
32	Total Coliform	MPN/100ml	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Shall Not Be Detectable		IS:1622-1981
33	Temperature	℃	18.6	17.9	18.4	19.6	19.3	17.3	18.9	18.4	Not Specified	Not Specified	IS:3025 (Pt-9)
34	Sodium (Na)	mg/L	39.2	35.4	39.62	51.7	35.98	37.38	41.0	42.14	Not Specified	Not Specified	APHA-3500 (Na)
35	Fecal Coliform	MPN/100ml	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Shall Not Be Detectable		APHA-9221

2.13.4 Soil Environment

Soil quality is the capacity of a specific kind of soil to function within natural or managed ecosystem boundaries to sustain plant and animal productivity, maintain or enhance water and air quality, and support human health and habitation. Soil quality reflects how well a soil performs the functions of maintaining biodiversity and productivity, partitioning water and solute flow, filtering and buffering, nutrient cycling, and providing support for plants and other structures.

2.13.5 Analysis of Soil Samples

The soil samples were examined for various physicochemical parameters, to determine the existing soil characteristics of the study area.

TABLE 2-11: SOIL MONITORING LOCATIONS

S.No.	Location	Distance & Direction	Co-ordinate
SQ1	Project Site	--	29° 2'6.84"N 79°23'55.71"E
SQ2	Under 500 meter	0.23 km, West	29° 2'10.14"N 79°23'31.78"E
SQ3	Agriculture land near Udaynagar	2.84 km, West	29° 1'58.35"N 79°21'55.20"E
SQ4	Agriculture land near Siklai Gaon	4.08 km, ENE	29° 2'37.90"N 79°26'22.82"E
SQ5	Agriculture land near Chhatarpur	0.93 km, SSW	29° 1'39.31"N 79°23'14.74"E
SQ6	Agriculture land near Govt. Senior Secondary School, Rudrapur, Jagatpura	5.98 km, SSE	28°59'20.53"N 79°25'48.83"E
SQ7	Agriculture land near Jagdishpur	4.39 km, NW	29° 3'28.30"N 79°21'27.99"E
SQ8	Agriculture land near Government Primary School, Patharchatta	1.69, ESE	29° 1'49.34"N 79°24'55.22"E

TABLE 2-12: PHYSICOCHEMICAL CHARACTERISTICS OF SOIL

S. No.	Test Parameters	Unit	SQ-1	SQ-2	SQ-3	SQ4	SQ5	SQ6	SQ7	SQ8	Test Method
1.	Texture	…	Sandy Clay Loam	Sandy Clay Loam	Sandy Clay Loam	Sandy Clay Loam	Sandy Clay Loam	Sandy Clay Loam	Sandy Clay Loam	Sandy Clay Loam	IS:2720 (Pt-4)
2.	Sand	%	48.4	52.5	50.3	56.1	51.4	55.2	57.6	46.2	IS:2720 (Pt-4)
3.	Silt	%	28.2	30.3	31.3	10.7	18.4	14.3	15.2	23.3	IS:2720 (Pt-4)
4.	Clay	%	23.4	17.1	18.4	33.2	30.2	30.5	27.2	30.5	IS:2720 (Pt-4)
5.	pH (1:2 Suspension)	..	7.46	7.33	7.33	7.23	7.42	7.50	7.52	7.47	IS:2720 (Pt-26)
6.	Cation Exchange Capacity(CEC)	meq/100g	28.8	22.6	23.1	20.9	20.35	28.6	25.3	28.6	IS:2720 (Pt-24)
7.	Electrical Conductivity (1:2)	µmho/cm	362.25	367.5	372.7	330.75	363.3	332.85	352.8	345.45	IS:14767
8.	Water Holding Capacity(WHC)	%	33.6	36.7	22.05	29.82	30.45	23.1	30.2	32.52	IS 2720 (Part-2)
9.	Sodium (Na)	mg/kg	123.9	129.12	107.52	129.15	138.6	142.8	135.4	166.9	APHA-3125B
10.	Calcium (Ca)	mg/kg	1064.17	1102.5	1016.92	941.22	1011.7	1087.2	1084.1	1015.8	IS 2720 (Part-23)
11.	Magnesium (Mg)	mg/kg	458.8	369.6	342.3	338.41	381.4	432.6	445.2	460.95	ETS/STP/SOIL-08
12.	Bulk Density	g/cm3	1.62	1.40	1.41	1.31	1.60	1.49	1.55	1.911	IS 2386 (Part-4)
13.	Total Nitrogen (N)	mg/kg	187.1	170.94	185.6	170.8	191.83	155.7	173.46	174.72	APHA, Pt 4500:(N)
14.	Phosphorus (PO4)	mg/kg	39.06	50.29	53.9	40.32	48.82	45.6	58.8	62.37	ETS/STP/SOIL-19
15.	Potassium (K)	mg/kg	297.92	296.03	235.7	264.18	232.89	201.07	197.82	207.79	APHA-3125B

16.	Organic Matter	%	2.20	3.15	2.94	2.52	2.83	2.83	2.8	2.31	IS : 2720 (P-22)
17.	Organic Carbon	%	1.68	1.57	1.47	1.68	2.20	1.71	1.9	1.99	BS 1377 -3)
18.	Sulphate as (SO4)	mg/kg	1.89	2.1	2.73	1.31	1.73	2.62	2.6	2.52	IS:3025(P-24)
19.	Porosity	%	19.03	18.39	14.5	17.34	9.24	14.4	8.4	7.35	IS 13030
20.	Manganese,(Mn)	mg/kg	3.67	3.9	3.36	4.72	3.99	3.46	3.78	3.25	ETS/STP/SOIL-18
21.	Nickel,(Ni)	mg/kg	1.78	1.57	1.02	1.5	0.99	1.68	0.92	1.05	ETS/STP/SOIL-18
22.	Zinc,(Zn)	mg/kg	1.26	1.15	1.05	1.36	1.57	1.89	1.68	1.47	ETS/STP/SOIL-18
23.	Lead,(Pb)	mg/kg	2.20	1.68	1.89	1.73	1.26	2.62	1.78	1.89	ETS/STP/SOIL-18

2.13.6 Ecology & Biodiversity:

TABLE 2-13: LIST OF SAMPLING LOCATION SELECTED FOR STUDY OF BIOLOGICAL ENVIRONMENT

Code	Name of the Locations	Distance from Plant Site (Km)	Direction w.r.t. Proposed Plant Site
Terrestrial Locations			
TE-1	Plant site	-	-
TE-2	Vegetation near Agricultural University-Panthnagar	8.3	ESE
TE-3	Vegetation near Dineshpur	7.3	WNW
TE-4	Vegetation near Pratappur	9.6	SE
TE-5	Vegetation near Rudrapur	6.5	S
Aquatic Ecological Locations			
AE-1	Haripura reservoir	8.4	NNW
AE-2	Hatyari nadi near Sanjayvan	0.9	NNE

General Ecology of the study Area

Shorea robusta (Sal) is a predominant species along with Tectona grandis (Saguan/Segwan/Teak) in the forest blocks, over the years habitat fragmentation is due to anthropogenic interference, patches of reserve forest blocks are fragmented.

TABLE 2-14: FLORA IN PLANT SITE

Sr.No	Scientific name	Family	Common Name
Trees			
1	*Shorea robusta*	Dipterocarpaceae	Sal
2	*Morus alba*	Moraceae	Tut/White Mulberry
3	*Tectona grandis*	Verbenaceae	Teak/Segwan
Shrubs			
4	*Lantana camara*	Verbenaceae	Lantana
5	*Calotropis gigantea*	Asclepiadaceae	Milkweed/Arkha
Grasses			
6	*Heteropogon contortus*	Poaceae	Khad Grass
7	*Cynodon dactylon*	Poaceae	Bermuda grass
8	*Cyperus rotundus*	Poaceae	Nut grass
Herbs			
9	*Euphorbia hirta*	Euphorbhiaceae	Dudhi
10	*Tridax procumbens*	Asteraceae	Mexican daisy
11	*Mimosa pudica*	Mimosaceae	Lajwanthi

TABLE 2-15: FAUNA IN THE PLANT SITE

Sr. No.	Scientific Name	Common Name	Conservation as per WPA (1972)
Aves –Birds			
1	*Streptopelia decaocto*	Eurasian Collared Dove	Sch-IV
2	*Corvus splendens*	House crow	Sch-IV
3	*Centropus sinensis*	Crow pheasant	Sch-IV
4	*Dicrurus macrocercus*	Black Drongo	Sch-IV

5	*Bubulcus ibis*	Cattle egret	Sch-IV
6	*Columba livia*	Blue Rock-Pigeon	Sch-IV
7	*Passer domesticus*	House Sparrow	Sch-IV
8	*Apus affinis*	House Swift	Sch-IV
9	*Pyconotus cafer*	Red-Vented Bulbul	Sch-IV
10	*Nectarina asiatica*	Purple Sunbird	Sch-IV
Reptiles			
11	*Calotes versicolor*	**Garden Lizard**	Sch-IV
Mammals			
12	*Funambulus palmarum*	Three striped palm squirrel	Sch-IV
13	*Martes flavigula*	Yellow Throated Marten	Sch-II
Insects			
14	*Paplio demoleus*	Lime Butterfly	Sch-IV
15	*Euploea core*	Common Crow Butterfly	Sch-IV

2.14 SOCIO-ECONOMIC ENVIRONMENT

Socio-economic survey tools provide a means of improving understanding of local resource management systems, resource use and the relative importance of resources for households and villages.

2.14.1 Demographic structure of the study area

The demographic and socio-economic conditions prevailing in the 10 km radius was studied. Study area falls in Kiccha and Gadarpur Tehsils of Udham Singh Nagar district and Haldwani Tehsil of Nainital district of Uttarakhand and Bilaspur Tehesil of Rampur district of Uttar Pradesh. The socio-economic data forms thebasis for developing a suitable Corporate Social Responsibility (CSR) plan to address the needs of the population.

As per the 2001 census the total population of the study area is 186653. The population reported as per the 2011 census is 246548. Overall around 32.09% more decennial growth is reported in the study area. The growth rate of population in the study area comparatively reported more than the state growth rate. Uttarakhand state decennial growth is 18.81%. The reason for very highest growth rate is due to in migration of population to Rudrapur urban area and its surrounding locations from the nearby districts of Uttarakhand, Uttar Pradesh and Bihar states. The State Infrastructure and Industrial Development Corporation of Uttarakhand Limited - SIIDCUL industrial area has more than 500 manufacturing units in Pantnagar area and it is a hub of employment opportunities in the Uttarakhand state as well.

TABLE 2-16: DISTRIBUTION OF POPULATION

Sr. No.	Particulars	0 to 3 km	3 to 7 km	7 to 10 km	0 to 3 km	3 to 7 km	7 to 10 km
		2011 Census			2001 Census		
1	Total households	1285	26168	20493	1136	11577	21321
2	Total population	6256	136744	103548	5823	65382	115448
3	Male population	3418	72098	53959	3134	34487	62514
4	Female population	2838	64646	49589	2689	30895	52934
5	Total population 0 to 6 years	828	20367	13827	871	11997	18987
6	Male :population 0 to 6 years	441	10675	7128	443	6306	10061
7	Female population 0 to 6 years	387	9692	6699	428	5691	8925
8	% of 0 to 6 years population	13.24	14.89	13.35	14.96	18.35	16.45
9	Ave HH size	4.87	5.23	5.05	5.13	5.65	5.41
10	% of males to the total population	54.64	52.72	52.11	53.82	52.75	54.15
11	% of females to the total population	45.36	47.28	47.89	46.18	47.25	45.85
12	Total above 7 Years population	5428	116377	89721	4952	53385	96462
13	Child sex ratio (No of female children per 1000 Male children)	878	908	940	966	902	887
14	Male population (excluding 0 to 6 years)	2977	61423	46831	2691	28181	52452
15	Female population (excluding 0 to 6 years)	2451	54954	42890	2261	25204	4400
16	Sex ratio (No of females per 1000 males excluding 0 to 6 years)	823	895	916	840	894	839
17	Density	268	1431	698	249	684	778

Source: District Census Hand Book –2011

2.15 TRAFFIC SURVEY

Present Traffic Scenario

Traffic density was monitored on Rudrapur - Haldwani Road passing through around 0.50 kms in East direction from the project site under three different vehicle categories i.e., Heavy, Medium and Light. The heavy vehicles included trucks, buses, cranes etc. The medium vehicles included mini buses, matadors etc. while cars, jeeps and auto rickshaws were considered under the light vehicles category. A separate two-wheeler category has also been prepared. The data were recorded once for a day in the month of **May, 2024** for continuous 24 hours in a day. The relevant account has been gathered in **Table** 2-17.

TABLE 2-17: HOURLY OBSERVATION OF TRAFFIC ON RUDRAPUR-HALDWANI ROAD NEAR THE PROJECT SITE

Hour	Heavy	Medium	Light	Two-Wheelers	Total
0600-0700	6	28	6	17	57
0700-0800	12	20	17	42	91
0800-0900	18	15	51	75	159
0900-1000	22	30	39	108	199
1000-1100	***44***	***68***	***60***	***240***	***412***
1100-1200	40	17	27	51	135
1200-1300	38	21	17	41	117
1300-1400	32	20	11	35	98
1400-1500	34	22	138	40	234
1500-1600	23	39	15	39	116
1600-1700	54	33	33	62	182
1700-1800	34	23	63	78	198
1800-1900	42	22	50	170	284
1900-2000	22	14	27	48	111
2000-2100	34	16	29	34	113
2100-2200	26	14	20	40	100
2200-2300	22	12	12	24	70
2300-0000	10	11	26	10	57
0000-0100	8	8	18	2	36
0100-0200	0	0	0	0	0
0200-0300	0	0	0	0	0
0300-0400	0	0	0	0	0
0400-0500	0	2	0	8	10
0500-0600	0	8	5	10	23
Total	**521**	**443**	**664**	**1174**	**2802**

FIGURE 2-5: POINT OF TRAFFIC SURVEY

3 ANTICIPATED ENVIRONMENTAL IMPACTS & MITIGATION MEASURES

3.1 INTRODUCTION

This chapter presents the identification and evaluation of various potential impacts caused by the project on the surroundings, as well as mitigation measures for each of them.

3.2 SUMMARY OF ANTICIPATED ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

Discipline	Potential Negative Impacts	Probable Source	Mitigation Measures	Remarks
Operational Impact				
Water Quality	Water quality will not be impacted due to the proposed expansion project as there will not be any additional trade effluents generation	Discharge from various plant units and other auxiliary units	Adequate treatment facilities provided so that the treated effluents conform to the regulatory standards. No water will be discharged to surface water body except in rainy season, when treated wastewater cannot be used in plantation and other activities.	The reuse of treated wastewater will help in conserving the fresh water resources.
Air Quality	Increase in PM, Fugitive emissions.	The sources of air pollutants are: Off gases from furnaces; Fumes from furnace tap holes; NOx from silver electrolysis section; Dust collection system; and Emissions of DG set (emergency).	In the silver plant, pyro section (Cupel furnace and Noble furnace), there may be occasional fugitive emissions from the furnace tap holes & launders. To ensure the good operating & working condition, well designed hygiene	The resultant air quality will conform to the stipulated standards.

			ventilation system is provided. Scrubber system with double stage absorption towers for NOx and emissions discharged through the 30 m stack to ensure better dispersion;	
Noise Levels	Increase in noise levels in the plant area.	Equipment in main plant and auxiliaries.	Equipment will be designed to conform to noise levels prescribed by regulatory agencies. Provision of green belt and plantation would further help in attenuating noise.	Employees working in high noise areas would be provided earplugs/ earmuffs as protective device.
Demography and Socio-Economics	Strain on existing amenities like housing, water sources and sanitation, medical and infrastructure facilities.	Influx of people of proposed expansion of silver plant employees as well as contractor's employees/ labourers.	The existing manpower for the operational phase of silver plant of 600 TPA is about 100 people and will be utilized after the proposed expansion of silver plant No significant impact is envisaged as sufficient additional facilities are already provided by the project proponent.	Overall socio-economic status of the area is expected to improve considerably.
Storm Water Control	Impact on water resources	Rain water	Treat storm water discharges from site.	Separate storm water drains are already developed and ensure discharge

				of uncontaminated run-off water during rainy season. The collected run-off water from the drains will be used for rainwater harvesting within the plant premises. The same will be implemented after the expansion also.
Fire & Safety	Accidents and disasters related to fire & safety	Chemical and fuel storages	Disaster Management Plan (DMP) has been prepared	On-site and Off-site Emergency plan will be implemented during any disaster.

3.2.1 Ambient Air Quality Modelling

TABLE 3-1: SOURCES OF EMISSIONS

S.No.	Stack	Dia at Top,m	Flue Gas Velocity, m/s	Temp, ^{0}C	Flow Rate, Nm3/sec	Stack Height, m	PM, mg/Nm3	Nox, mg/Nm3	SO2, mg/Nm3
1	DG-1	1.1	18.4	289	9.116	50	48.6	213.7	32.9
2	DG-2	1.1	17.8	276	9.028	50	49.5	235.1	40.8
3	Furnace-1	1.2	5.8	94	5.237	30	20.4	37.5	9.8
4	Lead Plant	1.3	8.2	68	9.352	40	24.2	60.8	11.6
5	Furnace-2	1.2	4.9	78	4.626	30	17	47.2	6.4
6	Process-Furnace	1.6	5.2	74	8.828	40	20.2	68.5	13.7
7	NOx Scrubber	1.1	4.2	69	3.420	30	25.3	50.4	19.7

3.2.2 Dispersion Modelling

Model Selection

The plant operation will emit gaseous pollutants through stacks, which have the potential to deteriorate the air quality of the area. In order to evaluate the impact on ambient air quality due to such releases, the ground level concentrations (GLCs) as a result of the plant emissions have been evaluated through mathematical modelling using computer aided techniques.

The computation has been made applying Lakes Environment Aermod View model 10.0.1, which is most widely used and also recommended by CPCB (PROBES/70/1997-98). The model is based on some assumption such as steady state conditions, continuous homogeneous flow, inert passive pollutants, no ground absorption and a Gaussian distribution of the plume in both horizontal and vertical planes.

3.2.3 Data Retirement

The stack and emission data, as presented in **Tables–4.1** have been used as inputs to the model. The prediction of GLCs and corresponding impact have been made for the emission figures mentioned therein.

The hourly meteorological data like ambient temperature, wind speed and wind direction used for air quality modelling have been taken through continuous on-site monitoring during (**15th March, 2024 – 15th June 2024**) representing the **Pre-Monsoon** season.

The hourly occurrence of various atmospheric stability classes has been determined from the on-site hourly wind speed and cloud cover data using the insolation-based stability classification.

The Mixing Height data were taken from one of the published documents i.e., “Spatial Distribution of Hourly Mixing Depth over Indian Region” of R. N. Gupta, applicable for project site.

3.2.4 Modelling Methodology and Procedure

Assumptions

- Source of emission is continuous and at steady state.
- Predictions have been carried out to estimate concentration values over radial distance of 10 km around the sources.
- 10km x 10 km Cartesian receptor network has been considered.
- Emission rates from the sources were considered as constant during the entire period.
- The ground level concentrations computed were as in basis without any consideration of decay coefficient.
- Calm winds recorded during the study period were also taken into consideration.

- 24-hour mean meteorological data, extracted from the meteorological data collected during the study period as per guidelines of IMD/CPCB has been used to compute the mean ground level concentrations to study the impact of proposed activity.
- The mathematical equations used for the dispersion modelling assumes that the earth surface acts as a perfect reflector of plume and physico-chemical processes such as dry and wet deposition and chemical transformation of pollutants are negligible.
- Washout by rain is not considered.

Calculation of Emission Rate

An emissions factor is a representative value that attempts to relate the quantity of a pollutant released to the atmosphere with an activity associated with the release of that pollutant. The general equation for emissions estimation is:

$$E = A \times EF \times (1- ER/100)$$

Where;E = emissions in (gm/sec); A = activity rate (Tonnes/Hr); EF = emission factor (Kg/Tonnes), and ER = Overall emission reduction efficiency, %

3.2.5 Modelling Results

Processing of Collected Raw Data

The meteorological data collected from the site for the period of **March-May 2024** was processed and analyzed by the software RAMMET View of Lakes Environment. The processed data was run in the WRPLOT View to generate the windrose diagram shown in **Figure 4.1**.

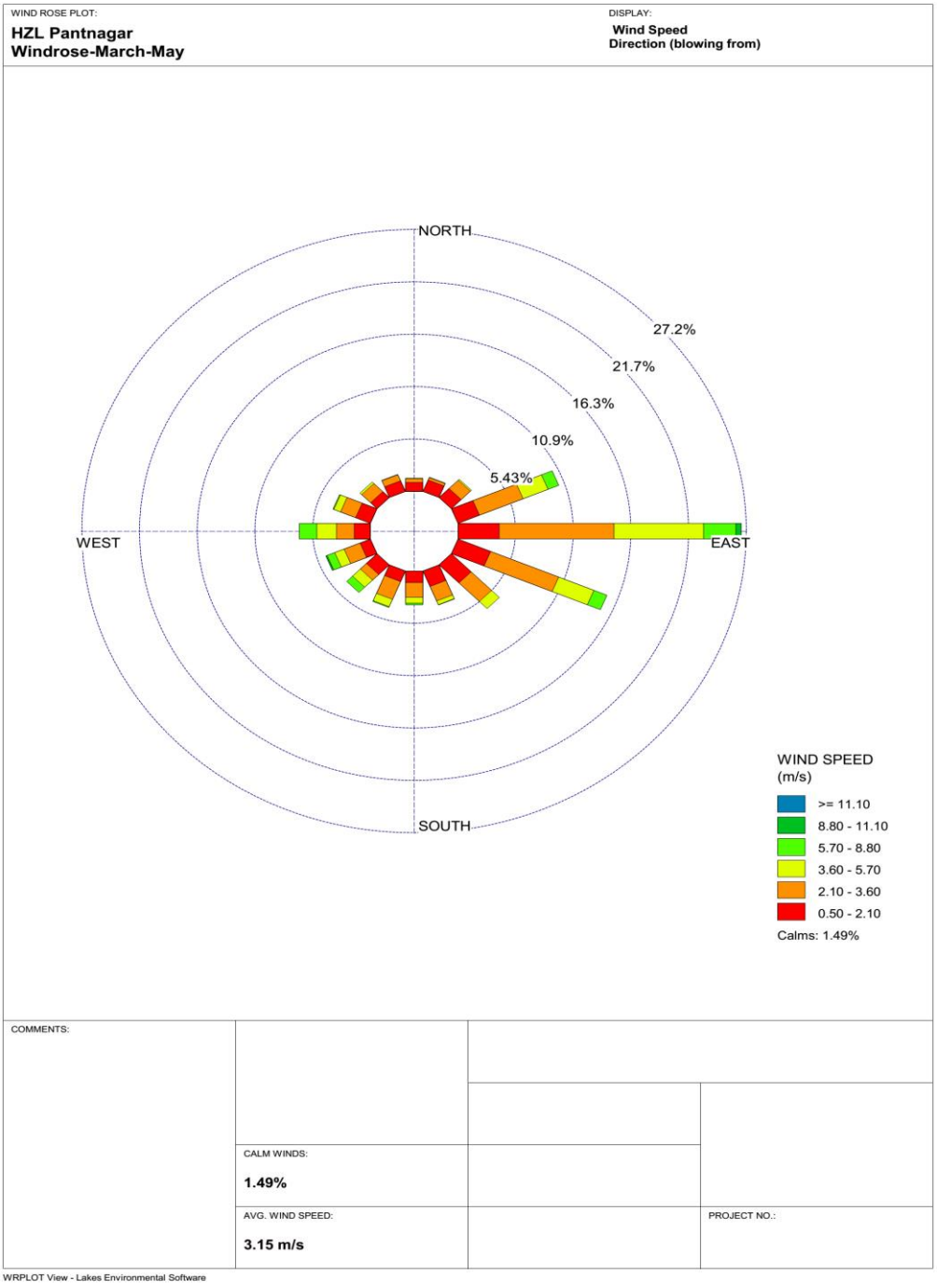


FIGURE 3-1: WINDROSE DIAGRAM

1. The pre-dominant wind direction is East. Most of the times pollutant will get spread over in the West region.
2. The mean wind speed is very low i.e. 3.15 m/s. However, 1.49 % wind below 0.5 m/s is reported during the monitoring period.

TABLE 3-2: METEOROLOGICAL DATA (MARCH-MAY 2024):

Parameters	Min	Max	Mean
Temp, C	10.2	36.5	22.5
RH	29	65	38
Wind Speed, m/s	0.5	11.1	3.15
Solar radiation, w/m2	5000	5500	5200

Wind Direction: From East

Rainfall: No of rainy days 0, Rainfall 0, Annual Rainfall: 1296.85 mm

3.2.6 Prediction of GLCs

The air pollution prediction from the plant has been done for the pollutants usually modelled for Furnaces. It can be easily said that as the plant is going for expansion, its emissions will be increased in comparison to the existing scenario. To predict the emissions in the surrounding areas, modelling for PM and SO2/NOx has been carried out.

