Drinking-Water Systems Regulation O. Reg. 170/03

Part III Form 2
Section 11. ANNUAL REPORT.

Drinking-Water System Number:	WW No. 240000075
Drinking-Water System Name:	Vermilion Water Treatment Plant
Drinking-Water System Owner:	VALE
Drinking-Water System Category:	Municipal and Private Water Works
Period being reported:	January 1st 2010 to December 31st 2010

Complete if your Category is Large Municipal Residential or Small Municipal Residential

Does your Drinking-Water System serve more than 10,000 people? Yes [√] No [ ]

Is your annual report available to the public at no charge on a web site on the Internet?
Yes [√] No [ ]

Location where Summary Report required under O. Reg. 170/03 Schedule 22 will be available for inspection.

Hardcopy Address:
VALE
155 Balsam Street
c/o Copper Cliff Sewage Treatment Plant
Copper Cliff, Ontario, P0M 1N0

Web Address:
www.greatersudbury.ca

Complete for all other Categories.

Number of Designated Facilities served:
0

Did you provide a copy of your annual report to all Designated Facilities you serve?
Yes [ ] No [√]

Number of Interested Authorities you report to: 0

Did you provide a copy of your annual report to all Interested Authorities you report to for each Designated Facility?
Yes [ ] No [√]

Note: For the following tables below, additional rows or columns may be added or an appendix may be attached to the report

List all Drinking-Water Systems (if any), which receive all of their drinking water from your system:

Drinking Water System Name	Drinking Water System Number
Vermilion Distribution system	260006789

The Vermilion Water Treatment Plant also supplies water to the plumbing works system that is owned and operated by VALE for use by its employees and its process. The Vermilion Water Treatment Plant as owned and operated by Vale has developed a comprehensive Drinking Water Quality Management System as required by legislation. QMS Policy Statement: *"Vale Inco is committed to providing safe drinking water to the City of Greater Sudbury municipal drinking water distribution system, in accordance with all applicable legislative and regulatory requirements, through maintenance and continual improvement of a Quality Management System."*

Did you provide a copy of your annual report to all Drinking-Water System owners that are connected to you and to whom you provide all of its drinking water?

Yes [√] No [ ]

Indicate how you notified system users that your annual report is available, and is free of charge.

[√] Public access/notice via the web
www.greatersudbury.ca

[√] Public access/notice via a newspaper

[ ] Public access/notice via Public Request

[ ] Public access/notice via a Public Library

[√] Public access/notice via other method
VALE Inco Limited – Copper Cliff Sewage Treatment Plant Office – by appointment call (705) 682-5742

Describe your Drinking-Water System

In 1972, INCO Limited constructed the INCO Vermillion Water Treatment Plant, in order to produce process water for the INCO mining operations as well as potable drinking water for INCO staff and the surrounding communities. In 2007, INCO became CVRD INCO and a name change to Vale Inco was completed late in the year. Now in 2010, VALE's Vermilion Water Treatment Plant is designed for a total production capacity of 82,000 m3/day (21.7M USGPD) and is supplied with surface water from the Vermilion River.

All process equipment is installed inside a heated and ventilated building, except for the caustic and alum storage tanks that are installed outside. The water treatment plant consists of the following main elements:
- One rapid mix tank;
- One hydraulic retention time tank;
- One PULSATUBE sludge blanket type clarifier;
- Five AQUAZUR V gravity sand filters;
- One clearwell located below the filters;
- Treated and backwash water vertical turbine pumping station;
- Air scouring blower and air instrument compressor room;
- Chemical storage and dosing system;
- External heat traced caustic and alum storage tanks;

- Liquefied Chlorine (tonners) stored and used in Chlorination room;
- Plant control room and laboratory room.

PROCESS FLOW DESCRIPTION

1. Raw water is pumped from the Vermilion River to the VALE Vermillion WTP.
2. Raw water flow control is achieved with a by-pass pipe and control valve. The by-pass control valve automatically adjusts based on the water level in the clarifier. When the level in the clarifier rises, the by-pass flow control valve opens to decrease the flow to the plant. The by-pass is connected to the U-drain of the WTP.

