



Letter No: HILP/HKD/2021-22/ 0017

25th Sep 2021

To,

The Member Secretary
State Pollution Control Board, Odisha
Paribesh Bhawan
A / 118, Nilakantha Nagar
Unit - VIII
Bhubaneswar- 751 012

Sub: **Environment Statement Report for the year 2020-21 of Hindalco Industries Ltd, CPP at Hirakud – reg.**

Dear Sir,

Please find enclosed herewith the Annual Environment Statement Report in **Form - V** duly filled-in with enclosures w.r.t our Captive Power Plant at Hirakud for the financial year 2020-21.

Thanking you.

Encl: As above.

Yours very truly
for M/s Hindalco Industries Ltd


(Pranjal Pathak)
Head - Hirakud Power

Copy for kind information to:

1. The Director, Eastern Regional Office of MOEFCC, Bhubaneswar
2. The Regional Director, Regional Office of CPCB, Kolkata
3. The Regional Officer, SPCB, Sambalpur, Odisha

Hindalco Industries Limited

Hirakud Complex, Hirakud - 768 016, District: Sambalpur, Odisha, India

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Corporate ID No.: L27020MH1958PLC011238

"FORM - V"
(See Rule - 14)

**ENVIRONMENTAL STATEMENT REPORT FOR THE FINANCIAL YEAR ENDING
2018 - 2019**

PART - A

01. Name and Address of the owner / Occupier of the Industry, Operation or Process : Pranjali Pathak
Head - Hirakud Power
Hindalco Industries Limited
Post Box No: 12
Post: HIRAKUD - 768 016
Dist: Sambalpur (Odisha).
02. Industry Category
Primary - (STC Code) : Major
Secondary- (SIC Code) :
03. Production Capacity - Units : 4095.3 million Units (MU) Per Annum at 100 % PLF
Actual Production in Million Units (MU) : **2701.132 MU (2020 - 21)**
04. Year of Establishment : 1993 - Unit # I (67.5 MW)
2005 - Unit # II (100 MW)
2006 - Unit # III (100 MW)
2008 - Unit # IV (100 MW)
2013 - Unit # V (100 MW)
05. Date of the last Environmental Statement Submitted : 25th September 2020.

PART - B

Water and Raw Material Consumption

01. Water Consumption m³/day
- | | Average (Approx.) |
|----------|----------------------------|
| Process | 267 m ³ / day |
| Cooling | 22474 m ³ / day |
| Domestic | 2474 m ³ / day |

* Including Smelter Plant Drinking

Name of the Products	Water consumption per unit of product	
	During the Previoud Financial Year 2019 - 20	During the Current Financial Year 2020 - 21
Electricity	2.60 Ltr / KWH	2.58 Ltr / KWH

02. Raw Material Consumption:

Name of the Raw Materials	Name of the Products	Consumption of the Raw materials Per unit of Output	
		During the Previous Financial Year (2019 - 20)	During the Current Financial Year (2020 - 21)
COAL	ELECTRICITY	0.816 Kg / KWH	0.826 Kg / KWH
LIGHT DIESEL OIL (LDO)	ELECTRICITY	0.114 ml / KWH	0.093 ml/ KWH

PART - C

Pollution Discharged to Environment / unit of output.
(Parameters as specified in the Consent Order)

Pollutants	Quantity of Pollutants discharged (mass / day)		Concentrations of Pollutants in discharges (mass / volume)	Percentage of Variation from prescribed standards with reasons.					
a) Water			No discharge to outside. Quality of the effluent is attached.	All the values are well within the prescribed standards.					
b) Air	Emission through stack in 2020 - 21 (in mg/NM³)								
	Parameter	Unit - I	Std.	Unit - II	Unit - III	Unit - IV	Unit - V	Std.	Remark
	PM	0	100	41.03	41.64	39.87	40.53	50	Within std.
	SO ₂	0	600	386.6	400.9	393.9	395.6	600	Within std
	NO _x	0	450	169.3	181.6	176.3	174.4	450	Within std

PART - D

Hazardous Wastes

[As specified under Hazardous Wastes (Management and Handling) Rules]

