

**Toxics Reduction Act Public Annual Report 2018**

|  |                                      |        |                    |
|--|--------------------------------------|--------|--------------------|
| The legal and trade names of the owner and the operator of the facility, the street address of the facility and, if the mailing address of the facility is different from the street address, the mailing address. (See below) | Companhia Vale do Rio Doce (Vale)    |        |                    |
| Facility NPRI identification number  | 1465                                 |        |                    |
| The identification number assigned to the facility by the Ministry of the Environment for the purposes of Ontario Regulation 127/01.   | 1465                                 |        |                    |
| Number of full-time employees  | 129                                  |        |                    |
| North American Industry Classification System (NAICS) - 2, 4, and 6 digit codes  | 21                                   | 22     | 32                 |
| If applicable, the name, position and telephone number of the individual who is the contact at the facility for the public:<br>Public Contact (if applicable)  | Ms. Mary Dubel                       |        |                    |
| Title  | Superintendent - Environment         |        |                    |
| Phone Number   | 705-682-5563                         |        |                    |
| Address of the facility  | Clarabelle Mill                      |        |                    |
| Facility Name  | Clarabelle Road Unit 1               |        |                    |
| Address 1  | Clarabelle Road Unit 1               |        |                    |
| Address 2  |                                      |        |                    |
| City   | Copper Cliff                         |        |                    |
| Province   | Ontario                              |        |                    |
| Postal Code  | POM 1N0                              |        |                    |
| UTM coordinates, x and y Datum   | X                                    | 495695 | Y 5148049<br>NAD83 |
| Legal name of Canadian parent company, if your facility is a subsidiary of a Canadian parent company   | Vale                                 |        |                    |
| Parent company name  | 200 Bay Street, Royal Bank Plaza     |        |                    |
| Address 1  | Suite 1600, South Tower, P.O. Box 70 |        |                    |
| Address 2  | Toronto                              |        |                    |
| City   | Toronto                              |        |                    |
| Province   | Ontario                              |        |                    |
| Postal Code  | M5J 2K2                              |        |                    |
| Percent Ownership  | 100                                  |        |                    |

|   |                    |  |
|---|--------------------|--|
| Substance:  | Ammonia            |  |
| CAS Number:   | NA-16              |  |
| On a facility-wide basis:   | Tonnes             |  |
| Amount that entered the facility as the substance itself or as a constituent of another substance:  | Range 100 to 1,000 |  |
| The amount of substance that was created:   | 0                  |  |
| The amount of substance that was contained in product:  | 0                  |  |
| On-site releases from the facility to air, water and land, as well as on and off-site disposal and off-site recycling can be viewed by searching for this facility at <a href="http://www.ec.gc.ca/inrp-npri/default.asp?lang=en">http://www.ec.gc.ca/inrp-npri/default.asp?lang=en</a> |                    |  |

|   |                             |  |
|---|-----------------------------|--|
| Substance:  | Arsenic (and its compounds) |  |
| CAS Number:   | NA-02                       |  |
| On a facility-wide basis:   | Kilograms                   |  |
| Amount that entered the facility as the substance itself or as a constituent of another substance:  | Range 100,000 to 1,000,000  |  |
| The amount of substance that was created:   | 0                           |  |
| The amount of substance that was contained in product:  | Range 100,000 to 1,000,000  |  |
| On-site releases from the facility to air, water and land, as well as on and off-site disposal and off-site recycling can be viewed by searching for this facility at <a href="http://www.ec.gc.ca/inrp-npri/default.asp?lang=en">http://www.ec.gc.ca/inrp-npri/default.asp?lang=en</a> |                             |  |

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|   |                             |
|---|-----------------------------|
| Substance:  | Cadmium (and its compounds) |
| CAS Number:   | NA-03                       |
| On a facility-wide basis:   | Kilograms                   |
| Amount that entered the facility as the substance itself or as a constituent of another substance:  | Range 100 to 1,000          |
| The amount of substance that was created:   | 0                           |
| The amount of substance that was contained in product:  | Range 100 to 1,000          |
| On-site releases from the facility to air, water and land, as well as on and off-site disposal and off-site recycling can be viewed by searching for this facility at <a href="http://www.ec.gc.ca/inrp-npri/default.asp?lang=en">http://www.ec.gc.ca/inrp-npri/default.asp?lang=en</a> |                             |

|   |                   |
|---|-------------------|
| Substance:  | Carbon disulphide |
| CAS Number:   | 75-15-0           |
| On a facility-wide basis:   | Tonnes            |
| Amount that entered the facility as the substance itself or as a constituent of another substance:  | 0                 |
| The amount of substance that was created:   | Range 10 to 100   |
| The amount of substance that was contained in product:  | 0                 |
| On-site releases from the facility to air, water and land, as well as on and off-site disposal and off-site recycling can be viewed by searching for this facility at <a href="http://www.ec.gc.ca/inrp-npri/default.asp?lang=en">http://www.ec.gc.ca/inrp-npri/default.asp?lang=en</a> |                   |