List all water treatment chemicals used over this reporting period

- Aluminium Sulphate
- Sodium Hydroxide
- Liquefied Chlorine
- Hydrofluosilicic Acid
- Polyfloc CE1161P 35%
- Polyphosphate (Flogard 6102)
- Nalco 2 Liquid Flocculant

Were any significant expenses incurred to?

No significant upgrades were done in the year 2010 due to labour disruptions and only minor upgrades and repairs were initiated. Vale has also complied with the requirement for DWQMS development and submitted all 21 elements by Dec 1, 2009. Vale has since completed a full internal audit cycle and preliminary acceptance by CGSB was received in October 2010.

[ ] Install required equipment
[ ] Repair required equipment
[ ] Replace required equipment

Provide details on the notices submitted in accordance with subsection 18(1) of the Safe Drinking-Water Act or section 16-4 of Schedule 16 of O.Reg.170/03 and reported to Spills Action Centre

Incident Date	Parameter	Result	Unit of Measure	Corrective Action	Corrective Action Date
July 13, 2010	**Bacteria treated water sample**	**TNTC**	**Bacti count**	**Resample and notification, (Raw and treated samples switched and improper labeling)**	**July 15, 2010**

Microbiological testing done under the Schedule 10, 11 or 12 of Regulation 170/03, during this reporting period.

	Number of Samples	Range of E.Coli Or Fecal Results (min #)-(max #)	Range of Total Coliform Results (min #)-(max #)	Number of HPC Samples	Range of HPC Results (min #)-(max #)
Raw	52	N.D.– (TNTC)	(7) – (TNTC)	N/A	N/A
Treated	52	(N.D.) – (INT)	(N.D.) – (INT)	52	(N.D.) – (250)
Plumbing Works	68	(N.D.) – (N.D.)	(N.D.) – (N.D.)	68	(N.D.) – (1230)

N/A=Not Applicable

N.D. = Non Detectable
TNTC= To Numerous To Count
INT= Interference

Operational testing done under Schedule 7, 8 or 9 of Regulation 170/03 during the period covered by this Annual Report.

	FINISHED WATER ANALYSIS			
	OPERATOR BENCH ANALYSIS		CONTINUOUS MONITORS	
	Number of Grab Samples	Range of Results (min #)-(max #)	Number of Samples As Per Note Below	Range of Results (min #)-(max #)
Turbidity	721	(0.01 NTU)-(0.25 NTU)	8760	(0.00 *NTU*) - (1.02 *NTU*)
Chlorine	1865	(1.18)-(2.88) mg/L Free	8760	(0.01) - (4.05) mg/L Free
Fluoride (If the DWS provides fluoridation)	726	(0.12)-(1.04)	8760	(0.01) - (2.35)
			***NOTE**: For continuous monitors use 8760 as the number of samples.*	

NOTE**: Record the unit of measure if it is** not **milligrams per litre**

Summary of additional testing and sampling carried out in accordance with the requirement of an approval, order or other legal instrument.

Date of legal instrument issued	Parameter	Date Sampled	Result	Unit of Measure
C of A #6136-7D4P9C Issue date: April 11, 2008 Table 5.1	TSS U-Drain flow to Environment measured in mg/L TSS	Jan 04	<2.00	R-Grab Sample mg/L
		Feb 12	3.00	R-Grab Sample mg/L
		Feb 12	<2.00	Comp U-drain mg/L
		Feb 11	<2.00	R-Grab Sample mg/L
		Mar 1	<2.00	R-Grab Sample mg/L
		Apr 05	<2.00	R-Grab Sample mg/L
		May 4	2.40	R-Grab Sample mg/L
		June 01	2.80	R-Grab Sample mg/L
		July 05	<2.00	R-Grab Sample mg/L
		Aug 04	<2.00	R-Grab Sample mg/L
		Aug 04	<2.00	Comp U-drain mg/L
		Sept 07	<2.00	R-Grab Sample mg/L
		Sept 07	2.60	Comp U-drain mg/L
		Oct 04	2.20	R-Grab Sample mg/L
		Nov 02	2.40	R-Grab Sample mg/L
		Nov 02	<2.00	Comp U-drain mg/L
		Dec 06	2.20	Grab Sample mg/L