Hazardous Wastes	Total Quantity					
	During Previous Financial Year (2019 - 20)			During the Current Financial Year (2020-21)		
(a) From Process generation	Used Oil	:	25.212 KL	Used Oil	:	18.83 KL
	Spent Resin	:	0.15 KL	Spent Resin	:	NIL
	Waste containing oil	:	2.673 MT	Waste containing oil	:	1.591 MT
(b) From Pollution Control Facilities	Not Applicable			Not Applicable		
(c) Used batteries disposal	4.039 MT			NIL		

PART - E
Solid Wastes

	TOTAL QUANTITY					
	During the Previous Financial Year (2019 - 20)			During the Current Financial Year (2020-21)		
(a) From process	Fly ash	:	8,49,494 MT	Fly ash	:	8,44,690 MT
	Bottom ash	:	94,389 MT	Bottom ash	:	93,854 MT
(b) From Pollution Control Facilities	Same as in (a) above			Same as in (a) above		
(c) (01) Quantity re-cycled or re-utilised	Utilisation as given below			Utilisation as given below		
(02) Sold	Nil			Nil		
(03) Disposal	1,05,717 MT (Dry disposal at Ash Mound)			92,228 MT* (Dry disposal at Ash Mound)		

*: 108088 MT ash was evacuated from ash mound.

Ash utilization:

<u>Sl. No</u>	<u>Mode of utilisation</u>	<u>2019 - 2020</u>	<u>2020 - 2021</u>
1.	Quantity used for Cement Production	152457	220538
2.	Quantity used for Bricks manufacturing	389281	461160
3.	Quantity used for Land filling	196819	69651
4.	Quantity used for Road construction	99607	78959
5.	Quantity used for Dyke raising	0	16007
6.	Percentage of Ash utilisation	89	102

PART - F

Please specify the characteristics (in terms of concentration and quantum) of Hazardous as well as Solid Wastes and indicate disposal practice adopted for both these categories of wastes.

AA GENERATION & DISPOSAL OF HAZARDOUS WASTES :

- a) **Used Oil:** Used oil generated from various processes is collected in barrels and are stored in oil storage shed. The stored oil is disposed to registered recyclers later. Total 18.83 KL of used oil was generated. Total 31.71 KL (including the previous stock left at site due to Covid restrictions) used oil was disposed to authorized agencies during the year 2020 -21.

- b) **Waste containing oil:** The waste containing oil, comprising basically cottons used during handling of oil, is kept in barrels, and disposed in the coal yard for burning in the boilers on daily basis. 1.591 MT of waste containing oil was generated and disposed during 2020 -21.
- c) **Spent Resin:** Spent Resin is generated from DM Plant, usually once in several years. These are kept under shed in barrels with cover and disposed off in an impervious lined pit inside plant premise. No spent resin was generated in 2020 -21 during operation of DM plant.
- d) **Used Batteries:** Used batteries, are kept under shed in designated place for re-sell to the authorised dealers on buy-back scheme. During 2020 -21, no used batteries was disposed.

BB CHARACTERISTICS OF SOLID WASTE:

The high-volume solid waste generated in the operation of thermal power unit is coal ash. Analysis report of ash analysed by M/s. R.V. Briggs, Kolkotta is enclosed (**Annexure - I**).

CC. DISPOSAL PRACTICE OF SOLID WASTES:

Fly ash generated from ESP is conveyed to Ash Silo pneumatically and stored in Ash Silos. The stored ash from the silos is first sent for utilisation in various sectors like Cement, Bricks, Road making, Low lying area filling etc and the balance ash is disposed dry in the Ash Mound. The detailed quantity of generation, utilisation and disposal of ash for the year 2020 -21 has been provided in Part E.

The unloading of Ash from the Silo is done through Ash Conditioning units where ash is conditioned with water containing adequate moisture, leaving no ash particles to be air borne. The ash is transported in tarpaulin-covered, and rope tied trucks to various sectors of utilization, like cement and fly ash brick manufacturing, low lying area filling, road construction, etc. Balance ash, if any, is taken to Ash Mound for dry disposal.