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|---|------------------------------|
| Substance:  | Chromium (and its compounds) |
| CAS Number:   | NA-04                        |
| On a facility-wide basis:   | Tonnes                       |
| Amount that entered the facility as the substance itself or as a constituent of another substance:  | Range 100 to 1,000           |
| The amount of substance that was created:   | 0                            |
| The amount of substance that was contained in product:  | Range 1,000 to 10,000        |
| On-site releases from the facility to air, water and land, as well as on and off-site disposal and off-site recycling can be viewed by searching for this facility at <a href="http://www.ec.gc.ca/inrp-npri/default.asp?lang=en">http://www.ec.gc.ca/inrp-npri/default.asp?lang=en</a> |                              |

|   |                            |
|---|----------------------------|
| Substance:  | Cobalt (and its compounds) |
| CAS Number:   | NA-05                      |
| On a facility-wide basis:   | Tonnes                     |
| Amount that entered the facility as the substance itself or as a constituent of another substance:  | Range 1,000 to 10,000      |
| The amount of substance that was created:   | 0                          |
| The amount of substance that was contained in product:  | Range 1,000 to 10,000      |
| On-site releases from the facility to air, water and land, as well as on and off-site disposal and off-site recycling can be viewed by searching for this facility at <a href="http://www.ec.gc.ca/inrp-npri/default.asp?lang=en">http://www.ec.gc.ca/inrp-npri/default.asp?lang=en</a> |                            |

|   |                            |
|---|----------------------------|
| Substance:  | Copper (and its compounds) |
| CAS Number:   | NA-06                      |
| On a facility-wide basis:   | Tonnes                     |
| Amount that entered the facility as the substance itself or as a constituent of another substance:  | Range 10,000 to 100,000    |
| The amount of substance that was created:   | 0                          |
| The amount of substance that was contained in product:  | Range 10,000 to 100,000    |
| On-site releases from the facility to air, water and land, as well as on and off-site disposal and off-site recycling can be viewed by searching for this facility at <a href="http://www.ec.gc.ca/inrp-npri/default.asp?lang=en">http://www.ec.gc.ca/inrp-npri/default.asp?lang=en</a> |                            |

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|---|----------------------------|
| Substance:  | Lead (and its compounds)   |
| CAS Number:   | NA-08                      |
| On a facility-wide basis:   | Kilograms                  |
| Amount that entered the facility as the substance itself or as a constituent of another substance:  | Range 100,000 to 1,000,000 |
| The amount of substance that was created:   | 0                          |
| The amount of substance that was contained in product:  | Range 100,000 to 1,000,000 |
| On-site releases from the facility to air, water and land, as well as on and off-site disposal and off-site recycling can be viewed by searching for this facility at <a href="http://www.ec.gc.ca/inrp-npri/default.asp?lang=en">http://www.ec.gc.ca/inrp-npri/default.asp?lang=en</a> |                            |

|   |                               |
|---|-------------------------------|
| Substance:  | Manganese (and its compounds) |
| CAS Number:   | NA-09                         |
| On a facility-wide basis:   | Tonnes                        |
| Amount that entered the facility as the substance itself or as a constituent of another substance:  | Range 1,000 to 10,000         |
| The amount of substance that was created:   | 0                             |
| The amount of substance that was contained in product:  | Range 1,000 to 10,000         |
| On-site releases from the facility to air, water and land, as well as on and off-site disposal and off-site recycling can be viewed by searching for this facility at <a href="http://www.ec.gc.ca/inrp-npri/default.asp?lang=en">http://www.ec.gc.ca/inrp-npri/default.asp?lang=en</a> |                               |

|   |                             |
|---|-----------------------------|
| Substance:  | Mercury (and its compounds) |
| CAS Number:   | NA-10                       |
| On a facility-wide basis:   | Kilograms                   |
| Amount that entered the facility as the substance itself or as a constituent of another substance:  | Range 100 to 1,000          |
| The amount of substance that was created:   | 0                           |
| The amount of substance that was contained in product:  | Range 100 to 1,000          |
| On-site releases from the facility to air, water and land, as well as on and off-site disposal and off-site recycling can be viewed by searching for this facility at <a href="http://www.ec.gc.ca/inrp-npri/default.asp?lang=en">http://www.ec.gc.ca/inrp-npri/default.asp?lang=en</a> |                             |