Summary of Inorganic parameters tested during this reporting period or the most recent sample results

Parameter	Unit of Measure	MDL *Method Detection Limit*	Result Value Year 2010		Exceedance
Antimony	**ug/L**	0.5	<0.50MDL	**January 21**	***Nil***
Arsenic	**ug/L**	<1.0	<1.0 MDL	**January 21**	***Nil***
Barium	**ug/L**	1.0	14.4	**January 21**	***Nil***

Summary of Inorganic parameters tested during this reporting period or the most recent sample results

Parameter	Unit of Measure	MDL *Method Detection Limit*	Result Value Year 2010		Exceedance
Boron	**ug/L**	2.0	4.4	**January 21**	***Nil***
Cadmium	**ug/L**	0.10	<0.1 <MDL	**January 21**	***Nil***
Chromium	**ug/L**	1.0	< 1.0 <MDL	**January 21**	***Nil***
Lead	**ug/L**	1.0	< 1.0 <MDL	**January 21**	***Nil***
Mercury	**ug/L**	0.01	0.029	**January 21**	***Nil***
Selenium	**ug/L**	1.0	<1.0 MDL	**January 21**	***Nil***
Sodium	**mg/L**	0.05	18.6	**January 21, 2010**	***Nil***
Uranium	**ug/L**	1.0	< 1.0 <MDL	**January 21**	***Nil***
Fluoride	**mg/L**	0.10	<0.10	**January 21, 2010**	***Nil***

Parameter	Unit of Measure	Result Value Year 2010				
		Jan 21	**Apr 20**	**Jul 20**	**Oct 19**	**Exceedance**
Nitrite	**mg/L**	<0.10 <MDL	<0.05	<0.05 <MDL	<0.05 <MDL	***Nil***
Nitrate	**mg/L**	<0.05	0.11	<0.10	<0.10	***Nil***
Nitrate + Nitrite	**mg/L**	<0.10	0.11	<0.10	<0.10	***Nil***

Summary of Organic parameters sampled during this reporting period or the most recent sample results

