

**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 2011 to December 31st 2011

<p><u>Complete if your Category is Large Municipal Residential or Small Municipal Residential</u></p> <p>Does your Drinking-Water System serve more than 10,000 people? Yes [<input checked="" type="checkbox"/>] No []</p> <p>Is your annual report available to the public at no charge on a web site on the Internet? Yes [<input checked="" type="checkbox"/>] No []</p> <p>Location where Summary Report required under O. Reg. 170/03 Schedule 22 will be available for inspection.</p> <p>Hardcopy Address: VALE 155 Balsam Street c/o Copper Cliff Sewage Treatment Plant Copper Cliff, Ontario, P0M 1N0</p> <p>Web Address: www.greatersudbury.ca</p>	<p><u>Complete for all other Categories.</u></p> <p>Number of Designated Facilities served: <input type="text" value="0"/></p> <p>Did you provide a copy of your annual report to all Designated Facilities you serve? Yes [] No [<input checked="" type="checkbox"/>]</p> <p>Number of Interested Authorities you report to: <input type="text" value="0"/></p> <p>Did you provide a copy of your annual report to all Interested Authorities you report to for each Designated Facility? Yes [] No [<input checked="" type="checkbox"/>]</p>
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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 – Copper Cliff Sewage Treatment Plant Office – by appointment call (705) 682-6548

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 Vermilion 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 CP1160P 35%
- Polyphosphate (Flogard POT6102)
- Nalco 2 Liquid Flocculant

Were any significant expenses incurred to?

Significant upgrades were completed for fiber network and controls to the river pumphouse at a cost of \$ 300,000 completed October 1, 2011. We also completed some mechanical and structural work including painting on the large storage tanks fed from the VWTP at a cost of 1.2 Million completed Aug 2011. Vale has also complied with the requirement for DWQMS and ahs receiver limited scope accreditation and are awaiting CGSB final audit. Vale has since completed 2 full internal audit cycles with action taken on findings accordingly.

- 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

None for 2011

Incident Date	Parameter	Result	Unit of Measure	Corrective Action	Corrective Action Date
N/A					

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

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)	(9) – (1000)	N/A	N/A
Treated	52	(N.D.)	(N.D.)	52	(N.D.) – (1000)
Plumbing Works	97	(N.D.)	(N.D.)	97	(N.D.) – (>500)
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	733	(0.05 NTU)-(0.35 NTU)	8760	(0.00 NTU) - (1.02 NTU)
Chlorine	1987	(1.13)-(2.35) mg/L Free	8760	(0.01) - (4.68) mg/L Free
Fluoride (If the DWS provides fluoridation)	721	(0.19)-(0.97) mg/L	8760	(0.01) - (0.74) mg/L
<i>NOTE: For continuous monitors use 8760 as the number of samples.</i>				

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
Municipal Drinking Water License # 191-101 section 4.4 issued June 2, 2011	TSS U-Drain flow to Environment measured in mg/L TSS	Jan 04	<2.00	R-Grab Sample mg/L
		Feb 08	<2.00	R-Grab Sample mg/L
		Feb 08	2.80	Comp U-drain mg/L
		Mar 01	<2.00	R-Grab Sample mg/L
		Apr 04	<2.00	R-Grab Sample mg/L
		May 02	21.40	R-Grab Sample mg/L
		May 10	4.00	R-Grab Sample mg/L
		May 10	2.80	Comp U-drain mg/L
		June 01	3.20	R-Grab Sample mg/L
		July 04	17.20	R-Grab Sample mg/L
		July 18	2.40	R-Grab Sample mg/L
		Aug 01	<2.00	R-Grab Sample mg/L
		Aug 03	<2.00	R-Grab Sample mg/L
		Aug 03	5.60	Comp U-drain mg/L
		Sept 07	<2.00	R-Grab Sample mg/L
		Oct 03	<2.00	R-Grab Sample mg/L
		Oct 03	<2.00	Comp U-drain mg/L
		Nov 08	<2.00	Comp U-drain mg/L
		Nov 08	<2.00	R-Grab Sample mg/L
		Dec 05	<2.00	R-Grab Sample mg/L

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

Parameter	Unit of Measure	MDL <i>Method Detection Limit</i>	Result Value Year 2011		Exceedance
Antimony	ug/L	0.5	<0.50MDL	January 27	<i>Nil</i>
Arsenic	ug/L	<1.0	<1.0 MDL	January 27	<i>Nil</i>
Barium	ug/L	1.0	10.9	January 27	<i>Nil</i>