PART – G

Impact of the pollution abatement measures taken on conservation of natural resources and on the cost of production

AA Impact of pollution control measures:

- a) **AIR:** Electrostatic Precipitators, Dust Suppression and Dust Extraction systems were properly working. Unit 1 is a standby unit and has been kept idle during year 2020-21. The average emission from the all the four stacks was for 40.76 mg / NM³ for units 2 to 5 which well below the specified limit of 50 mg / NM³. The values of Particulate Matter emitted from stacks of each unit is enclosed in Annexure - II. Further, Bag Filters installed in Secondary Crusher Houses and all transfer Points to control the Fugitive emissions was working effectively.

All the fixed sprinklers were also working properly throughout the period along with sprinkling through mobile vehicle, thus keeping the PM₁₀ and PM_{2.5} level inside the plant premise under prescribed standards. The ambient air quality monitoring values are enclosed as Annexure - III.

- b) **WATER:** The wastewater generated out of the Plant is treated with continuous dosing of Alum, Lime and Sodium Hypochlorite followed by settling in a pit prior to discharge to common monitoring basin. The effluents generated from the Plant, after treatment and settling in common monitoring basin were re-used in Ash Conditioning system for ash moisturisation, coal yard spraying, road washing, gardening etc. The treated effluent was also reutilized as make up in Cooling Tower. Blow down from the Cooling Towers is treated in RO plant and re-used in cooling tower and in process. The quality of the effluent in the final pit is enclosed as Annexure - IV.
- c) **COAL / OIL:** To reduce the specific Coal/Oil consumption, the following steps were undertaken:
1. Carried out Boiler-12 aux. maintenance including identification of damaged APH / Air Ingress across APH / System, Post PG test evaluations.
 2. Carried out Boiler-10 aux. maintenance including identification of damaged APH / Air Ingress across APH / System, Post PG test evaluations
 3. Blade angle modification in Unit-02 CT Fans from existing 10° to 11° had resulted in improvement in L/G Ratio from 2.6 - 1.7 & thereby vacuum by 4.184 gm/cm² and finally resulting in coal saving.
 4. Initiated Short Shut down for Auxiliary Maintenance in TG-5 Post Performance Evaluation Test & thereby rectifying the short circuit in HP Heaters and condenser cleaning activities have resulted in increase in HP Heater O/L temperature by 8.5°C & Vacuum by 6 gm/cm² and finally resulting in coal saving.
 5. TG04 short shut down for aux maintenance / condenser cleaning / HPH-4 Inspections. (Vacuum improved from 876.5 - 885.6) for achieving coal saving.
 6. Boiler- 12 & 13 Addition of Eco-1 Coil to reduce the Exit Air Temperature by 10 Deg C and improvement in boiler efficiency and coal saving.

Upcoming Initiatives:

1. Installation of screen in Unit#4/5 Secondary Crusher houses to control coal fines and improve Boiler Efficiency.
2. Addition of ECO I Coil in Boilers-6 to reduce Air Heater O/L Temp by 10 Deg and improve boiler efficiency and coal consumption.
3. Major Maintenance of TG-2 Including replacement of GBCs for heat rate improvement and coal saving.
4. Capital OH of TG-5.
5. TG-1 Capacity Upgradations & heat rate improvement.

BB.	Impact on Cost of production:		<u>2019 – 2020</u>	<u>2020 – 2021</u>
01.	Total Environmental expenditure in Lakh	:	2563.37	3135.07
02.	Power generation in MU	:	2772.967	2701.132
03.	Impact on Cost per unit of Power (KWH) generation in Paise	:	09.24	11.60

PART - H

Additional measures / investment proposal for environmental protection including abatement of pollution, prevention of pollution.

1. Installation of Fog cannon, Telescopic cheute for control of ambient dust,
2. Installation of Wheel washing system for control of dust.
3. Planned upgradation of RO Plant to ensure maximum utilisation of effluent water.
4. Planned Installation of HFPS syem in al ESPs to enhance its performance beyond compliance.

PART - I

Any other particular for improving the quality of the environment

AA Plantation: Plantation has been done inside the plant premises, around the Ash Mound and in and around Hirakud Township. 1058 saplings were planted in Ash Disposal area and Plant area during the year 2020 - 21, with survival rate of around 80%.

Since inception around 6.95 lakh saplings have been planted so far in ash disposal area, plant area, in and around Hirakud Township, which includes plantation in replenished areas.