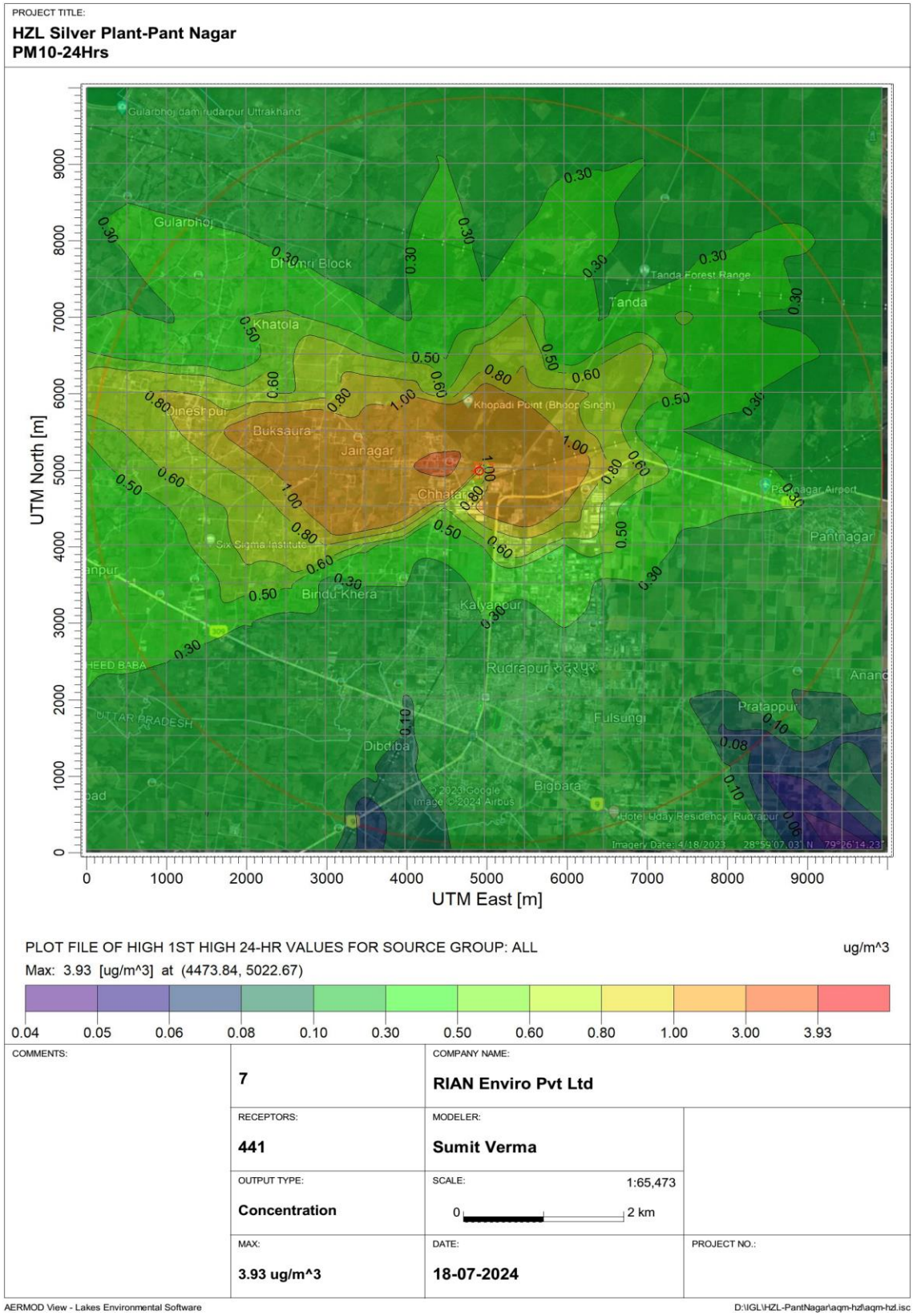


FIGURE 3-2: PM ISOPLETH

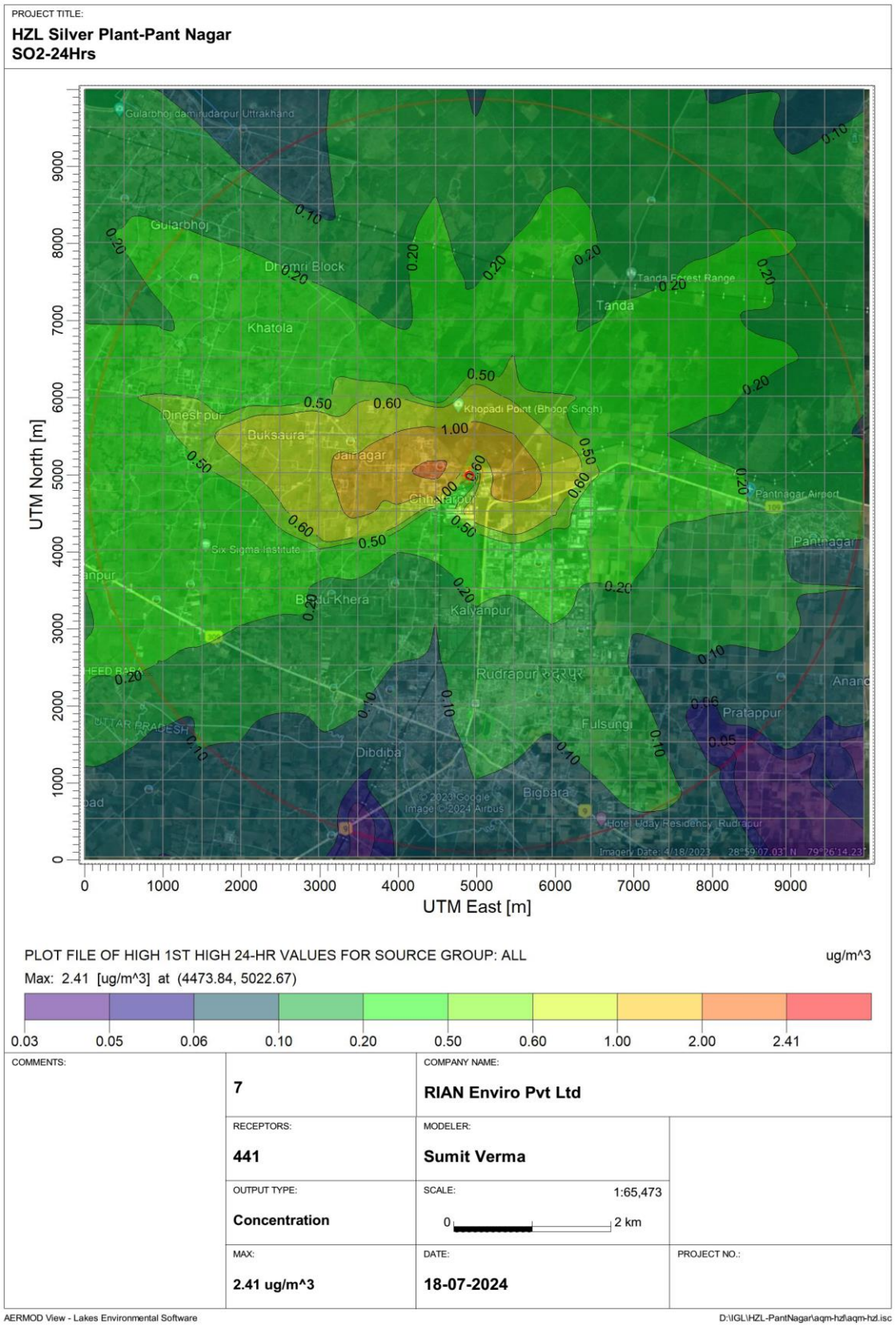


FIGURE 3-3: SO2 ISOPLETH

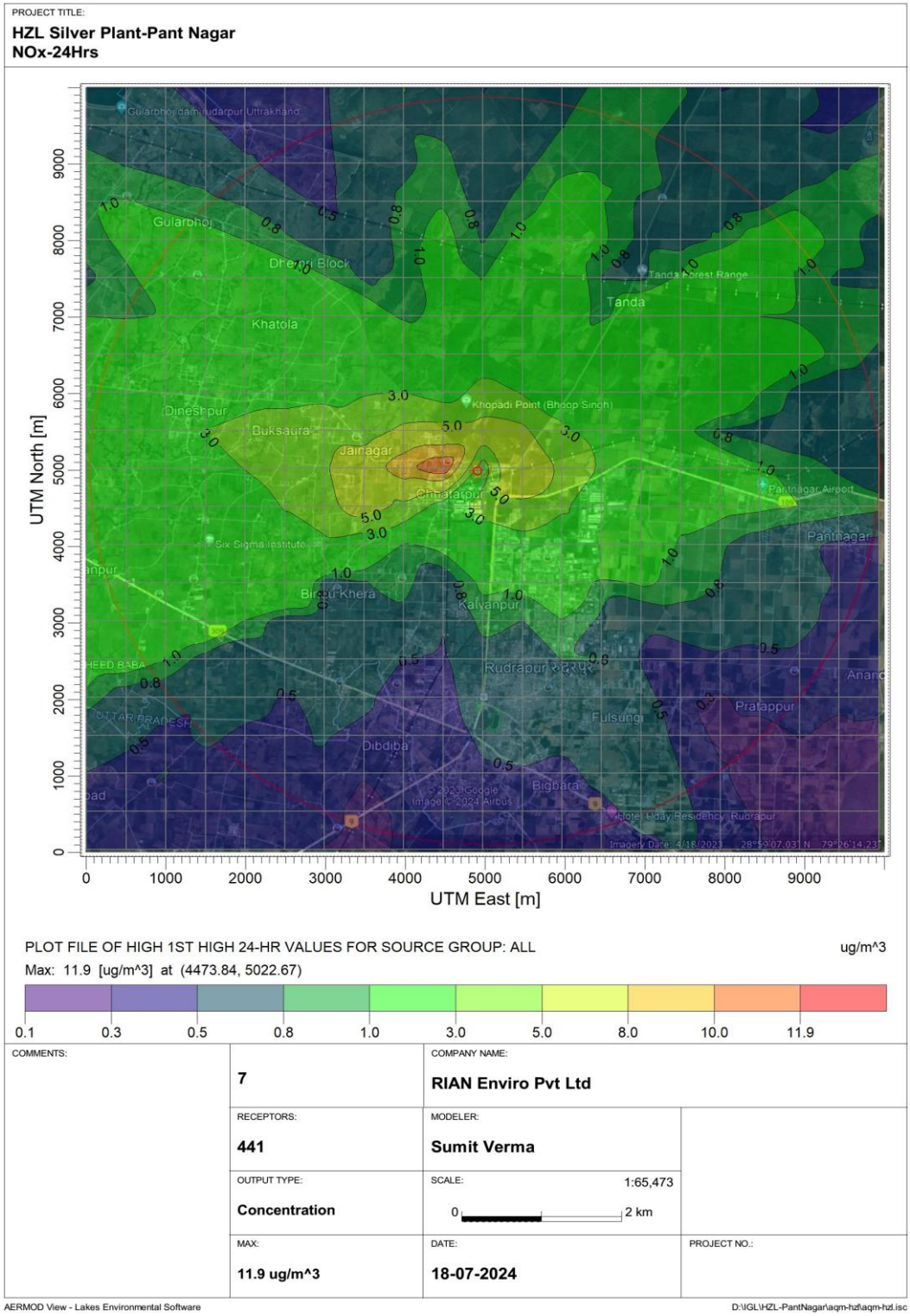


FIGURE 3-4: NOX ISOPLETH

It may also be noted that the modelling results depict the worst-case scenario as washout due to rain has not been considered and deposition on other forms of structures as buildings, trees etc. have not been considered. Thus, the pollutant concentrations are expected to be relatively lower than the predicted value.

3.2.7 Impact due to transportation of raw materials and finished products

Presently, the background traffic in the project area is primarily due to movement from traffic plying on the Rudrapur-Haldwani Road in the vicinity of the site (about 0.5 km from the project site in East). During the operation phase of the proposed project, movement of goods' vehicles and loading and unloading operations may contribute to traffic congestion and air emission. But, with advanced and stringent traffic management system within the project site, scope for such congestion and emission will be minimized. The layout of the proposed project has generous area, earmarked for greenery development. This will act as effective media for arresting the emissions within the project site. The estimated quantity of raw materials, solid waste & products of total project is as follows:

TABLE 3-3: NO OF TRUCKS REQUIRED FOR TRANSPORTATION OF RAW MATERIAL AND FINISHED PRODUCT

S.No.	Details	Quantity	Unit
Quantity of Product to be Transported			
1	Final Product	1120	TPA
2	Average Operating days	300	days
3	Final Product	3.73	Tons/day
4	Capacity of Truck	10	Tons
5	**Total No of Trucks per day (A)**	**1**	**Trucks/day**
Quantity of Raw Material to be Transported			
6	Anode Slime/Dore Silver/HGM	10000	TPA
7	Total Raw Material	33.33	Tons/day
8	Total No of Trucks per day (Receive) (B)	4	Trucks/day
9	**Total No of Trucks (A+B)**	**5**	**Trucks /day**
Waste to be Transported			
10	Trucks for Waste Transportation (C)	1	Trucks/day
11	**Total No of Trucks (A+B+C)**	**6**	**Trucks/day**

3.2.8 Impact on Level of Service of the Rudrapur-Haldwani Road

To analyse the Level of Service on the Rudrapur-Haldwani Road, PCUs for the traffic observed on Rudrapur-Haldwani Road during the study period and increment in PCU due to the project operations is calculated as follows (source IRC:106-1990):

TABLE 3-4: CALCULATION OF PCUS FOR THE EXISTING AND PROJECT OPERATIONAL SCENARIO

S.No.	Vehicles	No./day	Eq PCU Factor (IRC:106-1990)	PCUs/day
Existing Traffic Scenario				
1	Heavy Vehicles	521	2.2	1146.2
2	Medium Vehicles	443	1.4	620.2
3	Light Vehicles	664	1.0	664
4	Two Wheelers	1174	0.5	587
			Total	**3017.4**
Increment in Traffic due to the Project				
1	Two Wheelers (Manpower)	140	0.5	70
2	Trucks per day	6	2.2	8.8
			Total	**78.8**

Observation and Inference

In order to calculate the Level of Service, Peak Hourly Volume is calculated from the 24-hr observation on the Rudrapur-Haldwani Road.

TABLE 3-5: PEAK HOURLY TRAFFIC

S.No.	Vehicles	No./hr	Eq PCU Factor (IRC:106-1990)	PCUs/hr
Peak Hourly Traffic Scenario				
1	Heavy Vehicles	44	2.2	96.8
2	Medium Vehicles	68	1.4	95.2
3	Light Vehicles	60	1.0	60
4	Two Wheelers	240	0.5	120
			Total	**372**
Increment in Traffic due to the Project				
1	Two Wheelers (Manpower)/ hr	140	0.5	70
2	Trucks /hr	6	2.2	13.2
			Total	**83.2**

Since the Rudrapur-Haldwani road near the project site is a Two-lane two-way road but near the project site it has side roads, bus stops; hence the section of road is considered as Sub-arterials as per IRC 106-1990 and the Capacity of the road is taken as 1200 PCUs/hr.

TABLE 3-6: CALCULATION OF V/C RATIO

S.No.	Scenario	Volume (V)	Capacity (C)	V/C
1	Existing	372	1200	0.31
2	Proposed Operations	455.2	1200	0.38

The Level of Service criteria based on V/C ratio for the Mid-block section has been adopted from Highway Capacity Manual and it has been referenced in various literatures i.e. *Design Service Volume, Capacity, Level of Service Calculation and Forecasting for a Semi-urban City* by Singh & Saraswat (Revue d'Intelligence Artificielle, Vol 33, No 2, April 2019, pp 139-143); and Lecture Notes of Chapter 21. Capacity and Level of Service LOS by Dr. Tom V. Mathew, IIT Bombay Feb 19 2014 for Transportation Systems Engineering.

TABLE 3-7: DESCRIPTION OF LEVEL OF SERVICE

S.No.	LOS	Description	V/C
1	A	Free flow conditions with unimpeded maneuverability. Stopped delay at signalized intersection is minimum. / High level of physical and psychological comfort.	0.0-0.60
2	B	Reasonably unimpeded operations with slightly restricted maneuverability. Stopped delays are not bothersome / Reasonable level of physical and psychological comfort.	0.61-0.70
3	C	Stable operations with somewhat more restrictions in making mid-block lane changes than LOS B. Motorists will experience appreciable tension while driving / Local deterioration possible with blockages	0.71-0.80
4	D	Approaching unstable operations where small increases in volume produce substantial increase in delay and decreases in speed. / Non-recoverable local disruptions	0.81-0.90
5	E	Operations with significant intersection approach delays and low average speeds.	0.91-1.00

		/ Minor disturbances resulting breakdown	
6	F	Operations with extremely low speeds caused by intersection congestion, high delay and adverse signal progression. / Breakdown of flow capacity drops	Greater Than 1.00

It can easily be inferred by crosschecking the values of V/C given in Table 5 with the Standards of LoS given in Table 6 that Level of Service on the Rudrapur-Haldwani Road in the existing scenario and in the project operational scenario will be of **Category A** i.e. Free flow conditions with unimpeded maneuverability. Stopped delay at signalized intersection is minimum.

3.2.9 Impact on Air Quality due to Traffic arising from the Project related Vehicular Activities

The emission of CO, HC, NOx and PM from the trucks/bikes has been calculated for the total project, based on the emission factor in gm/km of Trucks / Trailer / Bus (Source: Central Pollution Control Board) **Table 2-23:**

TABLE 3-8: EMISSION FACTORS (GM/KM) (SOURCE: CPCB)

Vehicle	CO	HC	NOx	PM
Trucks (BS-IV)	1.5	0.96	3.5	0.02
Two-Wheelers (BS-III)	1.0	0.5	0.5	--

TABLE 3-9: HOURLY EMISSION OF POLLUTANTS

S.No.	Pollutant	Emissions from Truck (gm/km)	Emission from Two-Wheelers (gm/km)	Total (gm/km)
1	**CO**	9.0	140	149
2	**HC**	5.76	70	75.76
3	**NOx**	21.0	70	91.0
4	**PM**	0.12	-	0.12

There will be some impact on the surrounding environment due to CO and NOx emissions. The impact due to the emissions of other pollutants will be insignificant. This quantum spread over the whole day is considered low and shall not make significant impact on the transportation route on the road.

Mitigation Measures

Fully tarpaulin covered trucks will be used for transporting raw materials, solid waste & products to avoid dust pollution.

PUC Certified vehicles will be deployed on the roads. The employes will be encouraged for regular maintenance of their vehicles.

Every vehicle entering the factory premised will be checked for PUC certificate on regular basis. If found not-PUC certified, the vehicles will not be allowed in the factory.

It would be ensured that all the vehicles plying in the working zone are properly tuned and maintained to keep emissions within the permissible limits. At loading and unloading points, arrangement for water sprinkling will be made so that dust generation during transportation of materials will be minimized further.

All the internal roads within the plant shall be metalled; hence dust arising from the internal roads shall be insignificant. The greenbelt development shall further help in reduction in fugitive emissions.

4 ENVIRONMENTAL MANAGEMENT PLAN

4.1 INTRODUCTION

An environmental management plan (EMP) is the key to ensuring a safe and clean environment. The desired results from the environmental mitigation measures proposed in the project may not be obtained without a management plan to assure their proper implementation and function. The EMP envisages plans for the proper implementation of mitigation measures to reduce the adverse impacts arising from the project activities. This chapter includes the following aspects:

- Pollution control/mitigation measures for abatement of the undesirable impacts caused during the operation phase.
- Details of management plans (Greenbelt development plan, Waste management plan etc.)
- Institutional set up identified/recommended for implementation of the EMP.
- Post project environmental monitoring programme to be undertaken.
- Pursuing for funds allocation and expending the same for EMP.

4.2 PROPOSED ENVIRONMENTAL MITIGATION MEASURES

The environmental impact due to the project activity are Air, Noise & Vibration, Water, Land, Biological (Flora & Fauna), Socio Economic and Occupational Health & Safety. The major impacts due to different project activities and their mitigation measures for operation phases are given in Table 4-1 below-

TABLE 4-1: PROPOSED MITIGATION MEASURES TO BE IMPLEMENTED DURING OPERATION PHASE

Mitigation Measures Proposed	Responsibility for Implementation	Targets to Achieve	Risks and Consequence of Failure, if any
Air Environment			
Air quality due to the proposed project may lead minor increase in the air pollution as best in class dust control management systems will be adopted. Bag filters (~99.95%) to collect the PM before discharge of off gases from furnaces to atmosphere. Hygiene ventilation	HZL	Wider dispersion of emitted air pollutants	Fugitive emissions

system with bag filters for effective collection of fugitives from furnaces. Scrubber system with double stage absorption towers for NOx and emissions discharged through the 30m stack to ensure better dispersion.			
Water Environment			
Water quality will not be impacted due to the proposed expansion project as there will not be any additional trade effluents generation The domestic wastewater is treated in existing STP with FAB technology. The same practice will followed after expansion	HZL	Removal of suspended solids, oil and grease and organic matter to conform to regulatory standards for discharge of effluents into inland surface water	Increase in concentration of pollutants especially biological parameters.
Noise Environment			
Provision of acoustic enclosures/ barriers/ shields to reduce noise	HZL	Attenuation of noise in source receptor pathway	Increase in ambient noise levels
Provision of personal protective equipment like ear plugs and ear muffs	HZL	Protection of sensitive receptor	Health impact on workers in high noise areas
Solid Waste Management			
Domestic solid waste	HZL	Environmentally safe disposal of municipal waste from township	Air and water pollution, spread of disease vectors
Hazardous waste	HZL	No disposable process waste generation from the operation; hence no onsite disposal of solid waste	-
Others			
Afforestation and greenbelt development	HZL	Ecological improvement Attenuation of air pollutants (PM, SO2 and NOx) and noise in	Reduction in aesthetics and living space. Higher pollutants in the ambient air.

		source receptor pathway	
Disaster management plan	HZL	Safety	Increased risk of fire and explosion

4.3 Implementation Schedule of Mitigation Measures

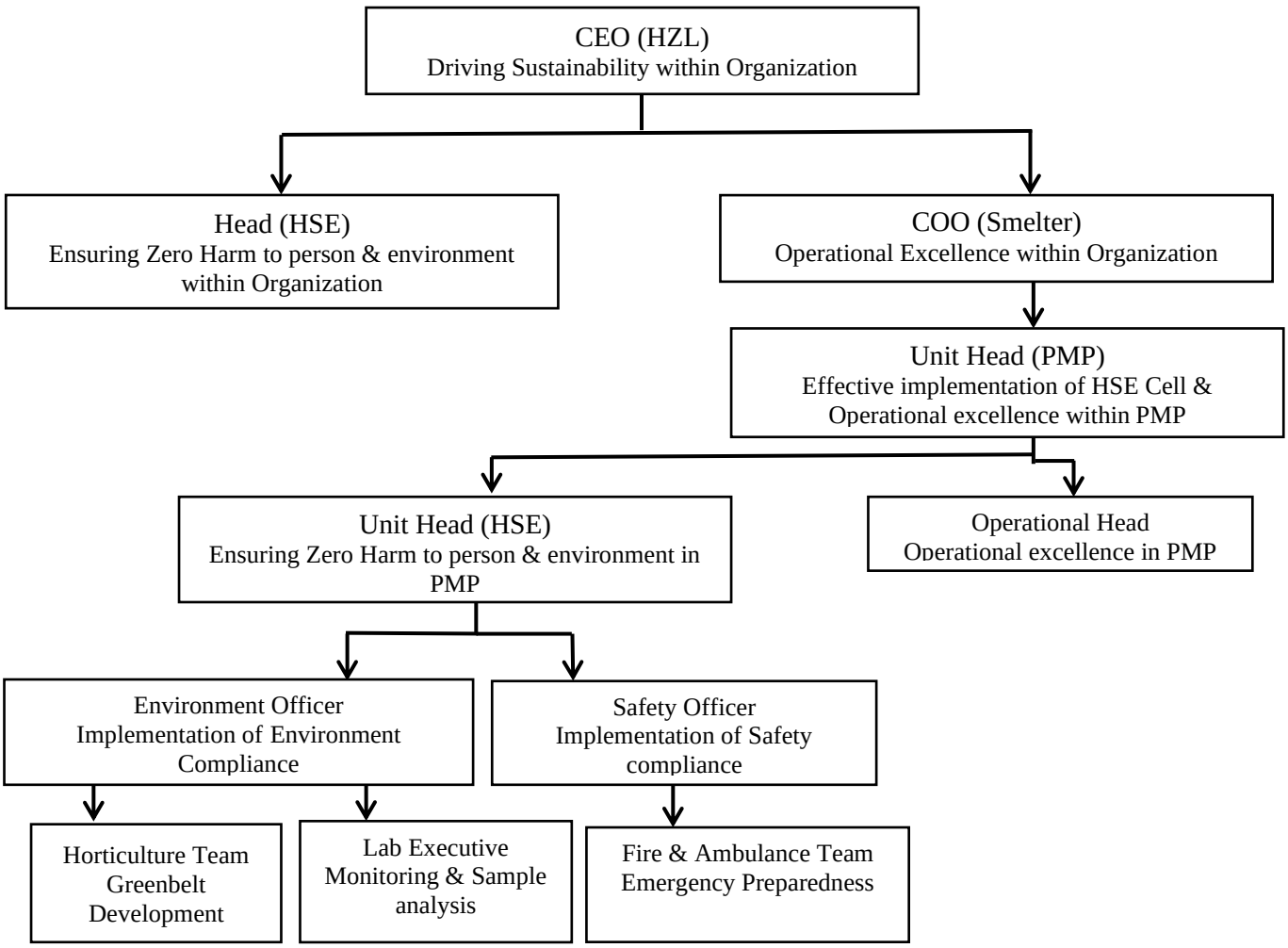
The mitigation measures suggested as above and in Chapter-4 shall be implemented so as to reduce the impact on environment due to the operations of the proposed expansion project. In order to facilitate easy implementation of mitigation measures, the priority of implementation is given in Table-4-2.

TABLE 4-2: IMPLEMENTATION SCHEDULE

Sr. No.	Recommendations	Time Requirement	Schedule
1	Air pollution control measures	Before commissioning of respective units	Immediate
2	Water pollution control measures	Before commissioning of the plant, existing STP and ETP will be sufficient	-
3	Noise control measures	Along with the commissioning of the plant	Immediate
4	Ecological preservation and up gradation	Stage wise implementation	Immediate & Progressive

4.4 ENVIRONMENT MANAGEMENT POLICY & ENVIRONMENT COMMITTEE

HZL has a well laid down Environment policy (HSE Policy) approved by its Board of Directors, with organized HSE teams at all sites to meet the various national and international requirements. In order to properly manage its activities for environmental protection, an 'Environment Management Division' was set up. The EMD at various levels and locations has experts in the fields of Environmental Engineering, Environmental Science, Environment Management, Wastewater Treatment and Horticulture. EMD involves in implementation of all necessary measures to protect environment in the environs of its various units in India. Each unit has separate well-equipped environmental cell, which regularly monitors various environmental parameters in and around the units. Environmental incidents reporting is in place through SAP-EHS Module. Well defined Standard Operating Procedures (SOPs) are in place as part of Environment policy. Any infringement/ deviation/ violation of the environmental norms/ condition are being reviewed in the monthly sustainability review meetings chaired by CEO. The environment management cell is shown in Figure-10.1.



ENVIRONMENT COMMITTEE

- The cases of violations/non-compliances of Environment or Forest Laws, if any, shall be reported to the Board of Directors through EHS Manager and shall identify designate responsible person for ensuring compliance with the Environmental Laws and Regulations.
- Comply with all relevant environmental laws and regulations to minimize risks to health, safety and the environment.
- Work with local government, regulatory authorities and communities to ensure safe handling, use and disposal of all materials, resources and products.

The main aims under the said policy are:

- Effectively manage, monitor, improve and communicate the environmental performance.
- Take all reasonable steps to prevent pollution.
- Set realistic and measurable objectives and targets for continual improvement of the environmental performance.
- Ensure that all employees and contractors are trained to understand their environmental responsibilities and create an environment that adheres to the Company's Policies, procedures and applicable regulations.
- Hold leadership accountable for good environment performance of our operations and projects. Inherent in that accountability will be the commitment of management to provide resources and successfully create an appropriate environment.
- Comply fully with all relevant legal requirements, codes of practice and regulations.
- Reduce, recycle and reuse natural resources.
- Minimize waste and increase recycling within the framework of waste management procedures.
- Identify and manage environmental risks and hazards.
- The project proponent shall regularly review this policy and ensure that corrective and preventative actions are taken in order to ensure continual improvement.
- To treat all the pollutants viz. liquid and gaseous, which contribute to the degradation of the environment, with appropriate technologies.
- To comply with all regulations stipulated by the Central / State Pollution Control Boards related to air emissions and liquid effluent discharge as per air and water pollution control laws.
- To handle hazardous wastes as per the Hazardous Waste, Hazardous & Other Wastes Rules, 2016 under the Environment (Protection) Act, 1986
- To encourage support and conduct developmental work for the purpose of achieving environmental standards and to improve the methods of environmental management.
- The system of reporting of Non-conformances/ violation of any Environmental Law/Policy will be as per the management system.

- To comply with the submission of compliance to EC report to the Authorities.

4.4.1 Environmental Management Cost

The monitoring and evaluation process will require additional and at times, extensive surveys and primary data collection, either to establish the baseline or to measure changes. In order to respond to evolving management needs, a contingency budget will be required. The cost required for the environmental monitoring plan for the proposed expansion is given in below table:

This is environment Management Plan budget; monitoring budget will be much lower. Pl include continuous online monitoring of stack.

TABLE 4-1 BUDGET FOR ENVIRONMENTAL MONITORING PLAN

Sr. No.	Particulars	Existing Cost (Rs in Lakhs)	Proposed Cost (Rs in Lakhs)	Total Cost (Rs in Lakhs)
1.	Dust control management (Cooling duct, bag filters & stack)	70	60	130
2.	Hygiene ventilation system & NOx scrubbing system	50	40	90
3.	Water treatment plant & storm water pond management	20	10	30
4.	Mechanical road sweeper	20	10	30
5.	Plantation/Green belt development and drip irrigation system	10	30	40
6.	Different environmental monitoring equipment & Automation	15	20	35
7.	Water hydrant system	10	20	30
8.	Environment awareness programs	5	10	15
	Grand Total (Rs. in Lakhs)	**200**	**200**	**400**

Source: Project Report Hindustan Zinc Limited (HZL)

5 DISCLOSURE OF CONSULTANTS

Declaration by Experts contributing to the Final EMP report for M/S Hindustan Zinc Limited. The one month baseline data used in the report was collected in Pre- Monsoon (1st April 2024 to 30th April 2024) by our empanelled lab Enviro Tech Services.

