

## **TOXIC REDUCTION POLICY STATEMENT OF INTENT**

De Beers Canada Inc., Victor Mine is committed to playing a leadership role in protecting the environment. Wherever feasible, we will reduce the creation and discharge of carbon monoxide in full compliance with all federal and provincial regulations. Our employees are encouraged to participate in all types of toxic substance reduction activities. Toxic substance reduction will be an ongoing effort at DeBeers, and we will continue to monitor advancements to ensure that options that are both technologically and financially viable are implemented at our facility. No current options were identified that are technically or economically feasible.

## **REDUCTION OBJECTIVES**

There was no reduction option identified because DeBeers is already improving their facility operations to minimize the release of carbon monoxide. Carbon monoxide is primarily created and released at the DeBeers Canada Inc Victor Mine site during the use of emulsion explosives for blasting and removing the ore. Emulsion explosives are widely used in the mining sector due to their low cost, ease of use and the ability to work in wet environments. DeBeers already employs a great deal of planning and scheduling to minimize the use and increase the efficiency and effectiveness of the explosives. There are no viable alternatives to the use emulsion explosives based on cost and other viable explosives will create and release similar amounts of carbon monoxide.

## **PLAN SUMMARY STATEMENT**

This plan summary accurately reflects the content of the toxic substance reduction plan for carbon monoxide prepared on behalf of De Beers Canada Inc., Victor Mine dated December 23, 2013.



## BASIC FACILITY INFORMATION

Company Name: DeBeers Canada Inc., Victor Mine  
Contact Information: 119 Pine St. South, Suite 310, Timmins, ON. P4N 2K3

Highest Ranking Employee: James Kirby  
Mine General Manager  
416-645-3888 Ext. 2180  
james.kirby@debeerscanada.com

Technical Contacts: Brian Steinback P. Eng.  
[Brian.steinback@debeerscanada.com](mailto:Brian.steinback@debeerscanada.com) 416-432-9815  
or Terry Ternes P. Geo.  
[Terry.ternes@debeerscanada.com](mailto:Terry.ternes@debeerscanada.com) 416-645-3888 ext 5779

Certified Planner: Tony van der Vooren P.Eng, Ph.D, QEP  
License Number TSRP0051  
Senior Environmental Consultant  
AMEC Americas Limited  
905-403-3536  
[tony.vandervooren@amec.com](mailto:tony.vandervooren@amec.com)

Parent Company: De Beers Canada Inc.  
100% ownership

Address: Suite 900 – 250 Ferrand Dr.  
Toronto, Ontario  
M3C 3G8

Business Number: 103749735  
The facility's NPRI ID: 10984  
250 full time employees (equivalent).  
Site Location (UTM Coordinates): Zone 17, 304227 E and 5856029 N

The NAICS codes applicable to the facility are:

- 21 – Mining, quarrying, and oil and gas extraction
- 2123 – Non metallic mineral mining and quarrying
- 212392 – Diamond Mining

Company Name: DeBeers Canada Inc.

This Toxic Reduction Plan has been prepared for Carbon monoxide. Separate toxic reduction plans have been developed for arsenic, cadmium, chromium, cobalt, copper, lead, manganese,

Debeers Canada Inc.  
Toxics Reduction Plan for Carbon Monoxide  
Victor Mine  
December 2013



nickel, phosphorus, selenium, vanadium zinc, dioxins and furans individual congeners, hexachlorobenzene, and particulates (TPM, PM10, and PM2.5).

Carbon Monoxide 630-08-0

**CERTIFICATION OF HIGHEST RANKING EMPLOYEE**

As of December 23, 2013, I, James Kirby, certify that I have read the toxic substance reduction plan for the toxic substance referred to below and am familiar with its contents, and to my knowledge the plan is factually accurate and complies with the Toxics Reduction Act, 2009 and Ontario Regulation 455/09 (General) made under that Act.

Carbon Monoxide 630-08-0



Kirby, James  
2013.12.31 01:07:34 -05'00'

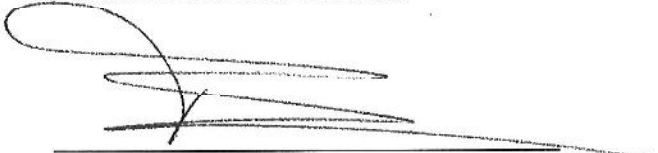
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James Kirby  
Mine Manager

**CERTIFICATION OF LICENSED PLANNER**

As of December 23, 2013, I, Tony van der Vooren certify that I am familiar with the processes at the DeBeers Victor Mine that use or create the toxic substance referred to below, that I agree with the estimates referred to in subparagraphs 7 iii, iv and v of subsection 4 (1) of the Toxics Reduction Act, 2009 that are set out in the plan dated [insert version date] and that the plan complies with that Act and Ontario Regulation 455/09 (General) made under that Act.

