



NI 43-101 Technical Report

PRELIMINARY ECONOMIC ASSESSMENT of the WINDFALL LAKE PROJECT

Lebel-sur-Quévillon, Québec, CANADA

Prepared for:

Osisko Mining Inc.



Effective Date: July 12, 2018
Signature Date: August 1, 2018

By qualified persons:

- Colin Hardie, P. Eng. *BBA Inc.*
- Pierre-Luc Richard, P. Geo. *BBA Inc.*
- Jorge Torrealba, P. Eng. *BBA Inc.*
- Stéphane Faure, P. Geo. *InnovExplo Inc.*
- Judith St-Laurent, P. Geo. *InnovExplo Inc.*
- Patrick Frenette, P. Eng. *InnovExplo Inc.*
- Michael Bratty, P. Eng. *Golder Associates Ltd.*
- Anne-Marie Dagenais, P. Eng. *Golder Associates Ltd.*
- Paul Palmer, P. Eng. *Golder Associates Ltd.*
- Luc Gaulin, P. Eng. *SNC-Lavalin Stavibel Inc.*
- Simon Latulippe, P. Eng. *WSP Canada Inc.*
- Éric Poirier, P. Eng. *WSP Canada Inc.*





IMPORTANT NOTICE

This report was prepared as a National Instrument 43-101 *Standards of Disclosure for Mineral Projects* Technical Report for Osisko Mining Inc. (Osisko) by BBA Inc. (BBA), InnovExplo Inc. (InnovExplo), Golder Associates Ltd. (Golder), WSP Canada Inc. (WSP), and SNC-Lavalin Stavibel Inc. (SNC-Stavibel), collectively known as the “Report Authors”. The quality of information, conclusions, and estimates contained herein is consistent with the level of effort involved in the Report Authors’ services, based on i) information available at the time of preparation, ii) data supplied by outside sources, and iii) the assumptions, conditions, and qualifications set forth in this report. This report is intended for use by Osisko subject to the terms and conditions of its contract with the report authors and relevant securities legislation. The contract permits Osisko to file this report as a Technical Report with Canadian securities regulatory authorities pursuant to National Instrument 43-101. Except for the purposes legislated under provincial securities law, any other uses of this report by any third party is at that party’s sole risk. The responsibility for this disclosure remains with Osisko. The user of this document should ensure that this is the most recent Technical Report for the property as it is not valid if a new Technical Report has been issued.

CAUTIONARY STATEMENT

This Preliminary Economic Assessment (PEA) is preliminary in nature and is based on numerous assumptions and inferred mineral resources. Inferred mineral resources are considered too speculative geologically to have economic considerations applied to them that would enable them to be categorized as mineral reserves except as allowed for by Canadian Securities Administrators’ National Instrument 43-101 in PEA studies. No mineral reserves have been estimated. There is no guarantee that Inferred resources can be converted to Indicated or Measured resources and, as such, there is no guarantee that the Project economics described herein will be achieved.



DATE AND SIGNATURE PAGE

This report is effective as of the 12th day of July 2018.

"Signed and sealed original on file"

Colin Hardie, P. Eng.
BBA Inc.

August 1, 2018

Date

"Signed and sealed original on file"

Jorge Torrealba, P. Eng.
BBA Inc.

August 1, 2018

Date

"Signed and sealed original on file"

Pierre-Luc Richard, P. Geo.
BBA Inc.

August 1, 2018

Date

"Signed and sealed original on file"

Stéphane Faure, P. Geo.
InnovExplo Inc.

August 1, 2018

Date

"Signed and sealed original on file"

Judith St-Laurent, P. Geo.
InnovExplo Inc.

August 1, 2018

Date

"Signed and sealed original on file"

Patrick Frenette, P. Eng.
InnovExplo Inc.

August 1, 2018

Date



"Signed and sealed original on file"

Michael Bratty, P. Eng.
Golder Associates Ltd.

August 1, 2018

Date

"Signed and sealed original on file"

Anne-Marie Dagenais, P. Eng.
Golder Associates Ltd.

August 1, 2018

Date

"Signed and sealed original on file"

Paul Palmer, P. Eng.
Golder Associates Ltd.

August 1, 2018

Date

"Signed and sealed original on file"

Luc Gaulin, P. Eng.
SNC-Lavalin Stavibel Inc.

August 1, 2018

Date

"Signed and sealed original on file"

Simon Latulippe, P. Eng.
WSP Canada Inc.

August 1, 2018

Date

"Signed and sealed original on file"

Éric Poirier, P. Eng.
WSP Canada Inc.

August 1, 2018

Date



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To: Osisko Mining Inc.

And to: Alberta Securities Commission
Autorité des marchés financiers (Québec)
British Columbia Securities Commission
Ontario Securities Commission

And to: Toronto Stock Exchange

CONSENT OF QUALIFIED PERSON - FILED BY SEDAR

I, Colin Hardie, P. Eng., (PEO No. 90512500) employed with BBA Inc. do hereby consent to the filing of the Technical Report prepared for *Osisko Mining Inc.* titled ***“Preliminary Economic Assessment of the Windfall Lake Project”***, (effective date of July 12, 2018 and dated August 1, 2018) with the securities regulatory authorities referred to above that is being filed in support of a press release dated July 17, 2018 (the “Press Release”).

I, the undersigned, hereby confirm that I have read the Press Release and that it fairly and accurately represents the information in the abovementioned Preliminary Economic Assessment Report that I am responsible for.

Signed this 1st day of August, 2018.

“Signed original on file”

Colin Hardie, P. Eng.
PEO No. 90512500
BBA Inc.



2020 Robert-Bourassa Blvd. Suite 300
Montréal, QC H3A 2A5
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To: Osisko Mining Inc.

And to: Alberta Securities Commission
Autorité des marchés financiers (Québec)
British Columbia Securities Commission
Ontario Securities Commission

And to: Toronto Stock Exchange

CONSENT OF QUALIFIED PERSON - FILED BY SEDAR

I, Jorge Torrealba, P.Eng., Ph.D. (APEGNB No. M7957) employed with BBA Inc. do hereby consent to the filing of the Technical Report prepared for *Osisko Mining Inc.* titled "**Preliminary Economic Assessment of the Windfall Lake Project**", (effective date of July 12, 2018 and dated August 1, 2018) with the securities regulatory authorities referred to above that is being filed in support of a press release dated July 17, 2018 (the "Press Release").

I, the undersigned, hereby confirm that I have read the Press Release and that it fairly and accurately represents the information in the abovementioned Preliminary Economic Assessment Report that I am responsible for.

Signed this 1st day of August, 2018.

"Signed original on file"

Jorge Torrealba, P. Eng., Ph.D.
APEGNB No. M7957
BBA Inc.



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To: Osisko Mining Inc.

And to: Alberta Securities Commission
Autorité des marchés financiers (Québec)
British Columbia Securities Commission
Ontario Securities Commission

And to: Toronto Stock Exchange

CONSENT OF QUALIFIED PERSON - FILED BY SEDAR

I, Pierre-Luc Richard, P. Geo., (OGQ No. 1119, APGO No. 1714, NAPEG No. L2465, and APEGBC No. 43255) employed with BBA Inc. do hereby consent to the filing of the Technical Report prepared for *Osisko Mining Inc.* titled “**Preliminary Economic Assessment of the Windfall Lake Project**”, (effective date of July 12, 2018 and dated August 1, 2018) with the securities regulatory authorities referred to above that is being filed in support of a press release dated July 17, 2018 (the “Press Release”).

I, the undersigned, hereby confirm that I have read the Press Release and that it fairly and accurately represents the information in the abovementioned Preliminary Economic Assessment Report that I am responsible for.

Signed this 1st day of August, 2018.

“Signed original on file”

Pierre-Luc Richard, P. Geo.
OGQ No. 1119, APGO No. 1714, NAPEG No. L2465, and APEGBC No. 43255
BBA Inc.



To: Osisko Mining Inc.

And to: Alberta Securities Commission
Autorité des marchés financiers (Québec)
British Columbia Securities Commission
Ontario Securities Commission

And to: Toronto Stock Exchange

CONSENT OF QUALIFIED PERSON - FILED BY SEDAR

I, Stéphane Faure, P.Geo., (OGQ No. 306, APGO No. 2662, NAPEG No. L3536) employed with InnovExplo do hereby consent to the filing of the Technical Report prepared for *Osisko Mining Inc.* titled "**Preliminary Economic Assessment of the Windfall Lake Project**", (effective date of July 12, 2018 and dated August 1, 2018) with the securities regulatory authorities referred to above that is being filed in support of a press release dated July 17, 2018 (the "Press Release").

I, the undersigned, hereby confirm that I have read the Press Release and that it fairly and accurately represents the information in the abovementioned Preliminary Economic Assessment Report that I am responsible for.

Signed this 1st day of August, 2018.

"Signed original on file"

Stéphane Faure, P. Geo., Ph.D.
OGQ No. 306, APGO No. 2662, NAPEG No. L3536
InnovExplo Inc.



To: Osisko Mining Inc.

And to: Alberta Securities Commission
Autorité des marchés financiers (Québec)
British Columbia Securities Commission
Ontario Securities Commission

And to: Toronto Stock Exchange

CONSENT OF QUALIFIED PERSON - FILED BY SEDAR

I, Judith St-Laurent, P.Geo., B.Sc. (OGQ No. 1023) employed with InnovExplo do hereby consent to the filing of the Technical Report prepared for *Osisko Mining Inc.* titled ***“Preliminary Economic Assessment of the Windfall Lake Project”***, (effective date of July 12, 2018 and dated August 1, 2018) with the securities regulatory authorities referred to above that is being filed in support of a press release dated July 17, 2018 (the “Press Release”).

I, the undersigned, hereby confirm that I have read the Press Release and that it fairly and accurately represents the information in the abovementioned Preliminary Economic Assessment Report that I am responsible for.

Signed this 1st day of August, 2018.

“Signed original on file”

Judith St-Laurent, P. Geo., B.Sc.
OGQ No. 1023
InnovExplo Inc.



To: Osisko Mining Inc.

And to: Alberta Securities Commission
Autorité des marchés financiers (Québec)
British Columbia Securities Commission
Ontario Securities Commission

And to: Toronto Stock Exchange

CONSENT OF QUALIFIED PERSON - FILED BY SEDAR

I, Patrick Frenette, P.Eng., (OIQ 129575) employed with InnovExplo Inc. do hereby consent to the filing of the Technical Report prepared for *Osisko Mining inc.* titled ***"Preliminary Economic Assessment of the Windfall Lake Project"***, (effective date of July 12, 2018 and dated August 1, 2018) with the securities regulatory authorities referred to above that is being filed in support of a press release dated July 17, 2018 (the "Press Release").

I, the undersigned, hereby confirm that I have read the Press Release and that it fairly and accurately represents the information in the abovementioned Preliminary Economic Assessment Report that I am responsible for.

Signed this 1st day of August, 2018.

"Signed original on file"

Patrick Frenette, P. Eng.
(OIQ 129575)
InnovExplo Inc.



To: Osisko Mining Inc.

And to: Alberta Securities Commission
Autorité des marchés financiers (Québec)
British Columbia Securities Commission
Ontario Securities Commission

And to: Toronto Stock Exchange

CONSENT OF QUALIFIED PERSON
Michael Bratty, M. Eng., P. Eng.

I, Michael Bratty, M. Eng., P. Eng., state that I am responsible for preparing and supervising the preparation of part of the technical report titled **PRELIMINARY ECONOMIC ASSESSMENT OF THE WINDFALL LAKE PROJECT**, with an effective date of July 12, 2018 and dated August 1, 2018, as signed and certified by me (the "Technical Report").

Furthermore, I state that:

- (a) I consent to the public filing of the Technical Report by Osisko Mining Inc.;
- (b) the document that the Technical Report supports is a press release by Osisko Mining Inc. dated July 17, 2018 (the "Press Release");
- (c) I consent to the use of extracts from, or a summary of, the parts of the Technical Report for which I am responsible in the Press Release;
- (d) I confirm that I have read the Press Release and that it fairly and accurately represents the information in the Technical Report or parts for which I am responsible.

Dated at Vancouver, British Columbia this 1st day of August, 2018.

"Signed original on file"

Michael Bratty, M. Eng., P. Eng
Associate, Senior Water Treatment Engineer
Golder Associates Ltd.



To: Osisko Mining Inc.

And to: Alberta Securities Commission
Autorité des marchés financiers (Québec)
British Columbia Securities Commission
Ontario Securities Commission

And to: Toronto Stock Exchange

CONSENT OF QUALIFIED PERSON
Anne-Marie Dagenais, Eng., Ph. D

I, Anne-Marie Dagenais, Eng., Ph. D, state that I am responsible for preparing and supervising the preparation of part of the technical report titled **PRELIMINARY ECONOMIC ASSESSMENT OF THE WINDFALL LAKE PROJECT**, with an effective date of July 12, 2018 and dated August 1, 2018, as signed and certified by me (the "Technical Report").

Furthermore, I state that:

- (a) I consent to the public filing of the Technical Report by Osisko Mining Inc.;
- (b) the document that the Technical Report supports is a press release by Osisko Mining Inc. dated July 17, 2018 (the "Press Release") ;
- (c) I consent to the use of extracts from, or a summary of, the parts of the Technical Report for which I am responsible in the Press Release;
- (d) I confirm that I have read the Press Release and that it fairly and accurately represents the information in the Technical Report or parts for which I am responsible.

Signed at Montréal, Québec this 1st day of August, 2018.

"Signed original on file"

Anne-Marie Dagenais, Eng., Ph. D
Senior Tailings Practitioner
Golder Associates Ltd.



To: Osisko Mining Inc.

And to: Alberta Securities Commission
Autorité des marchés financiers (Québec)
British Columbia Securities Commission
Ontario Securities Commission

And to: Toronto Stock Exchange

CONSENT OF QUALIFIED PERSON
Paul Palmer P.Eng.

I, Paul Palmer P. Eng., state that I am responsible for preparing and supervising the preparation of part of the technical report titled **PRELIMINARY ECONOMIC ASSESSMENT OF THE WINDFALL LAKE PROJECT**, with an effective date of July 12, 2018 and dated August 1, 2018, as signed and certified by me (the "Technical Report").

Furthermore, I state that:

- (a) I consent to the public filing of the Technical Report by Osisko Mining Inc.;
- (b) the document that the Technical Report supports is a press release by Osisko Mining Inc. dated July 17, 2018 (the "Press Release") ;
- (c) I consent to the use of extracts from, or a summary of, the parts of the Technical Report for which I am responsible in the Press Release;
- (d) I confirm that I have read the Press Release and that it fairly and accurately represents the information in the Technical Report or parts for which I am responsible.

Dated at Toronto, Ontario this 1st day of August, 2018.

"Signed original on file"

Paul Palmer, P.Eng.
Associate, Senior Mine Engineering
Golder Associates Ltd.



To: Osisko Mining Inc.

And to: Alberta Securities Commission
Autorité des marchés financiers (Québec)
British Columbia Securities Commission
Ontario Securities Commission

And to: Toronto Stock Exchange

CONSENT OF QUALIFIED PERSON - FILED BY SEDAR

I, Luc Gaulin P. Eng., MBA, (OIQ No. 111185) employed with SNC-Lavalin Stavibel Inc. do hereby consent to the filing of the Technical Report prepared for *Osisko Mining Inc.* titled "**Preliminary Economic Assessment of the Windfall Lake Project**", (effective date of July 12, 2018 and dated August 1, 2018) with the securities regulatory authorities referred to above that is being filed in support of a press release dated July 17, 2018 (the "Press Release").

I, the undersigned, hereby confirm that I have read the Press Release and that it fairly and accurately represents the information in the abovementioned Preliminary Economic Assessment Report that I am responsible for.

Signed this 1st day of August, 2018.

"Signed original on file"

Luc Gaulin, P. Eng., MBA
OIQ No. 111185
SNC-Lavalin Stavibel Inc.



To: Osisko Mining Inc.

And to: Alberta Securities Commission
Autorité des marchés financiers (Québec)
British Columbia Securities Commission
Ontario Securities Commission

And to: Toronto Stock Exchange

CONSENT OF QUALIFIED PERSON - FILED BY SEDAR

I, Simon Latulippe, P.Eng., B.Sc.A (OIQ 121 692) employed with WSP Canada inc. do hereby consent to the filing of the Technical Report prepared for *Osisko Mining Inc.* titled ***“Preliminary Economic Assessment of the Windfall Lake Project”***, (effective date of July 12, 2018 and dated August 1, 2018) with the securities regulatory authorities referred to above that is being filed in support of a press release dated July 17, 2018 (the “Press Release”).

I, the undersigned, hereby confirm that I have read the Press Release and that it fairly and accurately represents the information in the abovementioned Preliminary Economic Assessment Report that I am responsible for.

Signed this 1st day of August, 2018.

“Signed original on file”

Simon Latulippe, P.Eng., B.Sc.A
OIQ 121 692
WSP Canada inc.



To: Osisko Mining Inc.

And to: Alberta Securities Commission
Autorité des marchés financiers (Québec)
British Columbia Securities Commission
Ontario Securities Commission

And to: Toronto Stock Exchange

CONSENT OF QUALIFIED PERSON - FILED BY SEDAR

I, Eric Poirier, P. Eng., B.Sc. (OIQ 120063) employed with WSP do hereby consent to the filing of the Technical Report prepared for *Osisko Mining Inc.* titled “**Preliminary Economic Assessment of the Windfall Lake Project**”, (effective date of July 12, 2018 and dated August 1, 2018) with the securities regulatory authorities referred to above that is being filed in support of a press release dated July 17, 2018 (the “Press Release”).

I, the undersigned, hereby confirm that I have read the Press Release and that it fairly and accurately represents the information in the abovementioned Preliminary Economic Assessment Report that I am responsible for.

Signed this 1st day of August, 2018.

“Signed original on file”

Eric Poirier, P. Eng., B.Sc.
OIQ 120063
WSP

CERTIFICATE OF QUALIFIED PERSON

Colin Hardie, P. Eng.

This certificate applies to the **NI 43-101 Technical Report for the Preliminary Economic Assessment of the Windfall Lake Project, Lebel-sur-Quévillon, Québec, Canada**, prepared for **Osisko Mining Inc. (“Osisko”)** issued on August 1, 2018 (the “Technical Report”) and effective July 12, 2018.

I, Colin Hardie, P. Eng., do hereby certify that:

1. I am the Director of Mining and Process Studies with the firm BBA Inc. located at 2020 Robert-Bourassa Blvd., Suite 300, Montréal, Québec, H3A 2A5, Canada.
2. I graduated from the University of Toronto, Ontario Canada, in 1996 with a BAsC in Geological and Mineral Engineering. In 1999, I graduated from McGill University of Montréal, Québec Canada, with an M. Eng. in Metallurgical Engineering and in 2008 obtained a Master of Business Administration (MBA) degree from the University of Montréal (HEC), Québec Canada.
3. I am a member in good standing of the Professional Engineers of Ontario (PEO Member No: 90512500) and of the Canadian Institute of Mining, Metallurgy, and Petroleum (Member Number: 140556). I have practiced my profession continuously since my graduation.
4. I have been employed in mining operations, consulting engineering and applied metallurgical research for over 20 years. My relevant project experience includes metallurgical testwork analysis, flowsheet development, cost estimation and financial modeling. Since joining BBA in 2008, I have worked as a senior process engineer and/or lead study integrator for numerous North American iron ore, precious metal, industrial mineral, and base metal projects.
5. I have read the definition of “qualified person” set out in NI 43-101 – Standards of Disclosure for Mineral Projects (“NI 43-101”) and certify that, by reason of my education, affiliation with a professional association, and past relevant work experience, I fulfill the requirements to be a qualified person for the purposes of NI 43-101.
6. I am independent of the issuer applying all the tests in Section 1.5 of NI 43-101.
7. I am responsible for Chapters 1, 2, 3, 15, 19, 22 and 24 to 27, Sections 18.1, 18.4.15 to 18.4.17, 21.1 (except 21.1.3.4 to 21.1.3.6, 21.1.3.8, 21.1.4.1 to 21.1.4.4), 21.2 (except 21.2.3 and 21.2.6) and 21.3, I am also co-author of Sections 18.4, 18.4.1, 18.4.6, 18.4.7 and 21.1.4.5.
8. I have not visited the Windfall Lake Project that is the subject of the Technical Report.
9. I have had no prior involvement with the properties that are the subject of the Technical Report.
10. I have read NI 43-101 and the sections of the Technical Report for which I am responsible have been prepared in compliance with NI 43-101.
11. As at the effective date of the Technical Report, to the best of my knowledge, information and belief, the sections of the Technical Report for which I am responsible contain all scientific and technical information that is required to be disclosed to make the portions of the Technical Report for which I am responsible not misleading.

Signed this 1st day of August, 2018.