5.1 Brief profile of REPL is as given below

Director	Mr. Manish Kumar
Name of the Consultant	Rian Enviro Pvt. Ltd.
Address	Mangal Market Patna -800014

5.2 Personnel involved in the preparation of Final EIA/EMP report are stated below Accreditation Certificate of the Consultant Engaged:

EIA coordinator:	**Assistant EIA coordinator:**	**Date**
Name: - Muzaffar Ahmad	**Name: Bhuwan Bhaskar**	**18/07/2024**
		

Functional Area Experts:

S. No.	Functional Area	Name of the experts	Involvement Period and Task	Signature
1.	WP	Bhuwan Bhaskar (WP)	Estimating water requirements based on population, suggesting wastewater treatment/disposal schemes and developed the plan for rain water harvesting.	
2.	AP	Muzaffar Ahmad	Collected the ambient air data through secondary sources and suggested Air pollution control measures during both phases of project.	
3.	LU	Debarati Ghosh	Development of landuse maps of study area using GIS / related tools, site visit for ground reality survey, finalization of landuse maps, and contribution to EIA documentation.	
4.	Geo	Mohan Shriram Bhagwat	Collection of secondary data as well as drafting of report with respect to Geological Aspect.	
5.	HG		Collection of secondary data as well as drafting of report with respect to Hydro-geological condition in around the study.	

S. No.	Functional Area	Name of the experts	Involvement Period and Task	Signature
6.	SW	Sumit Verma	Inventory of Municipal Solid Waste, suggesting treatment options viz; organic waste convertor technology.	
7.	AP and AQ	Vishal Duggal (AQ)	Collected the meteorological data and AAQ data through secondary sources, predicted impacts on air quality using suitable AQ model and suggested air pollution control measures	
8.	SC	Mrs. Nimisha Vatsyayan	Proposing the soil management practices during construction and operation phase of project.	
9.	EB	Neha Kumari	Generating the ground truthing ecological assessment with secondary data from different departments, earmarking rare and endangered species.	
10.	SE	Manish Kumar	Collected the primary and Secondary data, livestock inventory/ impacts, identified village-wise amenities/ needs.	
11.	RH	Kailash Nath Sharma	Identification of hazards materials, Fire accidents from Diesel storage and lethality damages, DMP and EPP for onsite & offsite were provided	
12.	HW	Muzaffar Ahmad	Identification of waste generated from the industry, studying adequacy of mitigation measures for management of hazardous waste.	
13.	Noise	Bhuwan Bhaskar	Collected the ambient noise data through secondary sources and suggested Noise pollution control measures during both phases of project	

QUALITY COUNCIL® OF INDIA
Creating an Ecosystem for Quality

National Accreditation Board for Education and Training

Certificate of Accreditation

Rian Enviro Private Limited (REPL)
202 & 402, Mangal Market, Sheikhpura, Raja Bazar, Patna, Bihar- 800 014

*The organization is accredited as **Category-A** under the QCI-NABET Scheme for Accreditation of EIA Consultant Organization, Version 3: for preparing EIA-EMP reports in the following Sectors –*

S. No	Sector Description	Sector (as per)		Cat.
		NABET	MoEFCC	
1	Mining of minerals (opencast only)	1	1 (a) (i)	A
2	Thermal power plants	4	1 (d)	B
3	Metallurgical industries - both primary & secondary	8	3 (a)	B
4	Cement Plants	9	3(b)	A
5	Synthetic organic chemicals industry	21	5 (f)	B
6	Distilleries	22	5 (g)	A
7	Bio-medical waste treatment facilities	32A	7 (da)	B
8	Highways	34	7 (f)	A
9	Building and construction projects	38	8 (a)	B
10	Townships and Area development projects	39	8 (b)	B

Note: Names of approved EIA Coordinators and Functional Area Experts are mentioned in SAAC minutes dated May 16, 2023 posted on QCI-NABET website.

The Accreditation shall remain in force subject to continued compliance to the terms and conditions mentioned in QCI-NABET's letter of accreditation bearing no. QCI/NABET/ENV/ACO/23/2793 dated July 07, 2023. The accreditation needs to be renewed before the expiry date by Rian Enviro Private Limited (REPL), Patna following due process of assessment.

Sr. Director, NABET
Dated: July 07, 2023

Certificate No.
NABET/EIA/2124/SA 0197

Valid up to
Sep. 11, 2024

For the updated List of Accredited EIA Consultant Organizations with approved Sectors please refer to QCI-NABET website.

******

Annexure I

Copy of CTE/CTO

मुख्यालय
गौरा देवी भवन
उत्तराखण्ड पर्यावरण संरक्षण एवं प्रदूषण नियंत्रण बोर्ड
46बी, आई.टी. पार्क, सहस्त्रधारा रोड़, देहरादून-248001

पत्रांक-यूईपीपीसीबी/एचओ/एनओसी-1509/2019/2001 दिनांक 28.02.2019

सेवा में,

M/s Hindustan Zinc Ltd.,
Pantnagar Silver Plant,
Plot No :2 & 3, Sector-14,
IIE, Sidcul Pantnagar,
Rudrapur, Tehsil-Kichcha,
Distt-U.S.Nagar.

Registered/AD

PCB ID : 10913
CTE : Expand
Outward No-

विषय :- पर्यावरणीय प्रदूषण की दृष्टि से पूर्व में स्थापित इकाई को क्षमता विस्तारीकरण हेतु स्थापनार्थ सहमति पत्र (Consent to Establish for Expansion) निर्गमन।

महोदय,

कृपया उपरोक्त विषयक आपके आवेदन पत्र दिनांक 12.2.2019 **(INWARD : 242007)** एवं तत्सम्बन्धी क्षेत्रीय कार्यालय की निरीक्षण आख्या एवं संस्तुति का बोर्ड मुख्यालय में परीक्षण किया गया एवं परीक्षणोपरान्त लिए गए निर्णय के क्रम में उद्योग को पर्यावरणीय प्रदूषण के दृष्टिकोण से निम्नलिखित विशिष्ट शर्तो एवं सामान्य शर्तो के समुचित अनुपालन की शर्त के साथ सशर्त स्थापनार्थ सहमति पत्र निर्गत किया जाता है।

1- यह क्षमता विस्तारीकरण हेतु स्थापनार्थ सहमति पत्र निम्नलिखित विशिष्ट विवरणों के लिए ही निर्गत किया जा रहा है :-

(क) स्थल :	**Plot No :2 & 3, Sector-14, IIE, Sidcul Pantnagar, Rudrapur, Tehsil-Kichcha, Distt-U.S.Nagar. (In the existing unit premises).**
(ख) उत्पादन :	**1. Antinony Concentrate (Precipitate/Salt Mix) by product-150MT/Month.(not to be exceeded by 1800MT/Year).** **2. Bismuth Concentrate (Precipitate/Salt Mix) by product-30MT/Month.(not to be exceeded by 360MT/Year).** **3. Copper Matter (by product)-15MT/Month. (not to be exceeded by 140MT/Year).** **4. Lead Slag (by product)-40MT/Month. (not to be exceeded by 450MT/Year).** **5. Oxidation slag (by product)-105MT/Month. (not to be exceeded by 1250MT/Year).** **6. Refined Silver (Powder/ingots etc)-85MT/Month. (not to be exceeded by 800MT/Year).** **7. SilverAnode Slime/Silver Sand (by product)-1MT/Month. (not to be exceeded by10MT/Year).** **8. Silver Nitrate (by product)-3MT/Month. (not to be exceeded by 25MT/Year).** **9. VRF Zinc (by product)-55MT/Month. (not to be exceeded by 650MT/Year).** **10. VRF Zinc Dross (by product)-10MT/Month. (not to be exceeded by 100MT/Year).** **(Including Expanded Capacity).**
(ग) मुख्य कच्चे माल :	**1. Anode Slime/Dore Silver/HGM-400MT/Month. (not to be exceeded by 4680MT/Year).** **2. Borax-2MT/Month. (not to be exceeded by 15MT/Year).** **3. Calcium Fluoride-4MT/Month. (not to be exceeded by 40MT/Year).** **4. Charcoal-2MT/Month. (not to be exceeded by 20MT/Year).** **5. Coke-7.5MT/Month. (not to be exceeded by 87MT/Year).** **6. Ethyne-1MT/Month. (not to be exceeded by 10MT/Year).** **7. LDO/HSD/LNG/LHSH/PNG/LPG-375MT/Month. (not to be exceeded by 4500MT/Year).** **8. Lime-1MT/Month. (not to be exceeded by 5MT/Year).**

	9. Nitric Acid-15MT/Month. (not to be exceeded by 150MT/Year). **10. Salt Peter (Potassium Nitrate)-10MT/Month. (not to be exceeded by 89MT/Year).** **11. Soda Ash-22MT/Month. (not to be exceeded by 250MT/Year).** **12. Sodium Chloride-2MT/Month. (not to be exceeded by 15MT/Year).** **13. Sulphuric Acid-0.5MT/Month. (not to be exceeded by 5MT/Year).** **(Including Expanded Capacity).**
(घ) औद्योगिक उत्प्रवाह :	**Nil.**
(ड.) प्रयुक्त ईंधन :	**HSD for existing DG Set (500KVA) x 1Nos.**

उपर्युक्त विषय वस्तु में किसी भी प्रकार से परिवर्तन करने पर पुनः स्थापना हेतु सहमति पत्र प्राप्त करना आवश्यक होगा।

2- उद्योग में सभी आवश्यक यन्त्र, संयंत्र, हरित पट्टिका, उत्प्रवाह शुद्धिकरण संयंत्र तथा वायु प्रदूषण नियन्त्रण की व्यवस्था की स्थापना में की गई प्रगति रिपोर्ट इस कार्यालय में प्रत्येक माह की दसवीं तारीख तक निरन्तर प्रेषित् करें।

3- उद्योग इकाई में परीक्षण उत्पादन तब तक प्रारम्भ नहीं करें, जब तक कि वह बोर्ड से जल अधिनियम एवं वायु अधिनियम के अन्तर्गत सहमति (CTO) प्राप्त न कर ले। जल एवं वायु सहमति (CTO) प्राप्त करने हेतु इकाई में उत्पादन प्रारम्भ
करने की तिथि से कम से कम 2 माह पूर्व निर्धारित सहमति आवेदन पत्रों को उत्पादन पूर्व प्रथम आवेदन का उल्लेख करते हुए इस कार्यालय में अवश्य जमा कर दिया जाये। यदि उद्योग उपरोक्त का अनुपालन नहीं करता है तो उक्त अधिनियमों के वैधानिक प्राविधानों के अन्तर्गत उद्योग के विरूद्ध बिना किसी पूर्व सूचना के विधिक कार्यवाही की जा सकती है।

4- उद्योग में परीक्षण उत्पादन से पूर्व क्षेत्रीय कार्यालय द्वारा इकाई का निरीक्षण सुनिश्चित कराया जाये।

5- घरेलू उत्प्रवाह की मात्रा 30कि0ली0/दिन से अधिक नहीं होगी। जनित घरेलू उत्प्रवाह को सोकपिट के माध्यम से सेप्टिक टैक में निस्तारित किया जाये।

6- उद्योग द्वारा शून्य उत्प्रवाह का अनुपालन सुनिश्चित् किया जाये।

7- उद्योग प्रतिवर्ष माह सितम्बर तक पर्यावरणीय वक्तब्य प्रस्तुत करना सुनिश्चित करें।

8- यह क्षमता विस्तारीकरण हेतु स्थापनार्थ सहमति हेतु सहमति पत्र **दिनांक 12.02.2019 से दिनांक 19.11.2022** तक की अवधि के लिए वैध होगा।

9- उद्योग का संचालन इस प्रकार से किया जाये, कि परिवेशीय वायु गुणवता सदैव बोर्ड मानकों के अनुरूप रहे।

10- उद्योग से जनित ठोस अपशिष्ट पदार्थों को इस प्रकार निस्तारित किया जाये कि जल, वायु तथा मृदा प्रदूषण की सम्भावना न रहे।

11- उद्योग का संचालन इस प्रकार किया जाये, कि प्रदूषण सम्बन्धी शिकायतें प्राप्त न होवें। प्रदूषण सम्बन्धी जन –शिकायतें प्राप्त होने एवं पुष्टि होने पर स्थापना हेतु सहमति पत्र रिवोक (निरस्त) कर दी जायेगी। जिसका सम्पूर्ण उत्तरदायित्व उद्यमी का होगा।

12- उद्योग परिसर में चारों तरफ कम से कम 3 कतारों वाली हरित पट्टिका विकसित की जाये। हरित् पट्टिका हेतु सघन तथा
छायादार वृक्षो का चयन किया जाये। हरित् पट्टिका हेतु निर्धारित भूमि पर निर्माण कार्य न किया जाये।

13- उद्योग परिसर में रूफटाप रेनवाटर हार्वेस्टिंग की व्यवस्था की जाये।

14- उद्योग में परिसंकटमय एवं अन्य अपशिष्ट (प्रबन्धन एवं ट्रांसबाउण्ड्री मूवमेन्ट) नियम, 2016 का अनुपालन सुनिश्चित करें तथा उत्पादन से पूर्व परिसंकटमय अपशिष्ट के निस्तारण हेतु बोर्ड से प्राधिकार प्राप्त किया जाये।

15- उद्योग में खतरनाक/परिसंकटमय रसायन विनिर्माण, भण्डारण एवं आयात नियम, 1989 का पालन किया जाये।

16- उद्योग में सुरक्षा सम्बन्धी समस्त उपाय किये जायें तथा उत्पादन प्रारम्भ करने से पूर्व सक्षम विभागों से अनापत्ति प्रमाण पत्र प्राप्त किया जाये।

17- उद्योग में प्रस्तावित वायु प्रदूषण नियंत्रण व्यवस्था के प्रभावी संचालन हेतु पृथक विद्युत मीटर की स्थापना सुनिश्चित की जाये। उक्त हेतु प्रतिदिन विद्युत/रसायनों की खपत का विवरण लाग बुक में दर्ज किया जाये ।

18- 500 के.वी.ए. क्षमता के जनरेटर सैट में इक्जॉस्ट स्टैक की उँचाई मानकों के अनुरूप स्थापित की जाये एवं ध्वनि प्रदूषण नियंत्रण हेतु एकास्टिक इन्क्लोजर्स की स्थापना की जाये।

19- उद्योग में स्थापित Noble Furnace (14Ton/Day) x1Nos, Cupel Furnace (2.5Ton/Day) x 2Nos के अतिरिक्त Junker Furnace (4Ton/Day) x1Nos, BBOC Furnace (4Ton/Day) x1Nos की स्थापना की जायेगी।

20- पूर्व में स्थापित 0.6MT/Day के 02 इन्डक्शन फर्नेश की क्षमता को उच्चीकृत कर प्रत्येक को 1MT/Day किया जायेगा तथा पूर्व में ही स्थापित Induction Furnace (0.6MT/Day) x1Nos की क्षमता को उच्चीकृत कर 1.5MT/Day किया जायेगा।

21- पूर्व में स्थापित सभी फर्नेश के अतिरिक्त प्रस्तावित नयी जन्कर एवं बी.बी.ओ.सी. फर्नेश पर भी उचित क्षमता के बैग फिल्टर लगाये जायेगे तथा वायु उत्सर्जन चिमनी से कनेक्ट होगा। संयुक्त चिमनी की ऊचाई 40मीटर होगी।

22- चिमनी का डिजायन सी.पी.सी.बी. द्वारा निर्धारित ERP-3 के अन्तर्गत अपग्रेड किया जायेगा।

23- उद्योग में बोर्ड की पूर्वानुमति के बिना ब्वायलर/ओवन अतिरिक्त डी0जी0 सेट, फर्नेश आदि की स्थापना न की जाये।

24- यह क्षमता विस्तारीकरण हेतु स्थापनार्थ सहमति मात्र Silver Refining प्रक्रियाओं हेतु मान्य है।

25- यह क्षमता विस्तारीकरण हेतु स्थापनार्थ सहमति जल अधिनियम एवं वायु अधिनियम के अन्तर्गत निर्गत की जा रही है। उद्योग सक्षम विभागों से आवश्यक अनुमति प्राप्त करना सुनिश्चित् कर लें।

26- इंगित स्थल के विधिक भूमि उपयोग एवं नियमानुसार अन्य विभाग से वांछित स्वीकृति अवश्य प्राप्त कर ली जाये।

कृपया ध्यान दें कि उपर्युक्त लिखित विशिष्ट शर्तो एवं सामान्य शर्तो का प्रभावी एवं सन्तोषजनक अनुपालन न करने पर बोर्ड द्वारा निर्गत क्षमता विस्तारीकरण हेतु स्थापनार्थ सहमति (CoE) पत्र निरस्त कर दिया जायेगा। बोर्ड का अधिकार सुरक्षित है, कि स्थापनार्थ सहमति पत्र (CTE) की शर्तो में संशोधन किया जाये अथवा निरस्त कर दिया दिया जाये।

उपर्युक्त विशिष्ट एवं सामान्य शर्तो के सम्बन्ध में उद्योग द्वारा इस कार्यालय में **दिनांक 30.03.2019** तक प्रथम अनुपालन आख्या अवश्य प्रेषित् की जाये। अनुपालन आख्या नियमित प्रेषित् की जाये, अन्यथा स्थापना सहमति पत्र निरस्त कर दिया जाएगा।

भवदीय,

(एस.पी. सुबुद्धि)
सदस्य सचिव

पृ0 सं0 एवं दिनांक/उपरोक्तानुसार।

प्रतिलिपि :- क्षेत्रीय अधिकारी, उत्तराखण्ड पर्यावरण संरक्षण एवं प्रदूषण नियंत्रण बोर्ड, काशीपुर को सूचनार्थ एवं उपरोक्त के अनुपालन हेतु प्रेषित।

मुख्य पर्यावरण अधिकारी

HEAD OFFICE
Uttarakhand Pollution Control Board
"Gaura Devi Paryavaran Bhawan"
46B, IT Park, Sahastradhara Road, Dehra Dun (Uttarakhand)
Web : www.ueppcb.uk.gov.in. E-mail : msukpcb@yahoo.com

UKPCB/HO/Con-H-71/2021/ 1628 Date: 06 .03.2021

REGD. POST

To,

M/s Hindustan Zinc Ltd.
(Pantnagar Silver Plant),
Plot No.-2 & 3, Sector-14,
IIE, Sidcul, Pantnagar,
Rudrapur, Distt- U.S.Nagar.

Consolidated Consent to Operate and Authorization hereinafter referred to as the CCA (Consolidated Consent & authorization) (Renewal) under Section-25 of the "Water (Prevention & Control of Pollution) Act, 1974" and under Section-21 of the "Air (Prevention & Control of Pollution) Act, 1981" and Authorization under "Rule-6(2)" of the "Hazardous and Other Waste (Management and Transboundary Movement) Rules, 2016" notified under "Environment (Protection) Act, 1986" as applicable (to be referred hereinafter as **Water Act, Air Act** and **Hazardous & Other Wastes Rules, 2016** respectively).

PCB ID - 10913	**Inward ID – 254848**
CCA (Renewal)	
Consent No. 40776/	**Date :- 13.08.2020**

CCA is hereby granted to **M/s Hindustan Zinc Ltd (Pantnagar Silver Plant)** located at **Plot No.-2 & 3, Sector-14, IIE, Sidcul, Pantnagar, Rudrapur, Distt- U.S.Nagar** subject to the provisions of the **Water Act**, **Air Act** and **Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016** and the orders that may be made further and subject to following terms and conditions :-

1. This CCA is granted for the period **upto 31.03.2025** and valid for manufacturing of following products with **Capital Investment/Net Assets Values ₹ 94.30 Crs** :-

S. No.	Last CCA (Renewal)		Present CCA (Renewal)	
	Product	Quantity (Per Month)	Product	Quantity
1	Antinony Concentrate (Precipitate/Salt Mix) by product-	150MT/Month (not to be exceeded by 800MT/Year).	Antinony Concentrate (Precipitate/Salt Mix) by product-	150MT/Month (not to be exceeded by 800MT/Year).
2	Bismuth Concentrate (Precipitate/Salt Mix) by product-	30MT/Month. (not to be exceeded by 360MT/Year).	Bismuth Concentrate (Precipitate/Salt Mix) by product-	30MT/Month. (not to be exceeded by 360MT/Year).
3	Copper Matter (by product)	15MT/Month. (not to be exceeded by 140MT/Year).	Copper Matter (by product)	15MT/Month. (not to be exceeded by 140MT/Year).
4	Lead Slag (by product)	40MT/Month. (not to be exceeded by 450MT/Year).	Lead Slag (by product)	40MT/Month. (not to be exceeded by 450MT/Year).
5	Oxidation slag (by product)	105MT/Month. (not to be exceeded by 1250MT/Year).	Oxidation slag (by product)	105MT/Month. (not to be exceeded by 1250MT/Year).

6	Refined Silver (Powder/ingots etc)	85MT/Month. (not to be exceeded by 800MT/Year).	Refined Silver (Powder/ingots etc)	85MT/Month. (not to be exceeded by 800MT/Year).
7	SilverAnode Slime/Silver Sand (by product	1MT/Month. (not to be exceeded by10MT/Year).	SilverAnode Slime/Silver Sand (by product	1MT/Month. (not to be exceeded by10MT/Year).
8	Silver Nitrate (by product)	3MT/Month. (not to be exceeded by 25MT/Year).	Silver Nitrate (by product)	3MT/Month. (not to be exceeded by 25MT/Year).
9	VRF Zinc (by product)-	55MT/Month. (not to be exceeded by 650MT/Year).	VRF Zinc (by product)-	55MT/Month. (not to be exceeded by 650MT/Year).
10	VRF Zinc Dross (by product	10MT/Month. (not to be exceeded by 100MT/Year).	VRF Zinc Dross (by product	10MT/Month. (not to be exceeded by 100MT/Year).

2. Specific Conditions under Water Act :-

(i) The daily quantity of effluent discharge (KLD) :-

	Last CCA (Renewal)	Present CCA (Renewal)
Trade Effluent	Nil	Nil
Sewage	12	12

(ii) **Trade Effluent Treatment and Disposal:** .....NA.....

(iii) Sewage Treatment and Disposal :- The applicant shall provide comprehensive STP as is required with reference to influent quantity and quality.

*In case of stoppage of functioning of STP, production has to be **stopped immediately** and this **Board** has to be intimated by fax/phone/email with a report in this regard to be dispatched immediately.*

(iv) The treated sewage shall be reuse in gardening etc. Quality of the treated effluent shall meet to the following standards :-

S.No.	Parameters	Standards
1	pH	6.5 to 9.0
2	BOD (mg/L)	Not more than 30
3	TSS (mg/L)	Not more than 100
4	Fecal Coliform (MPN/100ml)	Less than 1000

3. **Conditions under Air Act :-**

(i) The applicant shall use following fuel and install a comprehensive control system consisting of control equipment as is required with reference to generation of emissions and operate and maintain the same continuously so as to achieve the level of pollutants to the following standards :-

S. No	Stack attached with	Stack height (Mt)	Type of Fuel	Fuel Quantity	Emission Control Equipment	Emission standards not to exceed
1	DG Set (500KVA) x 1	4.5	HSD	120Ltr/Hr	Acoustic enclosure	-
2	Noble Furnace (14MT)	40	HSD	200Ltr/Hr	fumes collection hood and Bag filters.	PM – 10 150mg/Nm^3
3	Cupola Furnace (2.5MT) x 2 Nos.	40	HSD	100Ltr/Hr	fumes collection	PM – 10 150mg/Nm^3

					hood and Bag filters.	
4	Furnace 3Nos. (2x1TPD+1x1.5TPD)	40	Electricity	150KW/Hr	fumes collection hood and Bag filters.	PM – 10 150mg/Nm^3
5	Junker Furnace (4TPD) x 1Nos	40	Electricity	600KW/Hr	fumes collection hood and Bag filters.	PM – 10 150mg/Nm^3
6	BBOC Furnace (4TPD x 1Nos	40	HSD	100Ltr./Hr	fumes collection hood and Bag filters.	PM – 10 150mg/Nm^3

In case of stoppage of functioning of air pollution control equipment, production has to be ***stopped immediately*** *and this* ***Board*** *has to be intimated by fax/phone/email with a report in this regard to be dispatched immediately.*

(ii) Unit has to provide stack of 30mt height gas exist NOx scrubber.

(iii) Noise from the D.G. Set and other source(s) should be controlled by providing an acoustic enclosure as is required for meeting the ambient noise standards for night and day time as prescribed for respective areas/zones (Industrial, Commercial, Residential, Silence) which are as follows :-

Standards for Noise level in db(A) Leq	**Industrial Area**		**Commercial Area**		**Residential Area**		**Silence Zone**	
	Day time	**Night time**	**Day time**	**Night time**	**Day time**	**Night time**	**Day time**	**Night time**
	75	**70**	**65**	**55**	**55**	**45**	**50**	**40**

Day time : from 6.00 a.m. to 10.00 p.m., Night time: from 10.00 p.m. to 6.00 a.m.

4. **Conditions under Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016**:-

(i) The **Factory Manager** of **M/s Hindustan Zinc Ltd (Pantnagar Silver Plant), U.S.Nagar** is hereby granted an authorization to operate a facility for collection, storage and transfer of Hazardous wastes.

(ii) The authorization is granted to operate a facility for generation, collection and storage of hazardous wastes within factory premises for following category of wastes :-

S.No.	**Category (Schedule-I & Schedule-II)**	**Quantity of Waste for which authorization is being issued (MTA)**	**Mode of Disposal**
1	Schedule I – 5.1	5.0	Recyclable
2	Schedule I – 5.2	5.0	Recyclable
3	Schedule I – 7.2	5.0	Recyclable
4	Schedule I – 7.4	2.0	Recyclable

(iii) The authorization shall be in force for the period **upto 31.03.2025.**

(iv) The authorization is subject to the conditions stated below and such conditions as may be specified in the rules for the time being in force under **Environment (Protection) Act, 1986.**

Terms and conditions of authorization :-

(i) The authorization shall comply with the provisions of the **Environment (Protection) Act**, 1986, and the rules made there under.

(ii) The authorization and its renewal shall be produced for inspection at the request of an officer authorized by the SPCB/PCC.

(iii) The person authorized shall not rent, lend, sell, transfer or otherwise transport the hazardous wastes without obtaining prior permission of the SPCB/PCC.

(iv) Any unauthorized changes in personnel, equipment as working conditions as mentioned in the application by the person authorized shall constitute a breach of his authorization.

(v) It is the duty of the authorized person to take prior permission of the SPCB/PCC to close down the facility.

(vi) An application for the renewal of an authorization shall be made as laid down under these rules.

(vii) The unit shall comply with any other conditions specified in the guidelines issued by the MoEF&CC or CPCB/SPCB from time to time.

5. This CCA is valid for pyro metallurgical refining and hydrometallurgical refining processes only.

6. **Compulsory documents to be submitted by the Industry/Unit** :-

(i) Annual return in **Form-4** and **Waste Disposal Manifest** in **Form-10** under **Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016** and **Third Party Audit Report**.

(ii) Environment Statement in **Form-V** of **Environment (Protection) Rules, 1986**.

(iii) Quarterly **compliance report of the CCA, photograph of ETP/APCs/Waste Storage Area**.