BB Community Development: Various community developments projects in the field of Education, Health, Environmental Sustainability, Empowerment of women, Economy improvement projects etc were undertaken under CSR activities during the year 2020 - 21.

01. Expenses on Community development and Plantation Activity :

For the Year [Actual]	:		<u>2019 – 2020</u>	<u>2020 – 2021</u>
Plantation	:	Rs.	8.55 Lakh	30.7 Lakh
Community Development	:	Rs.	229.15 Lakh	315.50 Lakh

ANNEXURE - I**ANALYSIS RESULTS OF ASH**

Silica as SiO ₂	:	53.16	%
Alumina as Al ₂ O ₃	:	31.44	%
Oxide of Iron as Fe ₂ O ₃	:	5.04	%
Titanium Oxide as TiO ₂	:	0.36	%
Lime as CaO	:	4.49	%
Magnesia as MgO	:	0.47	%
Potash as K ₂ O	:	1.61	%
Soda as Na ₂ O	:	0.67	%
Sulphate as SO ₃	:	0.08	%
Fluoride as F	:	0.09	%
Phosphate as P ₂ O ₅	:	0.18	%
Heavy Metals	:	0.13	%
Loss on ignition	:	1.98	%
Undetermined	:	0.30	%

HEAVY METALS ANALYSIS

Nickel as Ni	:	373.0	mg/Kg
Lead as Pb	:	254.0	mg/Kg
Zinc as Zn	:	513.0	mg/Kg
Cadmium as Cd	:	50.0	mg/Kg
Copper as Cu	:	143.0	mg/Kg
Chromium as Cr	:	166.0	mg/Kg

* Sample analysed by M/s. R.V. Briggs & Co. Pvt. Ltd., Kolkata.

STACK EMISSION FOR THE YEAR 2020 - 2021
(April-2020 to March-2021)

UNIT # I (67.5 MW)

Parameter Measured : Particulate Matter (PM)

Limit : 100.0 mg / NM³

Month		Results	Unit
Apr - 2020	:		mg / NM ³
May	:		mg / NM ³
Jun	:		mg / NM ³
Jul	:		mg / NM ³
Aug	:		mg / NM ³
Sep	:		mg / NM ³
Oct	:		mg / NM ³
Nov	:		mg / NM ³
Dec	:		mg / NM ³
Jan - 2021	:		mg / NM ³
Feb	:		mg / NM ³
Mar	:		mg / NM ³
YTD (AVERAGE)	:		mg / NM ³

Note: Unit under shutdown

STACK EMISSION FOR THE YEAR 2020 - 2021
(April-2020 to March-2021)

UNIT # II (100 MW)

Parameter Measured : Particulate Matter (PM)

Limit : 50.0 mg / NM³

Month		Results	Unit
Apr - 2020	:	39.12	mg / NM ³
May	:	38.6	mg / NM ³
Jun	:	40.93	mg / NM ³
Jul	:	41.9	mg / NM ³
Aug	:	42.25	mg / NM ³
Sep	:	41.18	mg / NM ³
Oct	:	40.73	mg / NM ³
Nov	:	40.3	mg / NM ³
Dec	:	38.48	mg / NM ³
Jan - 2021	:	41.55	mg / NM ³
Feb	:	43.4	mg / NM ³
Mar	:	43.93	mg / NM ³
YTD (AVERAGE)	:	41.03	mg / NM³

STACK EMISSION FOR THE YEAR 2020 - 2021
(April-2020 to March-2021)

UNIT # III (100 MW)

Parameter Measured : Particulate Matter (PM)

Limit : 50.0 mg / NM³

Month		Results	Unit
Apr - 2020	:	---	mg / NM ³
May	:	42.75	mg / NM ³
Jun	:	43.50	mg / NM ³
Jul	:	43.0	mg / NM ³
Aug	:	--	mg / NM ³
Sep	:	40.08	mg / NM ³
Oct	:	39.15	mg / NM ³
Nov	:	42.3	mg / NM ³
Dec	:	40.08	mg / NM ³
Jan - 2021	:	39.97	mg / NM ³
Feb	:	43.73	mg / NM ³
Mar	:	41.83	mg / NM ³
YTD (AVERAGE)	:	41.64	mg / NM³

STACK EMISSION FOR THE YEAR 2020 - 2021
(April-2020 to March-2021)