“Signed and sealed original on file”

Colin, Hardie, P. Eng.
BBA Inc.

CERTIFICATE OF QUALIFIED PERSON

Jorge Torrealba, P. Eng.

This certificate applies to the **NI 43-101 Technical Report for the Preliminary Economic Assessment of the Windfall Lake Project, Lebel-sur-Quévillon, Québec, Canada**, prepared for **Osisko Mining Inc. (“Osisko”)** issued on August 1, 2018 (the “Technical Report”) and effective July 12, 2018.

I, Jorge Torrealba, P. Eng., Ph.D. (APEGNB no. M7957), do hereby certify that:

1. I am employed as an engineer by and carried out this assignment for BBA Inc. – Consulting Firm in Engineering, located at 2020 Blvd. Robert-Bourassa, Suite 300, Montréal, Québec, Canada, H3A 2A5.
2. I graduated with a B.Eng. and M.Sc. in Metallurgy from Santiago de Chile University (Santiago, Chile) in 1998. I obtained a Ph.D. degree in Metallurgy From McGill University (Montreal, Quebec) in 2005.
3. I am a member in good standing of the Association of Professional Engineers and Geoscientists of New Brunswick (APEGNB licence No. M7957) and a member of the Canadian Institute of Mining Metallurgy and Petroleum.
4. I have worked as an engineer for a total of nineteen (19) years since graduating from University in 1998. My expertise in Mineral processing has been acquired with Santiago de Chile University in Chile, with Chile University in Chile, with McGill University in Quebec. I have been a consulting process engineer for BBA Inc. since February 2005.
5. I have read the definition of “qualified person” set out in NI 43-101 – Standards of Disclosure for Mineral Projects (“NI 43-101”) and certify that, by reason of my education, affiliation with a professional association, and past relevant work experience, I fulfill the requirements to be a qualified person for the purposes of NI 43-101.
6. I am independent of the issuer applying all the tests in Section 1.5 of NI 43-101.
7. I am responsible for Chapters 13 and 17. I also provided contributions to Chapters 1, 3, 25, 26 and 27.
8. I have not visited the Windfall Lake Project that is the subject of the Technical Report.
9. I have had no prior involvement with the properties that are the subject of the Technical Report.
10. I have read NI 43-101 and the sections of the Technical Report for which I am responsible have been prepared in compliance with NI 43-101.
11. As at the effective date of the Technical Report, to the best of my knowledge, information and belief, the sections of the Technical Report for which I am responsible contain all scientific and technical information that is required to be disclosed to make the portions of the Technical Report for which I am responsible not misleading.

Signed this 1st day of August, 2018.

“Signed and sealed original on file”

Jorge Torrealba, P. Eng., Ph.D.
BBA Inc.



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Montréal, QC H3A 2A5
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bba.ca

CERTIFICATE OF QUALIFIED PERSON

Pierre-Luc Richard, P. Geo.

This certificate applies to the **NI 43-101 Technical Report for the Preliminary Economic Assessment of the Windfall Lake Project, Lebel-sur-Quévillon, Québec, Canada**, prepared for **Osisko Mining Inc. ("Osisko")** issued on August 1, 2018 (the "Technical Report") and effective July 12, 2018.

I, Pierre-Luc Richard, P. Geo., do hereby certify that:

1. I am a Principal Geologist with BBA Inc. located at 2020 Robert-Bourassa Blvd, Suite 300, Montréal, Québec, Canada, H3A 2A5.
2. I am a graduate of Université du Québec à Montréal in Resource Geology in 2004. I also obtained an M.Sc. from Université du Québec à Chicoutimi in Earth Sciences in 2012.
3. I am a member in good standing of the Ordre des Géologues du Québec (OGQ Member No. 1119), the Association of Professional Geoscientists of Ontario (APGO Member No. 1714), the Association of Engineers and Geoscientists of British Columbia (EGBC Member No. 43255), and the Northwest Territories Association of Professional Engineers and Geoscientists (NAPEG Member No. L2465).
4. I have worked in the mining industry for more than 15 years. My exploration expertise has been acquired with Richmond Mines Inc., the Ministry of Natural Resources of Québec (Geology Branch), and numerous exploration companies through my career as a consultant. My mining expertise was acquired at the Beaufor mine and several other producers through my career. I managed numerous technical reports, mineral resource estimates and audits as a consultant for InnovExplo from February 2007 to March 2018 and as a consultant for BBA since.
5. I am independent of the issuer applying all the tests in Section 1.5 of NI 43-101.
6. I am responsible for the preparation of Sections 12.3 and 14.2.
7. I did not visit the property during the course of this mandate but have visited the Quévillon property on multiple occasions between 2008 and 2012 and the Windfall Lake Project in 2017.
8. I have had prior involvement with the property that is the subject of the Technical Report by having co-authored previous independent reports on the property.
9. I have read NI 43-101 and the sections of the Technical Report for which I am responsible have been prepared in compliance with NI 43-101.
10. As at the effective date of the Technical Report, to the best of my knowledge, information and belief, the sections of the Technical Report for which I am responsible contain all scientific and technical information that is required to be disclosed to make the portions of the Technical Report for which I am responsible not misleading.

Signed this 1st day of August, 2018.

"Signed and sealed original on file"

Pierre-Luc Richard, P. Geo.
BBA Inc.





CERTIFICATE OF QUALIFIED PERSON

Stéphane Faure, P. Geo.

This certificate applies to the **NI 43-101 Technical Report for the Preliminary Economic Assessment of the Windfall Lake Project, Lebel-sur-Quévillon, Québec, Canada**, prepared for **Osisko Mining Inc. (“Osisko”)** issued on August 1, 2018 (the “Technical Report”) and effective July 12, 2018.

I, Stéphane Faure, P. Geo., PhD (OGQ No. 306, APGO No. 2662, NAPEG No. L3536), do hereby certify that:

1. I am employed as a geologist by and carried out this assignment for InnovExplo Inc. – Consulting Firm in Mines and Exploration, located at 859 Boul. Jean-Paul-Vincent, Suite 201, Longueuil, Québec, Canada, J4G 1R3.
2. I graduated with a Bachelor of Geology degree from Université du Québec à Montréal (Montréal, Québec) in 1987. In addition, I obtained a Master degree in Earth Sciences from Université du Québec à Montréal in 1990 and a Ph.D. degree in Geology from the Institut National de la Recherche Scientifique (city of Québec, Québec) in 1995.
3. I am a member in good standing of the Ordre des Géologues du Québec (OGQ licence No. 306), the Association of Professional Geoscientists of Ontario (APGO licence No. 2662), and the Professional Engineers and Professional Geoscientists, Northwest Territories and Nunavut (NAPEG licence No. L3536). I am a member of the Society of Economic Geologists.
4. I have worked as a geologist for a total of twenty-three (23) years since graduating in 1995. I acquired my expertise in precious and base metals mineral exploration with Inmet Mining in Central America and South America, Cambior Inc. in Canada and numerous exploration companies through the Research Consortium in Mineral Exploration (CONSOREM). I have been a geological consultant for InnovExplo Inc. since January 2016 and I currently hold the Geoscience Expert position.
5. I have read the definition of “qualified person” set out in National Instrument 43-101/Regulation 43-101 (“NI 43-101”) and certify that by reason of my education, affiliation with a professional association (as defined in NI 43-101) and past relevant work experience, I fulfill the requirements to be a “qualified person” for the purposes of NI 43-101.
6. I am the author of Chapters 4 to 11 and 23 and co-author of the relevant portions of Chapters 1, 3, 25, 26 and 27.
7. I personally visited the property that is the subject of the Technical Report on March 20 to 22, 2017, and January 14, 2018.
8. I have not had prior involvement with the property that is the subject of the Technical Report.
9. I am not aware of any material fact or material change with respect to the subject matter of the Technical Report that is not reflected in the Technical Report, the omission to disclose which makes the Technical Report misleading.
10. I am independent of the issuer applying all the tests in section 1.5 of NI 43-101.
11. I have read NI 43-101 and Form 43-101F1, and the items of the Technical Report for which I am responsible have been prepared in accordance with that instrument and form.

Signed this 1st day of August, 2018.

“Signed and sealed original on file”

Stéphane Faure, P. Geo., PhD
InnovExplo Inc.
Stephane.faure@innovexplo.com



CERTIFICATE OF QUALIFIED PERSON

Judith St-Laurent, P. Geo.

This certificate applies to the **NI 43-101 Technical Report for the Preliminary Economic Assessment of the Windfall Lake Project, Lebel-sur-Quévillon, Québec, Canada**, prepared for **Osisko Mining Inc. ("Osisko")** issued on August 1, 2018 (the "Technical Report") and effective July 12, 2018.

I, Judith St-Laurent, P. Geo., B.Sc. (OGQ No. 1023) do hereby certify that:

1. I am a geologist employed by InnovExplo Inc. located at 859, boul. Jean-Paul-Vincent, Suite 201, Longueuil, Québec, Canada, J4G 1R3.
2. I graduated with a Bachelor of Geology degree from Université du Québec à Montréal (Montréal, Québec) in 2005.
3. I am a member in good standing of the Ordre des Géologues du Québec (OGQ licence No. 1023).
4. I have worked as a geologist for a total of twelve (12) years since graduating from university in 2005. My expertise in mineral exploration and mining has been acquired with Falconbride Ltd. in Northern Québec, with Cambior Inc. and Iamgold Inc. in Suriname South America at the Rosebel Gold Mines N.V. and with numerous other exploration and mining companies through G Mining Services Inc. in Canada. I have been a consulting geologist for InnovExplo Inc. since March 2017.
5. I have read the definition of "qualified person" set out in the NI 43-101 – Standards of Disclosure for Mineral Projects ("NI 43-101") and certify that, by reason of my education, affiliation with a professional association, and past relevant work experience, I fulfill the requirements to be a qualified person for the purposes of NI 43-101.
6. I am independent of the issuer applying all the tests in Section 1.5 of NI 43-101.
7. I am responsible for the preparation of Chapter 12 (except for Section 12.3) and Section 14.1. I am also responsible for the relevant portions of Chapters 1, 3, 25, 26 and 27.
8. I personally visited the property that is the subject of the Technical Report on July 12 to 14, 2017.
9. I have had no prior involvement with the property that is the subject of the Technical Report.
10. I have read NI 43-101 and the sections of the Technical Report for which I am responsible have been prepared in compliance with NI 43-101.
11. As at the effective date of the Technical Report, to the best of my knowledge, information and belief, the sections of the Technical Report for which I am responsible contain all scientific and technical information that is required to be disclosed to make the portions of the Technical Report for which I am responsible not misleading.

Signed this 1st day of August, 2018.

"Signed and sealed original on file"

Judith St-Laurent, P. Geo., B.Sc.
InnovExplo Inc.



CERTIFICATE OF QUALIFIED PERSON

Patrick Frenette, P. Geo.

This certificate applies to the **NI 43-101 Technical Report for the Preliminary Economic Assessment of the Windfall Lake Project, Lebel-sur-Quévillon, Québec, Canada**, prepared for **Osisko Mining Inc. (“Osisko”)** issued on August 1, 2018 (the “Technical Report”) and effective July 12, 2018.

I, Patrick Frenette, P. Eng., do hereby certify that:

1. I am employed as a consulting engineer by, and carried out this assignment for, InnovExplo Inc., 560, 3e Avenue, Val-d'Or, Québec, Canada, J9P 1S4.
2. I graduated with a Bachelor's Degree in Mining engineering (B.ing.) in 2001 from École Polytechnique de Montréal (Montréal, Québec, Canada). In addition, I obtained a Master's Degree in Applied Sciences (M.A.Sc.) in 2003 from École Polytechnique de Montréal (Montréal, Québec, Canada). I have practiced my profession continuously since my graduation from university.
3. I'm a member of l'Ordre des Ingénieurs du Québec (OIQ 129 575), Professional Engineers of Ontario (PEO 100511463) and the Association of Professional Engineers and Geoscientists of the Province of British Columbia (APEGBC 44998)
4. I have worked in the mining industry for more than fifteen (15) years. My mining experience has been acquired at the Doyon, Goldex and Canadian Malartic mines and at Agnico Eagle's technical services division. I have been a consulting engineer for InnovExplo Inc. since April 2016.
5. I have read the definition of “qualified person” set out in NI 43-101 – Standards of Disclosure for Mineral Projects (“NI 43-101”) and certify that, by reason of my education, affiliation with a professional association, and past relevant work experience, I fulfill the requirements to be a qualified person for the purposes of NI 43-101.
6. I am independent of the issuer applying all the tests in Section 1.5 of NI 43-101.
7. I am responsible for the preparation of Chapter 16 (with the exception of Sections 16.2 and 16.3), and Sections 21.1.3.4, 21.1.4.1 and 21.2.3. I am also responsible for the relevant portions of Chapters 1, 3, 25, 26 and 27.
8. I personally visited the property that is the subject of the Technical Report on January 30 and 31, 2018.
9. I have had no prior involvement with the property that is the subject of the Technical Report.
10. I have read NI 43-101 and the sections of the Technical Report for which I am responsible have been prepared in compliance with NI 43-101.
11. As at the effective date of the Technical Report, to the best of my knowledge, information and belief, the sections of the Technical Report for which I am responsible contain all scientific and technical information that is required to be disclosed to make the portions of the Technical Report for which I am responsible not misleading.

Signed this 1st day of August, 2018.

“Signed and sealed original on file”

Patrick Frenette, P. Eng.
InnovExplo Inc.

CERTIFICATE OF QUALIFIED PERSON

Michael Bratty, M. Eng., P. Eng.

I, Michael Bratty, state that:

- (a) I am an Associate and Senior Water Treatment Engineer at:
Golder Associates Ltd.
Suite 200 – 2920 Virtual Way,
Vancouver, British Columbia, Canada, V5M 0C4
- (b) This certificate applies to the technical report titled 'Preliminary Economic Assessment of the Windfall Lake Project, Lebel-sur-Quévillon, Québec, Canada' prepared for Osisko Mining Inc. with an effective date of July 12, 2018 and issued August 1, 2018 (the "Technical Report").
- (c) I am a "qualified person" for the purposes of National Instrument 43-101 (the "Instrument"). My qualifications as a qualified person are as follows. I am a graduate of University of BC, Vancouver, Canada with a B.A.Sc. in Bioresource Engineering in 1991 and from McGill University, Montreal, Canada with an M.Eng in Chemical Engineering in 2003. I am a member of Association of Professional Engineers and Geoscientists of British Columbia (APEGBC No. 23936). My relevant experience after graduation and over 25 years for the purpose of the Technical Report includes the development of water treatment facilities for clients in the mining industry from project conception, cost estimates, process development, pilot testing, regulatory and stakeholder approvals, detailed design, construction and operations. My experience includes metals and sulphate removal from acid rock drainage, sulphide precipitation and metal recovery, ammonia treatment, selenium treatment, membrane separation, various ion exchange processes, cyanide recycle or treatment, water recycle, control of scaling, passive treatment, and various biological processes.
- (d) The requirement for a site visit is not applicable to me for the purpose of the Preliminary Economic Assessment.
- (e) I am responsible for Sections 18.2.24.1, 18.3.16.1 and 18.4.19.1 and co-author of Sections 21.1.3.8, 21.1.4.4 and 21.2.6. I am also responsible for the relevant portions of Chapters 1, 3, 25, 26 and 27.
- (f) I am independent of the issuer as described in section 1.5 of the Instrument.
- (g) I have not had prior involvement with the property that is the subject of the Technical Report.
- (h) I have read National Instrument 43-101 the parts of the Technical Report for which I am responsible has been prepared in compliance with this Instrument; and
- (i) At the effective date of the Technical Report, to the best of my knowledge, information, and belief, the parts of Technical Report for which I am responsible, contains all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.

Signed this 1st day of August, 2018.

"Signed and sealed original on file"

Michael Bratty, M. Eng., P. Eng.

CERTIFICATE OF QUALIFIED PERSON

Anne-Marie Dagenais, Eng., Ph. D.

I, Anne-Marie Dagenais, state that:

- (a) I am a Senior Tailings Practitioner at:
Golder Associates Ltd.
7250, rue du Mile End, 3e étage,
Montréal (Québec) Canada H2R 3A4
- (b) This certificate applies to the technical report titled 'Preliminary Economic Assessment of the Windfall Lake Project, Lebel-sur-Quévillon, Québec, Canada' prepared for Osisko Mining Inc. with an effective date of July 12, 2018 and issued August 1, 2018 (the "Technical Report").
- (c) I am a "qualified person" for the purposes of National Instrument 43-101 (the "Instrument"). My qualifications as a qualified person are as follows. I am a graduate from École Polytechnique de Montréal, Montréal, Canada with a B.A.Sc. in Geological Engineering in 1995, from Université du Québec, Montréal, Canada with a Master Degree in Earth Science in 1998 and of from École Polytechnique de Montréal, Montréal, Canada with a Ph.D. in Mining Engineering in 2005. I am a member of the Ordre des ingénieurs du Québec (No. 119321). My relevant experience after graduation and over 12 years for the purpose of the Technical Report includes tailings and waste rock management planning and tailings storage facility design for scoping, prefeasibility and feasibility studies. My experience includes planning soils and tailings investigation programs, soil, waste rock and tailings characterization program, hydrogeological and geotechnical assessments, TMF and dam design, including hydrogeological modelling and stability analysis.
- (d) My most recent personal inspection of each property described in the Technical Report occurred on April 19 and 20, 2018 and was for a duration of 2 days.
- (e) I am responsible for Sections 16.3, 18.2.3, 18.2.24 (except 18.2.24.1), 18.2.25, 18.2.26, 18.3.1, 18.3.16 (except 18.3.16.1), 18.3.17, 18.3.18, 18.4.3, 18.4.18, 18.4.19 (except 18.4.19.1), 18.4.20, the hydrogeology and groundwater quality component in Section 20.1.2.1, 20.1.2.4, 20.1.3.1, 20.1.3.2 and 20.1.4, and I am co-author of Sections 21.1.3.8 and 21.1.4.4. I am also responsible for the relevant portions of Chapters 1, 3, 25, 26 and 27.
- (f) I am independent of the issuer as described in section 1.5 of the Instrument.
- (g) I have not had prior involvement with the property that is the subject of the Technical Report.
- (h) I have read National Instrument 43-101 the parts of the Technical Report for which I am responsible has been prepared in compliance with this Instrument; and
- (i) At the effective date of the Technical Report, to the best of my knowledge, information, and belief, the parts of Technical Report for which I am responsible, contains all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.

Signed this 1st day of August, 2018.

"Signed and sealed original on file"

Anne-Marie Dagenais, Eng., Ph. D.

CERTIFICATE OF QUALIFIED PERSON

Paul Palmer, P. Eng.

I, Paul Palmer, state that:

- (a) I am a Principal Associate and Senior Geological Engineer at:
Golder Associates Ltd.
141 Adelaide Street West, Suite 910
Toronto, Ontario, Canada M5H 3L5
- (b) This certificate applies to the technical report titled 'Preliminary Economic Assessment of the Windfall Lake Project, Lebel-sur-Quévillon, Québec, Canada' prepared for Osisko Mining Inc. with an effective date of July 12, 2018 and issued August 1, 2018 (the "Technical Report").
- (c) I am a "qualified person" for the purposes of National Instrument 43-101 (the "Instrument"). My qualifications as a qualified person are as follows. I am a graduate of University of Toronto with a B.A.Sc. in Geological Engineering, Toronto, Ontario, Canada in 1994 and Memorial University of Newfoundland with a B.Sc. in Geology, St. John's, Newfoundland, Canada in 1992. I am a member of Professional Engineers of Ontario (No. 100050189) and Professional Engineers, Geologists and Geophysicist of Northwest Territories (No. L1734). My relevant experience after graduation and over 23 years for the purpose of the Technical Report includes working in mining since January 1995 continuously in the practices of resource geology and rock mechanics with 6 years of operational experience at underground mines in based metals and gold and 17 years as a consultant on projects at active and inactive open pit and underground operations and abandoned mine sites nationally and internationally.
- (d) The requirement for a site visit is not applicable to me.
- (e) I am responsible for Section 16.2. I am also responsible for the relevant portions of Chapters 1, 3, 25, 26 and 27 of the Technical Report.
- (f) I am independent of the issuer as described in section 1.5 of the Instrument.
- (g) I have not had prior involvement with the property that is the subject of the Technical Report.
- (h) I have read National Instrument 43-101 the part of the Technical Report for which I am responsible has been prepared in compliance with this Instrument; and
- (i) At the effective date of the Technical Report, to the best of my knowledge, information, and belief, the parts of Technical Report for which I am responsible, contains all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.

Signed this 1st day of August, 2018.

"Signed and sealed original on file"

Paul Palmer, P. Eng.

CERTIFICATE OF QUALIFIED PERSON

Luc Gaulin, P. Eng.