7. Unit has to apply for renewal of CCA well in advance of 60 days of expiry of this CCA.

8. Competent Authority reserves the right to change/modify/add any time any condition of this CCA.

Unit has to comply with the other general conditions as annexed herewith. Non compliance of any provision of this CCA and provisions of the **Water Act**, **Air Act** and **Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016** will results in legal action under the aforesaid **Acts and Rules**

Member Secretary

Copy to: **Regional Officer, Uttarakhand Pollution Control Board, Kashipur, Distt. U.S.Nagar** for information and compliance of the same.

Chief Environment Officer

Specific Conditions:

1. The applicant shall submit audited balance sheet of the unit at the end of each financial year so that fee submitted by the applicant could be assessed.
2. The applicant shall provide ports in the chimney/stack and facilities such as ladder, platform etc. as per requirement for monitoring the air emissions and the same shall be open for inspection and use at all times by the Board's staff. The chimney/stack attached to various sources of emission shall be designated by numbers such as S-1, S-2 etc. and these shall be painted/ displayed to facilitate identification.
3. The industry shall ensure interlocking of air pollution control devices and production processes.
4. Solid wastes generated from the industry has to be disposed in manner so that contamination of surface water bodies/ground water/soil etc. does not take place.
5. The industry shall take adequate measures to control of noise from its own source so as to comply with the standards as may be applicable.
6. The applicant shall develop three rows of green belt on the premises with plant species as suggested by the **Central Pollution Control Board**.
7. The industry shall strictly adhere with the specific and general conditions issued with CCA order. Any violation of stipulated conditions may attract legal action under the provisions of **Water Act**, **Air Act** and **Environment (Protection) Act** and **Rules** made thereunder.
8. The industry shall ensure **all safety measures** and shall undertake **periodical assessment** by the competent authority.
9. Unit shall ensure manifest system in **Form-10** of **Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016** while disposing hazardous waste.
10. Hazardous waste should not be stored beyond a period **of 90** days.
11. The industry situated nearby the River Ganga and its tributaries shall ensure the treatment facilities and disposal arrangement in such a way so that no waste water is discharged in water stream or water bodies.
12. The industry shall comply all the conditions mentioned in Environment Clearance No. EC-10-9(10)/2018 dated 08.02.2019 obtained from SEIAA, Dehradun.
13. The unit shall strictly comply with the provisions of Water, Air & E (P) Acts and Rules/Notifications made there under.

General Conditions:-

1. The applicant shall get analyse the samples of effluent/emission/hazardous wastes at least once in a three month from the laboratory recognized by the MoEF&CC and shall report to the UKPCB.
2. The applicant shall however, not without the prior consent of the **Board** bring into use any new or altered outlet for the discharge of effluent or gases emission or sewage waste from the unit.
3. Treated waste water and domestic waste water shall be disposed jointly at one disposal point. The applicant shall provide discharge measurement equipment at final disposal point.
4. The applicant shall strictly comply with conditions of this CCA and submit compliance report of stipulated conditions within 30 days of receipt of this CCA. If, at any point of time, it is found that the industry is not complying with stipulated conditions or any further direction/instruction issued by the **Board**, legal action shall be initiated against the applicant.
5. The applicant shall maintain good house keeping. All valves/pipes/sewer/drains etc. must be leak-proof.
6. The industry shall provide uninterrupted entry to the STP's/ETP's inlet and outlet points, Air Pollution Control equipment and stack for smooth sampling/monitoring of efficiency of pollution control measures.
7. The industry shall provide "Inspection Book" at the time of inspection to the Board's officials.
8. Whenever due to any accident or other unforeseen act or event, such emission occurs or is apprehended to occur in excess of standards laid down, such information shall be reported to the Board's offices and all other concerned offices. In case of failure of pollution control equipment, the production process connected to it shall be stopped with immediate effect.
9. The industry shall operate in a manner so that all emissions be emitted through designated chimney/stack only.
10. In case of any damage to the agriculture productivity, human habitation etc. by the operation of industry, it shall be imperative to stop production in the industry with immediate effect and such information shall be

reported to Board's offices. The industry shall be liable to pay compensation also in such cases as decided by the Competent Authority.

11. The applicant shall apply before the 60 days of expiry of CCA or any change in production types/ production capacity/manufacturing process/capacity enhancement etc. or any change in effluent discharge point or emission point.
12. The **Board** reserves the right to revoke/add/modify any stipulated condition issued along with CCA, as may be necessary.
13. The person authorized shall not rent, lend, sell, transfer or otherwise transport the hazardous waste without obtaining prior permission of the **Board.**
14. Any unauthorized change in personnel, equipment as working condition as mentioned in the application by the person authorized shall constitute a breach of his authorization.
15. It is the duty of the authorized person to take prior permission of the **Board** to close down the facility.
16. The authorization is valid for temporary storage of Hazardous Waste within premises only.
17. The authorized agency shall ensure that on-line data with regard to quantity and nature of hazardous chemicals being used in the plant as well as air emission and waste generated within premises is displayed on **Display Board of size 6x4 feet** outside the main factory gate within premises.
18. It is duty of the authorized person to take prior permission of this Board to close and cleanup the facility for treatment, storage and disposal of hazardous waste.
19. The applicant shall maintain record of hazardous waste in **Form-3** and shall submit annual return in **Form-4** on or before the 30th day of June following to the financial year to which that return relates.
20. In no case any hazardous waste shall be disposed off on land, in any drain, or into any water stream. All spillage must also be safely collected and stored.
21. Before the hazardous waste is stored or dumped in the facility, applicant must conduct a detailed **physical and chemical analysis of hazardous waste sample** and report to the **Board.**
22. Dried hazardous sludge from the process in the plant shall be **stored in double lined HDPE pit constructed with R.C.C. or such material which does not react with the waste contained in it.**
23. The storage area should be fenced properly and Sign/Notice Board indicating 'Danger' and **'Hazardous'** shall be displayed at appropriate position both in Hindi and English.
24. The industry shall store non-ferrous metal waste, used oil/spent oil waste in sealed drums placed on impervious floor under covered shed. Hazardous waste if required shall be **sold only to Registered Recyclers/Re-processors.**
25. In case of any transportation of hazardous waste, the details in **Form-10** of the **Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016** shall be submitted to the **Board**.

Chief Environment Officer

Annexure II

EC Letter

राज्य स्तर पर्यावरण समाघात निर्धारण प्राधिकरण, उत्तराखण्ड, अजबपुर कलां, मोथरोवाला रोड़, (नियर पी0एन0बी0), देहरादून– 248001
(पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय, भारत सरकार, नई दिल्ली द्वारा गठित)
दूरभाषः 0135–2678576
ईमेलः seiaa.seac.uk@gmail.com

सत्यमेव जयते

State Level Environment Impact Assessment Authority, Ajabpur Kala, Mothorowala Road, (Near P.N.B) Dehradun- 2480001
(Constituted by Ministry of Environment, Forests and Climate Change Government of India.)
Phone No- 0135-2678576
Email- seiaa.seac.uk@gmail.com

E.C.No- /0 -9(10)/2018 **Dated- 08-02-2019**

To,

M/s Hindustan Zinc limited,
Pantnagar Silver Refinery plant at Plot No 2 & 3, Sector 14, IIE, (SIDCUL), Pantnagar, District - Udham Singh Nagar.

Tel.05944-257301, 05944-257304
Email-C.Chandru@vedanta.co.in, Lalan.Deo@vedanta.co.in

Sub: Regarding Environmental Clearance for Proposed Expansion of Refined Silver production from 600 TPA (tons per annum) to 800 TPA (tons per annum) at Plot No 2 & 3, Sector 14, IIE, SIDCUL, Pantnagar.

Sir/Madam,

With reference to the above mentioned online letter the proposal has been examined by SEIAA, Uttarakhand, and the project was submitted vide proposal no SIA/UK/IND/298662018 on dated 15th November, 2018 by project proponent processed in accordance with the EIA notification 2006 and it amendment thereof. The various project details are as follows:-

As per the provision of EIA Notification, 2006, for proposed capacity expansion of Refined Silver production from 600 TPA to 800 TPA (monthly 85 tonnes per month with overall 800 tons per annum) at existing Pantnagar Silver Refinery Plant located in Plot No. 2 & 3, Sector-14, IIE Sidcul, Pantnagar, Udham Singh Nagar of M/s Hindustan Zinc Ltd. The said proposal falls under B category of schedule no. 3(a) of Environmental Impact Assessment Notification-2006 of Ministry of Environment, Forest and Climate Change, Government of India.

The proponent has submitted detailed project related information in Form – 1 & EIA Report. The above proponent has submitted online application to MOEF&CC due to non-existence of SEIAA/SEAC at Uttarakhand. TOR was granted for the project vide Letter No: F.No. IA-J-11011/170/2017-IA.II (I) dated 11.05.2018. The project proponent conducted the baseline studies and prepared a draft EIA reports containing 12 Chapters prepared a draft EIA report for public consultation. Public hearing for the project was successfully completed by Uttarakhand Environment Protection and Pollution Control Board (UEPPCB), on 26th October, 2018. Based on public hearing proceeding, the final EIA report has been prepared and submitted to SEIAA on dated 15.11.2018 for grant of Environment Clearance.

The various other project details are as follows –

- The present 01 Noble Furnace 14 tonne/day, 02 Cupel Furnace (2.5x2tonne/day) will continue. The presently installed 03 Induction Furnaces having capacity of 0.6 tonne/day to 01 tonne/day in 02 Induction Furnaces and 1.5 tonne/day in 01 Induction Furnaces is proposed to be upgraded. In addition to this, 01 Junker Furnace of 4 tonne/day capacity and 01 BBOC Furnace of 4 tonne/day capacity are proposed to be installed. Air Pollution control arrangements will be made in all these furnaces and online monitoring will be done.
- The total area of the industry is 18ha., which is under acquisition of the industry. Hence, there will not be any additional requirement of land for expansion.
- No additional water is required for this expansion. Existing plant water requirement is 325 KL/day which is being met from borewell for which necessary permission has already been obtained from Central Ground Water Board.
- Zero discharge of waste water during operation phase of the plant is maintained. STP of 30 KL capacity is installed for treatment of sewage. Rain water harvesting is in place for the expansion project.
- There will not any additional man power for proposed expansion project and total requirement of energy is 02 MW as existing earlier for which prior approval has already been received

from Uttarakhand Power Corporation Ltd. and no additional energy is required. DG set having 500 KVA capacity is already available for emergency power backup.

- The Hazardous waste generated will be disposed safely as per the existing rules of CPCB/UEPPCB. All the recycle material will be transported to HZL's smelters or other registered recyclers for further recovery of metals. No disposable solid wastes will be produced in the proposed unit.
- 38% green belt all around the premises was developed. Gap filling plantation will be carried out regularly.
- The project proponent has already established an Environmental control cell for environment compliance, monitoring and complete environmental management plan.
- Various CSR activities have been taken up by the Project Proponent in the nearby villages. Sufficient fund is proposed for Community Development for the next three years.
- No national parks / wildlife forests exist in 10 km., radius of the plant, for which Divisional Forest Officer has issued a certificate. However, there will not be any adverse effect on any flora and fauna in nearby Reserve Forest.
- Air Quality was monitored at total 13 places in the industry surrounding in the present report. Surface water monitoring at 8 places and ground water monitoring at 10 places. The results of the monitoring indicate that all the parameters are found within maximum allowable limits. Similarly, noise levels are monitored at 12 locations and they are found as per the stipulated standards.
- This expansion is in line with "Make in India Vision" and will reduce the Silver import of the country and also increase State Government Exchequer.

Based on conditions stipulated by SEAC, SEIAA grants this proposal Environmental Clearance subject to following conditions:-

Pre Operation-

1) The project proponent should advertise with basic details at least in two widely circulated local newspapers, within seven (7) days of the receipt of the clearance letter informing that the project has been accorded environmental clearance which is available with the State Environment Impact Assessment Authority, Dehradun and a copy of the same is being sent to the Regional Office of Ministry of Environment and Forest, Government of India located at 25 Subhash road Dehradun.
2) A copy of the Environmental Clearance letter shall be sent by the proponent to the concerned Panchyat, if any from whom suggestion/representation, if any, were received while processing the proposal.
3) Consent to Establish/Consent to Operate shall be obtained from Uttarakhand Environment Protection and Pollution Control Board under relevant provisions of Central Air Act and Central Water Act before starting up of any construction activity at the site
4) There shall be no felling of trees at the construction site and further no damage to the local vegetation shall be done. The installation of equipments/machineries shall be done within the vacant space available in the plant premises

During Operation Phase-

1) The Environmental Clearance is being granted for Refined Silver production from 600 TPA to 800 TPA (monthly 85 tonnes per month with overall 800 tons per annum). Apart from 800 TPA Refined Silver (powder/ingot etc) product, Antimony Concentrate(precipitate/salt mix)-1800TPA, Bismuth Concetrate(precipitate/salt mix)-360TPA, Copper Matte- 140TPA, and Oxidation Slag- 1250TPA, Silver Nitrate- 25TPA, Silver anode slime/Silver sand- 10TPA, Lead slag- 450TPA, VRF zinc- 650TPA, VRF zinc dross- 100TPA will also be produced as a by-products. Major raw materials are Anode Slime/Dore Silver/HGM(high grade metal)-4680TPA which will be procured from HZL's smelters and from open market. Other consumables are Coke- 87 TPA, Soda Ash- 250 TPA, Salt peter (Potassium Nitrate)- 89 TPA, Nitric acid- 150 TPA, Ethyne- 10 TPA, Charcoal- 20 TPA, Sodium Chloride- 15 TPA, Borax-15 TPA, LDO/HSD/LNG/LHSH/PNG/LPG- 4500 TPA, Calcium Fluoride- 40 TPA, Sulphuric Acid- 5 TPA and Lime 5 TPA.
2) Consent to Establish/Consent to Operate shall be obtained from Uttarakhand Environment Protection and Pollution Control Board under relevant provisions of Central Air Act and Central Water Act before starting up of any construction activity at the site.
3) A copy of the Environmental Clearance letter shall be sent by the proponent to the concerned Panchyat, if any from whom suggestion/representation, if any, were received while processing the proposal.
4) The soil and groundwater samples shall be tested from accredited labs and it shall be ensured that test results comply with CPCB standards so as to ensure that there is no threat to groundwater quality by leaching of heavy metals and toxic contaminants.

5) No waste water shall be discharged outside the plant boundary and 'Zero Discharge' shall be strictly adhered to permissible standards.
6) The gaseous emissions (SOx, NOx, CO) and particulate matter from various process units shall conform to the standards prescribed by the concerned authorities from time to time. At no time, the emission levels shall go beyond the stipulated standards. In the event of failure of pollution control system adopted by the unit, the respective unit shall not be restarted until the control measures are rectified to achieve the desired efficiency.
7) Fugitive emissions in the work zone environment, product and raw materials storage areas shall be regularly monitored. The emissions shall conform to the limits imposed by the UEPPCB/Central Pollution Control Board.
8) The project authorities shall strictly comply with the rules and guidelines under Manufacture, Storages and Import of Hazardous Chemicals Rules, 1989, as amended from time to time. Authorization from the UEPPCB shall be obtained for collection, treatment, storage, and disposal of hazardous wastes.
9) Installed furnance should meet the air pollution discharge norms of CPCB/ UEPPCB.
10) The ambient air quality and noise levels as per CPCB norms shall be ensured through a monitoring system. Dust Suppression during construction activity shall be ensured. Acoustic enclosures shall be provided with DG sets on site complying with Noise Levels of CPCB standards.
11) The vehicles used at the factory site should comply with emission norms and noise level standards of CPCB.
12) All necessary efforts shall be made to ensure safety and hygiene of workforce. First Aid facility shall be established and trained manpower to deal with emergency cases shall be engaged. The labour force engaged on site shall be screened for health from time to time
13) Adequate drinking water and sanitation facility shall be provided on site for the workforce.
14) Training shall be imparted to all employees on safety and health aspects. Pre- employment and routine periodical medical examinations for all employees shall be undertaken on regular basis.
15) The project authority shall also comply with all the environment protection measures and safeguards proposed in the EIA/EMP report. All the recommendations made in respect of environmental management and risk mitigation measures relating to the project shall be implemented.
16) A separate Environmental Management Cell shall be set up to carry out the Environmental Management functions.
17) The fire safety arrangements and emergency exit plan should be as per the norms of the concerned regulatory authority/agency.
18) Rainwater harvesting for surface run off shall be ensured. Before recharging the surface run off, pre treatment must be done to remove suspended matter, oil and other particles.
19) Energy conservation measures to be adopted for reducing the energy consumption.
20) At no time the emissions shall exceed the prescribed limits in the event of failure of any pollution control system adopted by the unit, the unit shall be immediately put out of operation and shall not be restarted until the desired efficiency has been achieved.
21) The locations of ambient air quality monitoring stations shall be reviewed in consultation with UEPPCB, if required, in the downwind direction as well as where maximum ground level concentrations are anticipated
22) The stacks of appropriate height as per the central pollution board guidelines shall be provided to control the emissions.
23) The overall noise levels in and around the plant area shall be kept well within the standards by providing noise control measures including acoustic hoods, silencers, enclosures etc. on all sources of noise generation. The ambient noise levels shall conform to the standard prescribed under Environment (Protection) Act, 1986 rules, 1989 viz. 75 dB(A) (day time) and 70dB(A) (Night time).
24) One third of the total project site area shall be converted into green belt. The green belt shall not include kitchen garden, flower pots and grasses/herbs in the area. It shall comprise of tree stand of aesthetic/fruit/timber value. Quality planting material shall be used during plantation as per standards of State Forest Department. The species selection should include criterion of fruit bearing and fast growing tall trees. The concerned official of State Forest Department shall ensure the compliance
25) The project proponent shall also submit six monthly reports on the status of the compliance of the stipulated E.C conditions including results of monitored data in soft copy to this Authority and regional office of MoEF, Govt of India at Dehradun.

Entire Life–

1) The vehicles used at the factory site should comply with emission norms and noise level standards of CPCB.

2) All necessary efforts shall be made to ensure safety and hygiene of workforce. First Aid facility shall be established and trained manpower to deal with emergency cases shall be engaged. The labour force engaged on site shall be screened for health from time to time.
3) Adequate drinking water and sanitation facility shall be provided on site for the workforce.
4) Training shall be imparted to all employees on safety and health aspects. Pre- employment and routine periodical medical examinations for all employees shall be undertaken on regular basis.
5) The project authority shall also comply with the entire environment protection measures and safeguards proposed in the EIA/EMP report. All the recommendations made in respect of environmental management and risk mitigation measures relating to the project shall be implemented.
6) The fire safety arrangements and emergency exit plan should be as per the norms of the concerned regulatory authority/agency
7) Rainwater harvesting for surface run off shall be ensured. Before recharging the surface run off, pre treatment must be done to remove suspended matter, oil and other particles
8) The project proponent shall ensure compliance to provisions of the all Acts, Rules, Regulations and Guidelines, for the time being in force, as applicable to the project
9) The above environmental safeguards shall be implemented in letter and spirit. The project proponent shall establish Environment Monitoring Cell and also submit six monthly compliance reports to this Authority and regional office of MoEF, Govt of India at Dehradun.
10) The SEIAA reserves the right to include additional safeguard measures if found necessary and also to take action including revoking of the EC granted under provision of EIA Notification 2006. This EC is being granted subject to compliance of Hon'ble Court Orders issued from time to time
11) The SEIAA Uttarakhand reserves the right to withdraw the Environmental Clearance or add additional conditions.
12) If this Environmental Clearance is transferred then fresh Environment Clearance is to be obtained under EIA notification dated 14.09.2006. However, no activity shall be undertaken till the Environment Clearance is transferred in his name and he is lawfully bound to Comply with the conditions of the Environmental Clearance.
13) Corporate Environment Responsibility be followed as proposed.

(Bhuwan Chandra)
Member Secretary,
SEIAA, Uttarakhand

No.- 10 9(10)/2018 dated- as above

Copy for information and necessary action to-

1) Secretary, Ministry of Environment, Forests and Climate Change, GoI, Indira Paryavaran Bhawan, Aliganj, Jor Bagh Road, 3rd Floor, Vayu Wing, New Delhi.
2) Principal Secretary, Environment and Forests, Government of Uttarakhand, Dehradun.
3) APCCF, Regional office (Central) MOEFCC, 25 Subhash Road, Dehradun.
4) Principal Chief Conservator of Forests (Wildlife)/Chief Wild Life Warden, Dehradun.
5) **Member Secretary, UEPPCB, Dehradun.**
6) **Divisional Forest Officer, Dehradun.**
7) Guard File.

(Bhuwan Chandra)
Member Secretary,
SEIAA, Uttarakhand

Annexure III

DFO Letter

कार्यालय – प्रभागीय वनाधिकारी, तराई केन्द्रीय वन प्रभाग, हल्द्वानी

तिकोनिया वन परिसर, हल्द्वानी, नैनीताल, उत्तराखण्ड। फोन व फैक्स 05946 220188, ई मेल
dfotaraicentral@rediffmail.com

पत्रांक सं0 1770 / 8-2 , हल्द्वानी दिनांक 17/10/2018

To,

M/s Hindustan Zinc Limited
Pantnagar Silver Plant plot No. 2, Sector-14,
IIE SIDCUL, Pantnagar.

Subject:- Certificate regarding non-involement of National Parks, Sanctraries, Biosphere Reserve, Wildlife corridors in core& Buffer Zone (10 km radius from pantnagar Metal Plant No 2& 3, Sector 14, IIE, SIDCUL, Pantnagar, Udham Singh Nagar, Uttarkhand.

Ref:- Your Letter No. HZL/PMP/EC/2018-19 19/4 dated 04-09-2018.

With refercene to your above mentioned letter , this is to certify that boundary of no National Park, Wildlife Sanctuary or Biosphere Reserve falls within 10 Km radious of th plant site as mentioned in your leter i.e Metal Plant No 2&3, Sector 14, IIE, SIDCUL, Pantnagar. Following Reserve Forest (RF) Blicks fall within the 10 km radius of the proposed plant site:

1. Dhimri Reserve Forest Block
2. Gangapur patiya Reserve Forest Block
3. Tanda Reserve Forest Block

The Reserve Forests as mentioned above are habital of most of the important Wildlife species or Tarai-Arc landscape like Tiger, Leopard, Elephant etc.

17/10/18

Divisional Forest Officer
Tarai Central Forest Division,
Haldwani

प्रभागीय वनाधिकारी
तराई केन्द्रीय वन प्रभाग
हल्द्वानी

Annexure IV

SIDCUL Letter (interstate boundary)

STATE INFRASTRUCTURE & INDUSTRIAL DEVELOPMENT CORPORATION OF UTTARAKHAND LTD.
Regional Office : Sector-1, IIE Pantnagar, Rudrapur (U.S.Nagar)- 263153
Phone no. 05944- 250354, 250355.

Ref : 950.3../RE/ /SIDCUL/10 **Date :** 03 February, 2010

To,

Associate Manager Projects
Hindustan Zinc Ltd.
Plot No.-2, Sector, 14 (BT Park)
I.I.E., Pantnagar

Sub : Certificate of distance of plot from inter-state boundary.

Dear Sir,

The certificate as desired by you regarding the distance of plot of M/s Hindustan Zinc Ltd. from inter-state boundary is enclosed herewith.

Encl. As above.

3/2/10
(P.C. Joshi)
Resident Engineer
SIDCUL, Pantnagar

Copy to : Regional Manager, SIDCUL, Pantnagar for information with the enclosure.

Encl. As above.

(P.C. Joshi)
Resident Engineer
SIDCUL, Pantnagar

STATE INFRASTRUCTURE & INDUSTRIAL DEVELOPMENT CORPORATION OF UTTARAKHAND LTD.
Regional Office : Sector-1, IIE Pantnagar, Rudrapur (U.S.Nagar)- 263153
Phone no. 05944- 250354, 250355.

Certificate regarding distance from Inter-State Border

This is to certify that the distance of site of M/s Hindustan Zinc Ltd. in B.T. Park (Plot No. 2, Sector-14), I.I.E., Pantnagar by road from U.P. Border is 10.6 Km approx.

3/2/10

(P.C. Joshi)
Resident Engineer
SIDCUL, Pantnagar

Annexure V

Ground water NOC

भारत सरकार
जल शक्ति मंत्रालय
जल संसाधन, नदी विकास
और गंगा संरक्षण विभाग
केन्द्रीय भूमि जल प्राधिकरण
Government of India
Ministry of Jal Shakti
Department of Water Resources,
River Development & Ganga Rejuvenation
Central Ground Water Authority

(भूजल निकासी हेतु अनापत्ति प्रमाण पत्र)
NO OBJECTION CERTIFICATE (NOC) FOR GROUND WATER ABSTRACTION

Project Name:	Hindustan Zinc Ltd.		
Project Address:	Plot No. 2 And 3, Sector-14, Iie, Pantnagar, Uddham Singh Nagar, Uttarakhand		
Town:	Rudrapur (mb + Og)	Block:	Rudrapur
District:	Udam Singh Nagar	State:	Uttarakhand
Pin Code:			
Communication Address:	Hindustan Zinc Limited, Plot- 2-3, Sec-14, Iie, Sidcul, Pantnagar, Udham Singh Nagar, Uttarakhand, Rudrapur, Udam Singh Nagar, Uttarakhand - 263153		
Address of CGWB Regional Office :	Central Ground Water Board Uttarakhand Region, 419-a, Kanwali Road, Baluwala , Near Urja Bhawan, Dehradun, Dehradun, Uttarakhand - 248001		

1.	**NOC No.:**	CGWA/NOC/IND/REN/2/2023/8194	2.	**Date of Issuence**	06/09/2023
3.	Application No.:	21-4/387/UT/IND/2017	4.	Category: (GWRE 2022)	Safe
5.	Project Status:	Existing Ground Water	6.	NOC Type:	Renewal
7.	**Valid from:**	27/09/2023	8.	**Valid up to:**	26/09/2026

9. Ground Water Abstraction Permitted:

Fresh Water		Saline Water		Dewatering		Total	
m³/day	m³/year	m³/day	m³/year	m³/day	m³/year	m³/day	m³/year
260.00	94900.00						

10. Details of ground water abstraction /Dewatering structures

	Total Existing No.:1						Total Proposed No.:0					
	DW	DCB	BW	TW	MP	MPu	DW	DCB	BW	TW	MP	MPu
Abstraction Structure*	0	0	1	0	0	0	0	0	0	0	0	0

*DW- Dug Well; DCB-Dug-cum-Bore Well; BW-Bore Well; TW-Tube Well; MP-Mine Pit;MPu-Mine Pumps

11.	Ground Water Abstraction/Restoration Charges paid (Rs.):	237250.00

12.	Number of Piezometers(Observation wells) to be constructed/ monitored & Monitoring mechanism.	No. of Piezometers	Monitoring Mechanism		
			Manual	DWLR**	DWLR With Telemetry
	**DWLR - Digital Water Level Recorder	1	0	1	0

(Compliance Conditions given overleaf)

This is an auto generated document & need not to be signed.

18/11, जामनगर हाउस, मानसिंह रोड, नई दिल्ली - 110011 / 18/11, Jamnagar House, Mansingh Road, New Delhi-110011
Phone: (011) 23383561 Fax: 23382051, 23386743
Website: cgwa-noc.gov.in

Validity of this NOC shall be subject to compliance of the following conditions:

Mandatory conditions:

1) Installation of tamper proof digital water flow meter with telemetry on all the abstraction structure(s) shall be mandatory for all users seeking No Objection Certificate and intimation regarding their installation shall be communicated to the CGWA within 30 days of grant of No Objection Certificate.

2) Proponents shall mandatorily get water flow meter calibrated from an authorized agency once in a year.

3) Construction of purpose-built observation wells (piezometers) for ground water level monitoring shall be mandatory as per Section 14 of Guidelines. Water level data shall be made available to CGWA through web portal. Detailed guidelines for construction of piezometers are given in Annexure-II of the guidelines.