|   |                            |
|---|----------------------------|
| Substance:  | Nickel (and its compounds) |
| CAS Number:   | NA-11                      |
| On a facility-wide basis:   | Tonnes                     |
| Amount that entered the facility as the substance itself or as a constituent of another substance:  | Range 10,000 to 100,000    |
| The amount of substance that was created:   | 0                          |
| The amount of substance that was contained in product:  | Range 10,000 to 100,000    |
| On-site releases from the facility to air, water and land, as well as on and off-site disposal and off-site recycling can be viewed by searching for this facility at <a href="http://www.ec.gc.ca/inrp-npri/default.asp?lang=en">http://www.ec.gc.ca/inrp-npri/default.asp?lang=en</a> |                            |

|   |                                       |
|---|---------------------------------------|
| Substance:  | Nitrate ion, in solution at pH >= 6.0 |
| CAS Number:   | NA-17                                 |
| On a facility-wide basis:   | Tonnes                                |
| Amount that entered the facility as the substance itself or as a constituent of another substance:  | Range 10 to 100                       |
| The amount of substance that was created:   | 0                                     |
| The amount of substance that was contained in product:  | 0                                     |
| On-site releases from the facility to air, water and land, as well as on and off-site disposal and off-site recycling can be viewed by searching for this facility at <a href="http://www.ec.gc.ca/inrp-npri/default.asp?lang=en">http://www.ec.gc.ca/inrp-npri/default.asp?lang=en</a> |                                       |

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|--|---|
| Substance:   | Nitrogen oxides (expressed as NO <sub>2</sub> ) |
| CAS Number:  | 11104-93-1                                      |
| On a facility-wide basis:  | Tonnes  |
| Amount that entered the facility as the substance itself or as a constituent of another substance: | 0   |
| The amount of substance that was created:  | Range 10 to 100                                 |
| The amount of substance that was contained in product:   | 0   |

On-site releases from the facility to air, water and land, as well as on and off-site disposal and off-site recycling can be viewed by searching for this facility at <http://www.ec.gc.ca/inrp-npri/default.asp?lang=en>

|  |   |
|--|---|
| Substance:   | PM10 - Particulate Matter <= 10 Microns |
| CAS Number:  | NA-M09                                  |
| On a facility-wide basis:  | Tonnes                                  |
| Amount that entered the facility as the substance itself or as a constituent of another substance: | 0                                       |
| The amount of substance that was created:  | Range 10 to 100                         |
| The amount of substance that was contained in product:   | 0                                       |

On-site releases from the facility to air, water and land, as well as on and off-site disposal and off-site recycling can be viewed by searching for this facility at <http://www.ec.gc.ca/inrp-npri/default.asp?lang=en>

|  |   |
|--|---|
| Substance:   | PM2.5 - Particulate Matter <= 2.5 Microns |
| CAS Number:  | NA-M10                                    |
| On a facility-wide basis:  | Tonnes                                    |
| Amount that entered the facility as the substance itself or as a constituent of another substance: | 0   |
| The amount of substance that was created:  | Range 1 to 10                             |
| The amount of substance that was contained in product:   | 0   |

On-site releases from the facility to air, water and land, as well as on and off-site disposal and off-site recycling can be viewed by searching for this facility at <http://www.ec.gc.ca/inrp-npri/default.asp?lang=en>

|  |                       |
|--|-----------------------|
| Substance:   | Thallium              |
| CAS Number:  | 7440-28-0             |
| On a facility-wide basis:  | Kilograms             |
| Amount that entered the facility as the substance itself or as a constituent of another substance: | Range 1,000 to 10,000 |
| The amount of substance that was created:  | 0                     |
| The amount of substance that was contained in product:   | Range 1,000 to 10,000 |

On-site releases from the facility to air, water and land, as well as on and off-site disposal and off-site recycling can be viewed by searching for this facility at <http://www.ec.gc.ca/inrp-npri/default.asp?lang=en>

|  |                          |
|--|--------------------------|
| Substance:   | Total Particulate Matter |
| CAS Number:  | NA-M08                   |
| On a facility-wide basis:  | Tonnes                   |
| Amount that entered the facility as the substance itself or as a constituent of another substance: | 0                        |
| The amount of substance that was created:  | Range 10 to 100          |
| The amount of substance that was contained in product:   | 0                        |