This certificate applies to the ***NI 43-101 Technical Report for the Preliminary Economic Assessment of the Windfall Lake Project, Lebel-sur-Quévillon, Québec, Canada***, prepared for **Osisko Mining Inc. (“Osisko”)** issued on August 1, 2018 (the “Technical Report”) and effective July 12, 2018.

I, Luc Gaulin, P. Eng., MBA, as a co-author of the Technical Report do hereby certify that:

1. I am a Project Manager with SNC-Lavalin Stavibel Inc. located at 1271, 7th Street, Val-d'Or Québec, Canada.
2. I am a graduate of Laval University, Québec-City, Canada with a B.Sc.A in Mechanical Engineering in 1993. I obtained a Master of Business Administration (MBA) degree from the University of Québec at Montréal (UQAM), Québec, Canada in 1998. I have practiced my profession continuously since my graduation.
3. I am a registered member in good standing of the Order of Engineers of Québec (OIQ No. 111185) and of the Canadian Institute of Mining, Metallurgy and Petroleum (Member No. 145808).
4. My relevant experience includes a total of twenty-five (25) years working as an engineer. My mining project expertise has mostly been acquired in the Raglan, Canadian Malartic, Eleonore, Renard mine and Horne 5 projects. I have been a consulting engineer for SNC-Lavalin Stavibel Inc. since November 2006.
5. I have read the definition of “qualified person” set out in the NI 43-101 – Standards of Disclosure for Mineral Projects (“NI 43-101”) and certify that, by reason of my education, affiliation with a professional association, and past relevant work experience, I fulfill the requirements to be a qualified person for the purposes of NI 43-101.
6. I am independent of the issuer applying all the tests in Section 1.5 of NI 43-101.
7. I am responsible for the preparation of Sections 18.4.2, 18.4.4, 18.4.5 and 18.4.8 to 18.4.14, 21.1.3.6 and 21.1.4.3, and co-author of Sections 18.4, 18.4.1, 18.4.6 and 18.4.7. I also provided contributions to the relevant portions of Chapters 1, 25, 26 and 27.
8. I personally did not visit the property that is the subject of the Technical Report.
9. I have had no prior involvement with the property that is the subject of the Technical Report.
10. I have read NI 43-101 and the sections of the Technical Report for which I am responsible have been prepared in compliance with NI 43-101.
11. As at the effective date of the Technical Report, to the best of my knowledge, information and belief, the sections of the Technical Report for which I am responsible contain all scientific and technical information that is required to be disclosed to make the portions of the Technical Report for which I am responsible not misleading.

Signed this 1st day of August, 2018.

“Signed and sealed original on file”

Luc Gaulin, P. Eng., MBA
SNC-Lavalin Stavibel Inc.



CERTIFICATE OF QUALIFIED PERSON

Simon Latulippe, Eng.

This certificate applies to the **NI 43-101 Technical Report for the Preliminary Economic Assessment of the Windfall Lake Project, Lebel-sur-Quévillon, Québec, Canada**, prepared for **Osisko Mining Inc. ("Osisko")** issued on August 1, 2018 (the "Technical Report") and effective July 12, 2018.

I, Simon Latulippe, Eng., do hereby certify that:

1. I am an engineer and team leader Geotechnical & Water Management with WSP Canada Inc. located at 1135, boulevard des Gradins, Québec, Québec, Canada G2K 0M5.
2. I am a graduate of geological engineering at Laval University, Québec, Québec, Canada, 1998.
3. I am a member of the Ordre des ingénieurs du Québec (OIQ 121 692).
4. I have worked in the mining industry since 1998. I began as a geological engineer for a gold mine in northern Abitibi where I gained experience in mining and environment. I have also acquired solid experience in mining projects, specifically mining studies, tailings and water management design and mine site restoration, which I have been involved in for the last thirteen years.
5. I have read the definition of "qualified person" set out in the NI 43-101 – Standards of Disclosure for Mineral Projects ("NI 43-101") and certify that, by reason of my education, affiliation with a professional association, and past relevant work experience, I fulfill the requirements to be a qualified person for the purposes of NI 43-101.
6. I am independent of the issuer applying all the tests in Section 1.5 of NI 43-101.
7. I am responsible for the preparation of Chapter 20 (except the Hydrogeology and Groundwater Quality component in Section 20.1.2.1 and Sections 20.1.2.4, 20.1.3.1, 20.1.3.2 and 20.1.4), and I am co-author of Section 21.1.4.5. I am also responsible for the relevant portions of chapters 1, 3, 25, 26 and 27.
8. I personally did not visit the property that is the subject to the Technical Report. I have had no prior involvement with the property that is the subject of the Technical Report.
9. I have read NI 43-101 and the sections of the Technical Report for which I am responsible have been prepared in compliance with NI 43-101.
10. As at the effective date of the Technical Report, to the best of my knowledge, information and belief, the sections of the Technical Report for which I am responsible contain all scientific and technical information that is required to be disclosed to make the portions of the Technical Report for which I am responsible not misleading.

Signed this 1st day of August, 2018.

"Signed and sealed original on file"

Simon Latulippe, Eng.
WSP Canada Inc.



CERTIFICATE OF QUALIFIED PERSON

Eric Poirier, P. Eng.

This certificate applies to the **NI 43-101 Technical Report for the Preliminary Economic Assessment of the Windfall Lake Project, Lebel-sur-Quévillon, Québec, Canada**, prepared for **Osisko Mining Inc. ("Osisko")** issued on August 1, 2018 (the "Technical Report") and effective July 12, 2018.

I, Eric Poirier, P. Eng. do hereby certify that:

1. I am an Electrical Engineer, Project Manager and Director of the Electricity and Control department with WSP Canada Inc. located at 1075, 3rd Avenue East, Val-d'Or, Québec, Canada.
2. I am a graduate of Université du Québec à Chicoutimi in Electrical Engineering in 1996 (B.Sc), Chicoutimi, Québec, Canada.
3. I am a member of the Ordre des Ingénieurs du Québec (OIQ No. 120063), Professional Engineers Ontario (PEO No. 100112909) and Northwest Territories and Nunavut Association of Professional Engineers and Geoscientists (NAPEG No. L2229).
4. I have worked as project manager and electrical engineer for a total of twenty (20) years since graduating from university. My expertise was acquired while working as multi-disciplinary project manager, mining infrastructure designer and discipline lead, including surface infrastructure design, electrical distribution and communications.
5. I have read the definition of "qualified person" set out in the NI 43-101 – Standards of Disclosure for Mineral Projects ("NI 43-101") and certify that, by reason of my education, affiliation with a professional association, and past relevant work experience, I fulfill the requirements to be a qualified person for the purposes of NI 43-101.
6. I am independent of the issuer applying all the tests in Section 1.5 of NI 43-101.
7. I am responsible for the preparation of Sections 18.2 to 18.2.23 (except 18.2.3), 18.3 to 18.3.15 (except 18.3.1), 21.1.3.5 and 21.1.4.2. I am also responsible for the relevant portions of Chapters 1, 3, 25, 26 and 27.
8. I personally visited the property that is the subject to the Technical Report on November 8 and 9, 2017.
9. I have had no prior involvement with the property that is the subject of the Technical Report.
10. I have read NI 43-101 and the sections of the Technical Report for which I am responsible have been prepared in compliance with NI 43-101.
11. As at the effective date of the Technical Report, to the best of my knowledge, information and belief, the sections of the Technical Report for which I am responsible contain all scientific and technical information that is required to be disclosed to make the portions of the Technical Report for which I am responsible not misleading.

Signed this 1st day of August, 2018.

"Signed and sealed original on file"

Eric Poirier, P. Eng.
WSP Canada Inc.



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APPENDICES

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Appendix B: List of Quévillon Property Mining Titles According to GESTIM (February 20, 2018)



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TABLE OF ABBREVIATIONS

Abbreviation	Description
σ_{ci}	Uniaxial compressive strength
3D	Three dimensional
A	Ampere
a	Annum (year)
AA	Atomic absorption
AACE	American Association of Cost Engineers
AARQ	Atlas of Amphibians and Reptiles of Quebec
ADR	Adsorption-desorption-recovery
A/B	Vein category associated to porphyry
Ag	Silver
Ai	Abrasion index
AIS	Air insulated switchgear
AISC	All-in sustaining cost
Al	Aluminum
ALS	ALS Minerals
ANFO	Ammonium nitrate fuel oil
APS	Azimuth Pointing System
ARD	Acid rock drainage
As	Arsenic
Au	Gold
Au-rich VMS	Gold-rich volcanogenic massive sulphide
B	Billion
Ba	Barium
BAPE	<i>Bureau d'audience publique sur l'environnement du Québec</i>
BBA	BBA Inc.
BHPEM	Borehole pulse electromagnetic
Bi	Bismuth
BLK	Blank
BV	Bureau Veritas Commodities Canada Ltd.
BWi	Bond work index
C	Carbon
Ca	Calcium
Ca(OH) ₂	Calcium hydroxide
CAD or \$	Canadian dollar (examples of use: CAD2.5M / \$2.5M)
CaO	Lime
CAPEX	Capital expenditure



TABLE OF ABBREVIATIONS

Abbreviation	Description
Cd	Cadmium
Ce	Cerium
CEAA	Canadian Environmental Assessment Agency
CEAEQ	<i>Centre d'expertise en analyse environnementale du Québec</i>
CEP	Probable effect level
CEPA	Canadian Environmental Protection Act
CER	Rare effect concentration
CFTP	Protection of fish-eating wildlife
CIL	Carbon in leach
CIM	Canadian Institute of Mining, Metallurgy and Petroleum
CIP	Carbon in pulp
Cl	Chloride
CMT	Construction management team
CN	Cyanide
CND	Cyanide destruction
Co	Cobalt
CO ₂	Carbone dioxide
CoA	Certificate of authorization
COE	Occasional effect concentration
COMEV	Environmental and Social Impact Evaluating Committee
conc.	Concentrate
COPC	Constituent of potential concern
COSEWIC	Committee on the Status of Endangered Wildlife in Canada
CPARE	Protection of recreational activities and aesthetics
CPC[O]	Prevention of contamination of aquatic organisms
CQLR	Compilation of Québec Laws and Regulations
Cr	Chromium
CRM	Certified reference material
Cs	Cesium
CTEU-9	Leaching procedure with neutral pH water
Cu	Copper
Cu ²⁺	Copper (II) ion
CuSO ₄	Copper sulphate
CV	Coefficient of variation
CVAA	Protection of aquatic life, acute effect
CVAC	Protection of aquatic life, chronic effect



TABLE OF ABBREVIATIONS

Abbreviation	Description
DC	Direct current
DDH	Diamond drill hole
DEV	Deviation
Directive 019	MDDELCC - <i>Directive 019 sur l'industrie minière</i> (Provincial guidelines for the mining industry)
DOCSIS	Data Over Cable Service Interface Specification
DL	Detection limit
DSO	Deswik shape optimizer
DU	Designatable Units
DUP	Duplicate
DWT	Drop weight test
Dy	Dysprosium
EA	Environmental assessment
EBS	Environmental Baseline Study
EEM	Environmental effects monitoring
EIA	Environmental Impact Assessment
EIJB	Eeyou Istchee James Bay
EIS	Environmental Impact Statement
ELOS	Equivalent linear overbreak/slough
EM	Electromagnetic
EPCM	Engineering, Procurement, Construction Management
EQA	Environmental Quality Act
Er	Erbium
ESA	Environmental Site Assessment
et al.	et alla (and others)
Eu	Europium
EW	Electrowinning
F	Fluorine
F ₈₀	80% passing - Feed size
Fe	Iron
FS	Feasibility study
FW	Foot wall
g	Gravitational acceleration
G&A	General and Administration
Ga	Gallium
Gd	Gadolinium



TABLE OF ABBREVIATIONS

Abbreviation	Description
GEMS	Geovia GEMS software
GESTIM	<i>Gestion des titres miniers</i>
HCl	Hydrochloric acid
Hf	Hafnium
HG	High grade zone
HHW	Hazardous Household Waste
Hg	Mercury
HNO ₃	Nitric acid
Ho	Holmium
HQ	HQ- Caliber drill hole
HVAC	Heating, ventilation, and air conditioning
HW	Hanging wall
I/O	Input/output
I13	Late felsic intrusive, saccharoidal texture, massive, (pink-orange)
I3A	Gabbro - undifferentiated mafic dyke; Cr<300ppm
I1 Frag	Felsic intrusive with intrusive, volcanic, and pyrite-rich tourmaline fragments
I2F	Red Dog
I2J	Diorite / undifferentiated intermediate dyke
I1P	Felsic intrusive with large quartz eyes
I1P TrY	Felsic intrusive with trace large quartz eyes
I1P YB	Felsic intrusive with lots quartz eyes (>10%) (frequently blue)
I1P YL	Felsic intrusive with large quartz eyes
I2P	Felsic intrusion with small quartz eyes, frequently fragmented (volcanic composition only)
I2P Frag	Felsic intrusion with small quartz eyes and fragmented (volcanic composition)
IALT	Alteration Index
IBA	Impact and benefit agreement
ICP	Inductively coupled plasma
ICP-AES	Inductively coupled plasma atomic emission spectroscopy (also referred to as inductively coupled plasma optical emission spectrometry)
ID ²	Inverse distance square
IEC	International Electrotechnical Commission
ILR	Intensive leach reactor
In	Indium
IP	Induced Polarization
IRGS	Intrusion-related gold systems
IRR	Internal rate of return



TABLE OF ABBREVIATIONS

Abbreviation	Description
ISO	International Organization for Standardization
IT	Information technology
JBNQA	James Bay and Northern Quebec Agreement
K	Potassium
K ₈₀	80% passing – Particle size
K ₂ O	Potassium oxide
La	Lanthane
LDS	Low density sludge
LHD	Load haul dump
LOM	Life of mine
Lu	Lutecium
M	Million
m.a.s.l.	Metres above sea level
Ma	Mega anum (Million years)
MAG	Magnetic
MDDELCC	<i>Ministère du Développement durable, de l'Environnement et de la Lutte contre les changements climatiques</i> (Ministry of Sustainable Development, Environment, and Action against Climate Change) - formerly known as <i>Ministère du Développement durable, de l'Environnement, de la Faune et des Parcs</i> (MDDEFP),
MDDEP	<i>Ministère du Développement durable, de l'Environnement et des Parcs du Québec</i>
MDMER	Metal and Diamond Mining Effluent Regulations
MEF	<i>Ministère de l'Environnement et de la Faune du Québec</i>
MERN	<i>Ministère de l'Énergie et Ressources naturelles</i> (Ministry of Energy and Natural Resources)
MFFP	<i>Ministère des Forêts, de la Faune et des Parcs</i>
Mg	Magnesium
MgO	Magnesium oxide
MIBC	Methyl isobutyl carbinol
ML	Metal leaching
Mn	Manganese
Mo	Molybdenum
Mpa	Mega pascals
MRE	Mineral Resource Estimate
MS	Massive sulphide
MTMDET	<i>Ministère des Transports, de la Mobilité durable et de l'Électrification des transports</i>
MTOs	Material take-offs
MVA	Mega volt ampere



TABLE OF ABBREVIATIONS

Abbreviation	Description
Na	Sodium
NaCN	Sodium cyanide
NaOH	Sodium hydroxide
Na ₂ O	Sodium Oxide
Nb	Niobium
Nd	Neodymium
Ni	Nickel
No.	Number
NP	Neutralization potential
NPAG	Non-potentially acid generating
NPP	Net neutralization potential
NPV	Net present value
NQ	NQ- Caliber drill hole
NS	North-south
NSA	Not sufficient assay
NSR	Net smelter return
NTS	National topographic system
NVZ	Northern Volcanic Zone
O ₂	Oxygen
ODM	Overburden Drilling Management
OER	<i>Objectifs environnementaux de rejet</i> (environmental discharges objectives)
OGR	Osisko Gold Royalties Ltd.
OPEX	Operational expenditure
ORE	Ore Research & Exportation Pty Ltd.
OREAS	Ore Research & Exportation Pty Ltd. Assay Standards
Osisko	Osisko Mining Inc.
OT	Operation technology
P	Phosphor
Pa	Pascal
P ₈₀	80% passing - Product size
PAG	Potentially acid generating
PAX	Potassium amyl xanthate
Pb	Lead
Pb(NO ₃) ₂	Lead nitrate
PEA	Preliminary economic assessment
pH	Potential of hydrogen



TABLE OF ABBREVIATIONS

Abbreviation	Description
PhD	Doctor of philosophy
PLC	Programmable logic controller
Pr	Praseodymium
PSD	Particle size distribution
PVS	Peak vector sum
PYSTR	Pyrite stringer
QA/QC	Quality Assurance / Quality Control
QFP	Quartz-feldspar porphyry
QP	Qualified person
R ²	Coefficient of determination
RADF	<i>Règlement sur l'aménagement durable des forêts</i>
Rb	Rubidium
REP	Replicate
RMR	Rock mass rating
ROM	Run of mine
RQD	Rock quality designation
RSPCSR	Regulation for Soil Protection and Contaminated Sites Rehabilitation
RWi	Rod work index
S	Sulphur
SD	Standard deviation
S.U.	Standard Unit
SAG	Semi-autogenous grinding
SAG _{std}	Semi-autogenous grinding standard
SAGR	Submerged Aerobic Attached Growth Reactor
SAS	Safety access system
Sb	Antimony
SCR	Selective Catalytic Reduction
Se	Selenium
SEDAR	System for electronic document analysis and retrieval
Sc	Scandium
SG	Specific gravity
SIGÉOM	<i>Système d'information géominière du Québec</i>
SiO ₂	Silicon dioxide / silica
Sm	Samarium
SMC	SAG mill comminution
Sn	Tin



TABLE OF ABBREVIATIONS

Abbreviation	Description
SO ₂	Sulphur dioxide
SO ₄	Sulphate
SPLP	Synthetic Precipitation Leaching Procedure
Sr	Strontium
SQL	Structured query language
Std	Standard S.U.
SVZ	Southern Volcanic Zone
Ta	Tantalum
TAN	Total ammonia nitrogen
Tb	Terbium
TC/RC	Treatment charge/refining charge
TCLP	Toxicity Characteristic Leaching Procedure
TDEM	Time domain electromagnetic
Te	Tellurium
TEL	Threshold effect level
Th	Thorium
Ti	Titanium
TiO ₂	Titanium dioxide
Tl	Thallium
Tm	Thulium
TMF	Tailings management facility
TSS	Total solids in suspension
U	Uranium
UCS	Uniaxial compressive strength
USD or US\$	United States dollar (examples of use: USD2.5M / US\$2.5M)
U/F	Underflow
UTM	Universal transverse mercator
V	Vanadium
V1	Felsic volcanic
V2	Intermediate to mafic volcanic
V30	Reamed bore 30 inches in diameter
VFD	Variable frequency drives
VMS	Volcanogenic massive sulphide
vs.	Versus
VTEM™	Airborne electromagnetic survey
W	Tungsten



TABLE OF ABBREVIATIONS

Abbreviation	Description
w/w	Weight per weight
WAD	Weak acid dissociable
WBS	Work breakdown structure
WRL	Whole rock leach
WT	Water treatment
WTP	Water treatment plant
XRF	X-Ray Fluorescence
Y	Yttrium
Yb	Ytterbium
Zn	Zinc
Zr	Zirconium



TABLE OF ABBREVIATIONS – UNITS OF MEASURE	
Unit	Description
Imperial	
ac	acre
deg. or °	angular degree
B	Billion
Btu	British thermal units
ft ²	square feet
ft ² /d	square feet per day
ft ³	cubic feet
ft ³ /h	cubic feet per hour
cfm	cubic feet per minute
d	day (24 hours)
°F	Degrees Fahrenheit
Ø	diameter
ft.	feet (12 inches)
ft/d	feet per day
ft/s	feet per second
ft/s ²	feet per second squared
gal	gallon
gpm	gallons (US) per minute
gal/h	gallons per hour
ha	Hectare
hp	horsepower
h	hour (60 minutes)
in. or ”	inch
in. Hg	inches of mercury
in. WC	inches Water Column
in ²	square inch
K	Thousand (000)
k	Kips
k/ft ²	kips per square foot
lb	pound
lb/ft ³	pounds per cubic foot
lb/gal	pounds per gallon
lb/h	pounds per hour
lb/min	pounds per minute
lb/lb	pounds per pound



TABLE OF ABBREVIATIONS – UNITS OF MEASURE	
Unit	Description
Imperial	
lb/t	pounds per tonne
mi.	miles
mph	miles per hour
M	Million
MBtu	Million British thermal units
Mgal/d	Million gallons per day
mesh	US Mesh
min	minute (60 seconds)
mil	one thousandth of an inch
oz	Troy ounce
oz/t	Troy ounces per tonne
oz/y	Troy ounces per year
ppm	parts per million
%	Percent
%solids	Percent solids by weight
psf	pounds per square foot
psi	pounds per square inch
rpm	revolutions per minute
s	second
st	short ton (2,000 lbs)
SG	specific gravity
V	Volt
Wk	Week
wt%	weight percent
yd.	yard (36 inches)
y	year (365 days)



TABLE OF ABBREVIATIONS – UNITS OF MEASURE

Unit	Description
Metric	
deg. or °	angular degree
m ³	cubic metre
m ³ /h	cubic metres per hour
m ³ /s	cubic metres per second
d	day (24 hours)
°C	Degrees Celsius
∅	diameter
\$/t	Dollars per metric tonne
G	Giga
g	gram
GWh	Gigawatt hour
g/t	grams per (metric) tonne
g/L	grams per Litre
g/y	grams per year
Hz	Hertz
h	hour (60 minutes)
kg	kilogram
kg/L	kilogram per liter
kg/h	kilograms per hour
kg/t	kilograms per tonne
kJ	kilojoules
km	kilometres
km ²	Square kilometre
kPa	kilopascal
kt	kilotonne
kW	kilowatt
kWh/t	kilowatt hour per tonne
L	Litre
L/h	Litres per hour
L/m	Litres per minute
MW	Megawatt
m	metre
mg	milligram
ml	millilitre



TABLE OF ABBREVIATIONS – UNITS OF MEASURE

Unit	Description
Metric	
m/d	metres per day
m/s	metres per second
m/s ²	metres per second squared
µm	micron
mm	millimetre
mm Hg	millimetres of mercury
M	Million
ML/d	Million litres per day
Mt	Million metric tonne
min	minute (60 seconds)
ppm	parts per million
%	Percent
% solids	Percent solids by weight
rpm	revolutions per minute
s	second
SG	specific gravity
cm ² /d	square centimetre per day
m ²	square metre
mm ²	square millimetres
K	Thousand (000)
t	tonne (1,000 kg) (metric ton)
tpa	tonnes per annum
tpd	tonnes per day
tph	tonnes per hour
tpy	tonnes per year
V	Volt
W	Watt
wk	week
wt%	weight percent
y	year (365 days)



1. SUMMARY

Osisko Mining Inc. (“Osisko”) commissioned BBA Inc. (“BBA”) to prepare a technical report (the “Report”) of the Preliminary Economic Assessment, herein also referred to as the “PEA” or the “Study”, for the Windfall Lake Project (“Project”) an advanced stage gold exploration project located in the Eeyou Istchee James Bay (“EIJB”) region of central-northwest Québec, Canada. The purpose of this Study was to complete a review and compilation of the resources, mining designs, processing options and preliminary economics of this underground gold project.