4) Proponents shall monitor quality of ground water from the abstraction structure(s) once in a year. Water samples from bore wells/ tube wells / dug wells shall be collected during April/May every year and analysed in NABL accredited laboratories for basic parameters (cations and anions), heavy metals, pesticides/ organic compounds etc. Water quality data shall be made available to CGWA through the web portal.

5) In case of mining projects, additional key wells shall be established in consultation with the Regional Director, CGWB for ground water level monitoring four (4) times a year (January, May, August and November) in core as well as buffer zones of the mine.

6) In case of mining project the firm shall submit water quality report of mine discharge/ seepage from Govt. approved/ NABL accredited lab.

7) The firm shall report compliance of the NOC conditions online in the website (www.cgwa-noc.gov.in) within one year from the date of issue of this NOC.

8) Industries abstracting ground water in excess of 100 m 3 /d shall undertake annual water audit through certified auditors and submit audit reports within three months of completion of the same to CGWA. All such industries shall be required to reduce their ground water use by at least 20% over the next three years through appropriate means.

9) Application for renewal can be submitted online from 90 days before the expiry of NOC. Ground water withdrawal, if any, after expiry of NOC shall be illegal & liable for legal action as per provisions of Environment (Protection) Act, 1986.

10) This NOC is subject to prevailing Central/State Government rules/laws/norms or Court orders related to construction of tube well/ground water abstraction structure / recharge or conservation structure/discharge of effluents or any such matter as applicable.

General conditions:

11) No additional ground water abstraction and/or de-watering structures shall be constructed for this purpose without prior approval of the Central Ground Water Authority (CGWA).

12) The proponent shall seek prior permission from CGWA for any increase in quantum of groundwater abstraction (more than that permitted in NOC for specific period).

13) Proponents shall install roof top rain water harvesting in the premise as per the existing building bye laws in the premise.

14) The project proponent shall take all necessary measures to prevent contamination of ground water in the premises failing which the firm shall be responsible for any consequences arising thereupon.

15) In case of industries that are likely to contaminate the ground water, no recharge measures shall be taken up by the firm inside the plant premises. The runoff generated from the rooftop shall be stored and put to beneficial use by the firm.

16) Wherever feasible, requirement of water for greenbelt (horticulture) shall be met from recycled / treated waste water.

17) Wherever the NOC is for abstraction of saline water and the existing wells (s) is /are yielding fresh water, the same shall be sealed and new tubewell(s) tapping saline water zone shall be constructed within 3 months of the issuance of NOC. The firm shall also ensure safe disposal of saline residue, if any.

18) Unexpected variations in inflow of ground water into the mine pit, if any, shall be reported to the concerned Regional Director, Central Ground Water Board.

19) In case of violation of any NOC conditions, the applicant shall be liable to pay the penalties as per Section 16 of Guidelines.

20) This NOC does not absolve the proponents of their obligation / requirement to obtain other statutory and administrative clearances from appropriate authorities.

21) The issue of this NOC does not imply that other statutory / administrative clearances shall be granted to the project by the concerned authorities. Such authorities would consider the project on merits and take decisions independently of the NOC.

22) In case of change of ownership, new owner of the industry will have to apply for incorporation of necessary changes in the No Objection Certificate with documentary proof within 60 days of taking over possession of the premises.

23) This NOC is being issued without any prejudice to the directions of the Hon'ble NGT/court orders in cases related to ground water or any other related matters.

24) Proponents, who have installed/constructed artificial recharge structures in compliance of the NOC granted to them previously and have availed rebate of upto 50% (fifty percent) in the ground water abstraction charges/ground water restoration charges, shall continue to regularly maintain artificial recharge structures.

25) Industries which are likely to cause ground water pollution e.g. Tanning, Slaughter Houses, Dye, Chemical/ Petrochemical, Coal washeries, pharmaceutical, other hazardous units etc. (as per CPCB list) need to undertake necessary well head protection measures to ensure prevention of ground water pollution as per Annexure III of the guidelines.

26) In case of new infrastructure projects having ground water abstraction of more than 20 m3/day, the firm/entity shall ensure implementation of dual water supply system in the projects.

27) In case of infrastructure projects, paved/parking area must be covered with interlocking/perforated tiles or other suitable measures to ensure groundwater infiltration/harvesting.

28) In case of coal and other base metal mining projects, the project proponent shall use the advance dewatering technology (by construction of series of dewatering abstraction structures) to avoid contamination of surface water.

29) The NOC issued is conditional subject to the conditions mentioned in the Public notice dated 27.01.2021 failing which penalty/EC/cancellation of NOC shall be imposed as the case may be.
30) This NOC is issued subject to the clearance of Expert Appraisal Committee (EAC) (if applicable).
31) In the self-compliance report, the PP shall submit details of Drilling Agency/ Agencies, which has/ have constructed BW(s)/ TW(s) along with undertaking to the effect that all necessary measures have been taken as per directions of Hon'ble Supreme Court provided in Annexure-VII of guidelines dated 24.09.2020 in respect of abandoned/ failed BW(s)/ TW(s)/Piezometer(s), if any. The PP is advised to engage registered drilling agency/ agencies. In the event of any mishap/ unfortunate incident due to negligence in taking measures for prevention of accident due to falling in Bore Well, both PP and concerned drilling agency shall jointly be held responsible and penal action as per extant Government rules shall be taken.

(Non-compliance of the conditions mentioned above is likely to result in the cancellation of NOC and legal action against the proponent.)

18/11, जामनगर हाउस, मानसिंह रोड, नई दिल्ली - 110011 / 18/11, Jamnagar House, Mansingh Road, New Delhi-110011
Phone: (011) 23383561 Fax: 23382051, 23386743
Website: cgwa-noc.gov.in

CENTRAL GROUND WATER AUTHORITY

Department of Water Resources, River Development and Ganga Rejuvenation
Ministry of Jal Shakti, Govt. of India

Receipt

(As per the guideline Gazette Notification S.O. 3281(E) regarding the New Guidelines dated 24.09.2020 of CGWA, MoJS, Govt. of India)
https://cgwa-noc.gov.in

Application No,:	21-4/387/UT/IND/2017		Date:06/09/2023
Name of Firm:	HINDUSTAN ZINC LTD.		
AppType Category:	*Ferrous Metallurgical Steel*		
Application Type:	*Industrial*		
PAN/GSTIN No. of Firm/Individual:		/	

SN	Description	Amount (Rs.)
1.	Application Processing Fee	**5000.00**
2.	Ground Water Abstraction /Restoration charges	**237250.00**
3.	Environmental Compensation Charges (ECRGW) *(Date From to) Days-*	
4.	Penalty for non-Compliance of NOC conditions *Condition to be mentioned*	
	Rs. Rupees Two Lakh Forty Two Thousand Two Hundred Fifty Only	**242250.00**

This is an system generated invoice, hence, does not require ink signed.

Annexure V

One month Baseline data(April 2024)

ETS-LAB

ENVIRO-TECH SERVICES

An Analytical Laboratory

(A GOVERNMENT APPROVED LAB)

Plot No. 1/32, S.S. of G.T. Road Industrial Area, Ghaziabad (U.P.) - 201001

email : etslab2012@gmail.com | Website : www.etslab.in | Ph.: 9911516076, 9811736063

ISO 45001

TEST REPORT

TEST REPORT NO : ETS/2156-1/04/2024

DATE OF REPORT :10.05.2024

WATER SAMPLE ANALYSIS REPORT

Name And Address of Customer	:	M/S HZL PANTNAGAR PROJECT AT PLOT NO.-2&3, SECTOR-14, IIE, STATE INDUSTRIAL DEVELOPMENT CORPORATION UTTARAKHAND LIMITED (SIDCUL), VILLAGE-PANTNAGAR, TEHSIL-KICHHA, DISTRICT-UDHAM SINGH NAGAR, STATE-UTTARAKHAND
Date of Sampling	:	15.04.2024
Analysis Start Date	:	17.04.2024
Analysis End Date	:	20.04.2024
Sample ID No	:	2156-1
Sampling Done By	:	ETS STAFF
Sampling Description	:	GROUND WATER
Sampling Location	:	GW-1 PROJECT SITE
Sampling Method	:	ETS/STP/WATER-01
Sampling Quantity	:	2.0 +0.5 Lt.
Packing Condition	:	SEALED
Packed In	:	P.V.C. AND GLASS BOTTLE

S. No.	Test Parameters	Unit	Result	Drinking Water Standards / Limit (IS:10500 2012)		Test Method
				Desirable	Permissible	
1.	Colour	Hazen	<5.0	5	15	IS:3025 (Pt-4)
2.	Odour	---	Agreeable	Agreeable	Agreeable	IS:3025 (Pt-5)
3.	pH	---	7.68	6.5 - 8.5	No Relaxation	IS:3025 (Pt-11)
4.	Taste	---	Agreeable	Agreeable	Agreeable	IS:3025 (Pt-8)
5.	Turbidity	NTU	<1.0	1	5	IS:3025 (Pt-10)
6.	Total Dissolve Solid (TDS)	mg/L	436.1	500	2000	IS:3025 (Pt-16)
7.	Total Alkalinity ($CaCO_3$)	mg/L	154.8	200	600	IS:3025 (Pt-23)
8.	Total Hardness(CaCO3)	mg/L	167.4	200	600	IS:3025 (Pt-21)
9.	Chloride (Cl)	mg/L	57.0	250	1000	IS:3025 (Pt-32)
10.	Calcium (Ca)	mg/L	42.0	75	200	IS:3025 (Pt-40)
11.	Mineral Oil	mg/L	<0.01	0.5	No Relaxation	IS:3025 (Pt-39)
12.	Sulphate (SO_4)	mg/L	34.0	200	400	IS:3025 (Pt-24)
13.	Nitrate (NO_3)	mg/L	0.83	45	No Relaxation	IS:3025 (Pt-34)
14.	Fluoride (F)	mg/L	0.19	1	1.5	IS:3025 (Pt-60)
15.	Iron (Fe)	mg/L	0.24	0.3	No Relaxation	IS:3025 (Pt-53)
16.	Aluminium (Al)	mg/L	<0.02	0.03	0.2	APHA-3500 (B)
17.	Selenium (Se)	mg/L	<0.01	0.01	No. Relaxation	APHA-3113 (B)
18.	Cyanide (Cn)	mg/L	<0.01	0.05	No. Relaxation	APHA-4500 (C)
19.	Copper(Cu)	mg/L	0.07	0.05	1.5	APHA-3111(B)
20.	Magnesium (Mg)	mg/L	20.0	30	100	IS:3025 (Pt-45)
21.	Manganese(Mn)	mg/L	<0.1	0.1	0.3	APHA-3111(B)
22.	Zinc(Zn)	mg/L	0.53	5	15	APHA-3111 (B)
23.	Cadmium(Cd)	mg/L	<0.001	0.003	No. Relaxation	APHA-3111 (B)
24.	Lead(Pb)	mg/L	<0.01	0.01	No. Relaxation	APHA-3111 (B)
25.	Mercury(Hg)	mg/L	<0.001	0.001	No. Relaxation	APHA-3112 (B)
26.	Nickel (Ni)	mg/L	<0.01	0.02	No. Relaxation	APHA-3111 (B)
27.	Arsenic(As)	mg/L	<0.01	0.01	0.05	APHA-3500 (B)
28.	Chromium (Cr+6)	mg/L	<0.01	0.05	No. Relaxation	APHA-3500 Cr-B
29.	Phenolic Compound (C6H5OH)	mg/L	<0.001	0.001	0.002	APHA-5530
30.	Conductivity (25 °C)	mhos/cm	602.7	Not Specified	Not Specified	APHA-2510
31.	E. Coli	Coli/100ml	Absent	Shall Not Be Detectable		IS:1622-1981
32.	Total Coliform	MPN/100ml	Absent	Shall Not Be Detectable		IS:1622-1981
33.	Temperature	°C	18.6	Not Specified	Not Specified	IS:3025 (Pt-9)
34.	Sodium (Na)	mg/L	39.2	Not Specified	Not Specified	APHA-3500 (Na)
35.	Fecal Coliform	MPN/100ml	Absent	Shall Not Be Detectable		APHA-9221

*****End of Test Report*****

CHECKED BY
SHRADDHA GUPTA

for ENVIRO-TECH SERVICES
AUTHORIZED SIGNATORY
MD HUMRAJ
Quality Manager

Note:-

1. Test reports without ETS LAB HOLOGRAM are not issued by our laboratory.
2. The results indicated only refer to the tested samples and listed applicable parameters.
3. No complaint will be entertained if received after 7 days of issue of test report.
4. Our liability is limited to invoice value only.
5. The sample shall be destroyed after 15 days & Biological / Perishable sample shall be destroyed immediately after issue of test report.
6. This test report shall not be used in any advertising media or as evidence in the court of Law without prior written permission of the laboratory.

ETS-LAB

ENVIRO-TECH SERVICES

An Analytical Laboratory

(A GOVERNMENT APPROVED LAB)

Plot No. 1/32, S.S. of G.T. Road Industrial Area, Ghaziabad (U.P.) - 201001

email : etslab2012@gmail.com | Website : www.etslab.in | Ph.: 9911516076, 9811736063

ISO 45001

TEST REPORT

TEST REPORT NO : ETS/2156-2/04/2024

DATE OF REPORT :10.05.2024

WATER SAMPLE ANALYSIS REPORT

Name And Address of Customer	:	M/S HZL PANTNAGAR PROJECT AT PLOT NO.-2&3, SECTOR-14, IIE, STATE INDUSTRIAL DEVELOPMENT CORPORATION UTTARAKHAND LIMITED (SIDCUL), VILLAGE-PANTNAGAR, TEHSIL-KICHHA, DISTRICT-UDHAM SINGH NAGAR, STATE-UTTARAKHAND
Date of Sampling	:	15.04.2024
Analysis Start Date	:	17.04.2024
Analysis End Date	:	20.04.2024
Sample ID No	:	2156-2
Sampling Done By	:	ETS STAFF
Sampling Description	:	GROUND WATER
Sampling Location	:	GW-2 UNDER 500 METER
Sampling Method	:	ETS/STP/WATER-01
Sampling Quantity	:	2.0 +0.5 Lt.
Packing Condition	:	SEALED
Packed In	:	P.V.C. AND GLASS BOTTLE

S. No.	Test Parameters	Unit	Result	Drinking Water Standards / Limit (IS:10500 2012)		Test Method
				Desirable	Permissible	
1.	Colour	Hazen	<5.0	5	15	IS:3025 (Pt-4)
2.	Odour	---	Agreeable	Agreeable	Agreeable	IS:3025 (Pt-5)
3.	pH	---	7.68	6.5 - 8.5	No Relaxation	IS:3025 (Pt-11)
4.	Taste	---	Agreeable	Agreeable	Agreeable	IS:3025 (Pt-8)
5.	Turbidity	NTU	<1.0	1	5	IS:3025 (Pt-10)
6.	Total Dissolve Solid (TDS)	mg/L	397.3	500	2000	IS:3025 (Pt-16)
7.	Total Alkalinity ($CaCO_3$)	mg/L	160.1	200	600	IS:3025 (Pt-23)
8.	Total Hardness(CaCO3)	mg/L	181.5	200	600	IS:3025 (Pt-21)
9.	Chloride (Cl)	mg/L	52.6	250	1000	IS:3025 (Pt-32)
10.	Calcium (Ca)	mg/L	41.3	75	200	IS:3025 (Pt-40)
11.	Mineral Oil	mg/L	<0.01	0.5	No Relaxation	IS:3025 (Pt-39)
12.	Sulphate (SO_4)	mg/L	27.7	200	400	IS:3025 (Pt-24)
13.	Nitrate (NO_3)	mg/L	0.63	45	No Relaxation	IS:3025 (Pt-34)
14.	Fluoride (F)	mg/L	0.29	1	1.5	IS:3025 (Pt-60)
15.	Iron (Fe)	mg/L	0.77	0.3	No Relaxation	IS:3025 (Pt-53)
16.	Aluminium (Al)	mg/L	<0.02	0.03	0.2	APHA-3500 (B)
17.	Selenium (Se)	mg/L	<0.01	0.01	No. Relaxation	APHA-3113 (B)
18.	Cyanide (Cn)	mg/L	<0.01	0.05	No. Relaxation	APHA-4500 (C)
19.	Copper(Cu)	mg/L	0.06	0.05	1.5	APHA-3111(B)
20.	Magnesium (Mg)	mg/L	25.8	30	100	IS:3025 (Pt-45)
21.	Manganese(Mn)	mg/L	<0.1	0.1	0.3	APHA-3111(B)
22.	Zinc(Zn)	mg/L	0.45	5	15	APHA-3111 (B)
23.	Cadmium(Cd)	mg/L	<0.001	0.003	No. Relaxation	APHA-3111 (B)
24.	Lead(Pb)	mg/L	<0.01	0.01	No. Relaxation	APHA-3111 (B)
25.	Mercury(Hg)	mg/L	<0.001	0.001	No. Relaxation	APHA-3112 (B)
26.	Nickel (Ni)	mg/L	<0.01	0.02	No. Relaxation	APHA-3111 (B)
27.	Arsenic(As)	mg/L	<0.01	0.01	0.05	APHA-3500 (B)
28.	Chromium (Cr+6)	mg/L	<0.01	0.05	No. Relaxation	APHA-3500 Cr-B
29.	Phenolic Compound (C6H5OH)	mg/L	<0.001	0.001	0.002	APHA-5530
30.	Conductivity (25 °C)	mhos/cm	549.2	Not Specified	Not Specified	APHA-2510
31.	E. Coli	Coli/100ml	Absent	Shall Not Be Detectable		IS:1622-1981
32.	Total Coliform	MPN/100ml	Absent	Shall Not Be Detectable		IS:1622-1981
33.	Temperature	°C	17.9	Not Specified	Not Specified	IS:3025 (Pt-9)
34.	Sodium (Na)	mg/L	35.4	Not Specified	Not Specified	APHA-3500 (Na)
35.	Fecal Coliform	MPN/100ml	Absent	Shall Not Be Detectable		APHA-9221

****End Of Test Report****

CHECKED BY
SHRADDHA GUPTA

For ENVIRO-TECH SERVICES

AUTHORIZED SIGNATORY
MD HUMRAJ
Quality Manager

Note:-

1. Test reports without ETS LAB HOLOGRAM are not issued by our lab.
2. The results indicated only refer to the tested samples and listed applicable parameters.
3. No complaint will be entertained if received after 7 days of issue of test report.
4. Our liability is limited to invoice value only.
5. The sample shall be destroyed after 15 days & Biological / Perishable sample shall be destroyed immediately after issue of test report.
6. This test report shall not be used in any advertising media or as evidence in the court of Law without prior written permission of the laboratory.

ETS-LAB

ENVIRO-TECH SERVICES

An Analytical Laboratory

(A GOVERNMENT APPROVED LAB)

Plot No. 1/32, S.S. of G.T. Road Industrial Area, Ghaziabad (U.P.) - 201001

email : etslab2012@gmail.com | Website : www.etslab.in | Ph.: 9911516076, 9811736063

ISO 45001

TEST REPORT

TEST REPORT NO : ETS/2156-3/04/2024 DATE OF REPORT :10.05.2024

WATER SAMPLE ANALYSIS REPORT

Name And Address of Customer	:	M/S HZL PANTNAGAR PROJECT AT PLOT NO.-2&3, SECTOR-14, IIE, STATE INDUSTRIAL DEVELOPMENT CORPORATION UTTARAKHAND LIMITED (SIDCUL), VILLAGE-PANTNAGAR, TEHSIL-KICHHA, DISTRICT-UDHAM SINGH NAGAR, STATE-UTTARAKHAND
Date of Sampling	:	15.04.2024
Analysis Start Date	:	17.04.2024
Analysis End Date	:	20.04.2024
Sample ID No	:	2156-3
Sampling Done By	:	ETS STAFF
Sampling Description	:	GROUND WATER
Sampling Location	:	GW-3 KALI MANDIR, UDAYNAGAR
Sampling Method	:	ETS/STP/WATER-01
Sampling Quantity	:	2.0 +0.5 Lt.
Packing Condition	:	SEALED
Packed In	:	P.V.C. AND GLASS BOTTLE

S. No.	Test Parameters	Unit	Result	Drinking Water Standards / Limit (IS:10500 2012)		Test Method
				Desirable	Permissible	
1.	Colour	Hazen	<5.0	5	15	IS:3025 (Pt-4)
2.	Odour	---	Agreeable	Agreeable	Agreeable	IS:3025 (Pt-5)
3.	pH	---	7.29	6.5 - 8.5	No Relaxation	IS:3025 (Pt-11)
4.	Taste	---	Agreeable	Agreeable	Agreeable	IS:3025 (Pt-8)
5.	Turbidity	NTU	<1.0	1	5	IS:3025 (Pt-10)
6.	Total Dissolve Solid (TDS)	mg/L	210.7	500	2000	IS:3025 (Pt-16)
7.	Total Alkalinity ($CaCO_3$)	mg/L	104.6	200	600	IS:3025 (Pt-23)
8.	Total Hardness($CaCO_3$)	mg/L	145.2	200	600	IS:3025 (Pt-21)
9.	Chloride (Cl)	mg/L	56.3	250	1000	IS:3025 (Pt-32)
10.	Calcium (Ca)	mg/L	42.8	75	200	IS:3025 (Pt-40)
11.	Mineral Oil	mg/L	<0.01	0.5	No Relaxation	IS:3025 (Pt-39)
12.	Sulphate (SO_4)	mg/L	29.8	200	400	IS:3025 (Pt-24)
13.	Nitrate (NO_3)	mg/L	0.74	45	No Relaxation	IS:3025 (Pt-34)
14.	Fluoride (F)	mg/L	0.25	1	1.5	IS:3025 (Pt-60)
15.	Iron (Fe)	mg/L	0.23	0.3	No Relaxation	IS:3025 (Pt-53)
16.	Aluminium (Al)	mg/L	<0.02	0.03	0.2	APHA-3500 (B)
17.	Selenium (Se)	mg/L	<0.01	0.01	No. Relaxation	APHA-3113 (B)
18.	Cyanide (Cn)	mg/L	<0.01	0.05	No. Relaxation	APHA-4500 (C)
19.	Copper(Cu)	mg/L	0.11	0.05	1.5	APHA-3111(B)
20.	Magnesium (Mg)	mg/L	23.0	30	100	IS:3025 (Pt-45)
21.	Manganese(Mn)	mg/L	<0.1	0.1	0.3	APHA-3111(B)
22.	Zinc(Zn)	mg/L	0.55	5	15	APHA-3111 (B)
23.	Cadmium(Cd)	mg/L	<0.001	0.003	No. Relaxation	APHA-3111 (B)
24.	Lead(Pb)	mg/L	<0.01	0.01	No. Relaxation	APHA-3111 (B)
25.	Mercury(Hg)	mg/L	<0.001	0.001	No. Relaxation	APHA-3112 (B)
26.	Nickel (Ni)	mg/L	<0.01	0.02	No. Relaxation	APHA-3111 (B)
27.	Arsenic(As)	mg/L	<0.01	0.01	0.05	APHA-3500 (B)
28.	Chromium (Cr+6)	mg/L	<0.01	0.05	No. Relaxation	APHA-3500 Cr-B
29.	Phenolic Compound (C_6H_5OH)	mg/L	<0.001	0.001	0.002	APHA-5530
30.	Conductivity (25 °C)	mhos/cm	390.29	Not Specified	Not Specified	APHA-2510
31.	E. Coli	Coli/100ml	Absent	Shall Not Be Detectable		IS:1622-1981
32.	Total Coliform	MPN/100ml	Absent	Shall Not Be Detectable		IS:1622-1981
33.	Temperature	°C	18.4	Not Specified	Not Specified	IS:3025 (Pt-9)
34.	Sodium (Na)	mg/L	39.62	Not Specified	Not Specified	APHA-3500 (Na)
35.	Fecal Coliform	MPN/100ml	Absent	Shall Not Be Detectable		APHA-9221

****End of Test Report****

CHECKED BY
SHRADDHA GUPTA

For ENVIRO-TECH SERVICES
AUTHORIZED SIGNATORY
MD HUMRAJ
Quality Manager

Format no ETS/LAB/TR/09 Issue No 04 dt 01/06/2019 Rev No 03 dt 01/06/2019

Note:-
1. Test reports without ETS LAB HOLOGRAM are considered as outside laboratory.
2. The results indicated only refer to the tested samples and listed applicable parameters.
3. No complaint will be entertained if received after 7 days of issue of test report.
4. Our liability is limited to invoice value only.
5. The sample shall be destroyed after 15 days & Biological / Perishable sample shall be destroyed immediately after issue of test report.
6. This test report shall not be used in any advertising media or as evidence in the court of Law without prior written permission of the laboratory.

ETS-LAB

ENVIRO-TECH SERVICES

An Analytical Laboratory

(A GOVERNMENT APPROVED LAB)

Plot No. 1/32, S.S. of G.T. Road Industrial Area, Ghaziabad (U.P.) - 201001

email : etslab2012@gmail.com | Website : www.etslab.in | Ph.: 9911516076, 9811736063

ISO 45001

TEST REPORT

TEST REPORT NO : ETS/2156-4/04/2024

DATE OF REPORT :10.05.2024

WATER SAMPLE ANALYSIS REPORT

Name And Address of Customer	:	M/S HZL PANTNAGAR PROJECT AT PLOT NO.-2&3, SECTOR-14, IIE, STATE INDUSTRIAL DEVELOPMENT CORPORATION UTTARAKHAND LIMITED (SIDCUL), VILLAGE-PANTNAGAR, TEHSIL-KICHHA, DISTRICT-UDHAM SINGH NAGAR, STATE-UTTARAKHAND
Date of Sampling	:	15.04.2024
Analysis Start Date	:	17.04.2024
Analysis End Date	:	20.04.2024
Sample ID No	:	2156-4
Sampling Done By	:	ETS STAFF
Sampling Description	:	GROUND WATER
Sampling Location	:	GW-4 SIKLAI GAON
Sampling Method	:	ETS/STP/WATER-01
Sampling Quantity	:	2.0 +0.5 Lt.
Packing Condition	:	SEALED
Packed In	:	P.V.C. AND GLASS BOTTLE

S. No.	Test Parameters	Unit	Result	Drinking Water Standards / Limit (IS:10500 2012)		Test Method
				Desirable	Permissible	
1.	Colour	Hazen	<5.0	5	15	IS:3025 (Pt-4)
2.	Odour	---	Agreeable	Agreeable	Agreeable	IS:3025 (Pt-5)
3.	pH	---	7.58	6.5 - 8.5	No Relaxation	IS:3025 (Pt-11)
4.	Taste	---	Agreeable	Agreeable	Agreeable	IS:3025 (Pt-8)
5.	Turbidity	NTU	<1.0	1	5	IS:3025 (Pt-10)
6.	Total Dissolve Solid (TDS)	mg/L	457.1	500	2000	IS:3025 (Pt-16)
7.	Total Alkalinity ($CaCO_3$)	mg/L	142.1	200	600	IS:3025 (Pt-23)
8.	Total Hardness(CaCO3)	mg/L	167.2	200	600	IS:3025 (Pt-21)
9.	Chloride (Cl)	mg/L	80.4	250	1000	IS:3025 (Pt-32)
10.	Calcium (Ca)	mg/L	38.5	75	200	IS:3025 (Pt-40)
11.	Mineral Oil	mg/L	<0.01	0.5	No Relaxation	IS:3025 (Pt-39)
12.	Sulphate (SO_4)	mg/L	32.3	200	400	IS:3025 (Pt-24)
13.	Nitrate (NO_3)	mg/L	1.07	45	No Relaxation	IS:3025 (Pt-34)
14.	Fluoride (F)	mg/L	0.25	1	1.5	IS:3025 (Pt-60)
15.	Iron (Fe)	mg/L	0.83	0.3	No Relaxation	IS:3025 (Pt-53)
16.	Aluminium (Al)	mg/L	<0.02	0.03	0.2	APHA-3500 (B)
17.	Selenium (Se)	mg/L	<0.01	0.01	No. Relaxation	APHA-3113 (B)
18.	Cyanide (Cn)	mg/L	<0.01	0.05	No. Relaxation	APHA-4500 (C)
19.	Copper(Cu)	mg/L	0.11	0.05	1.5	APHA-3111(B)
20.	Magnesium (Mg)	mg/L	29.3	30	100	IS:3025 (Pt-45)
21.	Manganese(Mn)	mg/L	<0.1	0.1	0.3	APHA-3111(B)
22.	Zinc(Zn)	mg/L	0.39	5	15	APHA-3111 (B)
23.	Cadmium(Cd)	mg/L	<0.001	0.003	No. Relaxation	APHA-3111 (B)
24.	Lead(Pb)	mg/L	<0.01	0.01	No. Relaxation	APHA-3111 (B)
25.	Mercury(Hg)	mg/L	<0.001	0.001	No. Relaxation	APHA-3112 (B)
26.	Nickel (Ni)	mg/L	<0.01	0.02	No. Relaxation	APHA-3111 (B)
27.	Arsenic(As)	mg/L	<0.01	0.01	0.05	APHA-3500 (B)
28.	Chromium (Cr+6)	mg/L	<0.01	0.05	No. Relaxation	APHA-3500 Cr-B
29.	Phenolic Compound (C6H5OH)	mg/L	<0.001	0.001	0.002	APHA-5530
30.	Conductivity (25 °C)	mhos/cm	632.17	Not Specified	Not Specified	APHA-2510
31.	E. Coli	Coli/100ml	Absent	Shall Not Be Detectable		IS:1622-1981
32.	Total Coliform	MPN/100ml	Absent	Shall Not Be Detectable		IS:1622-1981
33.	Temperature	°C	19.6	Not Specified	Not Specified	IS:3025 (Pt-9)
34.	Sodium (Na)	mg/L	51.7	Not Specified	Not Specified	APHA-3500 (Na)
35.	Fecal Coliform	MPN/100ml	Absent	Shall Not Be Detectable		APHA-9221

****End of Test Report****

CHECKED BY
SHRADDHA GUPTA

For ENVIRO-TECH SERVICES

AUTHORIZED SIGNATORY
MD HUMRAJ
Quality Manager

Note:-
1. Test reports without ETS LAB HOLOGRAM are not issued by our laboratory.
2. The results indicated only refer to the tested samples and listed applicable parameters.
3. No complaint will be entertained if received after 7 days of issue of test report.
4. Our liability is limited to invoice value only.
5. The sample shall be destroyed after 15 days & Biological / Perishable sample shall be destroyed immediately after issue of test report.
6. This test report shall not be used in any advertising media or as evidence in the court of Law without prior written permission of the laboratory.