UNIT # IV (100 MW)

Parameter Measured : Particulate Matter (PM)

Limit : 50.0 mg / NM³

Month		Results	Unit
Apr - 2020	:	41.27	mg / NM ³
May	:	40.88	mg / NM ³
Jun	:	41.08	mg / NM ³
Jul	:	42.35	mg / NM ³
Aug	:	39.9	mg / NM ³
Sep	:	37.93	mg / NM ³
Oct	:	39.93	mg / NM ³
Nov	:	36.7	mg / NM ³
Dec	:	36.93	mg / NM ³
Jan - 2021	:	38.65	mg / NM ³
Feb	:	41.37	mg / NM ³
Mar	:	41.5	mg / NM ³
YTD (AVERAGE)	:	39.87	mg / NM³

STACK EMISSION FOR THE YEAR 2020 - 2021
(April-2020 to March-2021)

UNIT # V (100 MW)

Parameter Measured : Particulate Matter (PM)

Limit : 50.0 mg / NM³

Month		Results	Unit
Apr - 2020	:	40.88	mg / NM ³
May	:	43.3	mg / NM ³
Jun	:	40.6	mg / NM ³
Jul	:	41.98	mg / NM ³
Aug	:	38.15	mg / NM ³
Sep	:	38.10	mg / NM ³
Oct	:	40.05	mg / NM ³
Nov	:	39.3	mg / NM ³
Dec	:	40.7	mg / NM ³
Jan - 2021	:	38.0	mg / NM ³
Feb	:	42.35	mg / NM ³
Mar	:	42.93	mg / NM ³
YTD (AVERAGE)	:	40.53	mg / NM³

AMBIENT AIR QUALITY

Particulate Matter PM ₁₀		Standard - 100.0 µg/m ³											
Location	Apr-20	May-20	Jun-20	Jul-20	Aug-20	Sep-20	Oct-20	Nov-20	Dec-20	Jan-21	Feb-21	Mar-21	
FHP Control Room Top			71.0	62.0	66.0	71.0	82.0	94.0	91.0	87.0	81.0	88.0	
120° NNE (Near Admn. Building)			58.0	55.0	52.0	60.0	74.0	77.0	62.0	64.0	62.0	52.0	
240° SSE (Rajapada village)			62.0	72.0	65.0	68.0	71.0	75.0	69.0	72.0	68.0	62.0	
360° W (Hindalco Club)			53.0	50.0	54.0	57.0	66.0	69.0	71.0	68.0	63.0	56.0	
Jyoti Vihar, Burla			55.0										
Ash Mound Road			71.0	75.0	81.0	92.0	85.0	87.0	92.0	89.0	83.0	78.0	
Ash Mound area			63.0	62.0	60.0	74.0	80.0	82.0	89.0	93.0	89.0	85.0	

Particulate Matter PM _{2.5}		Standard - 60.0 µg/m ³											
Location	Apr-20	May-20	Jun-20	Jul-20	Aug-20	Sep-20	Oct-20	Nov-20	Dec-20	Jan-21	Feb-21	Mar-21	
FHP Control Room Top			38.5	31.6	35.2	38.5	43.4	51.4	52.2	48.7	44.0	47.3	
120° NNE (Near Admn. Building)			30.7	29.6	27.8	31.2	39.6	40.7	33.0	34.3	33.3	28.7	
240° SSE (Rajapada village)			33.5	38.3	34.3	35.4	37.2	39.0	38.5	37.4	36.3	33.2	
360° W (Hindalco Club)			28.6	26.8	28.5	29.6	33.8	34.7	39.7	36.5	32.8	29.7	
Jyoti Vihar, Burla			29.5										
Ash Mound Road			37.7	39.5	43.0	49.8	56.7	53.7	50.1	49.2	45.8	43.2	
Ash Mound area			33.3	33.1	31.7	39.3	48.8	55.6	49.3	51.4	49.5	46.1	