This Report was completed by BBA with the assistance of a number of specialized consultants, including InnovExplo Inc. (“InnovExplo”), Golder Associates Ltd. (“Golder”), WSP Canada Inc. (“WSP”), and SNC-Lavalin Stavibel Inc. (“SNC-Lavalin”). This Report was prepared according to the guidelines set out under the requirements of National Instrument 43-101 Standards of Disclosure for Mineral Projects (“NI 43-101”) to support the results of the Study as disclosed in Osisko’s press release entitled “Osisko Delivers Positive PEA for the Windfall Project” dated July 17, 2018.

The PEA provides a base case assessment for developing the Windfall Lake deposit (2,600 tpd) and the Osborne-Bell deposit (600 tpd) as underground mines with a central process plant located just outside the town of Lebel-sur-Quévillon, Québec. The process plant is designed to have a capacity of 3,200 tpd. The Windfall Lake and Osborne-Bell mines are located approximately 115 km and 23 km respectively from the proposed process plant.

All monetary units in the Study are in Canadian dollars (CAD or \$), unless otherwise specified. Costs are based on second quarter (Q2) 2018 dollars. Quantity and grades are rounded to reflect that the reported values represent approximations.



1.1 Contributors

The major Study contributors and their respective areas of responsibility are presented in Table 1-1.

Table 1-1: PEA Contributors

Qualified Person / Consulting Firm	General overview of responsibilities
BBA Inc.	
<ul style="list-style-type: none"> ▪ Colin Hardie, P.Eng. (ON) ▪ Jorge Torrealba, P.Eng. (NB) ▪ Pierre-Luc Richard, P.Geo. 	<ul style="list-style-type: none"> ▪ Metallurgical test work development and analysis; ▪ Mass balance; ▪ Process plant design; ▪ Process plant capital costs and operating costs; ▪ Electrical and IT infrastructure design and costs (supply and on-site); ▪ Material transport and General and Administration operating costs; ▪ Financial Analysis and overall NI 43-101 integration.
InnovExplo Inc.	
<ul style="list-style-type: none"> ▪ Stéphane Faure, P.Geo., Ph.D. ▪ Judith St-Laurent, P.Geo. ▪ Patrick Frenette, P.Eng. 	<ul style="list-style-type: none"> ▪ Historical data review; ▪ Current and historical geology, exploration, drilling; ▪ Sample preparation and QA/QC, and data verification; ▪ Geological modelling and mineral resource estimate; ▪ Underground mine design, underground infrastructure, ventilation, production scheduling, underground capital costs and operating costs.
Golder Associates Ltd.	
<ul style="list-style-type: none"> ▪ Michael Bratty, P.Eng (BC) ▪ Anne-Marie Dagenais, P.Eng., Ph.D. ▪ Paul Palmer, P.Eng., (ON) 	<ul style="list-style-type: none"> ▪ Waste rock, tailings and mineralized material geochemical characterization; ▪ Water treatment plant design, capital and operating costs; ▪ Surface tailings, mineralized material and waste rock management facility designs and costs, excluding reclamation; ▪ Surface water management infrastructure design and costs, excluding reclamation; ▪ Site wide water balance; ▪ Rock mass characterization and rock mechanics input to underground mine design and ground control; ▪ Hydrogeology and groundwater quality input to environmental studies; ▪ Hydrogeology input to underground mine design; ▪ Geotechnical input for the surface infrastructure design.



Qualified Person / Consulting Firm	General overview of responsibilities
WSP Canada Inc.	
<ul style="list-style-type: none"> ▪ Simon Latulippe, P.Eng. ▪ Éric Poirier, P.Eng. 	<ul style="list-style-type: none"> ▪ Environmental studies, permitting and closure costs; ▪ Regulatory context, social considerations and anticipated environmental issues; ▪ Mineralized material handling system from underground mine to mine site surface, design and costs; ▪ Design and costs of surface infrastructure for Windfall Lake and Osborne-Bell sites, including on-site roads; ▪ Electrical and IT infrastructure design and costs for Windfall Lake and Osborne Bell sites; ▪ Off-site access road to Osborne-Bell and Windfall Lake sites evaluation and costs; ▪ Reclamation costs.
SNC-Lavalin Stavibel Inc.	
<ul style="list-style-type: none"> ▪ Luc Gaulin, P.Eng., MBA 	<ul style="list-style-type: none"> ▪ Plant site surface infrastructure design and costs; ▪ Site utilities design and costs; ▪ Site road from Plant pad to tailings pond road design and costs.

1.2 Key Project Outcomes

The reader is advised that the results of the PEA summarized in this Report are intended to provide an initial, high-level review of the Project and potential design options. The PEA mine plan and economic model include numerous assumptions and the use of Inferred resources. Inferred resources are considered to be too speculative to be used in an economic analysis, except as allowed for by Canadian Securities Administrators' National Instrument 43-101 in PEA studies. There is no guarantee that Inferred resources can be converted to Indicated or Measured resources and, as such, there is no guarantee the Project economics described herein will be achieved.

The following list details the key project outcomes of the Study:

- Windfall Lake deposit Resources: 2.38 million tonnes at 7.85 g/t Au (Indicated) and 10.61 million tonnes at 6.70 g/t Au (Inferred);
- Osborne-Bell deposit Resources: 2.59 million tonnes at 6.13 g/t Au (Inferred);
- Total mineralized material mined (In-stope Resources): 8.914 million tonnes at 6.7 g/t Au average diluted gold grade (refer to Table 1-6 for more details);
- Mine life of 8.1 years, with peak year payable production of 248,000 ounces (Year 1), average life of mine ("LOM") annual payable production of 218,000 ounces of gold;



- Gold payable recovery of 92.4%;
- Payable production (LOM) of 1.769 million Au ounces and 0.557 million Ag ounces;
- Pre-production construction costs of \$397.3M, including a \$51.8M contingency;
- Sustaining costs of \$411.7M (including \$40.6M in closure costs net of salvage);
- Operating cost (total) of \$126.47 per tonne milled;
- All-in sustaining costs* of USD704/oz net of by-product credits, including royalties, over LOM;
- Gross revenue of \$2.96 billion and an operating cash flow of \$1.12 billion LOM;
- Net present value (“NPV”) of \$413.2M at a 5% discount rate, and an internal rate of return (“IRR”) of 32.7% after taxes and mining duties;
- LOM taxes of \$340.8M and royalties of \$65.1M;
- NPV of \$625.4M at a 5% discount rate, and an IRR of 39.7% before taxes and mining duties;
- Pay-back period of 3.7 years pre-tax and 3.9 years after-tax;
- Approximately 480 workers during the construction period and up to 330 employees will be required during operations;
- Process plant construction starting in Q2 2021. Commercial production planned for Q3 2022;

* All-in sustaining costs are presented as defined by the World Gold Council (“WGC”) less Corporate G&A.

1.3 Property Description and Ownership

The Windfall Lake Project comprises three different sites: the Windfall Lake and Osborne-Bell mine sites and the Plant Site located near the town of Lebel-sur-Quévillon in the Eeyou Istchee James Bay region of central-northwest Québec, Canada, approximately 620 km north-northwest of Montréal and 155 km northeast of Val-d’Or. The Windfall Lake and Osborne-Bell properties are located 115 km east and 23 km northwest of the proposed Plant Site respectively, as shown on Figure 1-1.



Figure 1-1: Windfall Lake Project site locations.



1.3.1 Windfall Lake and Urban-Barry Properties

The Windfall Lake property is 100% owned by Eagle Hill Exploration Corp. which is a 100% subsidiary of Osisko Mining Inc. On April 9, 2018, the property consisted of 285 individual claims covering an aggregate area of 12,467 ha. The actual property was consolidated from several agreements concluded with previous owners. The main claim blocks inherited from the original agreement are: The Windfall Lake-Noront Option (including the Windfall Lake, Alcane, and South blocks), 29 Claims Expansion, 184 Claims Expansion, Rousseau property, Windfall Lake 2010, Windfall Lake 2012, and Carat Claim. Following a series of transactions during the first half of 2014, Eagle Hill Exploration Corp. (Osisko Mining Inc.) now holds a 100% interest on all the claim blocks of the property, barring various royalties. The mineral resources discussed herein are located within the Alcane Block of the Windfall Lake option and the 29 Claims Expansion claim blocks.

The Urban-Barry property is 100% owned by Osisko Mining Inc. On April 9, 2018, the property comprises 1,997 individual claims covering an aggregate area of approximately 110,748 ha. The actual property is mostly constituted by claims that were acquired at different periods from 2015 to 2017, and are subject to various royalties.

The Windfall Lake property and the northern half of the Urban-Barry property are in the Eeyou Istchee James Bay territory. Osisko and its 100% subsidiary Eagle Hill have obtained all necessary permits and certifications from government agencies to allow for surface drilling, exploration and bulk sampling on the Windfall Lake property. The Windfall Lake area is serviced by a complete network of well-maintained logging roads, and hosts several infrastructure components are present at the Windfall Lake including an exploration camp with capacity for 300 people. An experienced mining workforce is available in Lebel-sur-Quévillon and in a number of well-established nearby mining towns, such as Val-d'Or, Rouyn-Noranda, La Sarre, Matagami and Chibougamau.

1.3.2 Osborne-Bell Deposit, Quévillon Property

The Quévillon property includes the former Comtois property of Maudore Minerals Ltd ("Maudore"). The current property comprises 4,211 non-contiguous mining titles registered to Osisko Mining Inc. The land package covers 224,370.78 hectares (2,244 km²) near the town of Lebel-sur-Quévillon.

The property is located at the boundary between the Eeyou Istchee James Bay territory and the Abitibi-Témiscamingue administrative region in northwestern Québec. It surrounds the town of Lebel-sur-Quévillon. A power line already reaches the southeastern end of the property. This power line supplies the Comtois sawmill facilities of Abitibi Bowater.



1.4 Geology Mineralization and Exploration Model

1.4.1 Windfall Lake and Urban-Barry Properties

The Windfall Lake and Urban-Barry properties occur within the Urban-Barry greenstone belt located in the Northern Volcanic Zone of the Abitibi geological sub province. The Urban-Barry greenstone belt contains mafic to felsic volcanic rock units and is cross-cut by several east-trending and east-northeast trending shear zones that delineate major structural domains. The Windfall Lake property is located in the central part of the Urban-Barry Belt and is located between the Urban and Barry Deformation zones. The Masère and the Milner northeast trending shear zones traverse the property and are truncated by the east-west trending Urban Deformation Zone. The Urban-Barry belt is informally divided into the Facticeau, the Chanceux, the Macho and the Urban formations. The Windfall Lake deposit is hosted within the Windfall Member of the Macho Formation, which primarily consists of felsic and intermediate volcanic rocks including tuff and lava units. In the Windfall Lake deposit area, the stratigraphy trends northeast and dips moderately towards the southeast. Volcanic rocks are intruded by a series of younger quartz-feldspar porphyry dikes, commonly referred to quartz-feldspar porphyry ("QFP") dikes.

At Windfall Lake deposit, the main gold event is temporally and spatially constrained by the emplacement of the quartz porphyry dikes. The best gold mineralization is contained in narrow high-grade gold bands and stockworks at the dikes contacts with host volcanic rocks. Mineralization consists of pyrite-rich and silica > sericite-carbonate-tourmaline (and some base metals) mineral association that grade outward into erratic to low gold grade sericite > silica-carbonate-tourmaline halos, which in turn pass into an outer barren chlorite > sericite-rutile zone. The mineralization is currently known for a vertical extent of approximately 1,200 m, separated in three zones: Main (Zone 27, Caribou, and Mallard), Underdog, and Lynx zones.

The Windfall Lake deposit most likely represents an Archean intrusion-related hydrothermal gold system. The mineralization in distal parts of the system shows strong evidence of gold-enrichment associated with orogenic greenstone-hosted quartz-carbonate veins. However, not refuting the existence and influence of structural features, the porphyry intrusions in the Windfall Lake area are likely the source and a major factor controlling the occurrence of gold mineralization.

1.4.2 Osborne-Bell Deposit, Quévillon Property

The Quévillon property is in the Northern Volcanic Zone of the Abitibi geological sub-province. The geology of the property is dominated by undifferentiated mafic and intermediate volcanic rocks of basaltic to andesitic compositions. Felsic volcanic and volcanoclastic rocks of dacitic to rhyolitic compositions, and local interlayers of various sedimentary rocks (argillites, graphitic shales and iron formations) have also been documented. The Lamarck-Wedding Fault passes



through the property. The rocks are mainly metamorphosed to greenschist facies, locally reaching amphibolite facies along the margins of late intrusive stocks. The Osborne-Bell deposit is a disseminated pyrite gold deposit. The host rocks (calc-alkaline rhyodacite and dacite), alteration (aluminosilicate, potassic, i.e., biotite, and garnet-rich stratabound alteration associated to pyritic massive lenses), styles of mineralization (disseminated sulphides and veinlets) and metal content and association (Au, Cu, Zn, Ag, Pb) indicate similarities with some deposits of the Doyon-Bousquet-LaRonde gold mining district in the southern Abitibi belt. Most of the mineralization occurs in the synvolcanic felsic units and along the interface with the mafic volcanic rocks. Felsic units may represent a synvolcanic dike swarm injected in the mafic volcanic pile, thus constituting the root or a part of the root of a synvolcanic faults system. The gold-bearing zones of the Osborne-Bell deposit contain sulphides in disseminated or veinlet form.

1.5 Status of Exploration and Drilling

1.5.1 Windfall Lake and Urban-Barry Properties

The Windfall Lake property is at an advance stage exploration; however, the vast Urban-Barry property is at an early stage of exploration.

The properties' areas have seen a great deal of historical exploration work spanning from 1943 to 2009, with no historical resources estimates or production for that period. The Windfall Lake property area saw renewed exploration activities from 2009 to 2014 by Eagle Hill Exploration, producing three Mineral Resource Estimates ("MRE") and a PEA on the property.

In August 2015, Osisko Mining Inc. (formerly Oban Mining Corp) completed the acquisition of Windfall Lake and by 2017 consolidated the Urban-Barry property. From 2015 to present, Osisko has overseen the exploration on the properties. Several campaigns of prospecting, till sampling and geophysical surveys have taken place in the Windfall Lake and Urban-Barry properties.

For the 2016-2017 period, 93 drill holes for a total of 37,867.5 m were done on different prospects outside the Windfall Lake deposit footprint in the Urban-Barry property (E1, E2, E7, Fox, Fold Hinge, Bobtar, NE Windfall).

For the period of October 20, 2015 to March 2, 2018, Osisko performed 1,134 drill holes for a total of 535,967 m of drilling on the Windfall Lake deposit. The drilling program was designed to better define the mineralized zones, with high priority on expanding the Lynx deposit and better define the Underdog mineral zone.



1.5.2 Osborne-Bell Deposit, Quévillon Property

The Quévillon property is at an early exploration stage except for the Osborne-Bell deposit area, which is at a resource stage. No engineering and economic studies have been conducted on the property.

In October 2012 Maudore published a NI 43-101 technical report (Carrier et al., 2012). Between October 2012 and May 2016, exploration work on Maudore's Comtois property included three internal studies on the Osborne-Bell gold deposit (lithogeochemical and petrographic studies), grindability tests, airborne and ground magnetic surveys, and the logging and sampling of 11 km of drill core following the 2012 drilling program.

In late 2017 and early 2018, Osisko has completed a 27,739.1-km high-definition aerial magnetic survey and an 8,007.43-km VTEM™ airborne survey over the property. The Osisko drilling program commenced at the Osborne-Bell deposit with two rigs in early December 2017. The surface drilling program was designed to infill the central high-grade zones of the deposit. As at January 31, 2018, 14 DDH had been drilled on the Osborne-Bell deposit for a total of 4,512.7 m. The first four (OSK-OB-17-001 to OSK-OB-17-004) could be used in the present resource estimate because they have complete assays and were subject to QA/QC protocols. Added to the 50 holes from 2012, they bring the number of new holes for the current resource estimate to 54.

1.6 Mineral Processing and Metallurgical Testing

A preliminary metallurgical testwork program was undertaken on samples prepared from drill holes obtained from the Windfall Lake deposit on three zones: Caribou, Zone 27 and Lynx. No tests were performed on the Underdog Zone. The testwork consisted of chemical characterization, a preliminary evaluation of comminution characteristics, a series of gravity, flotation and leaching tests as well as preliminary rheology tests. A review of historical comminution, gravity and leaching testwork conducted for Osborne-Bell, was also performed and is summarized in Chapter 13. The selected flowsheet for processing material from Windfall Lake and Osborne-Bell includes gravity recovery involving intensive leach reactor ("ILR") followed by carbon-in-leach ("CIL").

The average gold recoveries (based on testwork) per mineralized material zone for Windfall Lake are presented in Table 1-2. No testwork was performed on the Underdog Zone; however, the average gold and silver recovery of the Caribou and 27 zones was assigned to Underdog. This assumption was based on mineralogical similarity between the Underdog, Caribou and 27 zones. The estimated recovery for material from Osborne-Bell is also presented.

Using the latest results available (end of May 2018), an estimation of gold recovery per mineralized material zone was determined and used for resource estimate.

Based on the testwork results, the overall Au recovery varies from 90.9% to 93.8% depending on the relative proportion of the mineralized material zones fed to the process plant.



Table 1-2: Overall gold recovery with gravity and CIL

Composite	Gravity		Gravity tails leach		Overall Au recovery (%)
	Au distribution (%)	ILR Au recovery (%)	Au distribution (%)	Au recovery (%)	
Zone 27	19.8	99.0	80.2	90.9	92.5
Caribou	9.6	99.0	90.4	90.0	90.9
Lynx	22.4	99.0	77.6	92.3	93.8
Underdog	--	--	--	--	91.7
Osborne-Bell	27.5	99	72.5	90.4	92.8

1.7 Mineral Resource Estimate

The mineral resource estimate presented in Table 1-3 includes the mineral resources of the Windfall Lake deposit located on the Urban-Barry property and the mineral resources of the Osborne-Bell deposit located on the Quévillon property. Judith St-Laurent, P.Geo. and Pierre-Luc Richard, P.Geo. consider the 2018 MRE for both deposits to be reliable, thorough, based on quality data, reasonable hypotheses, and parameters compliant with NI 43-101 and Canadian Institute of Mining, Metallurgy and Petroleum (“CIM”) standards regarding mineral resource estimations.