ETS-LAB

ENVIRO-TECH SERVICES

An Analytical Laboratory

(A GOVERNMENT APPROVED LAB)

Plot No. 1/32, S.S. of G.T. Road Industrial Area, Ghaziabad (U.P.) - 201001

email : etslab2012@gmail.com | Website : www.etslab.in | Ph.: 9911516076, 9811736063

UAF ISO 45001

TEST REPORT

TEST REPORT NO : ETS/2156-5/04/2024 DATE OF REPORT :10.05.2024

WATER SAMPLE ANALYSIS REPORT

Name And Address of Customer	:	M/S HZL PANTNAGAR PROJECT AT PLOT NO.-2&3, SECTOR-14, IIE, STATE INDUSTRIAL DEVELOPMENT CORPORATION UTTARAKHAND LIMITED (SIDCUL), VILLAGE-PANTNAGAR, TEHSIL-KICHHA, DISTRICT-UDHAM SINGH NAGAR, STATE-UTTARAKHAND
Date of Sampling	:	15.04.2024
Analysis Start Date	:	17.04.2024
Analysis End Date	:	20.04.2024
Sample ID No	:	2156-5
Sampling Done By	:	ETS STAFF
Sampling Description	:	GROUND WATER
Sampling Location	:	GW-5 CHHATARPUR
Sampling Method	:	ETS/STP/WATER-01
Sampling Quantity	:	2.0 +0.5 Lt.
Packing Condition	:	SEALED
Packed In	:	P.V.C. AND GLASS BOTTLE

S. No.	Test Parameters	Unit	Result	Drinking Water Standards / Limit (IS:10500 2012)		Test Method
				Desirable	Permissible	
1.	Colour	Hazen	<5.0	5	15	IS:3025 (Pt-4)
2.	Odour	---	Agreeable	Agreeable	Agreeable	IS:3025 (Pt-5)
3.	pH	---	7.41	6.5 - 8.5	No Relaxation	IS:3025 (Pt-11)
4.	Taste	---	Agreeable	Agreeable	Agreeable	IS:3025 (Pt-8)
5.	Turbidity	NTU	<1.0	1	5	IS:3025 (Pt-10)
6.	Total Dissolve Solid (TDS)	mg/L	270.4	500	2000	IS:3025 (Pt-16)
7.	Total Alkalinity ($CaCO_3$)	mg/L	115.8	200	600	IS:3025 (Pt-23)
8.	Total Hardness(CaCO3)	mg/L	157.2	200	600	IS:3025 (Pt-21)
9.	Chloride (Cl)	mg/L	63.1	250	1000	IS:3025 (Pt-32)
10.	Calcium (Ca)	mg/L	46.9	75	200	IS:3025 (Pt-40)
11.	Mineral Oil	mg/L	<0.01	0.5	No Relaxation	IS:3025 (Pt-39)
12.	Sulphate (SO_4)	mg/L	30.9	200	400	IS:3025 (Pt-24)
13.	Nitrate (NO_3)	mg/L	0.89	45	No Relaxation	IS:3025 (Pt-34)
14.	Fluoride (F)	mg/L	0.25	1	1.5	IS:3025 (Pt-60)
15.	Iron (Fe)	mg/L	0.86	0.3	No Relaxation	IS:3025 (Pt-53)
16.	Aluminium (Al)	mg/L	<0.02	0.03	0.2	APHA-3500 (B)
17.	Selenium (Se)	mg/L	<0.01	0.01	No. Relaxation	APHA-3113 (B)
18.	Cyanide (Cn)	mg/L	<0.01	0.05	No. Relaxation	APHA-4500 (C)
19.	Copper(Cu)	mg/L	0.01	0.05	1.5	APHA-3111(B)
20.	Magnesium (Mg)	mg/L	30.7	30	100	IS:3025 (Pt-45)
21.	Manganese(Mn)	mg/L	<0.1	0.1	0.3	APHA-3111(B)
22.	Zinc(Zn)	mg/L	0.38	5	15	APHA-3111 (B)
23.	Cadmium(Cd)	mg/L	<0.001	0.003	No. Relaxation	APHA-3111 (B)
24.	Lead(Pb)	mg/L	<0.01	0.01	No. Relaxation	APHA-3111 (B)
25.	Mercury(Hg)	mg/L	<0.001	0.001	No. Relaxation	APHA-3112 (B)
26.	Nickel (Ni)	mg/L	<0.01	0.02	No. Relaxation	APHA-3111 (B)
27.	Arsenic(As)	mg/L	<0.01	0.01	0.05	APHA-3500 (B)
28.	Chromium (Cr+6)	mg/L	<0.01	0.05	No. Relaxation	APHA-3500 Cr-B
29.	Phenolic Compound (C6H5OH)	mg/L	<0.001	0.001	0.002	APHA-5530
30.	Conductivity (25 °C)	mhos/cm	422.51	Not Specified	Not Specified	APHA-2510
31.	E. Coli	Coli/100ml	Absent	Shall Not Be Detectable		IS:1622-1981
32.	Total Coliform	MPN/100ml	Absent	Shall Not Be Detectable		IS:1622-1981
33.	Temperature	°C	19.3	Not Specified	Not Specified	IS:3025 (Pt-9)
34.	Sodium (Na)	mg/L	35.98	Not Specified	Not Specified	APHA-3500 (Na)
35.	Fecal Coliform	MPN/100ml	Absent	Shall Not Be Detectable		APHA-9221

****End of Test Report****

CHECKED BY
SHRADDHA GUPTA

For ENVIRO-TECH SERVICES
AUTHORIZED SIGNATORY
MD HUMRAJ
Quality Manager

Format no ETS/LAB/TR/09 Issue No 04 dt 01/06/2019 Rev No 03 dt 01/06/2019

Note:-
1. Test reports without ETS LAB HOLOGRAM are not valid.
2. The results indicated only refer to the tested samples and listed applicable parameters.
3. No complaint will be entertained if received after 7 days of issue of test report.
4. Our liability is limited to invoice value only.
5. The sample shall be destroyed after 15 days & Biological / Perishable sample shall be destroyed immediately after issue of test report.
6. This test report shall not be used in any advertising media or as evidence in the court of Law without prior written permission of the laboratory.

ETS-LAB

ENVIRO-TECH SERVICES

An Analytical Laboratory

(A GOVERNMENT APPROVED LAB)

Plot No. 1/32, S.S. of G.T. Road Industrial Area, Ghaziabad (U.P.) - 201001

email : etslab2012@gmail.com | Website : www.etslab.in | Ph.: 9911516076, 9811736063

ISO 45001

TEST REPORT

TEST REPORT NO : ETS/2156-6/04/2024

DATE OF REPORT :10.05.2024

WATER SAMPLE ANALYSIS REPORT

Name And Address of Customer	:	M/S HZL PANTNAGAR PROJECT AT PLOT NO.-2&3, SECTOR-14, IIE, STATE INDUSTRIAL DEVELOPMENT CORPORATION UTTARAKHAND LIMITED (SIDCUL), VILLAGE-PANTNAGAR, TEHSIL-KICHHA, DISTRICT-UDHAM SINGH NAGAR, STATE-UTTARAKHAND
Date of Sampling	:	15.04.2024
Analysis Start Date	:	17.04.2024
Analysis End Date	:	20.04.2024
Sample ID No	:	2156-6
Sampling Done By	:	ETS STAFF
Sampling Description	:	GROUND WATER
Sampling Location	:	GW-6 GOVT.SENIOR SECONDARY SCHOOL, RUDRAPUR, JAGATPURA,
Sampling Method	:	ETS/STP/WATER-01
Sampling Quantity	:	2.0 +0.5 Lt.
Packing Condition	:	SEALED
Packed In	:	P.V.C. AND GLASS BOTTLE

S. No.	Test Parameters	Unit	Result	Drinking Water Standards / Limit (IS:10500 2012)		Test Method
				Desirable	Permissible	
1.	Colour	Hazen	<5.0	5	15	IS:3025 (Pt-4)
2.	Odour	---	Agreeable	Agreeable	Agreeable	IS:3025 (Pt-5)
3.	pH	---	7.75	6.5 - 8.5	No Relaxation	IS:3025 (Pt-11)
4.	Taste	---	Agreeable	Agreeable	Agreeable	IS:3025 (Pt-8)
5.	Turbidity	NTU	<1.0	1	5	IS:3025 (Pt-10)
6.	Total Dissolve Solid (TDS)	mg/L	374.5	500	2000	IS:3025 (Pt-16)
7.	Total Alkalinity ($CaCO_3$)	mg/L	139.4	200	600	IS:3025 (Pt-23)
8.	Total Hardness(CaCO3)	mg/L	171.6	200	600	IS:3025 (Pt-21)
9.	Chloride (Cl)	mg/L	61.4	250	1000	IS:3025 (Pt-32)
10.	Calcium (Ca)	mg/L	47.6	75	200	IS:3025 (Pt-40)
11.	Mineral Oil	mg/L	<0.01	0.5	No Relaxation	IS:3025 (Pt-39)
12.	Sulphate (SO_4)	mg/L	30.9	200	400	IS:3025 (Pt-24)
13.	Nitrate (NO_3)	mg/L	1.19	45	No Relaxation	IS:3025 (Pt-34)
14.	Fluoride (F)	mg/L	0.27	1	1.5	IS:3025 (Pt-60)
15.	Iron (Fe)	mg/L	0.15	0.3	No Relaxation	IS:3025 (Pt-53)
16.	Aluminium (Al)	mg/L	<0.02	0.03	0.2	APHA-3500 (B)
17.	Selenium (Se)	mg/L	<0.01	0.01	No. Relaxation	APHA-3113 (B)
18.	Cyanide (Cn)	mg/L	<0.01	0.05	No. Relaxation	APHA-4500 (C)
19.	Copper(Cu)	mg/L	0.13	0.05	1.5	APHA-3111(B)
20.	Magnesium (Mg)	mg/L	32.8	30	100	IS:3025 (Pt-45)
21.	Manganese(Mn)	mg/L	<0.1	0.1	0.3	APHA-3111(B)
22.	Zinc(Zn)	mg/L	0.23	5	15	APHA-3111 (B)
23.	Cadmium(Cd)	mg/L	<0.001	0.003	No. Relaxation	APHA-3111 (B)
24.	Lead(Pb)	mg/L	<0.01	0.01	No. Relaxation	APHA-3111 (B)
25.	Mercury(Hg)	mg/L	<0.001	0.001	No. Relaxation	APHA-3112 (B)
26.	Nickel (Ni)	mg/L	<0.01	0.02	No. Relaxation	APHA-3111 (B)
27.	Arsenic(As)	mg/L	<0.01	0.01	0.05	APHA-3500 (B)
28.	Chromium (Cr+6)	mg/L	<0.01	0.05	No. Relaxation	APHA-3500 Cr-B
29.	Phenolic Compound (C6H5OH)	mg/L	<0.001	0.001	0.002	APHA-5530
30.	Conductivity (25 °C)	mhos/cm	418.2	Not Specified	Not Specified	APHA-2510
31.	E. Coli	Coli/100ml	Absent	Shall Not Be Detectable		IS:1622-1981
32.	Total Coliform	MPN/100ml	Absent	Shall Not Be Detectable		IS:1622-1981
33.	Temperature	°C	17.3	Not Specified	Not Specified	IS:3025 (Pt-9)
34.	Sodium (Na)	mg/L	37.38	Not Specified	Not Specified	APHA-3500 (Na)
35.	Fecal Coliform	MPN/100ml	Absent	Shall Not Be Detectable		APHA-9221

****End of Test Report****

For ENVIRO-TECH SERVICES

CHECKED BY

SHRADDHA GUPTA

AUTHORIZED SIGNATORY

MD HUMRAJ

Quality Manager

Note:-

1. Test reports without ENVIRO-TECH SERVICES LOGRAM are not issued by our laboratory.
2. The results indicated only refer to the tested samples and listed applicable parameters.
3. No complaint will be entertained if received after 7 days of issue of test report.
4. Our liability is limited to invoice value only.
5. The sample shall be destroyed after 15 days & Biological / Perishable sample shall be destroyed immediately after issue of test report.
6. This test report shall not be used in any advertising media or as evidence in the court of Law without prior written permission of the laboratory.

ETS-LAB

ENVIRO-TECH SERVICES

An Analytical Laboratory

ISO 45001

(A GOVERNMENT APPROVED LAB)

Plot No. 1/32, S.S. of G.T. Road Industrial Area, Ghaziabad (U.P.) - 201001

email : etslab2012@gmail.com | Website : www.etslab.in | Ph.: 9911516076, 9811736063

TEST REPORT

TEST REPORT NO : ETS/2156-7/04/2024

DATE OF REPORT :10.05.2024

WATER SAMPLE ANALYSIS REPORT

Name And Address of Customer	:	M/S HZL PANTNAGAR PROJECT AT PLOT NO.-2&3, SECTOR-14, IIE, STATE INDUSTRIAL DEVELOPMENT CORPORATION UTTARAKHAND LIMITED (SIDCUL), VILLAGE-PANTNAGAR, TEHSIL-KICHHA, DISTRICT-UDHAM SINGH NAGAR, STATE-UTTARAKHAND
Date of Sampling	:	15.04.2024
Analysis Start Date	:	17.04.2024
Analysis End Date	:	20.04.2024
Sample ID No	:	2156-7
Sampling Done By	:	ETS STAFF
Sampling Description	:	GROUND WATER
Sampling Location	:	GW-7 JAGDISHPUR MARKET
Sampling Method	:	ETS/STP/WATER-01
Sampling Quantity	:	2.0 +0.5 Lt.
Packing Condition	:	SEALED
Packed In	:	P.V.C. AND GLASS BOTTLE

S. No.	Test Parameters	Unit	Result	Drinking Water Standards / Limit (IS:10500 2012)		Test Method
				Desirable	Permissible	
1.	Colour	Hazen	<5.0	5	15	IS:3025 (Pt-4)
2.	Odour	---	Agreeable	Agreeable	Agreeable	IS:3025 (Pt-5)
3.	pH	---	7.75	6.5 - 8.5	No Relaxation	IS:3025 (Pt-11)
4.	Taste	---	Agreeable	Agreeable	Agreeable	IS:3025 (Pt-8)
5.	Turbidity	NTU	<1.0	1	5	IS:3025 (Pt-10)
6.	Total Dissolve Solid (TDS)	mg/L	183.3	500	2000	IS:3025 (Pt-16)
7.	Total Alkalinity ($CaCO_3$)	mg/L	98.5	200	600	IS:3025 (Pt-23)
8.	Total Hardness(CaCO3)	mg/L	114.6	200	600	IS:3025 (Pt-21)
9.	Chloride (Cl)	mg/L	46.8	250	1000	IS:3025 (Pt-32)
10.	Calcium (Ca)	mg/L	34.5	75	200	IS:3025 (Pt-40)
11.	Mineral Oil	mg/L	<0.01	0.5	No Relaxation	IS:3025 (Pt-39)
12.	Sulphate (SO_4)	mg/L	31.6	200	400	IS:3025 (Pt-24)
13.	Nitrate (NO_3)	mg/L	0.73	45	No Relaxation	IS:3025 (Pt-34)
14.	Fluoride (F)	mg/L	0.24	1	1.5	IS:3025 (Pt-60)
15.	Iron (Fe)	mg/L	0.20	0.3	No Relaxation	IS:3025 (Pt-53)
16.	Aluminium (Al)	mg/L	<0.02	0.03	0.2	APHA-3500 (B)
17.	Selenium (Se)	mg/L	<0.01	0.01	No. Relaxation	APHA-3113 (B)
18.	Cyanide (Cn)	mg/L	<0.01	0.05	No. Relaxation	APHA-4500 (C)
19.	Copper(Cu)	mg/L	0.10	0.05	1.5	APHA-3111(B)
20.	Magnesium (Mg)	mg/L	13.5	30	100	IS:3025 (Pt-45)
21.	Manganese(Mn)	mg/L	<0.1	0.1	0.3	APHA-3111(B)
22.	Zinc(Zn)	mg/L	0.44	5	15	APHA-3111 (B)
23.	Cadmium(Cd)	mg/L	<0.001	0.003	No. Relaxation	APHA-3111 (B)
24.	Lead(Pb)	mg/L	<0.01	0.01	No. Relaxation	APHA-3111 (B)
25.	Mercury(Hg)	mg/L	<0.001	0.001	No. Relaxation	APHA-3112 (B)
26.	Nickel (Ni)	mg/L	<0.01	0.02	No. Relaxation	APHA-3111 (B)
27.	Arsenic(As)	mg/L	<0.01	0.01	0.05	APHA-3500 (B)
28.	Chromium (Cr+6)	mg/L	<0.01	0.05	No. Relaxation	APHA-3500 Cr-B
29.	Phenolic Compound (C6H5OH)	mg/L	<0.001	0.001	0.002	APHA-5530
30.	Conductivity (25 °C)	mhos/cm	319.25	Not Specified	Not Specified	APHA-2510
31.	E. Coli	Coli/100ml	Absent	Shall Not Be Detectable		IS:1622-1981
32.	Total Coliform	MPN/100ml	Absent	Shall Not Be Detectable		IS:1622-1981
33.	Temperature	°C	18.9	Not Specified	Not Specified	IS:3025 (Pt-9)
34.	Sodium (Na)	mg/L	41.0	Not Specified	Not Specified	APHA-3500 (Na)
35.	Fecal Coliform	MPN/100ml	Absent	Shall Not Be Detectable		APHA-9221

****End of Test Report****

CHECKED BY SHRADDHA GUPTA

For ENVIRO-TECH SERVICES

AUTHORIZED SIGNATORY

MD HUMRAJ
Quality Manager

Note:-

1. Test reports without LOGO & HOLOGRAM are not issued by our laboratory.
2. The results indicated only refer to the tested samples and listed applicable parameters.
3. No complaint will be entertained if received after 7 days of issue of test report.
4. Our liability is limited to invoice value only.
5. The sample shall be destroyed after 15 days & Biological / Perishable sample shall be destroyed immediately after issue of test report.
6. This test report shall not be used in any advertising media or as evidence in the court of Law without prior written permission of the laboratory.

ENVIRO-TECH SERVICES

An Analytical Laboratory

ETS-LAB

ISO 45001

(A GOVERNMENT APPROVED LAB)

Plot No. 1/32, S.S. of G.T. Road Industrial Area, Ghaziabad (U.P.) - 201001

email : etslab2012@gmail.com | Website : www.etslab.in | Ph.: 9911516076, 9811736063

TEST REPORT

TEST REPORT NO : ETS/2156-8/04/2024 DATE OF REPORT :10.05.2024

WATER SAMPLE ANALYSIS REPORT

Name And Address of Customer	:	M/S HZL PANTNAGAR PROJECT AT PLOT NO.-2&3, SECTOR-14, IIE, STATE INDUSTRIAL DEVELOPMENT CORPORATION UTTARAKHAND LIMITED (SIDCUL), VILLAGE-PANTNAGAR, TEHSIL-KICHHA, DISTRICT-UDHAM SINGH NAGAR, STATE-UTTARAKHAND
Date of Sampling	:	20.04.2024
Analysis Start Date	:	22.04.2024
Analysis End Date	:	25.04.2024
Sample ID No	:	2156-8
Sampling Done By	:	ETS STAFF
Sampling Description	:	GROUND WATER
Sampling Location	:	GW-8 GOVERNMENT PRIMARY SCHOOL, PATHARCHATTA
Sampling Method	:	ETS/STP/WATER-01
Sampling Quantity	:	2.0 +0.5 Lt.
Packing Condition	:	SEALED
Packed In	:	P.V.C. AND GLASS BOTTLE

S. No.	Test Parameters	Unit	Result	Drinking Water Standards / Limit (IS:10500 2012)		Test Method
				Desirable	Permissible	
1.	Colour	Hazen	<5.0	5	15	IS:3025 (Pt-4)
2.	Odour	---	Agreeable	Agreeable	Agreeable	IS:3025 (Pt-5)
3.	pH	---	7.08	6.5 - 8.5	No Relaxation	IS:3025 (Pt-11)
4.	Taste	---	Agreeable	Agreeable	Agreeable	IS:3025 (Pt-8)
5.	Turbidity	NTU	<1.0	1	5	IS:3025 (Pt-10)
6.	Total Dissolve Solid (TDS)	mg/L	376.6	500	2000	IS:3025 (Pt-16)
7.	Total Alkalinity ($CaCO_3$)	mg/L	117.3	200	600	IS:3025 (Pt-23)
8.	Total Hardness(CaCO3)	mg/L	148.6	200	600	IS:3025 (Pt-21)
9.	Chloride (Cl)	mg/L	71.5	250	1000	IS:3025 (Pt-32)
10.	Calcium (Ca)	mg/L	43.8	75	200	IS:3025 (Pt-40)
11.	Mineral Oil	mg/L	<0.01	0.5	No Relaxation	IS:3025 (Pt-39)
12.	Sulphate (SO_4)	mg/L	32.3	200	400	IS:3025 (Pt-24)
13.	Nitrate (NO_3)	mg/L	0.82	45	No Relaxation	IS:3025 (Pt-34)
14.	Fluoride (F)	mg/L	0.21	1	1.5	IS:3025 (Pt-60)
15.	Iron (Fe)	mg/L	0.14	0.3	No Relaxation	IS:3025 (Pt-53)
16.	Aluminium (Al)	mg/L	<0.02	0.03	0.2	APHA-3500 (B)
17.	Selenium (Se)	mg/L	<0.01	0.01	No. Relaxation	APHA-3113 (B)
18.	Cyanide (Cn)	mg/L	<0.01	0.05	No. Relaxation	APHA-4500 (C)
19.	Copper(Cu)	mg/L	0.02	0.05	1.5	APHA-3111(B)
20.	Magnesium (Mg)	mg/L	22.7	30	100	IS:3025 (Pt-45)
21.	Manganese(Mn)	mg/L	<0.1	0.1	0.3	APHA-3111(B)
22.	Zinc(Zn)	mg/L	0.48	5	15	APHA-3111 (B)
23.	Cadmium(Cd)	mg/L	<0.001	0.003	No. Relaxation	APHA-3111 (B)
24.	Lead(Pb)	mg/L	<0.01	0.01	No. Relaxation	APHA-3111 (B)
25.	Mercury(Hg)	mg/L	<0.001	0.001	No. Relaxation	APHA-3112 (B)
26.	Nickel (Ni)	mg/L	<0.01	0.02	No. Relaxation	APHA-3111 (B)
27.	Arsenic(As)	mg/L	<0.01	0.01	0.05	APHA-3500 (B)
28.	Chromium (Cr+6)	mg/L	<0.01	0.05	No. Relaxation	APHA-3500 Cr-B
29.	Phenolic Compound (C6H5OH)	mg/L	<0.001	0.001	0.002	APHA-5530
30.	Conductivity (25 °C)	mhos/cm	523.95	Not Specified	Not Specified	APHA-2510
31.	E. Coli	Coli/100ml	Absent	Shall Not Be Detectable		IS:1622-1981
32.	Total Coliform	MPN/100ml	Absent	Shall Not Be Detectable		IS:1622-1981
33.	Temperature	°C	18.4	Not Specified	Not Specified	IS:3025 (Pt-9)
34.	Sodium (Na)	mg/L	42.14	Not Specified	Not Specified	APHA-3500 (Na)
35.	Fecal Coliform	MPN/100ml	Absent	Shall Not Be Detectable		APHA-9221

****End of Test Report****

CHECKED BY
SHRADDHA GUPTA

For ENVIRO-TECH SERVICES

AUTHORIZED SIGNATORY

MD HUMRAJ
Quality Manager

Format no ETS/QSF/7.8/03 Issue No 04 dt 01/06/2019 Rev No 03 dt 01/06/2019

Note:-
1. Test reports without ETS LAB HOLOGRAM are not valid/Reproducible.
2. The results indicated only refer to the tested samples and listed applicable parameters.
3. No complaint will be entertained if received after 7 days of issue of test report.
4. Our liability is limited to invoice value only.
5. The sample shall be destroyed after 15 days & Biological / Perishable sample shall be destroyed immediately after issue of test report.
6. This test report shall not be used in any advertising media or as evidence in the court of Law without prior written permission of the laboratory.

ENVIRO-TECH SERVICES
An Analytical Laboratory
(A GOVERNMENT APPROVED LAB)
Plot No. 1/32, S.S. of G.T. Road Industrial Area, Ghaziabad (U.P.) - 201001
email : etslab2012@gmail.com | Website : www.etslab.in | Ph.: 9911516076, 9811736063
ETS-LAB
ISO 45001

TEST REPORT

TEST REPORT NO : ETS/2156-9/04/2024 DATE OF REPORT : 10-05-2024

NOISE MONITORING REPORT

Name And Address of Customer : M/S HZL PANTNAGAR PROJECT
AT PLOT NO.-2&3, SECTOR-14, IIE, STATE INDUSTRIAL DEVELOPMENT CORPORATION UTTARAKHAND LIMITED (SIDCUL), VILLAGE-PANTNAGAR, TEHSIL-KICHHA, DISTRICT-UDHAM SINGH NAGAR, STATE-UTTARAKHAND

Date of Monitoring : 10-04-2024

Monitoring Start Date : 10-04-2024

Monitoring End Date : 11-04-2024

Monitoring Done By : ETS STAFF

Monitoring Duration : 24.0 HOURS

Place Of Monitoring : NQ-1 PROJECT SITE

Category Of Area : INDUSTRIAL AREA

Sampling Method : ETS/LAB/NOISE-01

S. No.	Test Parameters	Unit	Result	Specification/Limit (As per CPCB)	Test Method
1.	Noise Level Day Time	Leq :dB (A)	72.5	75	IS: 9989
2.	Noise Level Night Time	Leq :dB (A)	57.3	70	IS: 9989

Remark: Day time is reckoned in between 06.00 A.M. and 10.00 P.M.
Night time is reckoned in between 10.00 P.M. and 06.00 A.M.