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 2011		Exceedance
Boron	ug/L	2.0	7.7	January 27	<i>Nil</i>
Cadmium	ug/L	0.10	<0.1 <MDL	January 27	<i>Nil</i>
Chromium	ug/L	1.0	< 1.0 <MDL	January 27	<i>Nil</i>
Lead	ug/L	1.0	< 1.0 <MDL	January 27	<i>Nil</i>
Mercury	ug/L	0.01	<0.01 <MDL	January 27	<i>Nil</i>
Selenium	ug/L	1.0	<1.0 MDL	January 27	<i>Nil</i>
Sodium	mg/L	0.05	17.2	January 21, 2011	<i>Nil</i>
Uranium	ug/L	1.0	< 1.0 <MDL	January 27	<i>Nil</i>
Fluoride	mg/L	0.10	0.33	January 27, 2011	<i>Nil</i>

Parameter	Unit of Measure	Result Value Year 2011				Exceedance
		Jan 27	Apr 20	Jul 18	Oct 25	
Nitrate	mg/L	0.18	<0.1	<0.1	0.10	<i>Nil</i>
Nitrite	mg/L	<0.05	<0.05	<0.05	<0.05	<i>Nil</i>
Nitrate + Nitrite	mg/L	0.18	<0.10	<0.10	0.10	<i>Nil</i>

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

Parameter	Result Value Year 2011				Unit of Measure	Exceedance
	Jan 27	Apr 20	July 18	Oct 25		
Alachlor	<0.48 <MDL				ug/L	Nil
Aldicarb	<0.56 <MDL				ug/L	Nil
Aldrin & Dieldrin	<0.004 <MDL				ug/L	Nil
Dieldrin	<0.0016 <MDL				ug/L	Nil
Atrazine	<0.48 <MDL				ug/L	Nil
Atrazine + N-dealkylated metabolites	<0.9 <MDL				ug/L	Nil
Azinphos-methyl	<0.36 <MDL				ug/L	Nil
Bendiocarb	<1.1 <MDL				ug/L	Nil
Benzene	<0.25 <MDL				ug/L	Nil
Benzo(a)pyrene	<0.006 <MDL				ug/L	Nil
Bromoxynil	<0.54 <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	<0.36 <MDL				ug/L	Nil
Cyanazine	<0.36 <MDL				ug/L	Nil
Diazinon	<0.36 <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	<0.058 <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	<0.36 <MDL				ug/L	Nil
Dinoseb	<0.054 <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)	<0.00062 <MDL				ug/L	Nil
Malathion	<0.36 <MDL				ug/L	Nil
Methoxychlor	<0.0016 <MDL				ug/L	Nil
Metolachlor	<0.24 <MDL				ug/L	Nil
Metribuzin	<0.24 <MDL				ug/L	Nil
Monochlorobenzene	<0.25 <MDL				ug/L	Nil
Paraquat	<1.00 <MDL				ug/L	Nil

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

Parameter	Result Value Year 2011				Unit of Measure	Exceedance
	Jan 27	Apr 20	July 18	Oct 25		
Parathion	<0.24 <MDL				ug/L	<i>Nil</i>
Pentachlorophenol	<0.058 <MDL				ug/L	<i>Nil</i>
Phorate	<0.36 <MDL				ug/L	<i>Nil</i>
Picloram	<0.054 <MDL				ug/L	<i>Nil</i>
Polychlorinated Biphenyls(PCB)	<0.0051 <MDL				mg/L	<i>Nil</i>
Prometryne	<0.24 <MDL				ug/L	<i>Nil</i>
Simazine	<0.36 <MDL				ug/L	<i>Nil</i>
THM ug/L	47.5	52.0	45.0	90.7	Latest annual average 58.8	<i>Nil</i>
Temephos	<16 <MDL				ug/L	<i>Nil</i>
Terbufos	<0.24 <MDL				ug/L	<i>Nil</i>
Tetrachloroethylene	<0.25 <MDL				ug/L	<i>Nil</i>
2,3,4,6-Tetrachlorophenol	<0.058 <MDL				ug/L	<i>Nil</i>
Triallate	<0.24 <MDL				ug/L	<i>Nil</i>
Trichloroethylene	<0.25 <MDL				ug/L	<i>Nil</i>
2,4,6-Trichlorophenol	<0.058 <MDL				ug/L	<i>Nil</i>
2,4,5-Trichlorophenoxy acetic acid (2,4,5-T)	<0.054 <MDL				ug/L	<i>Nil</i>
Trifluralin	<0.24 <MDL				ug/L	<i>Nil</i>
Vinyl Chloride	<0.25 <MDL				ug/L	<i>Nil</i>

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)