The mineral resource estimate for the Windfall Lake Project is summarized in Section 1.7.1, where the Osborne-Bell deposit is summarized in Section 1.7.2.

Table 1-3: Windfall Lake and Osborne-Bell mineral resource estimate (3.0 g/t Au cut-off)

Deposit	Indicated			Inferred		
	Tonnes (000 t)	Grade (g/t Au)	Au Ounces (000 oz)	Tonnes (000 t)	Grade (g/t Au)	Au Ounces (000 oz)
Windfall Lake ⁽¹⁾	2,382	7.85	601	10,605	6.70	2,284
Osborne-Bell ⁽²⁾	-	-	-	2,587	6.13	510
Total	2,382	7.85	601	13,192	6.59	2,793

⁽¹⁾ Refer to Mineral Resource Estimate notes presented in Table 1-4 for the Windfall Lake deposit.

⁽²⁾ Refer to Mineral Resource Estimate notes presented in Table 1-5 for the Osborne-Bell deposit.



1.7.1 Windfall Lake

The mineral resource estimate (the “2018 MRE”) for the Windfall Lake deposit was prepared by Judith St-Laurent, P.Geo. (OGQ #1023) using all available information and is effective as of May 14, 2018. The estimate follows CIM Definition Standards.

The 2018 resource database contains 1,718 surface drill holes in the resource area, including 812 additional diamond drill holes drilled by Osisko since the database close-out date of the 2015 PEA, (Tetra Tech, 2015).

The 2018 MRE reflects grade model changes from a broad mineralized domain approach to better defined, higher grade, vertical sub-domains to capture the nature of the gold bearing zones which follow the intrusive porphyry contacts. Newly defined mineralization corridors are also reported in the 2018 MRE, namely Lynx and Underdog areas. Changes were made to the approaches and assumptions published by the previous owners in 2015, most notably to the mineralized domain interpretation, the capping assumptions, the grade interpolation strategy, and the inclusion of post-mineralization barren dike units. In addition, the gold price, project costs and exchange rate assumptions were revised to reflect 2018 market conditions.



**Table 1-4: Windfall Lake Deposit Indicated and Inferred Mineral Resources by Area
(3.0 g/t Au cut-off grade)**

Mineralization Corridor	Indicated Resources			Inferred Resources		
	Tonnes (000 t)	Grade (g/t Au)	Au Ounces (000 oz)	Tonnes (000 t)	Grade (g/t Au)	Au Ounces (000 oz)
Lynx	1,254	7.51	303	2,257	7.48	543
Zone 27	628	8.69	175	852	7.28	199
Caribou	318	7.12	73	2,767	5.80	516
Underdog	147	9.00	43	4,380	6.77	953
Mallard	-	-	-	145	7.13	33
F Zones	34	6.58	7	204	5.82	38
Total	2,382	7.85	601	10,605	6.70	2,284

Windfall Lake Mineral Resource Estimate notes:

1. The independent qualified person for the 2018 MRE, as defined by NI 43 101, is Judith St-Laurent, P. Geo, of InnovExplo Inc. The effective date of the estimate is May 14, 2018.
2. The Windfall Lake mineral resource estimate is compliant with CIM standards and guidelines for reporting mineral resources and reserves.
3. Resources are presented undiluted and in situ and are considered to have reasonable prospects for eventual economic extraction.
4. The mineral resource estimate encompasses a total of 124 tabular, sub-vertical gold-bearing domains each defined by individual wireframes with a minimum true thickness of 2.0 m.
5. Samples were composited within the mineralization domains into 2.0 m length composites. A value of zero grade was applied in cases of core not assayed.
6. High grade capping was done on composite data, and established using a statistical analysis on a per-zone basis for gold. Capping varied from 15 g/t Au to 75 g/t Au and was applied using a four-step capping strategy where capping values decreased as interpolation distances increased.
7. Density values were applied on the following lithological basis (t/m³): mafic volcanic host rocks varied from 2.78 to 2.86; felsic volcanic host rocks varied from 2.76 to 2.77; porphyries varied from 2.70 to 2.83.
8. Ordinary Kriging (OK) based interpolation was used for the estimation of all zones of the Windfall Lake gold deposit except for the Underdog Zone where an Inverse Distance Squared (ID²) interpolation was preferred due to the larger drill spacing and smaller density of drill holes informing the mineralization wireframes. All estimates are based on a block dimension of 5 m NE, 2 m NW and 5 m height and estimation parameters determined by variography.
9. Estimates use metric units (metres, tonnes and g/t). Metal contents are presented in troy ounces (metric tonne x grade / 31.10348).
10. InnovExplo is not aware of any known environmental, permitting, legal, title-related, taxation, socio-political or marketing issues, or any other relevant issue not reported in the technical report, that could materially affect the mineral resource estimate.
11. These mineral resources are not mineral reserves as they do not have demonstrated economic viability. The quantity and grade of reported Inferred resources in this Mineral Resource Estimate are uncertain in nature and there has been insufficient exploration to define these Inferred resources as Indicated or Measured, and it is uncertain if further exploration will result in upgrading them to these categories.
12. The number of metric tonnes and ounces was rounded to the nearest unit. Any discrepancies in the totals are due to rounding effects; rounding followed the recommendations in Form 43 101F1.



1.7.2 Osborne-Bell

The 2018 Osborne-Bell deposit Mineral Resource Estimate (the “2018 MRE”) was prepared by Pierre-Luc Richard, P.Geo. (OGQ #1119) using all available information and is effective as of March 2, 2018

The main objective of this resource estimate was to update the previous NI 43-101 mineral resource estimate for the Osborne-Bell deposit prepared by InnovExplo and published in a report titled “43 101 Technical Report and Mineral Resources Estimate – Osborne-Bell deposit, Comtois Property”, dated November 30, 2012 (Carrier et al., 2012). The 2018 MRE drill hole database contains the 877 holes used for the 2012 MRE, supplemented by 54 additional holes, for a total of 931.

Many changes were made to the approaches and assumptions used in 2012, most notably to the geological model and mineralized domain interpretation, the capping assumptions (constraining high-gold grade values into nine high grade zones), the grade interpolation strategies (shorter search ellipsoid ranges), and the approach to creating a late barren dike dilution model (“dike dilution model”). In addition, the gold price, project costs and exchange rate assumptions were revised to reflect 2018 market conditions. The Osborne-Bell deposit appears to be very sensitive to the modelling methodology, the approach to constrain high-grade gold values, and the drill spacing.

Given the density of the processed data, search ellipse criteria, drill hole density and specific interpolation parameters, the 2018 Osborne-Bell deposit Mineral Resource Estimate (Table 1-5) is categorized as Inferred resources totalling 2,587,000 t at an average grade of 6.13 g/t Au for 510,000 oz of gold.



Table 1-5: 2018 Osborne-Bell Deposit Inferred Resource Estimate

Cut-off Grade	Tonnage	g/t Au	Ounce
> 3.00 g/t Au	2,587,000	6.13	510,000

Osborne-Bell Mineral Resource Estimate notes:

1. The independent and qualified person for the mineral resource estimate, as defined by NI 43-101, is Pierre-Luc Richard, P.Geo. (BBA), and the effective date of the estimate is March 2, 2018.
2. These mineral resources are not mineral reserves as they do not have demonstrated economic viability. The quantity and grade of reported Inferred resources in this Mineral Resource Estimate are uncertain in nature and there has been insufficient exploration to define these Inferred resources as Indicated or Measured, and it is uncertain if further exploration will result in upgrading them to these categories.
3. Resources are presented undiluted and in situ for an underground scenario and are considered to have reasonable prospects for eventual economic extraction.
4. The estimate encompasses nine gold-bearing zones each defined by individual wireframes with a minimum true thickness of 2 m.
5. High-grade capping was done on composite data and established on a per zone basis for gold. It varies from 25 g/t to 55 g/t.
6. Density values were applied on the following lithological basis (g/cm³): volcanic rocks = 2.80; late barren dikes and Beehler stock = 2.78; Zebra felsic unit = 2.72.
7. Grade model resource estimation was evaluated from drill hole data using an Ordinary Kriging interpolation method on a block model using a block size of 2.5 m x 2.5 m x 2.5 m.
8. The estimate is reported at 3.00 g/t Au cut-off. The cut-off grade was calculated using the following parameters: mining cost = CAD80; processing cost = CAD40; G&A = CAD10; gold price = USD1,300/oz; CAD:USD exchange rate = 1.29 (1-year trailing average). The cut-off grade should be re-evaluated in light of future prevailing market conditions (metal prices, exchange rate, mining cost, etc.).
9. The mineral resource estimate presented herein is categorized as inferred mineral resource. The inferred mineral resource category is only defined within the areas where drill spacing is less than 100 m and shows reasonable geological and grade continuity.
10. The mineral resource estimate was prepared using GEOVIA GEMS 6.8. The estimate is based on 931 surface DDH. A minimum true thickness of 2.0 m was applied, using the grade of the adjacent material when assayed, or a value of zero when not assayed.
11. Calculations used metric units (metre, tonne, gram per tonne). Metal contents are presented in troy ounce (tonne x grade / 31.10348).
12. The number of metric tonnes was rounded to the nearest thousand. Any discrepancies in the totals are due to rounding errors.
13. CIM definitions and guidelines for mineral resources have been followed.
14. The author is not aware of any known environmental, permitting, legal, title-related, taxation, socio-political or marketing issues, or any other relevant issue not reported in this Technical Report, that could materially affect the mineral resource estimate.



1.8 Mining Methods

1.8.1 Overview

The Windfall Lake Project will consist of the simultaneous exploitation of two separate deposits; Windfall Lake and Osborne-Bell. The overall strategy is to have production from Osborne-Bell complement the production from Windfall Lake to achieve a total production rate of 3,200 tpd.

The proposed Windfall Lake mine is located 115 km east by road from the town of Lebel-sur-Quévillon, in the James Bay region of Québec. The mineral resources used in the mine plan are contained in three different zones (Lynx, Main and Underdog) over a length of 2,300 m and span from surface down to a depth of approximately 1,200 m. Each zone is characterized by multiple veins, which mainly trend ENE and plunge sub-vertically. Only underground mining has been evaluated. The mining method selected is long-hole with longitudinal retreat. Mineralized material will be extracted using a fleet of 14 t load haul dumps (“LHD”) and 50 t haul trucks using a ramp at a rate of 2,600 tpd. 7 t LHDs will be used to handle the mineralized material from the stopes to the charging bay of Lynx zone to minimize drifts size in the mineralized material and dilution.

The proposed Osborne-Bell mine is located 17 km northwest of the town of Lebel-sur-Quévillon, in the James Bay region of Québec. The mineral resources used in the mine plan are contained in three zones (East, Centre and West) over a length of 1,300 m and span from surface down to a depth of approximately 520 m. Each zone is characterized by multiple veins, which mainly trend 15 degrees to 25 degrees east to south and plunge sub-vertically. Only underground mining has been evaluated. The main mining method selected is long-hole with longitudinal retreat. Mineralized material will be extracted using a fleet of 7 t LHDs and 45 t haul trucks using a ramp at a rate of 600 tpd.

The production of Windfall Lake deposit will start during mid-2022 and will finish during year 2030 while Osborne-Bell deposit will start in mid-2023 and will finish during year 2027. The mineralized material stockpile created during pre-production of the Windfall Lake deposit along with the mine production will allow the mill to operate at full capacity for the first year before production at Osborne-Bell is started. Table 1-6 gives the mineralized material resource category for the Windfall Lake Project mining plan.

Table 1-6: Mineralized material resource category for Windfall Lake Project mining plan

Zone	Category	Tonnes	Grade
Windfall Lake	Indicated	1,705,548	7.2
	Inferred	6,204,189	6.5
	Total	7,909,737	6.7



Zone	Category	Tonnes	Grade
Osborne-Bell	Indicated	0	0
	Inferred	1,004,312	6.9
	Total	1,004,312	6.9
Windfall Lake and Osborne-Bell	Indicated	1,705,548	7.2
	Inferred	7,208,501	6.6
	Total	8,914,049	6.7

1.8.2 Windfall Lake

1.8.2.1 Mine Hydrogeology

The hydrogeological conditions in the vicinity of the Windfall Lake property were defined based on the fieldwork conducted during the fall of 2017. The results of these investigations are summarized in Golder (2018b) and consist of packer tests (13 tests in two exploration boreholes) and the implementation of eight observation wells.

To estimate the potential groundwater inflow into the underground workings (Caribou, Underdog, Red Dog and Lynx zones), the groundwater flow model was developed using the FEFLOW software (Version 7.1). The model was developed at a regional scale and includes the overburden, bedrock and the twelve faults identified in the structural assessment. Groundwater inflow into the mine was estimated at 2,500 m³/d based on the calibrated model. Groundwater inflow could reach up to 2,800 m³/d if the hydraulic conductivity of the faults was assumed to be more permeable (1x10⁻⁶ m/s).

1.8.2.2 Longitudinal Long-hole Method Description

The long-hole longitudinal mining method for the Project was selected based on the geometry of the mineralized zones and the vertical dip and competency of the rock. This method involves accessing stopes using two longitudinal drifts: one above the stope for drilling, loading, blasting and backfill and one below for mucking. The empty stope is then backfilled in part with cemented rock fill (~30%) and the remaining with uncemented rock fill. Mining continues while retreating towards the haulage drift. Stopes will be mined following a retreating sequence and have been grouped in domains. Many domains can be mined at the same time to increase productivity.

For the Main and Underdog zones, the width of the development in the mineralized material will be 4 m, whereas it will be 3.5 m for the Lynx Zone to minimize internal dilution of the stopes. In all zones, stopes will measure 20 m high and can be as long as 40 m. Thickness will depend on the width of the vein.



1.8.2.3 Mine Design

The Windfall Lake mine is composed of three principal mining areas: Lynx, Main and Underdog. The Main Zone is the amalgamation of the Caribou, Mallard and Zone 27 zones for planning purposes. The Lynx and Main zones are located from surface to depths of approximately 900 m and 600 m respectively whereas the Underdog Zone is located below the Red Dog dike between depths of 500 m and 1,200 m. Each zone trends ENE and dips vertically between 85° to 90°. Underdog is situated below the Main Zone whereas the Lynx Zone is located approximately 1,200 m to the east.

The zones are accessed by two ramps, with one exit dedicated to material haulage. The ramps are 5.2 m high by 5.5 m wide to allow the use of 50 t haulage trucks. Three bypasses between Lynx and the other zones are planned. These bypasses will allow one ramp to always be dedicated to haulage with autonomous trucks and the other to serve as a service ramp that can reach almost all locations at the same time. Two ventilation raises will be necessary, one over Lynx and the other one over the Main Zone.

1.8.2.4 Underground Infrastructure

The main underground infrastructure for the Windfall Lake Project includes two ramps, a garage and its components (such as shops, a warehouse and bays), a cement storage area, charging bays and pumping stations. All material will be hauled to surface using the ramps, therefore a shaft, hoist and crusher are not needed.

The two ramps will be located approximately 1,000 m apart and connected using three bypasses and an intersection near surface. Autonomous trucks will be able to use different segments to haul material to surface without interfering with personnel.

1.8.2.5 Development Schedule

The overall development schedule for Windfall Lake has been established using performances of 300 m of lateral development per month per crew, assuming enough work places are available at all times. It is assumed that crews from contractors will be used during pre-production with a changeover to mine crews in mid-2022. Up to four crews will be needed during the life of the Project, with one being dedicated to development in mineralized material in Lynx where smaller equipment will be used.



1.8.2.6 Electrical Distribution and Networks

A distribution network of 13.8V will be deployed from the existing surface network to meet the energy needs in the mine. A 13.8 kV supply is already present in the exploration ramp and will be mainly used for the Lynx Zone. A second 13.8 kV supply will be necessary and it will come down by the ventilation raise for the Main Zone. Sub-stations will transform the 13.8 kV voltage to 600V to supply equipment.

Networks composed of fiber optics, coaxial cable and leaky feeder will be installed for communication and data transfer. These networks will allow teleoperation, ventilation-on-demand and tracking systems to be used at the mine.

1.8.2.7 Mine Automation and Monitoring Systems

The mucking and hauling systems at Windfall Lake will use automation and teleoperation technologies to ensure the most efficient production possible. The main accesses have been designed so that only one charging bay should be required per level. The LHD will be teleoperated while digging the mineralized material; once the bucket is full, it will automatically drive to the truck charging bay. The remote operator will regain control of the LHD to empty the bucket into the truck. Once the truck is loaded, it will automatically haul the material to the surface using one of the available ramps. The ramps have been designed to connect on three levels to allow automated trucks to travel where no personnel are present and still have access to most of the mining areas for servicing.

1.8.2.8 Permanent Mine Pumping Network

A water management system has been designed to handle 3,000 m³/day of water. This volume includes water infiltration and production levels.

It is planned to put a system in place that will remove solids and recirculate clear water directly from the underground operations, in order to limit the volume pumped to the surface.

1.8.2.9 Ventilation

The fresh air demand for the Windfall Lake Mine has been designed to meet the Québec Provincial Regulation Respecting Occupational Health and Safety in Mines ("RROHS").

The Windfall Lake ventilation system consists of two independent air intakes for the two zones: Main and Lynx. Each zone is supplied with fresh air through a raise breaking through each of the active levels. Both zones share the same central return air ramp.



The network has been created to meet the total fresh air requirement at all times but above all, to accommodate 60% of the total requirements in the Lynx area and 90% of the total flow in the Main area. This measure ensures that the development and production peaks will be met by zone and provides a greater flexibility to the ventilation system. Surface fans will be equipped with variable speed drives.

According to the certified CANMET-MMSL approved diesel engines dilution rate and to the equipment list, the maximum fresh air demand at Windfall Lake is estimated at 417 kcfm (197 m³/s).

1.8.2.10 Production Rate

The production rate has been established for the different zones based on the LHD capacity, cycle times and average distances. It has been calculated that the average productivity for the Lynx Zone is in the range of 900 tpd and 1,500 tpd for the Main and Underdog zones. Based on this productivity, a stope cycle time was calculated including slot raise drilling, production drilling, blasting, mucking, backfilling and curing. For Lynx, the cycle time is 23 days and 19 days for the Main and Underdog zones. To achieve this daily production on a monthly basis, three domains must be in production for Lynx and four for Main and Underdog zones.

1.8.2.11 Production Plan

The production plan is based on the calculated productivity from each centre of production with the mining sequence and mineralized material extracted from development. Mine development starts in 2021 from where the exploration program is scheduled to be developed and lasts for 12 months to complete the primary ventilation raise and gain access to enough mining domains to commence full production. Production starts in June 2022 and reaches an average total rate of 2,600 tpd after a 3-month ramp up. Approximately 200 tpd comes from development and 2,400 tpd from stopes. Material below the 3.5 g/t cut-off but above 2.5 g/t extracted during pre-production will be considered marginal and added to the mineralized material total to build a stockpile for the start-up of the mill. Once the mill has started, all material below the cut-off grade will be considered as waste material. Windfall Lake is projected to yield a total of 4.7 Mt of waste material in total, of which 4.46 Mt may be returned underground as backfill material. The mineralized material recovered through development will be 1.27 Mt and 6.64 Mt will be mined using the long-hole stoping method for a LOM total of 7.91 Mt at 6.66 g/t.



1.8.2.12 Mine Equipment and Personnel

This Study is based on new equipment that will be acquired for the Windfall Lake Project. The development equipment will be purchased for the start of mine production. Equipment provided by the mining contractor will be used in the pre-production period. A cassette system (mule on the mine service trucks box) will be used for service equipment to allow using the same carrier to do multiple tasks and thus reducing the number of equipment needed. A total of 59 units of mobile equipment will be required for the Project.

The mine will operate seven days per week, night and day (24/7). This schedule is equivalent to 365 days per year of operation.

- Development and production crews will be on a schedule of 7 days working / 7 days off, for 12 h/shift, night and day;
- The maintenance crew will also be on a schedule of 7 working days / 7 days off, for 12 h/shift, night and day or days only.

A total of 28 staff and 178 hourly personnel is estimated for the life of the Project for mine and maintenance.

1.8.3 Osborne-Bell

1.8.3.1 Mine Design

The Osborne-Bell deposit has been separated into three main production areas: West, Centre and East. The West Zone is subdivided into nine levels (Level 140 to Level 200), the Centre Zone has 24 levels (Level 060 to Level 520), and the East Zone has seven levels (Level 380 to Level 500). Underground access will be developed by a central ramp from the surface portal to a depth of 520 m below surface (Level 520). This central ramp provides access to the West Zone and the upper portion of the Centre Zone. A secondary ramp will access the lower parts of the Centre Zone with connections at levels 100 and 280. Both the West and East zones have internal ramps in between the levels.