****End of Test Report****

ENVIRO-TECH SERVICES ETS-LAB

CHECKED BY
SHRADDHA GUPTA

For ENVIRO-TECH SERVICES
MD HUMRAJ
Quality Manager

AUTHORIZED SIGNATORY

Note:-

1. Test reports without ETS LAB HOLOGRAM are not issued by our laboratory.
2. The results indicated only refer to the tested samples and listed applicable parameters.
3. No complaint will be entertained if received after 7 days of issue of test report.
4. Our liability is limited to invoice value only.
5. The sample shall be destroyed after 15 days & Biological / Perishable sample shall be destroyed immediately after issue of test report.
6. This test report shall not be used in any advertising media or as evidence in the court of Law without prior written permission of the laboratory.

ETS-LAB

ENVIRO-TECH SERVICES

An Analytical Laboratory

(A GOVERNMENT APPROVED LAB)

Plot No. 1/32, S.S. of G.T. Road Industrial Area, Ghaziabad (U.P.) - 201001

email : etslab2012@gmail.com | Website : www.etslab.in | Ph.: 9911516076, 9811736063

ISO 45001

TEST REPORT

TEST REPORT NO : ETS/2156-10/04/2024 DATE OF REPORT : 10-05-2024

NOISE MONITORING REPORT

Name And Address of Customer : M/S HZL PANTNAGAR PROJECT AT PLOT NO.-2&3, SECTOR-14, IIE, STATE INDUSTRIAL DEVELOPMENT CORPORATION UTTARAKHAND LIMITED (SIDCUL), VILLAGE-PANTNAGAR, TEHSIL-KICHHA, DISTRICT-UDHAM SINGH NAGAR, STATE-UTTARAKHAND

Date of Monitoring : 10-04-2024

Monitoring Start Date : 10-04-2024

Monitoring End Date : 11-04-2024

Monitoring Done By : ETS STAFF

Monitoring Duration : 24.0 HOURS

Place Of Monitoring : NQ-2 UNDER 500 METER

Category Of Area : RESIDENTIAL AREA

Sampling Method : ETS/LAB/NOISE-01

S. No.	Test Parameters	Unit	Result	Specification/Limit (As per CPCB)	Test Method
1.	Noise Level Day Time	Leq :dB (A)	47.5	55	IS: 9989
2.	Noise Level Night Time	Leq :dB (A)	36.3	45	IS: 9989

Remark: Day time is reckoned in between 06.00 A.M. and 10.00 P.M.
Night time is reckoned in between 10.00 P.M. and 06.00 A.M.

****End of Test Report****

CHECKED BY
SHRADDHA GUPTA

For ENVIRO-TECH SERVICES

AUTHORIZED SIGNATORY
MOHANRAJ
Quality Manager

ETS-LAB

ENVIRO-TECH SERVICES

An Analytical Laboratory

(A GOVERNMENT APPROVED LAB)

Plot No. 1/32, S.S. of G.T. Road Industrial Area, Ghaziabad (U.P.) - 201001

email : etslab2012@gmail.com | Website : www.etslab.in | Ph.: 9911516076, 9811736063

ISO 45001

TEST REPORT

TEST REPORT NO : ETS/2156-11/04/2024 DATE OF REPORT : 10-05-2024

NOISE MONITORING REPORT

Name And Address of Customer	:	M/S HZL PANTNAGAR PROJECT AT PLOT NO.-2&3, SECTOR-14, IIE, STATE INDUSTRIAL DEVELOPMENT CORPORATION UTTARAKHAND LIMITED (SIDCUL), VILLAGE-PANTNAGAR, TEHSIL-KICHHA, DISTRICT-UDHAM SINGH NAGAR, STATE-UTTARAKHAND
Date of Monitoring	:	10-04-2024
Monitoring Start Date	:	10-04-2024
Monitoring End Date	:	11-04-2024
Monitoring Done By	:	ETS STAFF
Monitoring Duration	:	24.0 HOURS
Place Of Monitoring	:	NQ-3 KALI MANDIR, UDAYNAGAR
Category Of Area	:	RESIDENTIAL AREA
Sampling Method	:	ETS/LAB/NOISE-01

S. No.	Test Parameters	Unit	Result	Specification/Limit (As per CPCB)	Test Method
1.	Noise Level Day Time	Leq :dB (A)	50.6	55	IS: 9989
2.	Noise Level Night Time	Leq :dB (A)	42.3	45	IS: 9989

Remark: Day time is reckoned in between 06.00 A.M. and 10.00 P.M.
Night time is reckoned in between 10.00 P.M. and 06.00 A.M.

****End of Test Report****

ENVIRO-TECH SERVICES

CHECKED BY
SHRADDHA GUPTA

For ENVIRO-TECH SERVICES

AUTHORIZED SIGNATORY
MD HOMRAJ
Quality Manager

Note:-

1. Test reports without ETS LAB HOLOGRAM are not issued by our laboratory.
2. The results indicated only refer to the tested samples and listed applicable parameters.
3. No complaint will be entertained if received after 7 days of issue of test report.
4. Our liability is limited to invoice value only.
5. The sample shall be destroyed after 15 days & Biological / Perishable sample shall be destroyed immediately after issue of test report.
6. This test report shall not be used in any advertising media or as evidence in the court of Law without prior written permission of the laboratory.

ETS-LAB

ENVIRO-TECH SERVICES

An Analytical Laboratory

(A GOVERNMENT APPROVED LAB)

Plot No. 1/32, S.S. of G.T. Road Industrial Area, Ghaziabad (U.P.) - 201001

email : etslab2012@gmail.com | Website : www.etslab.in | Ph.: 9911516076, 9811736063

ISO 45001

TEST REPORT

TEST REPORT NO : ETS/2156-12/04/2024 DATE OF REPORT : 10-05-2024

NOISE MONITORING REPORT

Name And Address of Customer	:	M/S HZL PANTNAGAR PROJECT AT PLOT NO.-2&3, SECTOR-14, IIE, STATE INDUSTRIAL DEVELOPMENT CORPORATION UTTARAKHAND LIMITED (SIDCUL), VILLAGE-PANTNAGAR, TEHSIL-KICHHA, DISTRICT-UDHAM SINGH NAGAR, STATE-UTTARAKHAND
Date of Monitoring	:	14-04-2024
Monitoring Start Date	:	14-04-2024
Monitoring End Date	:	15-04-2024
Monitoring Done By	:	ETS STAFF
Monitoring Duration	:	24.0 HOURS
Place Of Monitoring	:	NQ-4 SIKLAI GAON
Category Of Area	:	RESIDENTIAL AREA
Sampling Method	:	ETS/LAB/NOISE-01

S. No.	Test Parameters	Unit	Result	Specification/Limit (As per CPCB)	Test Method
1.	Noise Level Day Time	Leq :dB (A)	48.2	55	IS: 9989
2.	Noise Level Night Time	Leq :dB (A)	36.6	45	IS: 9989

Remark: Day time is reckoned in between 06.00 A.M. and 10.00 P.M.
Night time is reckoned in between 10.00 P.M. and 06.00 A.M.

****End of Test Report****

CHECKED BY
SHRADDHA GUPTA

for ENVIRO-TECH SERVICES
AUTHORIZED SIGNATORY
MD HOMRAJ
Quality Manager

Note:-

1. Test reports without ETS LAB HOLOGRAM are not issued by our laboratory.
2. The results indicated only refer to the tested samples and listed applicable parameters.
3. No complaint will be entertained if received after 7 days of issue of test report.
4. Our liability is limited to invoice value only.
5. The sample shall be destroyed after 15 days & Biological / Perishable sample shall be destroyed immediately after issue of test report.
6. This test report shall not be used in any advertising media or as evidence in the court of Law without prior written permission of the laboratory.

ETS-LAB

ENVIRO-TECH SERVICES

An Analytical Laboratory

(A GOVERNMENT APPROVED LAB)

Plot No. 1/32, S.S. of G.T. Road Industrial Area, Ghaziabad (U.P.) - 201001

email : etslab2012@gmail.com | Website : www.etslab.in | Ph.: 9911516076, 9811736063

ISO 45001

TEST REPORT

TEST REPORT NO : ETS/2156-13/04/2024 DATE OF REPORT : 10-05-2024

NOISE MONITORING REPORT

Name And Address of Customer	:	M/S HZL PANTNAGAR PROJECT AT PLOT NO.-2&3, SECTOR-14, IIE, STATE INDUSTRIAL DEVELOPMENT CORPORATION UTTARAKHAND LIMITED (SIDCUL), VILLAGE-PANTNAGAR, TEHSIL-KICHHA, DISTRICT-UDHAM SINGH NAGAR, STATE-UTTARAKHAND
Date of Monitoring	:	14-04-2024
Monitoring Start Date	:	14-04-2024
Monitoring End Date	:	15-04-2024
Monitoring Done By	:	ETS STAFF
Monitoring Duration	:	24.0 HOURS
Place Of Monitoring	:	NQ-5 CHHATARPUR
Category Of Area	:	RESIDENTIAL AREA
Sampling Method	:	ETS/LAB/NOISE-01

S. No.	Test Parameters	Unit	Result	Specification/Limit (As per CPCB)	Test Method
1.	Noise Level Day Time	Leq :dB (A)	50.3	55	IS: 9989
2.	Noise Level Night Time	Leq :dB (A)	41.7	45	IS: 9989

Remark: Day time is reckoned in between 06.00 A.M. and 10.00 P.M.
Night time is reckoned in between 10.00 P.M. and 06.00 A.M.

****End of Test Report****

CHECKED BY
SHRADDHA GUPTA

For ENVIRO-TECH SERVICES

AUTHORIZED SIGNATORY
MD HUMRAJ
Quality Manager

Note:-

1. Test reports without ETS LAB HOLOGRAM are not issued by our laboratory.
2. The results indicated only refer to the tested samples and listed applicable parameters.
3. No complaint will be entertained if received after 7 days of issue of test report.
4. Our liability is limited to invoice value only.
5. The sample shall be destroyed after 15 days & Biological / Perishable sample shall be destroyed immediately after issue of test report.
6. This test report shall not be used in any advertising media or as evidence in the court of Law without prior written permission of the laboratory.

ETS-LAB

ENVIRO-TECH SERVICES

An Analytical Laboratory

(A GOVERNMENT APPROVED LAB)

Plot No. 1/32, S.S. of G.T. Road Industrial Area, Ghaziabad (U.P.) - 201001

email : etslab2012@gmail.com | Website : www.etslab.in | Ph.: 9911516076, 9811736063

ISO 45001

TEST REPORT

TEST REPORT NO : ETS/2156-14/04/2024 DATE OF REPORT : 10-05-2024

NOISE MONITORING REPORT

Name And Address of Customer	:	M/S HZL PANTNAGAR PROJECT AT PLOT NO.-2&3, SECTOR-14, IIE, STATE INDUSTRIAL DEVELOPMENT CORPORATION UTTARAKHAND LIMITED (SIDCUL), VILLAGE-PANTNAGAR, TEHSIL-KICHHA, DISTRICT-UDHAM SINGH NAGAR, STATE-UTTARAKHAND
Date of Monitoring	:	14-04-2024
Monitoring Start Date	:	14-04-2024
Monitoring End Date	:	15-04-2024
Monitoring Done By	:	ETS STAFF
Monitoring Duration	:	24.0 HOURS
Place Of Monitoring	:	NQ-6 GOVT.SENIOR SECONDARY SCHOOL, RUDRAPUR, JAGATPURA,
Category Of Area	:	SILENCE ZONE
Sampling Method	:	ETS/LAB/NOISE-01

S. No.	Test Parameters	Unit	Result	Specification/Limit (As per CPCB)	Test Method
1.	Noise Level Day Time	Leq :dB (A)	48.5	50	IS: 9989
2.	Noise Level Night Time	Leq :dB (A)	32.2	40	IS: 9989

Remark: Day time is reckoned in between 06.00 A.M. and 10.00 P.M.
Night time is reckoned in between 10.00 P.M. and 06.00 A.M.

****End of Test Report****

CHECKED BY
SHRADDHA GUPTA

For ENVIRO-TECH SERVICES

AUTHORIZED SIGNATORY

MD HUMRAJ
Quality Manager

Note:-

1. Test reports without ETS LAB HOLOGRAM are not issued by our laboratory.
2. The results indicated only refer to the tested samples and listed applicable parameters.
3. No complaint will be entertained if received after 7 days of issue of test report.
4. Our liability is limited to invoice value only.
5. The sample shall be destroyed after 15 days & Biological / Perishable sample shall be destroyed immediately after issue of test report.
6. This test report shall not be used in any advertising media or as evidence in the court of Law without prior written permission of the laboratory.

ETS-LAB

ENVIRO-TECH SERVICES

An Analytical Laboratory

(A GOVERNMENT APPROVED LAB)

Plot No. 1/32, S.S. of G.T. Road Industrial Area, Ghaziabad (U.P.) - 201001

email : etslab2012@gmail.com | Website : www.etslab.in | Ph.: 9911516076, 9811736063

ISO 45001

TEST REPORT

TEST REPORT NO : ETS/2156-15/04/2024 DATE OF REPORT : 10-05-2024

NOISE MONITORING REPORT

Name And Address of Customer	:	M/S HZL PANTNAGAR PROJECT AT PLOT NO.-2&3, SECTOR-14, IIE, STATE INDUSTRIAL DEVELOPMENT CORPORATION UTTARAKHAND LIMITED (SIDCUL), VILLAGE-PANTNAGAR, TEHSIL-KICHHA, DISTRICT-UDHAM SINGH NAGAR, STATE-UTTARAKHAND
Date of Monitoring	:	14-04-2024
Monitoring Start Date	:	14-04-2024
Monitoring End Date	:	15-04-2024
Monitoring Done By	:	ETS STAFF
Monitoring Duration	:	24.0 HOURS
Place Of Monitoring	:	NQ-7 JAGDISHPUR MARKET
Category Of Area	:	RESIDENTIAL AREA
Sampling Method	:	ETS/LAB/NOISE-01

S. No.	Test Parameters	Unit	Result	Specification/Limit (As per CPCB)	Test Method
1.	Noise Level Day Time	Leq :dB (A)	47.6	55	IS: 9989
2.	Noise Level Night Time	Leq :dB (A)	35.1	45	IS: 9989

Remark: Day time is reckoned in between 06.00 A.M. and 10.00 P.M.
Night time is reckoned in between 10.00 P.M. and 06.00 A.M.

****End of Test Report****

ENVIRO-TECH SERVICE

CHECKED BY
SHRADDHA GUPTA

for ENVIRO-TECH SERVICES

AUTHORIZED SIGNATORY
MR. AMRAJ
Quality Manager

Note:-

1. Test reports without ETS LAB HOLOGRAM are not issued by our laboratory.
2. The results indicated only refer to the tested samples and listed applicable parameters.
3. No complaint will be entertained if received after 7 days of issue of test report.
4. Our liability is limited to invoice value only.
5. The sample shall be destroyed after 15 days & Biological / Perishable sample shall be destroyed immediately after issue of test report.
6. This test report shall not be used in any advertising media or as evidence in the court of Law without prior written permission of the laboratory.

ETS-LAB

ENVIRO-TECH SERVICES

An Analytical Laboratory

(A GOVERNMENT APPROVED LAB)

Plot No. 1/32, S.S. of G.T. Road Industrial Area, Ghaziabad (U.P.) - 201001

email : etslab2012@gmail.com | Website : www.etslab.in | Ph.: 9911516076, 9811736063

ISO 45001

TEST REPORT

TEST REPORT NO : ETS/2156-16/04/2024 DATE OF REPORT : 10-05-2024

NOISE MONITORING REPORT

Name And Address of Customer	:	M/S HZL PANTNAGAR PROJECT AT PLOT NO.-2&3, SECTOR-14, IIE, STATE INDUSTRIAL DEVELOPMENT CORPORATION UTTARAKHAND LIMITED (SIDCUL), VILLAGE-PANTNAGAR, TEHSIL-KICHHA, DISTRICT-UDHAM SINGH NAGAR, STATE-UTTARAKHAND
Date of Monitoring	:	14-04-2024
Monitoring Start Date	:	14-04-2024
Monitoring End Date	:	15-04-2024
Monitoring Done By	:	ETS STAFF
Monitoring Duration	:	24.0 HOURS
Place Of Monitoring	:	NQ-8 GOVERNMENT PRIMARY SCHOOL,
Category Of Area	:	SILENCE ZONE
Sampling Method	:	ETS/LAB/NOISE-01

S. No.	Test Parameters	Unit	Result	Specification/Limit (As per CPCB)	Test Method
1.	Noise Level Day Time	Leq :dB (A)	46.0	50	IS: 9989
2.	Noise Level Night Time	Leq :dB (A)	33.1	40	IS: 9989

Remark: Day time is reckoned in between 06.00 A.M. and 10.00 P.M.
Night time is reckoned in between 10.00 P.M. and 06.00 A.M.

****End of Test Report****

ENVIRO-TECH SERVICE

CHECKED BY
SHRADDHA GUPTA

For ENVIRO-TECH SERVICES

AUTHORIZED SIGNATORY
MD HUMRAJ
Quality Manager

Note:-

1. Test reports without ETS LAB HOLOGRAM are not issued by our laboratory.
2. The results indicated only refer to the tested samples and listed applicable parameters.
3. No complaint will be entertained if received after 7 days of issue of test report.
4. Our liability is limited to invoice value only.
5. The sample shall be destroyed after 15 days & Biological / Perishable sample shall be destroyed immediately after issue of test report.
6. This test report shall not be used in any advertising media or as evidence in the court of Law without prior written permission of the laboratory.

ETS-LAB

ENVIRO-TECH SERVICES

An Analytical Laboratory

(A GOVERNMENT APPROVED LAB)

Plot No. 1/32, S.S. of G.T. Road Industrial Area, Ghaziabad (U.P.) - 201001

email : etslab2012@gmail.com | Website : www.etslab.in | Ph.: 9911516076, 9811736063

ISO 45001

TEST REPORT

TEST REPORT NO : ETS/2156-17/04/2024 DATE OF REPORT :10.05.2024

SOIL SAMPLE ANALYSIS REPORT

Name And Address of Customer : M/S HZL PANTNAGAR PROJECT
AT PLOT NO.-2&3, SECTOR-14, IIE, STATE INDUSTRIAL DEVELOPMENT CORPORATION UTTARAKHAND LIMITED (SIDCUL), VILLAGE-PANTNAGAR, TEHSIL-KICHHA, DISTRICT-UDHAM SINGH NAGAR, STATE-UTTARAKHAND

Date of Sampling : 10.04.2024
Analysis Start Date : 12.04.2024
Analysis End Date : 15.04.2024
Sample ID No : 2156-17
Sampling Done By : ETS STAFF
Sampling& Testing Method : ETS/LAB/SOIL-01
Sampling Location : SQ-1 PROJECT SITE
Sampling Quantity : 2 kg.
Packing Condition : SEALED
Packed In : ZIP POLLY BAG

S. No.	Test Parameters	Unit	Result	Test Method
1.	Texture	...	Sandy Clay Loam	IS:2720 (Pt-4)
2.	Sand	%	48.4	IS:2720 (Pt-4)
3.	Silt	%	28.2	IS:2720 (Pt-4)
4.	Clay	%	23.4	IS:2720 (Pt-4)
5.	pH (1:2 Suspension)	..	7.46	IS:2720 (Pt-26)
6.	Cation Exchange Capacity(CEC)	meq/100g	28.8	IS:2720 (Pt-24)
7.	Electrical Conductivity (1:2)	µmho/cm	362.25	IS:14767
8.	Water Holding Capacity(WHC)	%	33.6	IS 2720 (Part-2)
9.	Sodium (Na)	mg/kg	123.9	APHA-3125B
10.	Calcium (Ca)	mg/kg	1064.17	IS 2720 (Part-23)
11.	Magnesium (Mg)	mg/kg	458.8	ETS/STP/SOIL-08
12.	Bulk Density	g/cm^3	1.62	IS 2386 (Part-4)
13.	Total Nitrogen (N)	mg/kg	187.1	APHA, Pt 4500:(N)
14.	Phosphorus (PO4)	mg/kg	39.06	ETS/STP/SOIL-19
15.	Potassium (K)	mg/kg	297.92	APHA-3125B
16.	Organic Matter	%	2.20	IS : 2720 (P-22)
17.	Organic Carbon	%	1.68	BS 1377 -3)
18.	Sulphate as (SO_4)	mg/kg	1.89	IS:3025(P-24)
19.	Porosity	%	19.03	IS 13030
20.	Manganese,(Mn)	mg/kg	3.67	ETS/STP/SOIL-18
21.	Nickel,(Ni)	mg/kg	1.78	ETS/STP/SOIL-18
22.	Zinc,(Zn)	mg/kg	1.26	ETS/STP/SOIL-18
23.	Lead,(Pb)	mg/kg	2.20	ETS/STP/SOIL-18

****End of Test Report****

CHECKED BY
SHRADDHA GUPTA

For ENVIRO-TECH SERVICES
AUTHORIZED SIGNATORY
MD HUMRAJ
Quality Manager

1. Test reports without ETS LAB HOLOGRAM are not issued by our laboratory.
2. The results indicated only refer to the tested samples and listed applicable parameters.
3. No complaint will be entertained if received after 7 days of issue of test report.
4. Our liability is limited to invoice value only.
5. The sample shall be destroyed after 15 days & Biological / Perishable sample shall be destroyed immediately after issue of test report.
6. This test report shall not be used in any advertising media or as evidence in the court of Law without prior written permission of the laboratory.

ETS-LAB

ENVIRO-TECH SERVICES

An Analytical Laboratory

(A GOVERNMENT APPROVED LAB)

Plot No. 1/32, S.S. of G.T. Road Industrial Area, Ghaziabad (U.P.) - 201001

email : etslab2012@gmail.com | Website : www.etslab.in | Ph.: 9911516076, 9811736063

ISO 45001

TEST REPORT

TEST REPORT NO : ETS/2156-18/04/2024 DATE OF REPORT : 10.05.2024

SOIL SAMPLE ANALYSIS REPORT

Name And Address of Customer : M/S HZL PANTNAGAR PROJECT
AT PLOT NO.-2&3, SECTOR-14, IIE, STATE INDUSTRIAL DEVELOPMENT CORPORATION UTTARAKHAND LIMITED (SIDCUL), VILLAGE-PANTNAGAR, TEHSIL-KICHHA, DISTRICT-UDHAM SINGH NAGAR, STATE-UTTARAKHAND

Date of Sampling : 10.04.2024
Analysis Start Date : 12.04.2024
Analysis End Date : 15.04.2024
Sample ID No : 2156-18
Sampling Done By : ETS STAFF
Sampling& Testing Method : ETS/LAB/SOIL-01
Sampling Location : SQ-2 UNDER 500 METER
Sampling Quantity : 2 kg.
Packing Condition : SEALED
Packed In : ZIP POLLY BAG

S. No.	Test Parameters	Unit	Result	Test Method
1.	Texture	...	Sandy Clay Loam	IS:2720 (Pt-4)
2.	Sand	%	52.5	IS:2720 (Pt-4)
3.	Silt	%	30.3	IS:2720 (Pt-4)
4.	Clay	%	17.1	IS:2720 (Pt-4)
5.	pH (1:2 Suspension)	..	7.33	IS:2720 (Pt-26)
6.	Cation Exchange Capacity(CEC)	meq/100g	22.6	IS:2720 (Pt-24)
7.	Electrical Conductivity (1:2)	µmho/cm	367.5	IS:14767
8.	Water Holding Capacity(WHC)	%	36.7	IS 2720 (Part-2)
9.	Sodium (Na)	mg/kg	129.12	APHA-3125B
10.	Calcium (Ca)	mg/kg	1102.5	IS 2720 (Part-23)
11.	Magnesium (Mg)	mg/kg	369.6	ETS/STP/SOIL-08
12.	Bulk Density	g/cm^3	1.40	IS 2386 (Part-4)
13.	Total Nitrogen (N)	mg/kg	170.94	APHA, Pt 4500:(N)
14.	Phosphorus (PO4)	mg/kg	50.29	ETS/STP/SOIL-19
15.	Potassium (K)	mg/kg	296.03	APHA-3125B
16.	Organic Matter	%	3.15	IS : 2720 (P-22)
17.	Organic Carbon	%	1.57	BS 1377 -3)
18.	Sulphate as (SO_4)	mg/kg	2.1	IS:3025(P-24)
19.	Porosity	%	18.39	IS 13030
20.	Manganese,(Mn)	mg/kg	3.9	ETS/STP/SOIL-18
21.	Nickel,(Ni)	mg/kg	1.57	ETS/STP/SOIL-18
22.	Zinc,(Zn)	mg/kg	1.15	ETS/STP/SOIL-18
23.	Lead,(Pb)	mg/kg	1.68	ETS/STP/SOIL-18

****End of Test Report****

ENVIRO-TECH SERVICE

CHECKED BY
SHRADDHA GUPTA

For ENVIRO-TECH SERVICES

AUTHORIZED SIGNATORY
MD HUMRAJ
Quality Manager

Note:-

1. Test reports without ETS LAB HOLOGRAM are not issued by our laboratory.
2. The results indicated only refer to the tested samples and listed applicable parameters.
3. No complaint will be entertained if received after 7 days of issue of test report.
4. Our liability is limited to invoice value only.
5. The sample shall be destroyed after 15 days & Biological / Perishable sample shall be destroyed immediately after issue of test report.
6. This test report shall not be used in any advertising media or as evidence in the court of Law without prior written permission of the laboratory.