On-site releases from the facility to air, water and land, as well as on and off-site disposal and off-site recycling can be viewed by searching for this facility at <http://www.ec.gc.ca/inrp-npri/default.asp?lang=en>

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|---|------------------------------|
| Substance:  | Selenium (and its compounds) |
| CAS Number:   | NA-12                        |
| On a facility-wide basis:   | Kilograms                    |
| Amount that entered the facility as the substance itself or as a constituent of another substance:  | Range 100,000 to 1,000,000   |
| The amount of substance that was created:   | 0                            |
| The amount of substance that was contained in product:  | Range 100,000 to 1,000,000   |
| On-site releases from the facility to air, water and land, as well as on and off-site disposal and off-site recycling can be viewed by searching for this facility at <a href="http://www.ec.gc.ca/inrp-npri/default.asp?lang=en">http://www.ec.gc.ca/inrp-npri/default.asp?lang=en</a> |                              |

|   |                       |
|---|-----------------------|
| Substance:  | Sulphuric Acid        |
| CAS Number:   | 7664-93-9             |
| On a facility-wide basis:   | Tonnes                |
| Amount that entered the facility as the substance itself or as a constituent of another substance:  | Range 1,000 to 10,000 |
| The amount of substance that was created:   | 0                     |
| The amount of substance that was contained in product:  | 0                     |
| On-site releases from the facility to air, water and land, as well as on and off-site disposal and off-site recycling can be viewed by searching for this facility at <a href="http://www.ec.gc.ca/inrp-npri/default.asp?lang=en">http://www.ec.gc.ca/inrp-npri/default.asp?lang=en</a> |                       |

|   |  |
|---|--|
| Substance:  | Total reduced sulphur (expressed as hydrogen sulphide) |
| CAS Number:   | NA-014   |
| On a facility-wide basis:   | Tonnes   |
| Amount that entered the facility as the substance itself or as a constituent of another substance:  | 0  |
| The amount of substance that was created:   | Range 10 to 100  |
| The amount of substance that was contained in product:  | 0  |
| On-site releases from the facility to air, water and land, as well as on and off-site disposal and off-site recycling can be viewed by searching for this facility at <a href="http://www.ec.gc.ca/inrp-npri/default.asp?lang=en">http://www.ec.gc.ca/inrp-npri/default.asp?lang=en</a> |  |

|   |  |
|---|--|
| Substance:  | Vanadium (except when in an alloy) and its compounds |
| CAS Number:   | 7440-62-2  |
| On a facility-wide basis:   | Tonnes   |
| Amount that entered the facility as the substance itself or as a constituent of another substance:  | Range 100 to 1,000                                   |
| The amount of substance that was created:   | 0  |
| The amount of substance that was contained in product:  | Range 100 to 1,000                                   |
| On-site releases from the facility to air, water and land, as well as on and off-site disposal and off-site recycling can be viewed by searching for this facility at <a href="http://www.ec.gc.ca/inrp-npri/default.asp?lang=en">http://www.ec.gc.ca/inrp-npri/default.asp?lang=en</a> |  |

|   |                          |
|---|--------------------------|
| Substance:  | Zinc (and its compounds) |
| CAS Number:   | NA-14                    |
| On a facility-wide basis:   | Tonnes                   |
| Amount that entered the facility as the substance itself or as a constituent of another substance:  | Range 100 to 1,000       |
| The amount of substance that was created:   | 0                        |
| The amount of substance that was contained in product:  | Range 100 to 1,000       |
| On-site releases from the facility to air, water and land, as well as on and off-site disposal and off-site recycling can be viewed by searching for this facility at <a href="http://www.ec.gc.ca/inrp-npri/default.asp?lang=en">http://www.ec.gc.ca/inrp-npri/default.asp?lang=en</a> |                          |

As of June 1st, 2017, I certify that I have read the toxic substance reduction accounting report for Ammonia, As, Carbon disulphide, Cd, Cu, Cr, Hg, Ni, Nitrate ion, NOx, Pb, TPM, PM10, PM2.5, Total reduced sulphur, Ti, Se, Sulphuric Acid, V, and Zn and I am familiar with its contents and to my knowledge the information contained in the TRA accounting report is factually accurate and the report complies with the Toxics Reduction Act, 2009 and Ontario Regulation 455/09 (General) made under the Act.

|   |                  |
|---|------------------|
| The original version of this report is signed off by: Highest Ranking Employee: | Mr. Troy Hoffman |
| Title:  | Mill Manager     |
| Phone Number:   | 705-682-7021     |