1.8.3.2 Infrastructure

The only major infrastructure planned at Osborne-Bell are the pumping stations, with the same design as Windfall Lake, and charging bays. Because of the ultimate depth of mining being around 500 m, the production being in the range of 600 tpd and the minimal number of equipment required underground, it was decided to install the garage on the surface.



1.8.3.3 Development Schedule

At the Osborne-Bell site, contractors will be used for all pre-production development as well as during production. The number of development crews required will change over time depending on the number of faces available but will never exceed two.

1.8.3.4 Electrical Distribution and Automation

A distribution network of 25 kV will be deployed on the surface to meet the energy needs in the mine and for surface infrastructure. Portal main sub-stations will transform the 25 kV voltage to 13.8 kV for mine distribution and level mobile sub-stations from 13.8 kV to 600V to supply equipment. There will be no teleoperated equipment, personnel or vehicle tracking and no ventilation-on-demand system at the Osborne-Bell Mine Site.

1.8.3.5 Permanent Mine Pumping Network

The same type of water management system as Windfall Lake is planned for Osborne-Bell, but for 2,000 m³/day.

1.8.3.6 Ventilation Network

The fresh air demand for Osborne-Bell has been estimated so as to meet the Québec Provincial Regulation (RROHS).

The Osborne-Bell mine ventilation system is based on the same assumption as Windfall Lake. A fan system is installed in parallel (2 x 5400-VAX-2700-Howden - 300 HP or equivalent model) on the top of the main air intake raise. The raise will break through all levels from surface down to elevation 70 m where the fresh air uses the ramp to be transferred to an internal raise network to provide a deeper area with fresh air. The ramp is used as a return airway.

According to the certified CANMET-MMSL approved diesel engines dilution rate and to the equipment list, the maximum fresh air demand at Osborne-Bell is estimated at 222 kcfm (105 m³/s).

1.8.3.7 Production Rate

The cycle time for long-hole mining with longitudinal retreat at the Osborne-Bell mine is expected to be approximately 33 days per stope. The average stope contains 7,200 t of recoverable material and requires a total of 5,500 t of backfill material assuming a swell factor of 40%. In order to maintain a constant production rate of 600 tpd, a minimum of three stopes must be available in separate mining domains at all times.



1.8.3.8 Production Plan

The LOM production schedule was generated for the Osborne-Bell mine based on a two-team development rate of 450 m per month and 600 tpd of mineralized material throughout production. The duration of pre-production will last 12 months in order to complete the primary ventilation raise and gain access to enough mining domains to commence full production. The LOM will last 5 years at an annual production rate of 219,000 t including a 3-month ramp-up period at 60% of full production. It is estimated that 158,816 t of mineralized material will be recovered through development and 845,496 t will be mined using the long-hole stoping method for a LOM total of 1,004,312 t at 6.9 g/t.

1.9 Recovery Methods

The process plant located near the town of Lebel-sur-Quévillon will have an average daily capacity of 3,200 tpd at 95% availability with a target grind size of 45 μm . Design gold and silver recovery is estimated to be 92.4% and 69.2% respectively based on the LOM and metallurgical testwork. Gold production will average 218,000 oz/y based on the LOM plan. It is expected that a ramp up period of three months will be required to reach the design throughput.

The process flowsheet for the Windfall Lake Project was established on the basis of laboratory-scale testwork performed at the SGS Québec laboratory and on historical testwork performed by SGS Lakefield for the Osborne Bell deposit. The metallurgical testwork programs were carried out using composites prepared from drill core intervals representing both deposits. The testwork results and analysis are described in Chapter 13. The resulting flowsheet reflects the results of this initial testwork and forms the basis for the plant design and plant capital and operating costs development. A simplified flowsheet is presented in Figure 1-2.

The process plant consists of a jaw crusher, mineralized material reclaim system and storage (2,100 t live capacity), a primary SAG mill (22' x 11') and a secondary Ball Mill (15' x 27') in closed circuit with cyclones producing a product of $P_{80} = 45$ microns. A portion of the cyclone underflow will be fed to the gravity circuit with intensive leach. Cyclone overflow will be fed to an eight tank CIL circuit (40 hr retention time), followed by cyanide destruction ("CND") circuit that treats the thickened CIL residue slurry at 65% (w/w) solids. Cyanide destruction will be performed using the Inco SO_2 /Air process. The treated tails are subsequently pumped to the tailings management facility ("TMF").

A 6 t carbon per day processing adsorption-desorption-recovery ("ADR") circuit and gold room will be used to recover the gold and produce doré. The payable metal recovery is estimated to average 92.4% for gold and 68.9% for silver over the LOM. The plant also includes a reagent preparation area and two process water circuits (cyanide bearing and cyanide-free) to service the entire plant.

The connected load for the plant was estimated at 13.4 MW with an annual power consumption of 84.7 GWh.

The process plant will employ 55 workers, including 19 salaried staff and 36 hourly positions.

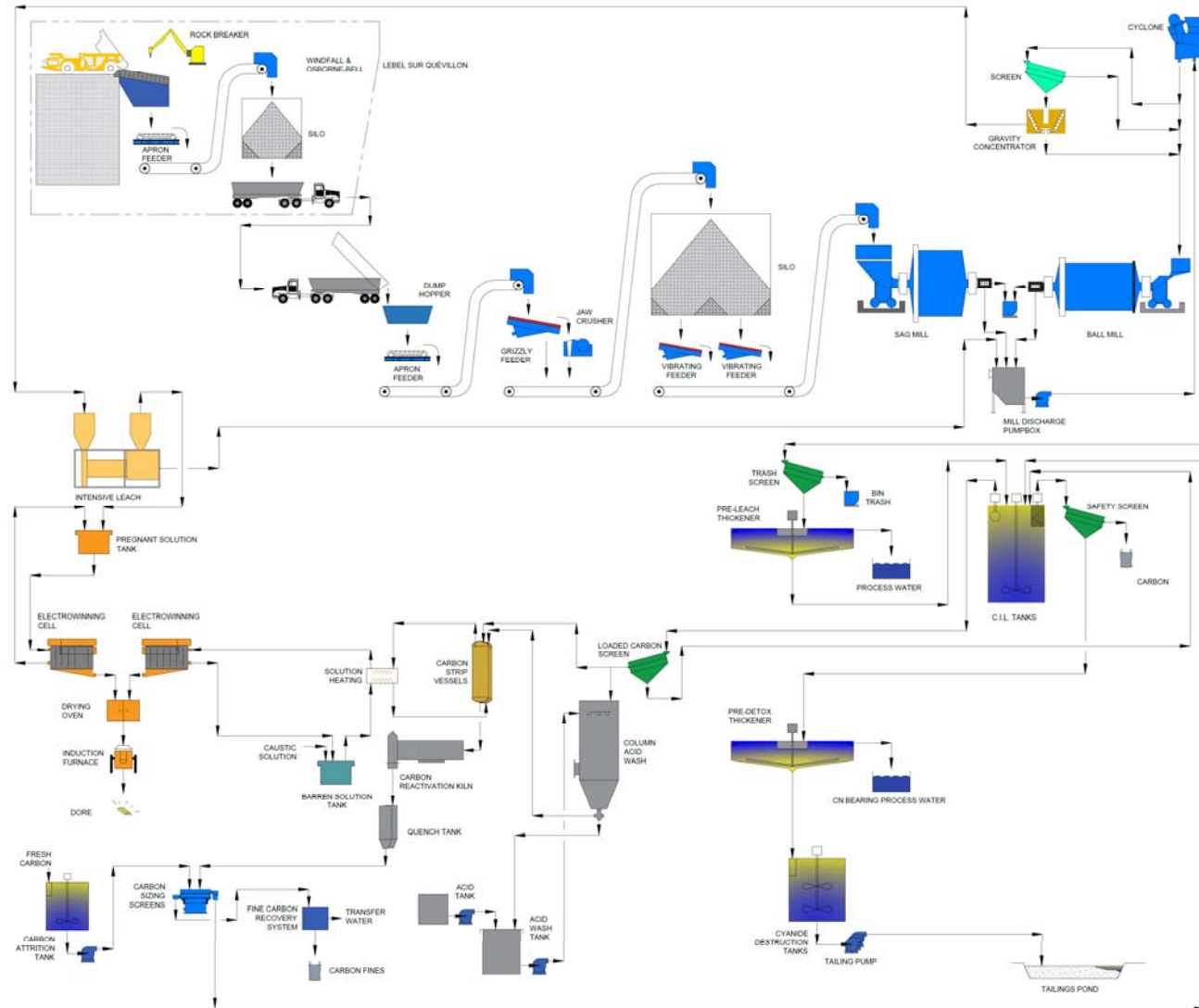


Figure 1-2: Simplified process plant flowsheet.



1.10 Project Infrastructure

The Windfall Lake Project will have infrastructure at three sites: the Windfall Lake and Osborne-Bell Mine sites and the Plant Site located near the town of Lebel-sur-Quévillon. Preliminary site layouts and specific details of the planned infrastructure are presented in Chapter 18.

1.10.1 Windfall Lake Mine

The Project envisions construction or upgrade of the following key infrastructure items at the Windfall Lake Mine Site:

- Windfall Lake Mine Site access;
- Windfall Lake Mine, on-site control gate and parking area;
- Light vehicle roads;
- Accommodation complex comprising the mine dry, offices, cafeteria, fitness room and dormitory;
- Electrical generators (4 x 1,600 kW) and fuel storage;
- 13.8 kV electrical distribution network;
- Mineralised material discharge station and silo;
- Waste rock stockpiles (lined);
- Water management structures (ditches and ponds);
- Water treatment plant (two stage treatment with a capacity of 350 m³/h).

1.10.2 Osborne-Bell Mine

The Project envisions construction or upgrade of the following key infrastructure items at the Osborne-Bell Mine Site:

- On-site control gate and parking area;
- Light vehicle roads;
- Osborne-Bell main electrical substation (25 kV);
- Waste rock stockpile (lined);
- Water management structures (ditches and ponds)
- Water treatment plant (two stage treatment with a capacity of 250 m³/h).



1.10.3 Plant Site (Lebel-sur Quévillon)

The Project envisions construction or upgrade of the following key infrastructure items on the preferred land located at Lebel-sur-Quévillon.

- Site access control building and truck scale;
- Light vehicle roads and parking;
- Administration building (500 m², single storey building);
- Process plant building (including wet laboratory, offices, dry, first aid office and a maintenance shop);
- Overhead transmission line from Lebel-sur-Quévillon to the Plant Site;
- 120 kV on Plant Site substation fed from the Hydro-Québec grid;
- Emergency power generators;
- Warehouse and Service building (18 m x 30 m dome style);
- Fuel Storage and Distribution System;
- Rail line (existing spur line to be relocated);
- 3.5 km pipeline and fresh water pumping station (Quévillon Lake) for potable and process use;
- Fire water distribution including site fire hydrants (includes diesel back-up pump);
- Water treatment plant (two stage treatment with a capacity of 350 m³/h, the selected treatment sequence would also be preceded by a separate physio-chemical treatment step for management of weak acid dissociable cyanide (“WAD-CN”) removal, in concert with the biological stage);
- Water management structures (ditches and ponds);
- Wastewater treatment plant (modular);
- Surface TMF with geosynthetic liner (ultimate capacity of 10 Mt including a 10% contingency).

1.11 Environmental and Permitting

Between 2007 and 2015, several environmental studies, analyses and reports have been completed at the Windfall Lake Mine Site. After Osisko acquired the Project, additional baseline studies were carried out in 2015, 2016 and 2017 at the Windfall Lake Mine Site. All the collected data will be part of the environmental impact assessment (“EIA”), which is currently underway. The environmental baseline studies will also support the permitting process and the future permit applications, once the decree is received.



As indicated, the Windfall Lake Project will require a provincial decree and a federal Environmental Assessment (“EA”) Decision Statement with enforceable conditions, if necessary. As the Project is located on territory governed by the James Bay and Northern Québec Agreement (“JBNQA”), the proponent is obliged to follow the EIA and review process as described in the *Regulation respecting the environmental and social impact assessment and review procedure applicable to the territory of James Bay and Northern Québec* (Q-2, r.25). All mining projects located in this territory are subject to the Environment Quality Act (“EQA”) and the JBNQA. The project will also be subject to a federal impact assessment study, according to Section 16(c) of the *Regulations Designating Physical Activities* (S.C. 2012, c. 19, s. 52), since it involves the construction and operations (and, eventually, the decommissioning and closure) of a new gold mine, other than a placer mine, with a mineralized material production capacity of 600 tpd or more.

Once the EIA is submitted to the authorities, the questions or comments answered to obtain clarification on the project, and the public’s comment period are completed, the provincial and federal will review the EIS and prepare their EA report for the Minister. This environmental process, once completed, will allow proceeding with the environmental permit applications required for the Project, which can then move forward.

The Project will require numerous approvals, permits and authorizations prior to start-up and throughout all stages of the Project, following the release of the provincial and federal decree. The Project must also comply with any other terms and conditions associated with the authorization issued by the provincial and federal regulations. A non-exhaustive list, based on information known so far, is available in Section 20.3.2 – Laws and Regulations of this Report.

For the purposes of this PEA, a closure and rehabilitation plan for the three sites impacted by the Project has been developed in accordance with the Mining Act of Québec. The overall project restoration cost is estimated to be \$58.8M. This cost estimate is based on returning the site to a satisfactory state and includes eliminating all unacceptable risks to the health and the safety of persons. It includes the costs for: dismantling of the buildings and infrastructure erected for the operations of the mines and processing plant, the restoration of the TMF and waste rock stockpiles, and post-closure monitoring activities. In accordance with the regulations, Osisko intends to post a bond as a guarantee to cover the closure costs.



1.12 Capital and Operating Costs

1.12.1 Capital Costs

The total pre-production capital cost for the Windfall Lake Project is estimated to be \$397M including allowances for indirect costs and contingency of \$74M and \$52M respectively. This estimate was prepared in accordance with the American Association of Cost Engineers (“AACE”) Class 4 study definition, with an expected accuracy of +/- 30% of the final Project cost. The capital cost estimate was compiled using a budgetary quotations, database costs, and database factors. Items such as sales taxes, land acquisition, permitting, licensing, feasibility studies and financing costs are not included in the cost estimate.

Costs are expressed in second-quarter 2018 Canadian dollars with an exchange rate of 1.00 CAD for 0.78 USD with no allowances for escalation, currency fluctuation or interest during construction.

The cumulative life of mine capital expenditure including costs for pre-production, sustaining, site reclamation and closure is estimated to be \$809M.

Table 1-7: Project capital cost summary

WBS	Cost area	Pre-production capital cost (\$M)	Sustaining capital cost (\$M)	Total cost (\$M)
000	General Administration (Owner's Costs)	27.6	-	27.6
200	Underground Mine	72.7	309.0	381.6
300	Mine Surface Facilities	23.5	24.5	47.9
500	Plant Site Infrastructure	19.2	2.1	21.3
600	Process Plant	107.6	-	107.6
800	Tailings and Water Management	48.9	35.5	84.4
900	Indirects	46.0	-	46.0
999	Contingency	51.8	-	51.8
	Total	397.3	371.1	768.4
	Site Reclamation and Closure	-	58.8	58.8
	Salvage Value	-	(18.3)	(18.3)
	Total - Forecast to Spend	397.3	411.7	809.0

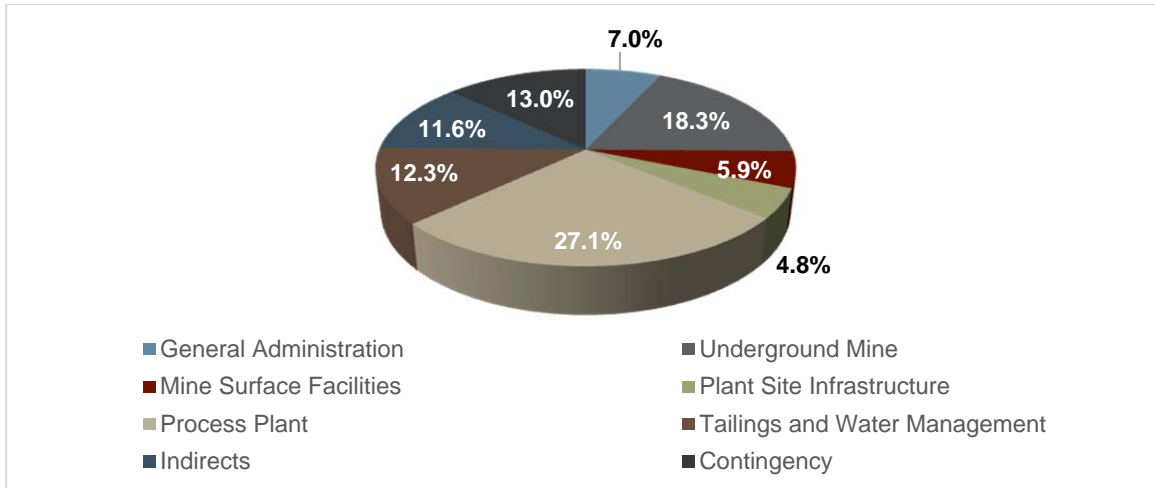


Figure 1-3: Capital cost summary (pre-production).

All capital costs for the Project have been distributed against the development schedule to support the economic cash flow model. Figure 1-4 presents the planned annual and cumulative LOM capital cost profile.

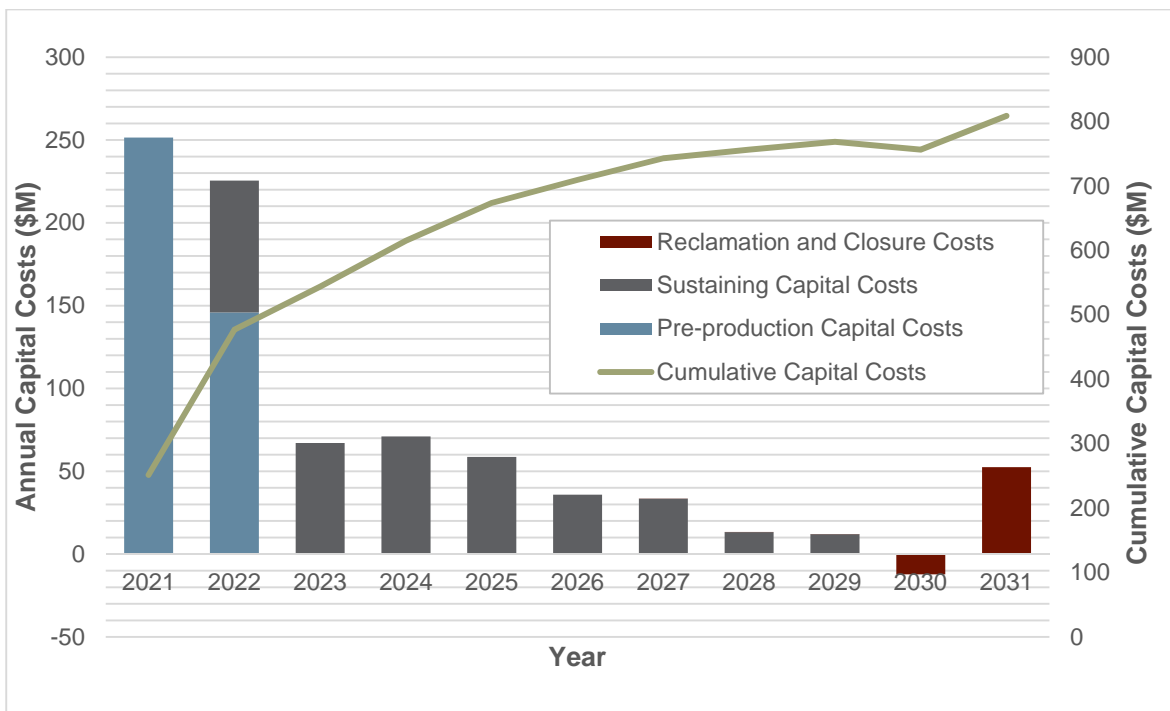


Figure 1-4: Annual and cumulative Project capital costs.



1.12.2 Operating Costs

The operating cost estimate (“OPEX”) is based on a combination of experience, reference project, budgetary quotes and factors appropriate for a PEA study. The target accuracy of the operating cost is +/-30%. No cost escalation or contingency has been included within the operating cost estimate.

The operating cost estimate in this Study includes the costs to mine, transport and process the mineralized material to produce gold and silver doré. It also includes costs for tailings management, water treatment and general and administration expenses (“G&A”).

The average operating cost over the 8-year mine life is estimated to be \$126.47/t milled. Total LOM and unit operating cost estimates are summarized in Table 1-8 and are shown on a percentage basis in Figure 1-5.