ETS-LAB

ENVIRO-TECH SERVICES

An Analytical Laboratory

(A GOVERNMENT APPROVED LAB)

Plot No. 1/32, S.S. of G.T. Road Industrial Area, Ghaziabad (U.P.) - 201001

email : etslab2012@gmail.com | Website : www.etslab.in | Ph.: 9911516076, 9811736063

ISO 45001

TEST REPORT

TEST REPORT NO : ETS/2156-19/04/2024

DATE OF REPORT : 10.05.2024

SOIL SAMPLE ANALYSIS REPORT

Name And Address of Customer : M/S HZL PANTNAGAR PROJECT
AT PLOT NO.-2&3, SECTOR-14, IIE, STATE INDUSTRIAL DEVELOPMENT CORPORATION UTTARAKHAND LIMITED (SIDCUL), VILLAGE-PANTNAGAR, TEHSIL-KICHHA, DISTRICT-UDHAM SINGH NAGAR, STATE-UTTARAKHAND

Date of Sampling : 10.04.2024
Analysis Start Date : 12.04.2024
Analysis End Date : 15.04.2024
Sample ID No : 2156-19
Sampling Done By : ETS STAFF
Sampling& Testing Method : ETS/LAB/SOIL-01
Sampling Location : SQ-3 AGRICULTURE LAND NEAR UDAYNAGAR
Sampling Quantity : 2 kg.
Packing Condition : SEALED
Packed In : ZIP POLLY BAG

S. No.	Test Parameters	Unit	Result	Test Method
1.	Texture	...	Sandy Clay Loam	IS:2720 (Pt-4)
2.	Sand	%	50.3	IS:2720 (Pt-4)
3.	Silt	%	31.3	IS:2720 (Pt-4)
4.	Clay	%	18.4	IS:2720 (Pt-4)
5.	pH (1:2 Suspension)	..	7.33	IS:2720 (Pt-26)
6.	Cation Exchange Capacity(CEC)	meq/100g	23.1	IS:2720 (Pt-24)
7.	Electrical Conductivity (1:2)	µmho/cm	372.7	IS:14767
8.	Water Holding Capacity(WHC)	%	22.05	IS 2720 (Part-2)
9.	Sodium (Na)	mg/kg	107.52	APHA-3125B
10.	Calcium (Ca)	mg/kg	1016.92	IS 2720 (Part-23)
11.	Magnesium (Mg)	mg/kg	342.3	ETS/STP/SOIL-08
12.	Bulk Density	g/cm^3	1.41	IS 2386 (Part-4)
13.	Total Nitrogen (N)	mg/kg	185.6	APHA, Pt 4500:(N)
14.	Phosphorus (PO4)	mg/kg	53.9	ETS/STP/SOIL-19
15.	Potassium (K)	mg/kg	235.7	APHA-3125B
16.	Organic Matter	%	2.94	IS : 2720 (P-22)
17.	Organic Carbon	%	1.47	BS 1377 -3)
18.	Sulphate as (SO_4)	mg/kg	2.73	IS:3025(P-24)
19.	Porosity	%	14.5	IS 13030
20.	Manganese,(Mn)	mg/kg	3.36	ETS/STP/SOIL-18
21.	Nickel,(Ni)	mg/kg	1.02	ETS/STP/SOIL-18
22.	Zinc,(Zn)	mg/kg	1.05	ETS/STP/SOIL-18
23.	Lead,(Pb)	mg/kg	1.89	ETS/STP/SOIL-18

****End of Test Report****

CHECKED BY
SHRADDHA GUPTA

For ENVIRO-TECH SERVICES

AUTHORIZED SIGNATORY
MD HOMRAJ
Quality Manager

Note:-

1. Test reports without ETS LAB HOLOGRAM are not issued by our laboratory.
2. The results indicated only refer to the tested samples and listed applicable parameters.
3. No complaint will be entertained if received after 7 days of issue of test report.
4. Our liability is limited to invoice value only.
5. The sample shall be destroyed after 15 days & Biological / Perishable sample shall be destroyed immediately after issue of test report.
6. This test report shall not be used in any advertising media or as evidence in the court of Law without prior written permission of the laboratory.

ETS-LAB

ENVIRO-TECH SERVICES

An Analytical Laboratory

(A GOVERNMENT APPROVED LAB)

Plot No. 1/32, S.S. of G.T. Road Industrial Area, Ghaziabad (U.P.) - 201001

email : etslab2012@gmail.com | Website : www.etslab.in | Ph.: 9911516076, 9811736063

ISO 45001

TEST REPORT

TEST REPORT NO : ETS/2156-20/04/2024 DATE OF REPORT : 10.05.2024

SOIL SAMPLE ANALYSIS REPORT

Name And Address of Customer : M/S HZL PANTNAGAR PROJECT
AT PLOT NO.-2&3, SECTOR-14, IIE, STATE INDUSTRIAL DEVELOPMENT CORPORATION UTTARAKHAND LIMITED (SIDCUL), VILLAGE-PANTNAGAR, TEHSIL-KICHHA, DISTRICT-UDHAM SINGH NAGAR, STATE-UTTARAKHAND

Date of Sampling : 15.04.2024
Analysis Start Date : 17.04.2024
Analysis End Date : 20.04.2024
Sample ID No : 2156-20
Sampling Done By : ETS STAFF
Sampling& Testing Method : ETS/LAB/SOIL-01
Sampling Location : SQ-4 AGRICULTURE LAND NEAR SIKLAI GAON
Sampling Quantity : 2.0 kg.
Packing Condition : SEALED
Packed In : ZIP POLLY BAG

S. No.	Test Parameters	Unit	Result	Test Method
1.	Texture	...	Sandy Clay Loam	IS:2720 (Pt-4)
2.	Sand	%	56.1	IS:2720 (Pt-4)
3.	Silt	%	10.7	IS:2720 (Pt-4)
4.	Clay	%	33.2	IS:2720 (Pt-4)
5.	pH (1:2 Suspension)	..	7.23	IS:2720 (Pt-26)
6.	Cation Exchange Capacity(CEC)	meq/100g	20.9	IS:2720 (Pt-24)
7.	Electrical Conductivity (1:2)	µmho/cm	330.75	IS:14767
8.	Water Holding Capacity(WHC)	%	29.82	IS 2720 (Part-2)
9.	Sodium (Na)	mg/kg	129.15	APHA-3125B
10.	Calcium (Ca)	mg/kg	941.22	IS 2720 (Part-23)
11.	Magnesium (Mg)	mg/kg	338.41	ETS/STP/SOIL-08
12.	Bulk Density	g/cm^3	1.31	IS 2386 (Part-4)
13.	Total Nitrogen (N)	mg/kg	170.8	APHA, Pt 4500:(N)
14.	Phosphorus (PO4)	mg/kg	40.32	ETS/STP/SOIL-19
15.	Potassium (K)	mg/kg	264.18	APHA-3125B
16.	Organic Matter	%	2.52	IS : 2720 (P-22)
17.	Organic Carbon	%	1.68	BS 1377 -3)
18.	Sulphate as (SO_4)	mg/kg	1.31	IS:3025(P-24)
19.	Porosity	%	17.34	IS 13030
20.	Manganese,(Mn)	mg/kg	4.72	ETS/STP/SOIL-18
21.	Nickel,(Ni)	mg/kg	1.5	ETS/STP/SOIL-18
22.	Zinc,(Zn)	mg/kg	1.36	ETS/STP/SOIL-18
23.	Lead,(Pb)	mg/kg	1.73	ETS/STP/SOIL-18

****End of Test Report****

ENVIRO-TECH SERVICE ETS-LAB

CHECKED BY
SHRADDHA GUPTA

For ENVIRO-TECH SERVICES

AUTHORIZED SIGNATORY
MD HUMRAJ
Quality Manager

Note:-

1. Test reports without ETS LAB HOLOGRAM are not issued by our laboratory.
2. The results indicated only refer to the tested samples and listed applicable parameters.
3. No complaint will be entertained if received after 7 days of issue of test report.
4. Our liability is limited to invoice value only.
5. The sample shall be destroyed after 15 days & Biological / Perishable sample shall be destroyed immediately after issue of test report.
6. This test report shall not be used in any advertising media or as evidence in the court of Law without prior written permission of the laboratory.

ETS-LAB

ENVIRO-TECH SERVICES

An Analytical Laboratory

(A GOVERNMENT APPROVED LAB)

Plot No. 1/32, S.S. of G.T. Road Industrial Area, Ghaziabad (U.P.) - 201001

email : etslab2012@gmail.com | Website : www.etslab.in | Ph.: 9911516076, 9811736063

ISO 45001

TEST REPORT

TEST REPORT NO : ETS/2156-21/04/2024 DATE OF REPORT : 10.05.2024

SOIL SAMPLE ANALYSIS REPORT

Name And Address of Customer : M/S HZL PANTNAGAR PROJECT
AT PLOT NO.-2&3, SECTOR-14, IIE, STATE INDUSTRIAL DEVELOPMENT CORPORATION UTTARAKHAND LIMITED (SIDCUL), VILLAGE-PANTNAGAR, TEHSIL-KICHHA, DISTRICT-UDHAM SINGH NAGAR, STATE-UTTARAKHAND

Date of Sampling : 15.04.2024
Analysis Start Date : 17.04.2024
Analysis End Date : 20.04.2024
Sample ID No : 2156-21
Sampling Done By : ETS STAFF
Sampling& Testing Method : ETS/LAB/SOIL-01
Sampling Location : SQ-5 AGRICULTURE LAND NEAR CHHATARPUR
Sampling Quantity : 2.0 kg.
Packing Condition : SEALED
Packed In : ZIP POLLY BAG

S. No.	Test Parameters	Unit	Result	Test Method
1.	Texture	...	Sandy Clay Loam	IS:2720 (Pt-4)
2.	Sand	%	51.4	IS:2720 (Pt-4)
3.	Silt	%	18.4	IS:2720 (Pt-4)
4.	Clay	%	30.2	IS:2720 (Pt-4)
5.	pH (1:2 Suspension)	..	7.42	IS:2720 (Pt-26)
6.	Cation Exchange Capacity(CEC)	meq/100g	20.35	IS:2720 (Pt-24)
7.	Electrical Conductivity (1:2)	µmho/cm	363.3	IS:14767
8.	Water Holding Capacity(WHC)	%	30.45	IS 2720 (Part-2)
9.	Sodium (Na)	mg/kg	138.6	APHA-3125B
10.	Calcium (Ca)	mg/kg	1011.7	IS 2720 (Part-23)
11.	Magnesium (Mg)	mg/kg	381.4	ETS/STP/SOIL-08
12.	Bulk Density	g/cm^3	1.60	IS 2386 (Part-4)
13.	Total Nitrogen (N)	mg/kg	191.83	APHA, Pt 4500:(N)
14.	Phosphorus (PO4)	mg/kg	48.82	ETS/STP/SOIL-19
15.	Potassium (K)	mg/kg	232.89	APHA-3125B
16.	Organic Matter	%	2.83	IS : 2720 (P-22)
17.	Organic Carbon	%	2.20	BS 1377 -3)
18.	Sulphate as (SO_4)	mg/kg	1.73	IS:3025(P-24)
19.	Porosity	%	9.24	IS 13030
20.	Manganese,(Mn)	mg/kg	3.99	ETS/STP/SOIL-18
21.	Nickel,(Ni)	mg/kg	0.99	ETS/STP/SOIL-18
22.	Zinc,(Zn)	mg/kg	1.57	ETS/STP/SOIL-18
23.	Lead,(Pb)	mg/kg	1.26	ETS/STP/SOIL-18

****End of Test Report****

CHECKED BY
SHRADDHA GUPTA

For ENVIRO-TECH SERVICES

AUTHORIZED SIGNATORY
ANUJ TIWARAJ
Quality Manager

Note:-

1. Test reports without ETS LAB HOLOGRAM are not issued by our laboratory.
2. The results indicated only refer to the tested samples and listed applicable parameters.
3. No complaint will be entertained if received after 7 days of issue of test report.
4. Our liability is limited to invoice value only.
5. The sample shall be destroyed after 15 days & Biological / Perishable sample shall be destroyed immediately after issue of test report.
6. This test report shall not be used in any advertising media or as evidence in the court of Law without prior written permission of the laboratory.

ETS-LAB

ENVIRO-TECH SERVICES

An Analytical Laboratory

ISO 45001

(A GOVERNMENT APPROVED LAB)

Plot No. 1/32, S.S. of G.T. Road Industrial Area, Ghaziabad (U.P.) - 201001

email : etslab2012@gmail.com | Website : www.etslab.in | Ph.: 9911516076, 9811736063

TEST REPORT

TEST REPORT NO : ETS/2156-22/04/2024 DATE OF REPORT : 10.05.2024

SOIL SAMPLE ANALYSIS REPORT

Name And Address of Customer	:	M/S HZL PANTNAGAR PROJECT AT PLOT NO.-2&3, SECTOR-14, IIE, STATE INDUSTRIAL DEVELOPMENT CORPORATION UTTARAKHAND LIMITED (SIDCUL), VILLAGE-PANTNAGAR, TEHSIL-KICHHA, DISTRICT-UDHAM SINGH NAGAR, STATE-UTTARAKHAND
Date of Sampling	:	15.04.2024
Analysis Start Date	:	17.04.2024
Analysis End Date	:	20.04.2024
Sample ID No	:	2156-22
Sampling Done By	:	ETS STAFF
Sampling& Testing Method	:	ETS/LAB/SOIL-01
Sampling Location	:	SQ-6 AGRICULTURE LAND NEAR GOVT. SENIOR SECONDARY SCHOOL, RUDRAPUR, JAGATPURA,
Sampling Quantity	:	2 kg.
Packing Condition	:	SEALED
Packed In	:	ZIP POLLY BAG

S. No.	Test Parameters	Unit	Result	Test Method
1.	Texture	...	Sandy Clay Loam	IS:2720 (Pt-4)
2.	Sand	%	55.2	IS:2720 (Pt-4)
3.	Silt	%	14.3	IS:2720 (Pt-4)
4.	Clay	%	30.5	IS:2720 (Pt-4)
5.	pH (1:2 Suspension)	..	7.50	IS:2720 (Pt-26)
6.	Cation Exchange Capacity(CEC)	meq/100g	28.6	IS:2720 (Pt-24)
7.	Electrical Conductivity (1:2)	µmho/cm	332.85	IS:14767
8.	Water Holding Capacity(WHC)	%	23.1	IS 2720 (Part-2)
9.	Sodium (Na)	mg/kg	142.8	APHA-3125B
10.	Calcium (Ca)	mg/kg	1087.2	IS 2720 (Part-23)
11.	Magnesium (Mg)	mg/kg	432.6	ETS/STP/SOIL-08
12.	Bulk Density	g/cm^3	1.49	IS 2386 (Part-4)
13.	Total Nitrogen (N)	mg/kg	155.7	APHA, Pt 4500:(N)
14.	Phosphorus (PO4)	mg/kg	45.6	ETS/STP/SOIL-19
15.	Potassium (K)	mg/kg	201.07	APHA-3125B
16.	Organic Matter	%	2.83	IS : 2720 (P-22)
17.	Organic Carbon	%	1.71	BS 1377 -3)
18.	Sulphate as (SO_4)	mg/kg	2.62	IS:3025(P-24)
19.	Porosity	%	14.4	IS 13030
20.	Manganese,(Mn)	mg/kg	3.46	ETS/STP/SOIL-18
21.	Nickel,(Ni)	mg/kg	1.68	ETS/STP/SOIL-18
22.	Zinc,(Zn)	mg/kg	1.89	ETS/STP/SOIL-18
23.	Lead,(Pb)	mg/kg	2.62	ETS/STP/SOIL-18

****End of Test Report****

CHECKED BY
SHRADDHA GUPTA

For ENVIRO-TECH SERVICES

AUTHORIZED SIGNATORY
Quality Manager

Note:-

1. Test reports without ETS LAB HOLOGRAM are not issued by our laboratory.
2. The results indicated only refer to the tested samples and listed applicable parameters.
3. No complaint will be entertained if received after 7 days of issue of test report.
4. Our liability is limited to invoice value only.
5. The sample shall be destroyed after 15 days & Biological / Perishable sample shall be destroyed immediately after issue of test report.
6. This test report shall not be used in any advertising media or as evidence in the court of Law without prior written permission of the laboratory.

ETS-LAB

ENVIRO-TECH SERVICES

An Analytical Laboratory

(A GOVERNMENT APPROVED LAB)

Plot No. 1/32, S.S. of G.T. Road Industrial Area, Ghaziabad (U.P.) - 201001

email : etslab2012@gmail.com | Website : www.etslab.in | Ph.: 9911516076, 9811736063

ISO 45001

TEST REPORT

TEST REPORT NO : ETS/2156-23/04/2024 DATE OF REPORT : 10.05.2024

SOIL SAMPLE ANALYSIS REPORT

Name And Address of Customer : M/S HZL PANTNAGAR PROJECT
AT PLOT NO.-2&3, SECTOR-14, IIE, STATE INDUSTRIAL DEVELOPMENT CORPORATION UTTARAKHAND LIMITED (SIDCUL), VILLAGE-PANTNAGAR, TEHSIL-KICHHA, DISTRICT-UDHAM SINGH NAGAR, STATE-UTTARAKHAND

Date of Sampling : 20.04.2024
Analysis Start Date : 22.04.2024
Analysis End Date : 25.04.2024
Sample ID No : 2156-23
Sampling Done By : ETS STAFF
Sampling& Testing Method : ETS/LAB/SOIL-01
Sampling Location : SQ-7 AGRICULTURE LAND NEAR JAGDISHPUR
Sampling Quantity : 2 kg.
Packing Condition : SEALED
Packed In : ZIP POLLY BAG

S. No.	Test Parameters	Unit	Result	Test Method
1.	Texture	...	Sandy Clay Loam	IS:2720 (Pt-4)
2.	Sand	%	57.6	IS:2720 (Pt-4)
3.	Silt	%	15.2	IS:2720 (Pt-4)
4.	Clay	%	27.2	IS:2720 (Pt-4)
5.	pH (1:2 Suspension)	..	7.52	IS:2720 (Pt-26)
6.	Cation Exchange Capacity(CEC)	meq/100g	25.3	IS:2720 (Pt-24)
7.	Electrical Conductivity (1:2)	µmho/cm	352.8	IS:14767
8.	Water Holding Capacity(WHC)	%	30.2	IS 2720 (Part-2)
9.	Sodium (Na)	mg/kg	135.4	APHA-3125B
10.	Calcium (Ca)	mg/kg	1084.1	IS 2720 (Part-23)
11.	Magnesium (Mg)	mg/kg	445.2	ETS/STP/SOIL-08
12.	Bulk Density	g/cm^3	1.55	IS 2386 (Part-4)
13.	Total Nitrogen (N)	mg/kg	173.46	APHA, Pt 4500:(N)
14.	Phosphorus (PO4)	mg/kg	58.8	ETS/STP/SOIL-19
15.	Potassium (K)	mg/kg	197.82	APHA-3125B
16.	Organic Matter	%	2.8	IS : 2720 (P-22)
17.	Organic Carbon	%	1.9	BS 1377 -3)
18.	Sulphate as (SO_4)	mg/kg	2.6	IS:3025(P-24)
19.	Porosity	%	8.4	IS 13030
20.	Manganese,(Mn)	mg/kg	3.78	ETS/STP/SOIL-18
21.	Nickel,(Ni)	mg/kg	0.92	ETS/STP/SOIL-18
22.	Zinc,(Zn)	mg/kg	1.68	ETS/STP/SOIL-18
23.	Lead,(Pb)	mg/kg	1.78	ETS/STP/SOIL-18

****End of Test Report****

CHECKED BY
SHRADDHA GUPTA

For ENVIRO-TECH SERVICES

AUTHORIZED SIGNATORY
RD HOMRAJ
Quality Manager

Note:-

1. Test reports without ETS LAB HOLOGRAM are not issued by our laboratory.
2. The results indicated only refer to the tested samples and listed applicable parameters.
3. No complaint will be entertained if received after 7 days of issue of test report.
4. Our liability is limited to invoice value only.
5. The sample shall be destroyed after 15 days & Biological / Perishable sample shall be destroyed immediately after issue of test report.
6. This test report shall not be used in any advertising media or as evidence in the court of Law without prior written permission of the laboratory.

ETS-LAB

ENVIRO-TECH SERVICES

An Analytical Laboratory

(A GOVERNMENT APPROVED LAB)

Plot No. 1/32, S.S. of G.T. Road Industrial Area, Ghaziabad (U.P.) - 201001

email : etslab2012@gmail.com | Website : www.etslab.in | Ph.: 9911516076, 9811736063

ISO 45001

TEST REPORT

TEST REPORT NO : ETS/2156-24/04/2024 DATE OF REPORT : 10.05.2024

SOIL SAMPLE ANALYSIS REPORT

Name And Address of Customer	:	M/S HZL PANTNAGAR PROJECT AT PLOT NO.-2&3, SECTOR-14, IIE, STATE INDUSTRIAL DEVELOPMENT CORPORATION UTTARAKHAND LIMITED (SIDCUL), VILLAGE-PANTNAGAR, TEHSIL-KICHHA, DISTRICT-UDHAM SINGH NAGAR, STATE-UTTARAKHAND
Date of Sampling	:	20.04.2024
Analysis Start Date	:	22.04.2024
Analysis End Date	:	25.04.2024
Sample ID No	:	2156-24
Sampling Done By	:	ETS STAFF
Sampling& Testing Method	:	ETS/LAB/SOIL-01
Sampling Location	:	SQ-8 AGRICULTURE LAND NEAR GOVERNMENT PRIMARY SCHOOL, PATHARCHATTA
Sampling Quantity	:	2 kg.
Packing Condition	:	SEALED
Packed In	:	ZIP POLLY BAG

S. No.	Test Parameters	Unit	Result	Test Method
1.	Texture	...	Sandy Clay Loam	IS:2720 (Pt-4)
2.	Sand	%	46.2	IS:2720 (Pt-4)
3.	Silt	%	23.3	IS:2720 (Pt-4)
4.	Clay	%	30.5	IS:2720 (Pt-4)
5.	pH (1:2 Suspension)	..	7.47	IS:2720 (Pt-26)
6.	Cation Exchange Capacity(CEC)	meq/100g	28.6	IS:2720 (Pt-24)
7.	Electrical Conductivity (1:2)	µmho/cm	345.45	IS:14767
8.	Water Holding Capacity(WHC)	%	32.52	IS 2720 (Part-2)
9.	Sodium (Na)	mg/kg	166.9	APHA-3125B
10.	Calcium (Ca)	mg/kg	1015.8	IS 2720 (Part-23)
11.	Magnesium (Mg)	mg/kg	460.95	ETS/STP/SOIL-08
12.	Bulk Density	g/cm^3	1.911	IS 2386 (Part-4)
13.	Total Nitrogen (N)	mg/kg	174.72	APHA, Pt 4500:(N)
14.	Phosphorus (PO4)	mg/kg	62.37	ETS/STP/SOIL-19
15.	Potassium (K)	mg/kg	207.79	APHA-3125B
16.	Organic Matter	%	2.31	IS : 2720 (P-22)
17.	Organic Carbon	%	1.99	BS 1377 -3)
18.	Sulphate as (SO_4)	mg/kg	2.52	IS:3025(P-24)
19.	Porosity	%	7.35	IS 13030
20.	Manganese,(Mn)	mg/kg	3.25	ETS/STP/SOIL-18
21.	Nickel,(Ni)	mg/kg	1.05	ETS/STP/SOIL-18
22.	Zinc,(Zn)	mg/kg	1.47	ETS/STP/SOIL-18
23.	Lead,(Pb)	mg/kg	1.89	ETS/STP/SOIL-18

****End of Test Report****

CHECKED BY
SHRADDHA GUPTA

For ENVIRO-TECH SERVICES

AUTHORIZED SIGNATORY

Quality Manager

Note:-

1. Test reports without ETS LAB HOLOGRAM are not issued by our laboratory.
2. The results indicated only refer to the tested samples and listed applicable parameters.
3. No complaint will be entertained if received after 7 days of issue of test report.
4. Our liability is limited to invoice value only.
5. The sample shall be destroyed after 15 days & Biological / Perishable sample shall be destroyed immediately after issue of test report.
6. This test report shall not be used in any advertising media or as evidence in the court of Law without prior written permission of the laboratory.

ETS-LAB

ENVIRO-TECH SERVICES

An Analytical Laboratory

ISO 45001

(A GOVERNMENT APPROVED LAB)

Plot No. 1/32, S.S. of G.T. Road Industrial Area, Ghaziabad (U.P.) - 201001

email : etslab2012@gmail.com | Website : www.etslab.in | Ph.: 9911516076, 9811736063

TEST REPORT

TEST REPORT NO : ETS/2156-25/04/2024

DATE OF REPORT : 10.05.2024

WATER SAMPLE ANALYSIS REPORT

Name And Address of Customer	:	M/S HZL PANTNAGAR PROJECT AT PLOT NO.-2&3, SECTOR-14, IIE, STATE INDUSTRIAL DEVELOPMENT CORPORATION UTTARAKHAND LIMITED (SIDCUL), VILLAGE-PANTNAGAR, TEHSIL-KICHHA, DISTRICT-UDHAM SINGH NAGAR, STATE-UTTARAKHAND
Date of Sampling	:	15.04.2024
Analysis Start Date	:	17.04.2024
Analysis End Date	:	20.04.2024
Sampling Done By	:	ETS STAFF
Sampling Description	:	SURFACE WATER
Sampling Location	:	SW-1 PARADISE LAKE
Sampling Method	:	ETS/STP/WATER-01
Sampling Quantity	:	2.0 +0.5 Lt.
Packing Condition	:	SEALED
Packed In	:	P.V.C. AND GLASS BOTTLE

S. No.	Test Parameters	Unit	Result	Test Method
1.	Colour	Hazen	<5.0	IS:3025 (Pt-4)
2.	Odour	---	Agreeable	IS:3025 (Pt-5)
3.	pH	---	7.82	IS:3025 (Pt-11)
4.	Turbidity	NTU	12.10	IS:3025 (Pt-10)
5.	Total Dissolve Solid (TDS)	mg/L	286.5	IS:3025 (Pt-16)
6.	Total Alkalinity ($CaCO_3$)	mg/L	150.4	IS:3025 (Pt-23)
7.	Total Hardness(CaCO3)	mg/L	270.5	IS:3025 (Pt-21)
8.	Chloride (Cl)	mg/L	68.6	IS:3025 (Pt-32)
9.	Calcium (Ca)	mg/L	47.7	IS:3025 (Pt-40)
10.	Mineral Oil	mg/L	<0.01	IS:3025 (Pt-39)
11.	Sulphate (SO_4)	mg/L	42.2	IS:3025 (Pt-24)
12.	Nitrate (NO_3)	mg/L	0.86	IS:3025 (Pt-34)
13.	Fluoride (F)	mg/L	0.42	IS:3025 (Pt-60)
14.	Iron (Fe)	mg/L	0.18	IS:3025 (Pt-53)
15.	Aluminium (Al)	mg/L	<0.01	APHA-3500 (B)
16.	Selenium (Se)	mg/L	<0.01	APHA-3113 (B)
17.	Cyanide (Cn)	mg/L	<0.02	APHA-4500 (C)
18.	Copper(Cu)	mg/L	<0.05	APHA-3111(B)
19.	Magnesium (Mg)	mg/L	27.2	IS:3025 (Pt-45)
20.	Manganese(Mn)	mg/L	<0.1	APHA-3111(B)
21.	Zinc(Zn)	mg/L	0.76	APHA-3111 (B)
22.	Cadmium(Cd)	mg/L	<0.001	APHA-3111 (B)
23.	Lead(Pb)	mg/L	<0.01	APHA-3111 (B)
24.	Boron	Mg/L	<0.05	IS:3026(Pt-57)
25.	Mercury(Hg)	mg/L	<0.001	APHA-3112 (B)
26.	Molybdenum(mo.)	mg/L	<0.05	IS:3025(Pt-2)
27.	Nickel (Ni)	mg/L	<0.01	APHA-3111 (B)
28.	Arsenic(As)	mg/L	<0.01	APHA-3500 (B)
29.	Chromium (Cr+6)	mg/L	<0.01	APHA-3500 Cr-B
30.	Conductivity (25 °C)	µs/Cm	410.6	APHA-2510
31.	Chemical Oxygen Demand (COD)	mg/L	18.2	APHA-5220 (B)
32.	Biological Oxygen Demand (BOD at 27^oC for 3 day)	mg/L	3.05	APHA-4500 (D)
33.	Dissolve Oxygen (DO)	mg/L	7.16	APHA-5210
34.	E. Coli	MPN/100ml	270.0	IS:1622-1981
35.	Total Coliform	MPN/100ml	490.0	IS:1622-1981

****End of Test Report****

CHECKED BY
SHRADDHA GUPTA

For ENVIRO-TECH SERVICES

AUTHORIZED SIGNATORY
MD KUMRAJ
Quality Manager

Note:-

1. Test reports without ETS LAB HOLOGRAM are not issued by our laboratory.
2. The results indicated only refer to the tested samples and listed applicable parameters.
3. No complaint will be entertained if received after 7 days of issue of test report.
4. Our liability is limited to invoice value only.
5. The sample shall be destroyed after 15 days & Biological / Perishable sample shall be destroyed immediately after issue of test report.
6. This test report shall not be used in any advertising media or as evidence in the court of Law without prior written permission of the laboratory.