Carbon Monoxide 630-08-0



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Tony van der Vooren P.Eng, Ph.D, QEP  
Licensed Toxic Reduction Planner (Ontario): License Number TSRP0051  
Senior Environmental Consultant  
AMEC Americas Limited



## **TOXIC REDUCTION POLICY STATEMENT OF INTENT**

De Beers Canada Inc., Victor Mine is committed to playing a leadership role in protecting the environment. Wherever feasible, we will eliminate or reduce the creation and discharge of Particulates in full compliance with all federal and provincial regulations. Our employees are encouraged to participate in all types of toxic substance reduction activities. Toxic substance reduction will be an ongoing effort at DeBeers, and we will continue to monitor advancements to ensure that options that are both technologically and financially viable are implemented at our facility. No current options were identified that are technically feasible or economically feasible.

## **REDUCTION OBJECTIVES**

There was no reduction option was indentified because there is no additional viable way of reducing the creation of particulates. Particulates (TPM, PM10 and PM2.5) are primarily created and released at the DeBeers Canada Inc Victor Mine site through truck travel on unpaved roads for hauling purposes. In addition, some small amounts of particulates are created and released through combustion of fuel oil, incinerator use and primary and secondary crushing. DeBeers already employs a fugitive dust management plan to minimize particulate emissions that includes watering the unpaved roads, maintenance of the roads and speed limits. No further reduction options have been considered because any further mitigation will only increase costs while offering no viable payback.

## **PLAN SUMMARY STATEMENT**

This plan summary accurately reflects the content of the toxic substance reduction plan for particulates (TPM, PM10 and PM2.5) prepared on behalf of De Beers Canada Inc., Victor Mine dated December 23, 2013.



## BASIC FACILITY INFORMATION

Company Name: DeBeers Canada Inc., Victor Mine  
Contact Information: 119 Pine St. South, Suite 310, Timmins, ON. P4N 2K3

Highest Ranking Employee: James Kirby  
Mine General Manager  
416-645-3888 Ext. 2180  
james.kirby@debeerscanada.com

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or Terry Ternes P. Geo.  
[Terry.ternes@debeerscanada.com](mailto:Terry.ternes@debeerscanada.com) 416-645-3888 ext 5779

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Parent Company: De Beers Canada Inc.  
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Address: Suite 900 – 250 Ferrand Dr.  
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Business Number: 103749735  
The facility's NPRI ID: 10984  
250 full time employees (equivalent).  
Site Location (UTM Coordinates): Zone 17, 304227 E and 5856029 N

The NAICS codes applicable to the facility are:

- 21 – Mining, quarrying, and oil and gas extraction
- 2123 – Non metallic mineral mining and quarrying
- 212392 – Diamond Mining

Company Name: DeBeers Canada Inc.

This Toxic Reduction Plan has been prepared for particulates (TPM, PM10, and PM2.5). Separate toxic reduction plans have been developed for arsenic, cadmium, chromium, cobalt,

Debeers Canada Inc.  
Toxics Reduction Plan for Particulates  
Victor Mine  
December 2013



copper, lead, manganese, nickel, phosphorus, selenium, vanadium zinc, dioxins and furans  
individual congeners, hexachlorobenzene, and carbon monoxide.

Total Particulate Matter, NA-M08  
Particulate Matter  $\leq 10$  microns, NA-M09  
Particulate Matter  $\leq 2.5$  microns, NA-M10

### **CERTIFICATION OF HIGHEST RANKING EMPLOYEE**

As of December 23, 2013, I, James Kirby, certify that I have read the toxic substance reduction plan for the toxic substance referred to below and am familiar with its contents, and to my knowledge the plan is factually accurate and complies with the Toxics Reduction Act, 2009 and Ontario Regulation 455/09 (General) made under that Act.

Total Particulate Matter, NA-M08  
Particulate Matter  $\leq$  10 microns, NA-M09  
Particulate Matter  $\leq$  2.5 microns, NA-M10



Kirby, James  
2013.12.31 01:08:53 -05'00'

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James Kirby  
Mine Manager

### **CERTIFICATION OF LICENSED PLANNER**

As of December 23, 2013, I, Tony van der Vooren certify that I am familiar with the processes at the DeBeers Victor Mine that use or create the toxic substance referred to below, that I agree with the estimates referred to in subparagraphs 7 iii, iv and v of subsection 4 (1) of the Toxics Reduction Act, 2009 that are set out in the plan dated [insert version date] and that the plan complies with that Act and Ontario Regulation 455/09 (General) made under that Act.