Table 1-8: Project operating cost summary

Cost Area	LOM (\$M)	Annual average cost (\$M)	Average LOM (\$/tonne milled)	Average LOM (\$/oz)	OPEX (%)
Underground mining	565.1	69.6	63.82	319.30	51
Mineralized material transport	126.2	15.5	14.26	71.30	11
Process plant	238.1	29.3	26.89	134.50	21
Tailings and water management	31.8	3.9	3.59	17.90	3
General & administration	158.7	19.5	17.93	89.70	14
Total	1,119.9	137.9	126.47 \$	632.90	100

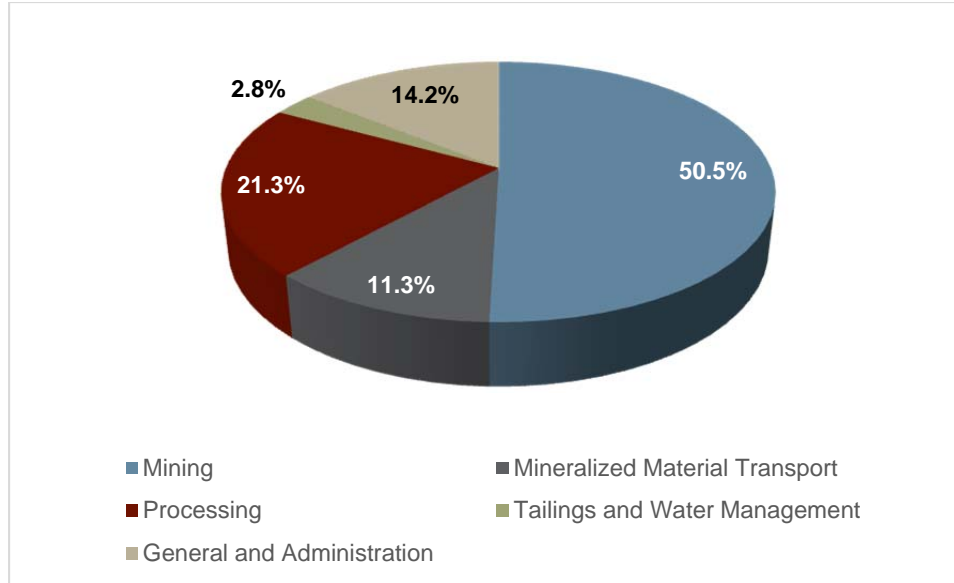


Figure 1-5 Operating cost summary (by area).

It is anticipated that 330 employees (staff and labour) will be required for operations over the LOM. Table 1-9 provides a summary of the employees by facility.

Table 1-9: Employee summary – all areas

Facility area	Number
Underground Mine	206
Process Plant	55
Tailings, Water Treatment and Environment	12
General and Administration	57
Total – Windfall Lake Project	330



1.13 Project Economics

The economic/financial assessment of the Windfall Lake Project was carried out using a discounted cash flow approach on a pre-tax and after-tax basis, based on Q2 2018 metal price projections in US currency ("USD") and cost estimates capital expenditure ("CAPEX") and ("OPEX") in Canadian ("CAD") currency. Inflation or cost escalation factors were not taken into account. An exchange rate of USD 0.78 for CAD 1.00 has been assumed over the life of the Windfall Lake Project. The base case gold and silver prices are USD1,300/oz and USD17.00/oz respectively.

The economic analysis presented in this section contains forward-looking information with regard to the mineral resource estimates, commodity prices, exchange rates, proposed mine production plan, projected recovery rates, operating costs, construction costs and project schedule. The results of the economic analysis are subject to a number of known and unknown risks, uncertainties and other factors that may cause actual results to differ materially from those presented here. The reader is cautioned that this PEA is preliminary in nature and includes the use of Inferred mineral resources that are considered too speculative geologically to have the economic considerations applied to them that would enable them to be categorized as mineral reserves and, as such, there is no certainty that the PEA economics will be realized.

The input parameters used and results of the financial analysis are presented in Table 1-10.

On an after-tax basis, the base case financial model resulted in an IRR of 32.7% and a NPV of \$413.2M using a 5% discount rate. The after-tax payback period is 3.9 years.

The pre-tax base case financial model resulted in an IRR of 39.7% and a NPV of \$625.4M using a 5% discount rate. The pre-tax payback period is 3.7 years.

The all-in sustaining costs ("AISC") over the LOM are USD704/oz net of silver credits and including royalties.



Table 1-10: Financial analysis summary

Description	Unit	Value
Total Tonnes Mined	M tonne	8.9
Average Diluted Gold Grade ⁽¹⁾	g/t	6.68
Total Gold Contained	oz	1,914,924
Total Gold Produced	oz	1,769,537
Total Gold Payable	oz	1,768,652
Average Diluted Silver Grade	g/t	2.8
Total Silver Contained	oz	808,536
Total Silver Produced	oz	559,507
Total Silver Payable	oz	556,709
Average Annual Gold Produced	Au oz per year	217,856
Average Annual Silver Produced	Ag oz per year	68,884
Total Preproduction Capital Cost	\$M	397.3
Sustaining Capital	\$M	371.1
Site Restoration Cost	\$M	58.1
Salvage Value	\$M	(18.3)
Operating Costs	\$/t milled	126.5
All-in Sustaining Costs (AISC)	USD/oz	704.0
Total LOM NSR Revenue	\$M	2,948
Total LOM Operating Cash Flow	\$M	1,120
Total LOM Pre-Tax Cash Flow	\$M	954.17
Average Annual Pre-tax Cash Flow	\$M	117.47
LOM Royalties	\$M	65.13
LOM Income Taxes	\$M	340.77
Total LOM After-Tax Free Cash Flow	\$M	613.40
Average Annual After-Tax Free Cash Flow	\$M	75.52
Pre-Tax Summary		
Pre-Tax NPV (@ 5% Discount Rate)	\$M	625.4
Pre-Tax IRR	%	39.7
Pre-Tax Payback	year	3.7
After-Tax Summary		
After-Tax NPV (@ 5% Discount Rate)	\$M	413.2
After-Tax IRR	%	32.7
After-Tax Payback	year	3.9

⁽¹⁾ Refer to Table 1-6 for mineralized material resource category for the Windfall Lake Project mining plan.



A financial sensitivity analysis was conducted on the Project's after tax NPV and IRR using the following variables: capital cost (pre-production and sustaining) operating costs, USD:CAD exchange rate, and the price of gold.

The graphical representations of the financial sensitivity analysis on NPV and IRR are depicted in Figure 1-6 and Figure 1-7. The sensitivity analysis reveals that the USD:CAD exchange rate has the most significant influence on both NPV and IRR compared to the other parameters, based on the range of values evaluated. After the USD:CAD exchange rates, NPV was most impacted by changes in the gold price and then to a lesser but equal extent by variations in operating costs and capital costs. It should be noted that the economic viability of the Project will not be significantly negatively impacted by variations in the capital cost, within the margins of error associated with the PEA capital cost estimate.

After the USD:CAD exchange rates, the Project's IRR was most impacted by variation in gold price, then capital cost and to a lesser extent by the operating cost.

Overall, the NPV and IRR of the Project are generally positive over the range of values used for the sensitivity analysis when analyzed individually. The only exception to this occurs at a gold price of USD1,000/oz which results in a project NPV of -92.9M and an IRR of -4.4%

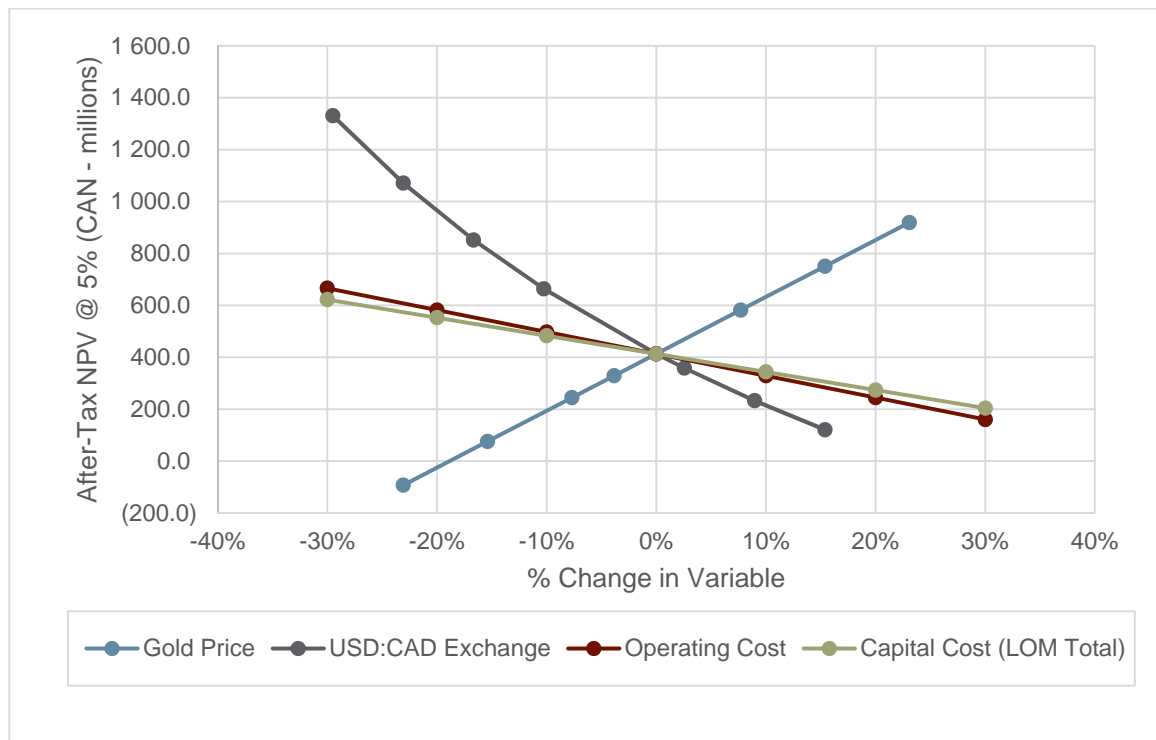


Figure 1-6 After-tax sensitivity analysis – Net present value (NPV).

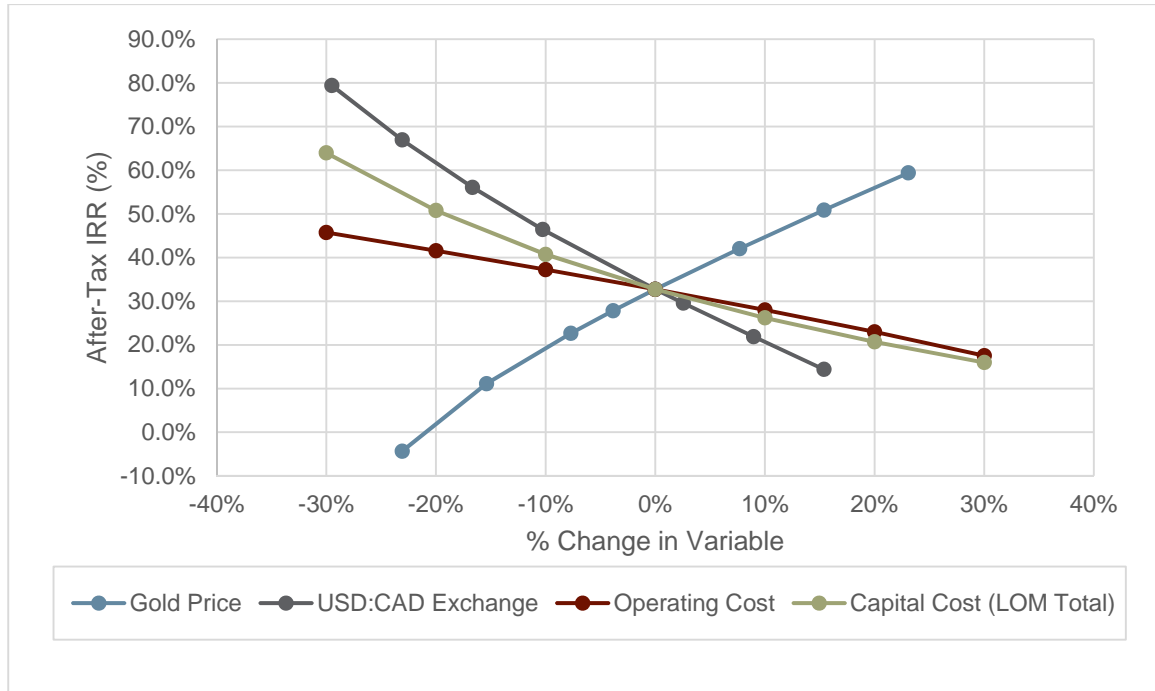


Figure 1-7 After-tax sensitivity analysis – Internal rate of return (IRR).

1.14 Project Schedule and Organization

The execution of the Windfall Lake Project will be directly managed by the Osisko Mining project management team. The engineering and construction works will be contracted out to qualified firms and contractors under the direct supervision of Osisko. Procurement and project control functions such as scheduling, cost control, project logistics and site supervision will be executed directly by Osisko personnel.

The preliminary on-site workforce requirement for construction, including infrastructure, process plant, and development of the underground mines is expected to average 480 construction personnel, peaking at approximately 700 individuals.

The major project activity milestones are presented in Table 1-11. Pending the completion of all studies and receipt of the required permits, the process plant construction is scheduled to begin in Q2 2021 with full capacity production beginning in Q3 2022.



Table 1-11: Key milestones (preliminary)

Activity	Start Date	Completion Date
Complete PEA Study		Q3 2018
Feasibility Study		Q4 2019
Environmental Impact Study	Q1 2017	Q1 2020
Process Plant Detailed Engineering	Q1 2020	Q2 2021
Public Hearing (Process Plant only)	Q2 2020	Q2 2021
Project Permit Released		Q2 2021
Process Plant Construction	Q2 2021	Q2 2022
Preproduction Mine Development	Q1 2021	Q2 2022
First Mineralized Material from Mine		Q3 2021
End of Process Plant Construction/Plant Commissioning		Q2 2022
Full Production achieved in Mine		Q3 2022
Process Plant Fully Operational (Commercial Production)		Q3 2022

1.15 Interpretations and Conclusions

This PEA was prepared by a group of independent QPs to demonstrate the economic viability of developing the Windfall Lake and Osborne-Bell resources as underground mines and processing the mineralized material using a conventional Gravity/CIL circuit in a centrally located process plant. This Report provides a summary of the results and findings from each major area of investigation. Standard industry practices, equipment and processes were used. To date, the QPs are not aware of any unusual or significant risks or uncertainties that could materially affect the reliability or confidence in the Windfall Lake Project based on the information available.

For proposed underground mining scenario for both deposits, using a cut-off grade of 3.00 g/t Au, it is estimated that the Windfall Lake Project contains 601,000 oz of gold at an average of 7.85 g/t Au in the Indicated resource category and 2,284,000 oz of gold at an average of 6.70 g/t Au in the Inferred resource category.

The PEA is based on Mineral resources that do not have demonstrated economic viability and include Inferred Mineral Resource that are considered too speculative geologically to have economic considerations applied to them that would enable them to be categorized as Mineral Reserves. There is no certainty that the results of this PEA will be realized.

The results of the Study indicate that the proposed Project has technical and financial merit using the base case assumptions. It has also identified additional field work, metallurgical testwork, trade-off studies and analysis required to support more advanced mining studies. The QPs consider the PEA results sufficiently reliable and recommend that the Windfall Lake project be advanced to next stage of development through the initiation of a feasibility study.



1.15.1 Risks and Opportunities

An analysis of the results of the investigations has identified a series of risks and opportunities associated with each of the technical aspects considered for the development of the Windfall Lake Project.

Potential Risks

The most significant potential risks associated with the Project are:

- The lithostructural models of the deposits are not entirely integrated and work is still ongoing. The shape and geometry of the mineralization zones could be impacted by further refinements to the lithostructural model;
- Long-hole mining was assumed to be appropriate for the vein type structures of the Windfall Lake and Osborne-Bell deposits. These assumptions will need to be validated by fieldwork, testing and development activities;
- The actual rock mass behaviour and hydrogeology of the Windfall Lake and Osborne-Bell deposits could differ from expected and influence stope dimensions, ground support, mining and development sequences, as well as dilution and recovery. These could negatively affect the Project economics. These assumptions will need to be validated by fieldwork;
- Metallurgical testwork has not been performed on the Windfall Lake Underdog Zone. The assigned recovery for this zone has been assumed based on geology similarity to other samples. Additional testwork will be required to assess the comminution characteristics and precious metal recovery of the Underdog Zone;
- Discovery of an unidentified contaminant that cannot be treated by the chosen mine water treatment systems (complex of contaminants) may lead to increased water treatment costs;
- Limited geotechnical data was available to assess project infrastructure and TMF dam stability. Poorer conditions than estimated may result in higher foundation preparation costs;
- The potential presence of impacted soils or groundwater from historical use at the plant site could result in additional costs for soil disposal;
- Project can be delayed due to changes in regulations/government representatives as a result of elections.

Many of the previous noted risks are common to most mining projects, many of which may be mitigated, at least to some degree, with adequate engineering, planning and pro-active management.



Key Opportunities

There are a number of opportunities that could improve the economics, timing and/or permitting potential of the Project. The key opportunities that have been identified at this time are as follows:

- As the Windfall Lake deposit remains open at depth, additional exploration drilling could increase resources;
- Reducing the drill spacing by adding infill drilling could potentially upgrade some Inferred resources to the Indicated category for Windfall Lake and Osborne-Bell deposits;
- Implement IT and communications infrastructure at the Osborne-Bell mine to allow for advanced automation systems that could provide more efficient operations and lower operating costs;
- Investigate alternative methods to mine 2 m wide veins for both the Windfall Lake and Osborne-Bell deposits. This could potentially add additional tonnage to the Project and extend the LOM;
- Limited CIL testwork was performed to assess precious metal recovery and reagent consumption. Additional testwork may improve precious metal recovery and reduce reagent consumption (lower OPEX);
- Review the need for a geosynthetic liner for the TMF once the foundation conditions are defined.

1.16 Recommendations

In preparation for the feasibility study phase, the Project QPs recommend performing the fieldwork, testing and analysis activities as summarized in Table 1-12. Additional details are presented in Chapter 26.

Table 1-12: Recommended Work Program

Area	Description
Drilling	<ul style="list-style-type: none"> ▪ Drill infill holes to allow conversion of unclassified and Inferred to higher confidence resource (2 Phase Program); ▪ Drill the Lynx and Underdog areas to potentially identify additional resources; ▪ Drill to collect metallurgical and geotechnical samples.
Geology and Resource Estimation	<ul style="list-style-type: none"> ▪ Refine the lithostructural interpretation; ▪ Prepare an updated mineral resource estimate with the above drilling information to convert Inferred resources to Indicated; ▪ Complete a bulk sample in Lynx, Underdog and in Osborne-Bell.



Area	Description
Mining Methods	<ul style="list-style-type: none"> ▪ Complete additional engineering work to optimize mine design and cashflow; ▪ Complete underground bulk sampling; ▪ If new mineral resources justifies mining at lower levels and/or increases the productivity, a shaft scenario should be investigated.
Recovery Methods	<ul style="list-style-type: none"> ▪ Perform additional metallurgical testwork on Osborne-Bell and Windfall Lake (Caribou, zone 27, Lynx and Underdog), representative composites are necessary to better define and optimize the gravity and leaching Au and Ag performance.
Infrastructure	<ul style="list-style-type: none"> ▪ Geotechnical investigations are required to characterize foundation conditions under planned infrastructure.
Environment	<ul style="list-style-type: none"> ▪ Geochemical characterization of tailings and process water will be needed to further define management measures; ▪ Long-term kinetic tests are also required to confirm leachable elements and assess potential environmental risks associated with the handling and management of mineralized rock and waste rock.
Waste and Water Management	<ul style="list-style-type: none"> ▪ Geotechnical investigations are required to characterize foundation conditions under planned infrastructure; ▪ A complete laboratory testing program should be carried out on tailings to define their physical properties; ▪ Conduct hydrological, hydrogeological and geotechnical assessment at feasibility level for waste and water management infrastructure.

A budget proposal of \$95M including contingencies has been established for Project related activities (drilling, field studies, laboratory testwork and studies) in 2018. Colin Hardie, QP is of the opinion that the recommended work program and proposed expenditures are appropriate, well thought out and that the proposed budget reasonably reflects the type and scope of the contemplated activities.



2. INTRODUCTION

This Report was prepared and compiled by BBA Inc. (“BBA”) at the request of Osisko Mining Inc. (“Osisko”). The purpose of this Report is to summarize the results of the Preliminary Economic Assessment (“PEA”) of the Windfall and Osborne-Bell deposits in accordance with the guidelines of the Canadian Securities Administrators National Instrument 43-101 and Form 43-101F1.