Note: Not done in April and May due to covid restrictions

Standard - 80.0 µg/m³

Sulphur Dioxide SO₂

Location	Apr-20	May-20	Jun-20	Jul-20	Aug-20	Sep-20	Oct-20	Nov-20	Dec-20	Jan-21	Feb-21	Mar-21
FHP Control Room Top			16.6	15.7	16.1	18.0	19.6	21.3	23.4	21.7	20.6	19.2
120° NNE (Near Admn. Building)			11.8	10.7	10.2	11.5	12.5	15.3	16.1	11.6	11.6	12.3
240° SSE (Rajapada village)			13.2	12.3	13.1	12.4	13.5	12.4	11.8	10.4	11.2	10.8
360° W (Hindalco Club)			12.6	11.8	11.3	11.8	12.2	13.5	14.0	13.3	12.7	11.4
Jyoti Vihar, Burla			11.4									
Ash Mound Road			14.8	15.3	16.5	17.7	19.2	20.8	22.1	21.5	19.7	17.6
Ash Mound area			16.5	14.8	13.7	15.1	16.7	18.2	18.8	16.7	17.2	18.3

Standard - 80.0 µg/m³

Oxides of Nitrogen NO_x

Location	Apr-20	May-20	Jun-20	Jul-20	Aug-20	Sep-20	Oct-20	Nov-20	Dec-20	Jan-21	Feb-21	Mar-21
FHP Control Room Top			13.3	12.4	12.3	14.7	15.1	16.7	17.1	15.6	14.8	13.6
120° NNE (Near Admn. Building)			14.7	13.8	14.4	15.6	17.0	20.1	22.3	17.6	17.7	19.3
240° SSE (Rajapada village)			16.3	15.7	16.6	17.0	18.6	18.2	17.6	14.8	15.5	14.8
360° W (Hindalco Club)			15.2	16.1	15.7	15.2	17.1	19.3	18.4	19.1	17.8	16.3
Jyoti Vihar, Burla			15.6									
Ash Mound Road			18.1	19.4	21.2	23.1	24.6	26.2	28.0	28.6	26.4	25.3
Ash Mound area			20.3	18.3	17.6	20.2	22.3	25.2	26.7	23.5	25.1	24.4

WATER EFFLUENT QUALITY

Parameters	Standard	Apr-20	May-20	Jun-20	Jul-20	Aug-20	Sep-20	Oct-20	Nov-20	Dec-20	Jan-21	Feb-21	Mar-21
Ph	5.5-9.0	6.85	7.24	6.93	7.04	6.87	7.36	7.53	7.48	7.41	7.62	7.48	7.36
Total Dissolved Solids, mg/L	2100	561.0	577.0	586.0	567.0	534.0	518.0	493.0	464.0	478.0	449.0	460.0	437.0
Total Suspended Solids, mg/L	50	32.0	35.0	41.0	46.0	40.0	31.0	26.0	21.0	24.0	19.0	15.0	18.0
C.O.D, mg/L	250	24.0	28.0	32.0	36.0	30.0	24.0	28.0	24.0	28.0	24.0	22.0	20.0
Total iron as Fe, mg/L	3	0.17	0.19	0.22	0.26	0.23	0.28	0.25	0.29	0.31	0.26	0.28	0.23
Oils & Grease, mg/L	5	3.2	2.6	3.4	2.8	3.0	2.6	2.2	2.6	2.4	2.0	1.6	1.2
Total Chromium as Cr	1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Copper as Cu, mg/L	2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Cadmium as Cd, mg/L	2	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Zinc as Zn, mg/L	1	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Dissolved Phosphate as PO ₄ , mg/L	3	0.29	0.33	0.35	0.42	0.47	0.56	0.52	0.57	0.62	0.58	0.63	0.57
Nickel as Ni, mg/L	3	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Selenium as Se, mg/L	0.05	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Arsenic as As, mg/L	0.2	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Mercury as Hg, mg/L	0.01	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Lead as Pb, mg/L	0.1	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Cyanides as CN, mg/L	0.2	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
BOD (3 day at 27 Deg. C.), mg/L	30	6.0	6.4	7.2	8.0	7.4	6.8	7.0	6.7	7.0	6.2	6.6	5.3
Fluoride as F, mg/L	1.5	0.21	0.27	0.32	0.35	0.38	0.51	0.46	0.42	0.47	0.51	0.46	0.52
Ammonical Nitrogen as N, mg/L	50	1.44	1.28	1.52	1.72	1.56	1.2	1.12	1.34	1.4	1.2	1.32	1.12