Total Particulate Matter, NA-M08  
Particulate Matter  $\leq$  10 microns, NA-M09  
Particulate Matter  $\leq$  2.5 microns, NA-M10



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Tony van der Vooren P.Eng, Ph.D, QEP  
Licensed Toxic Reduction Planner (Ontario): License Number TSRP0051  
Senior Environmental Consultant  
AMEC Americas Limited





## **TOXIC REDUCTION POLICY STATEMENT OF INTENT**

De Beers Canada Inc., Victor Mine is committed to playing a leadership role in protecting the environment. Our employees are encouraged to participate in all types of toxic substance reduction activities. Toxic substance reduction will be an ongoing effort at DeBeers, and we will continue to monitor advancements to ensure that options that are both technologically and financially viable are implemented at our facility.

Phosphorus is not created or used at the DeBeers Victor Mine site but is naturally contained in ore (kimberlite) from which diamonds are extracted. After processing the kimberlite, it is transferred into an onsite tailings management pond. The fine processed kimberlite transferred to the pond contains phosphorus.

## **REDUCTION OBJECTIVES**

DeBeers does not intend to reduce the transfer of phosphorus because it is naturally occurring in ore from which diamonds are extracted and eventually disposed into the onsite tailings management pond. The only way to reduce the amount of phosphorus transferred to the tailings facility would be to reduce the amount of ore processed, which could only be obtained by reducing output and plant operations. DeBeers is committed to ensuring their tailings transfers are handled in a safe and responsible manner. While DeBeers does not intend to reduce the transfer of phosphorus, technologies that may reduce the releases to the environment of phosphorus will be monitored.

## **PLAN SUMMARY STATEMENT**

This plan summary accurately reflects the content of the toxic substance reduction plan for phosphorus prepared on behalf of De Beers Canada Inc., Victor Mine dated December 23, 2013.

## BASIC FACILITY INFORMATION

Company Name: DeBeers Canada Inc., Victor Mine  
Contact Information: 119 Pine St. South, Suite 310, Timmins, ON. P4N 2K3

Highest Ranking Employee: James Kirby  
Mine General Manager  
416-645-3888 Ext. 2180  
james.kirby@debeerscanada.com

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or Terry Ternes P.Geo.  
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[tony.vandervooren@amec.com](mailto:tony.vandervooren@amec.com)

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The facility's NPRI ID: 10984  
250 full time employees (equivalent).  
Site Location (UTM Coordinates): Zone 17, 304227 E and 5856029 N

The NAICS codes applicable to the facility are:

21	– Mining, quarrying, and oil and gas extraction
2123	– Non metallic mineral mining and quarrying
212392	– Diamond Mining

Company Name: DeBeers Canada Inc.

This Toxic Reduction plan was prepared for phosphorus. Separate toxic reduction plans have been developed for dioxins and furans individual congeners, hexachlorobenzene, carbon monoxide, particulates (TPM, PM10 and PM2.5) arsenic, cadmium, chromium, cobalt, copper, lead, manganese, nickel, selenium, vanadium and zinc.

Debeers Canada Inc.  
Toxics Reduction Plan for Phosphorus  
Victor Mine  
December 2013




Phosphorus NA-22

## 10.0 CERTIFICATIONS

### CERTIFICATION OF HIGHEST RANKING EMPLOYEE

As of December 23, 2013, I, James Kirby, certify that I have read the toxic substance reduction plan for the toxic substance referred to below and am familiar with its contents, and to my knowledge the plan is factually accurate and complies with the Toxics Reduction Act, 2009 and Ontario Regulation 455/09 (General) made under that Act.

Phosphorus NA-22

 Kirby, James  
2013.12.29  
00:45:16 -05'00'

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James Kirby  
Plant Manager

### CERTIFICATION OF LICENSED PLANNER

As of December 23, 2013, I, Tony van der Vooren certify that I am familiar with the processes at the DeBeers Victor Mine that use or create the toxic substance referred to below, that I agree with the estimates referred to in subparagraphs 7 iii, iv and v of subsection 4 (1) of the Toxics Reduction Act, 2009 that are set out in the plan dated [insert version date] and that the plan complies with that Act and Ontario Regulation 455/09 (General) made under that Act.

Phosphorus NA-22



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AMEC Americas Limited