Parameter	Result Value Year 2010				Unit of Measure	Exceedance
	Jan 21	Apr 20	July 20	Nov 19		
Alachlor	<0.46 <MDL				ug/L	***Nil***
Aldicarb	<0.56 <MDL				ug/L	***Nil***
Aldrin + Dieldrin	<0.004<MDL				ug/L	***Nil***
Atrazine + N-dealkylated metobolites	<0.9<MDL				ug/L	***Nil***
Azinphos-methyl	<0.34 <MDL				ug/L	***Nil***
Bendiocarb	<1.1 <MDL				ug/L	***Nil***
Benzene	<0.25 <MDL				ug/L	***Nil***
Benzo(a)pyrene	<0.01 <MDL				ug/L	***Nil***
Bromoxynil	<0.55 <MDL				ug/L	***Nil***
Carbaryl	<1.1 <MDL				ug/L	***Nil***
Carbofuran	<1.1 <MDL				ug/L	***Nil***
Carbon Tetrachloride	<0.25 <MDL				ug/L	***Nil***
Chlordane (Total)	<0.004 <MDL				ug/L	***Nil***
Chlorpyrifos	<0.34 <MDL				ug/L	***Nil***
Cyanazine	<0.34 <MDL				ug/L	***Nil***
Diazinon	<0.34 <MDL				ug/L	***Nil***
Dicamba	<0.22 <MDL				ug/L	***Nil***
1,2-Dichlorobenzene	<0.25 <MDL				ug/L	***Nil***
1,4-Dichlorobenzene	<0.25 <MDL				ug/L	***Nil***
Dichlorodiphenyltrichloroethane (DDT) + metabolites	<0.005<MDL				ug/L	***Nil***
1,2-Dichloroethane	<0.25 <MDL				ug/L	***Nil***
1,1-Dichloroethylene (vinylidene chloride)	<0.25 <MDL				ug/L	***Nil***
Dichloromethane	<0.25 <MDL				ug/L	***Nil***
2-4 Dichlorophenol	<0.052 <MDL				ug/L	***Nil***
2,4-Dichlorophenoxy acetic acid (2,4-D)	<0.22 <MDL				ug/L	***Nil***
Diclofop-methyl	<0.22 <MDL				ug/L	***Nil***
Dimethoate	<0.34 <MDL				ug/L	***Nil***
Dinoseb	<0.055 <MDL				ug/L	***Nil***
Diquat	<7.0 <MDL				ug/L	***Nil***
Diuron	<5.6 <MDL				ug/L	***Nil***
Glyphosate	<20.0 <MDL				ug/L	***Nil***
Heptachlor + Heptachlor Epoxide	<0.004 <MDL				ug/L	***Nil***
Lindane (Total)	<0.00043 <MDL				ug/L	***Nil***
Malathion	<0.34 <MDL				ug/L	***Nil***
Methoxychlor	<0.0012 <MDL				ug/L	***Nil***
Metolachlor	<0.23 <MDL				ug/L	***Nil***
Metribuzin	<0.23 <MDL				ug/L	***Nil***
Monochlorobenzene	<0.25 <MDL				ug/L	***Nil***
Paraquat	<1.00 <MDL				ug/L	***Nil***
Parathion	<0.23 <MDL				ug/L	***Nil***
Pentachlorophenol	<0.052 <MDL				ug/L	***Nil***

Summary of Organic parameters sampled during this reporting period or the most recent sample results

Parameter	Result Value Year 2010				Unit of Measure	Exceedance
	Jan 21	Apr 20	July 20	Nov 19		
Phorate	<0.34 <MDL				ug/L	***Nil***
Picloram	<0.055 <MDL				ug/L	***Nil***
Polychlorinated Biphenyls(PCB)	<0.003 <MDL				mg/L	***Nil***
Prometryne	<0.23 <MDL				ug/L	***Nil***
Simazine	<0.34 <MDL				ug/L	***Nil***
THM ug/L	31.3	51.2	86.3	95.30	***Latest annual average*** **66.0**	*Nil*
Temephos	<16 <MDL				ug/L	***Nil***
Terbufos	<0.23 <MDL				ug/L	***Nil***
Tetrachloroethylene	<0.25 <MDL				ug/L	***Nil***
2,3,4,6-Tetrachlorophenol	<0.052 <MDL				ug/L	***Nil***
Triallate	<0.23 <MDL				ug/L	***Nil***
Trichloroethylene	<0.25 <MDL				ug/L	***Nil***
2,4,6-Trichlorophenol	3				ug/L	***Nil***
2,4,5-Trichlorophenoxy acetic acid (2,4,5-T)	<0.055 <MDL				ug/L	***Nil***
Trifluralin	<0.23 <MDL				ug/L	***Nil***
Vinyl Chloride	<0.25 <MDL				ug/L	***Nil***

MDL = *Method Detection Limit*

List any Inorganic or Organic parameter(s) that exceeded half the standard prescribed in Schedule 2 of Ontario Drinking Water Quality Standards.

Parameter	Result Value	Unit of Measure	Date of Sample
None of the samples exceeded half the standard prescribed in Schedule 2 Of Ontario Drinking Water Quality Standards			

(Only if DWS category is large municipal residential, small municipal residential, large municipal non residential, non municipal year round residential, large non municipal non residential)