BBA is an independent engineering consulting firm headquartered in Mont-Saint-Hilaire, Québec with the mining group based in downtown Montreal, Québec. This report was prepared with contributions from Osisko as well as InnovExplo Inc. (“InnovExplo”), Golder Associates Ltd. (“Golder”), SNC-Lavalin Stavibel Inc. (“SNC-Lavalin”), and WSP Canada Inc. (“WSP”).

Both properties are located in the Eeyou Istchee James Bay region of central-northwest Québec, Canada.

2.1 Osisko Mining Inc.

Osisko Mining Inc. is a mineral exploration company focused on the acquisition, exploration, and development of precious metal resource properties in Canada. Osisko Mining Inc. was formed on June 14, 2016, when Oban Mining Corporation changed its name to Osisko Mining Inc. Previous to the name change, Oban Mining Corporation completed several successful acquisitions: On August 25, 2015, Oban Mining Corporation acquired all the common shares of Eagle Hill Exploration Corporation, Ryan Gold Corp., and Corona Gold Corporation. On December 22, 2015, Oban acquired all the common shares of Northern Gold Mining, and on March 11, 2016, Oban acquired all the common shares of NioGold Mining Corp. Previous to the acquisitions, Oban Mining Corporation was the result of a business combination between Braeval Mining Corporation, Oban Exploration Limited, and a wholly-owned subsidiary of Oban Mining on April 14, 2014. Osisko holds the Windfall gold deposit located between Val-d’Or and Chibougamau in Québec and holds a 100% undivided interest in a large area of claims in the surrounding Urban Barry area and nearby Quévillon area (over 3,300 km²), a 100% interest in the Marban project located in the heart of Québec’s prolific Abitibi gold mining district, and properties in the Larder Lake Mining Division in northeast Ontario, including the Jonpol and Garrcon deposits on the Garrison property. The Corporation also holds interests and options in a number of additional properties in northern Québec and Ontario.

2.2 Basis of Technical Report

The following Report presents the results of the PEA for the development of the Windfall Lake Project. Osisko mandated engineering consulting group BBA to lead and perform the PEA, based on contributions from a number of independent consulting firms including InnovExplo, Golder, SNC-Lavalin, and WSP. This Report was prepared at the request of Ms. Kim-Quyên Nguyễn of



Osisko Mining Inc. As of the date of this Report, Osisko is a Canadian mineral exploration company trading on the TSX under the trading symbol (“OSK”), with its head office situated at:

155 University Avenue 1440
Toronto, Ontario
M5H 3B7

This Report, titled “Preliminary Economic Assessment of the Windfall Lake Project”, was prepared by Qualified Persons (“QPs”) following the guidelines of the NI 43-101 and in conformity with the guidelines of the Canadian Institute of Mining, Metallurgy and Petroleum (“CIM”) Standards on Mineral Resources and Reserves.

2.3 Report Responsibility and Qualified Persons

The following individuals, by virtue of their education, experience and professional association, are considered QPs as defined in the NI 43-101, and are members in good standing of appropriate professional institutions.

- | | |
|--------------------------------|---------------------------|
| ▪ Colin Hardie, P. Eng. | BBA Inc. |
| ▪ Jorge Torrealba, P. Eng. | BBA Inc. |
| ▪ Pierre-Luc Richard, P. Geo. | BBA Inc. |
| ▪ Stéphane Faure, P. Geo. | InnovExplo Inc. |
| ▪ Judith St-Laurent, P. Geo. | InnovExplo Inc. |
| ▪ Patrick Frenette, P. Eng.. | InnovExplo Inc. |
| ▪ Michael Bratty, P. Eng. | Golder Associates Ltd. |
| ▪ Anne-Marie Dagenais, P. Eng. | Golder Associates Ltd. |
| ▪ Paul Palmer, P. Eng. | Golder Associates Ltd. |
| ▪ Luc Gaulin, P. Eng. | SNC-Lavalin Stavibel Inc. |
| ▪ Simon Latulippe, P. Eng. | WSP Canada Inc. |
| ▪ Éric Poirier, P. Eng. | WSP Canada Inc. |

The preceding QPs have contributed to the writing of this Report and have provided QP certificates, included at the beginning of this Report. The information contained in the certificates outlines the sections in this Report for which each QP is responsible. Each QP has also contributed figures, tables and portions of Chapters 1 (Summary), 25 (Interpretation and Conclusions), and 26 (Recommendations). Table 2-1 outlines the responsibilities for the various sections of the Report and the name of the corresponding Qualified Person.



Table 2-1: Qualified Persons and areas of report responsibility

Chapter	Description	Qualified Person	Company	Comments and exceptions
1.	Executive Summary	C. Hardie	BBA	All QPs contributed based on their respective scope of work and the Chapters/Sections under their responsibility.
2.	Introduction	C. Hardie	BBA	All Chapter 2
3.	Reliance on other Experts	C. Hardie	BBA	All QPs contributed based on their respective scope of work and the Chapters/Sections under their responsibility.
4.	Project Property Description and Location	S. Faure	InnovExplo	All Chapter 4
5.	Accessibility, Climate, Local Resource, Infrastructure and Physiography	S. Faure	InnovExplo	All Chapter 5
6.	History	S. Faure	InnovExplo	All Chapter 6
7.	Geological Setting and Mineralization	S. Faure	InnovExplo	All Chapter 7
8.	Deposit Types	S. Faure	InnovExplo	All Chapter 8
9.	Exploration	S. Faure	InnovExplo	All Chapter 9
10.	Drilling	S. Faure	InnovExplo	All Chapter 10
11.	Sample Preparation, Analyses and Security	S. Faure	InnovExplo	All Chapter 11
12.	Data Verification	J. St-Laurent	InnovExplo	All Chapter 12 except for Section 12.3
		P.-L. Richard	BBA	Section 12.3
13.	Mineral Processing and Metallurgical Testing	J. Torrealba	BBA	All Chapter 13
14.	Mineral Resource Estimate	J. St-Laurent	InnovExplo	Section 14.1
		P.-L. Richard	BBA	Section 14.2
15.	Mineral Reserve Estimate	C. Hardie	BBA	All Chapter 15
16.	Mining Methods	P. Frenette	InnovExplo	All Chapter 16 except for Sections 16.2 and 16.3
		P. Palmer	Golder	Section 16.2
		A.-M. Dagenais	Golder	Section 16.3
17.	Recovery Methods	J. Torrealba	BBA	All Chapter 17



Chapter	Description	Qualified Person	Company	Comments and exceptions
18.	Project Infrastructure	C. Hardie	BBA	Sections 18.1, 18.4.15 to 18.4.17 Co-author of Sections 18.4, 18.4.1, 18.4.6, 18.4.7
		A.-M. Dagenais	Golder	Sections 18.2.3, 18.2.24 (except 18.2.24.1), 18.2.25, 18.2.26, 18.3.1, 18.3.16 (except 18.3.16.1), 18.3.17, 18.3.18, 18.4.3, 18.4.18, 18.4.19 (except 18.4.19.1) and 18.4.20
		M. Bratty		Sections 18.2.24.1, 18.3.16.1 and 18.4.19.1
		É. Poirier	WSP	Sections 18.2 to 18.2.23 (except 18.2.3) and 18.3 to 18.3.15 (except 18.3.1)
		L. Gaulin	SNC-Lavalin	Sections 18.4.2, 18.4.4, 18.4.5 and 18.4.8 to 18.4.14 Co-author of Sections 18.4, 18.4.1, 18.4.6 and 18.4.7
19.	Market Studies and Contracts	C. Hardie	BBA	Osisko provided metal prices and refining costs.
20.	Environmental Studies, Permitting, and Social or Community Impact	S. Latulippe	WSP	Chapter 20 (except the Hydrogeology and Groundwater Quality component in Section 20.1.2.1 and Sections 20.1.2.4, 20.1.3.1, 20.1.3.2 and 20.1.4)
		A.-M. Dagenais	Golder	Hydrogeology and Groundwater Quality component in Sections 20.1.2.1, Sections 20.1.2.4, 20.1.3.1, 20.1.3.2 and 20.1.4
21.	Capital and Operating Costs	C. Hardie	BBA	Sections 21.1 (except 21.1.3.4 to 21.1.3.6, 21.1.3.8, 21.1.4.1 to 21.1.4.4), 21.2 (except 21.2.3 and 21.2.6) and 21.3 Co-author of Section 21.1.4.5
		P. Frenette	InnovExplo	Sections 21.1.3.4, 21.1.4.1 and 21.2.3
		M. Bratty	Golder	Co-author of Sections 21.1.3.8, 21.1.4.4 and 21.2.6
		A.-M. Dagenais		Co-author of Sections 21.1.3.8 and 21.1.4.4
		L. Gaulin	SNC-Lavalin	Sections 21.1.3.6 and 21.1.4.3
		E. Poirier	WSP	Sections 21.1.3.5 and 21.1.4.2
		S. Latulippe	WSP	Co-author Section 21.1.4.5
22.	Economic Analysis	C. Hardie	BBA	Osisko provided metal prices, exchange rates and royalty costs. WSP provided closure costs. Osisko provided project taxes and after-tax cash flows.
23.	Adjacent Properties	S. Faure	InnovExplo	All Chapter 23
24.	Other Relevant Data and Information	C. Hardie	BBA	Schedule and execution plan developed by BBA based on inputs from all contributors and Osisko.
25.	Interpretation and Conclusions	C. Hardie	BBA	All QPs contributed based on their respective scope of work and the Chapters/Sections under their responsibility.
26.	Recommendations	C. Hardie	BBA	All QPs contributed based on their respective scope of work and the Chapters/Sections under their responsibility.
27.	References	C. Hardie	BBA	All QPs contributed based on their respective scope of work and the Chapters/Sections under their responsibility.



2.4 Effective Dates and Declaration

This Report supports the Osisko press release entitled “Osisko Delivers Positive PEA for the Windfall Project” dated July 17, 2018. The overall effective date of the Report is July, 12, 2018. The Report has a number of cut-off dates for information:

- Effective date of the Windfall Lake Mineral Resource Estimate used as the basis for the LOM Plan: May 14, 2018;
- Effective date of the Osborne-Bell Mineral Resource Estimate used as the basis for the LOM Plan: March 2, 2018;
- Date of last supply of laboratory testwork and investigations: May 30, 2018;
- Date of the financial analysis: July 12, 2018.

This Report was prepared as National Instrument 43-101 Technical Report for Osisko Mining Inc. (“Osisko”) by Qualified Persons from the following firms: BBA Inc., Golder Associates Ltd., WSP Canada Inc., InnovExplo Inc., and SNC-Lavalin Stavibel Inc.; collectively the “Report Authors”. The quality of information, conclusions, and estimates contained herein is consistent with the level of effort involved in the Report Authors’ services, based on: i) information available at the time of preparation, ii) data supplied by outside sources, and iii) the assumptions, conditions, and qualifications set forth in this Report. This Report is intended for use by Osisko subject to the terms and conditions of its respective contracts with the Report Authors. Except for the purposes legislated under Canadian provincial and territorial securities law, any other use of this Report by any third party is at the sole risk of that party.

As of the effective date of this Report, the QPs are not aware of any known litigation potentially affecting the Project. The QPs did not verify the legality or terms of any underlying agreement(s) that may exist concerning the Project ownership, permits, off-take agreements, license agreements, royalties or other agreement(s) between Osisko and any third parties.

The results of this Report are not dependent upon prior agreements concerning the conclusions to be reached, nor are there any undisclosed understandings concerning any future business dealings with Osisko and the QPs. The QPs are being paid a fee for their work in accordance with the normal professional consulting practice.

The opinions contained herein are based on information collected throughout the course of the investigations by the QPs, which in turn reflect various technical and economic conditions at the time of writing. Given the nature of the mining business, these conditions can change significantly over relatively short periods of time. Consequently, actual results can be significantly more or less favourable.



2.5 Sources of Information

2.5.1 General

This Report is based in part on internal company reports, maps, published government reports, company letters and memoranda, and public information, as listed in Chapter 27 “References” of this Report. Sections from reports authored by other consultants may have been directly quoted or summarized in this Report and are so indicated, where appropriate.

This PEA has been completed using available information contained in, but not limited to, the following reports, documents and discussions:

- Technical discussions with Osisko personnel;
- QPs’ personal inspection of the Project site(s);
- Report of mineralogical, metallurgical and grindability characteristics of the Osborne-Bell and Windfall deposits, conducted by industry recognized metallurgical testing laboratories on behalf of Osisko;
- Windfall Lake resource block model and estimate provided by InnovExplo effective as of May 14, 2018;
- Osborne-Bell resource block model estimate provided by InnovExplo effective as of March 2, 2018;
- A conceptual process flowsheet developed by BBA based on the specific Project testwork and similar operations;
- Internal and commercially available databases and cost models;
- Various reports covering site hydrology, hydrogeology, geotechnical, and geochemistry;
- Various reports covering site physical and biological environment;
- Internal unpublished reports received from Osisko;
- Additional information from public domain sources.

The QPs have no known reason to believe that any of the information used to prepare this Report and evaluate the mineral resources presented herein is invalid or contains misrepresentations. The authors have sourced the information for this Report from the collection of documents listed in Chapter 27 (References).

2.5.2 BBA

The following individuals provided specialist input to Mr. Colin Hardie, QP:

- Osisko and its external advisors have provided an estimate for the Owner’s costs and contingencies used in the development of the Project’s pre-production capital cost estimate found in Chapter 21 (Capital and Operating Costs);



- Osisko provided an estimate for the General & Administration costs, mineralized material transport and Environmental services/labour costs used in the development of the Project's operating cost estimate found in Chapter 21 (Capital and Operating Costs);
- Mr. Gilles Léonard (BBA) provided an estimate and input for Communication and IT for the Plant site;
- Mr. Claude Catudal (BBA) and Mr. Jocelyn Marcoux (BBA) provided the industrial standards, norms and factors for the various material, manpower and construction costs used in the development of the process plant capital costs (Chapter 21);
- Mr. Claude Catudal (BBA) provided input to the project execution strategy and schedule as summarized in Chapter 24 (Other Relevant Data and Information).

The following individuals provided specialist input to Mr. Jorge Torrealba, QP:

- Mr. David Runnels (BBA) and Ms. Helin Girgin (BBA) have provided an estimate for the Project's process operational costs (OPEX, Chapter 25);
- Osisko, Mr. Guy Deschenes (BBA) and Mr. François Verret (SGS-Québec City) have provided support for the development, analysis and discussions for the Windfall Lake metallurgical testwork results (Chapter 13);
- Osisko and Mr. Alain Dorval (BBA) have provided support for the analysis and discussions of the Osborne-Bell metallurgical testwork results (Chapter 13);
- Mr. John Rogans (Kemix) provided proprietary CIL circuit modelling-simulation data and sizing calculations for the CIL equipment. Kemix is the Client's selected sole-source provider of the CIL equipment for the Project. Kemix results were also used for the sizing of the carbon handling, stripping and reactivation circuit;
- Metso (Mr. David Hengst) and FLS (Mr. Gareth Barthold) technical teams provided a third-party evaluation of the comminution power requirements and mill sizing. The results were evaluated compared to BBA's own calculations to form the design basis for the Project.

These specialists are not considered as QPs for the purposes of this NI 43-101 Report.

2.5.3 SNC-Lavalin

The following individuals provided specialist input to Mr. Luc Gaulin, QP:

- Ms. Manon Thériège, Architect (TRAME) supported the architectural design in Chapter 18 (Project Infrastructure) due to her extensive experience in the mining industry;
- Osisko and its external advisors have provided an estimate for the Railway relocation capital costs found in Chapter 21 (Capital and Operating Costs).

These specialists are not considered as QPs for the purposes of this NI 43-101 Report.



2.5.4 InnovExplo

The following individuals provided specialist input to Mr. Stéphane Faure, QP for Chapters 4 to 11 and 23:

- Mr. Gustavo Durieux P.Geo. (OGQ No. 1148) for his contribution and input when writing this report;
- Mr. François Kerr-Gillespie, P.Geo. (OGQ No. 2021) for his contribution to the redaction of the Quévillon Property sections;
- Mr. Daniel Turgeon, Mining Technician for drawing figures.

The following individuals provided specialist input to Ms. Judith St-Laurent, QP for Chapters 12 and 14:

- Ms. Charlotte Athurion, P.Geo. (OGQ No 1784);
- Ms. Christina Thouvenot, Jr. Eng. (OIQ No. 5081048);
- Mr. Harold Brisson, P.Eng. (OIQ No. 41433);
- Mr. Martin Barrette, Mining Technician, contributed significantly to the block modelling aspects of the mineral resource estimate on Osborne-Bell deposit.

The following individuals provided specialist input to Mr. Patrick Frenette, QP for Chapters 16 and 21:

- Ms. Yolaine Lavoie, P.Eng. (Meglab) for her contribution and input on electricity and networks;
- Mr. Charles Gagnon, P.Eng. (Howden) for his contribution and input on ventilation;
- Mr. Alexandre Labbé, P.Eng. (TechnoSub) for his contribution and input on dewatering;
- Mr. Robert Hamilton, independent consultant, for his contribution and input on mobile equipment;
- Ms. Fabienne Racine, P.Eng. (OIQ 5028209) for her contribution and input on mine design and blasting design;
- Ms. Geneviève Auger, P.Eng. (OIQ 121367) for her contribution and input in cost estimation;
- Mr. Sébastien Tanguay, P.Eng. (OIQ 5074008) for his contribution and input in mine design and data extraction;
- Mr. Louis Bonheur Nzussin Sop, Jr. Eng. (OIQ 5055117) for drawing figures.

These specialists are not considered as QPs for the purposes of this NI 43-101 Report.



2.5.5 Golder

The following individuals provided specialist input to QPs Ms. Anne-Marie Dagenais, Mr. Michael Bratty and Mr. Paul Palmer:

- Mr. Alexandre Boutin, P. Eng. (OIQ 128151) for the hydrogeological assessment and modelling and his contribution to the sections on mine dewatering and hydrogeological baseline of the Windfall Lake Mine and Plant sites;
- Mr. Michel Mailloux, P. Eng. (OIQ 126263) for the hydrogeological assessment and modelling and his contribution to the sections on mine dewatering and hydrogeological baseline of the Osborne-Bell mine;
- Ms. Marie-Pier Ross-Pilon, P. Eng. (OIQ 5020068) for the water treatment assessment and her contribution to the sections on water treatment infrastructure for the three sites;
- Mr. Jérôme Renaud, P. Eng. (OIQ 5056138) for the rock mechanic assessment and his contribution to sections of Chapter 16;
- Ms. Caroline-Emanuelle Morisset, Ph.D. geochemist for the geochemical assessment and her contribution to the redaction of the geochemical sections;
- Mr Ken DeVos, M.Sc., Mining Environment Specialist for the geochemical assessment and his contribution to the redaction of the geochemical sections;
- Ms. Karine Lussier, P. Eng. (OIQ 139714) for water management infrastructure design and contribution to the sections on surface water management;
- Mr. Vlad Rojanschi, P. Eng. (OIQ 5000611) for water management infrastructure design and contribution to the sections on surface water management.

These specialists are not considered as QPs for the purposes of this NI 43-101 Report.

2.5.6 WSP

The following individuals provided specialist input to Mr. Eric Poirier, QP for Site Infrastructure (Chapter 18):

- Mr. Stéphan Dupuis, P.Eng. (OIQ No. 139669) for earthworks, roads rehabilitation and construction design;
- Mr. Stevens Morin, P.Eng. (OIQ No. 145444) for concrete, structure and buildings design;
- Mr. Gilles Léonard (BBA) provided an estimate and input for Communication and IT for the Windfall Lake and Osborne-Bell sites.

These specialists are not considered as QPs for the purposes of this NI 43-101 Report.



The following individuals provided specialist input to Mr. Simon Latulippe, QP for Environmental Studies, Permitting, and Social or Community Impact (Chapter 20):

- Ms. Vanessa Millette, M.Sc.Env. for leading the description of the Chapter 20 and other sections that addressed the environment, issues and risks;
- Mr. Jean Carreau, M.Sc. for the biological environment description;
- Mr. Bernard Fournier, B.Sc.A, M.ATDR for support in the description of the regulatory context;
- Ms. Fannie McMurray-Pinard, P.Eng. (OIQ No. 5061242) for the mine closure requirements and the closure costs;
- Ms. Maria Cristina Borja, biol. and Ms. Véronique Armstrong, M.Env., as support for the drafting of the different Sections on Chapter 20;
- Osisko for support and input in Section 20.3 (Relations with stakeholders).

These specialists are not considered as QPs for the purposes of this NI 43-101 Report.

2.6 Site Visits

The following bulleted list describes which Qualified Persons visited the site(s), the date of the visit, and the general objective of the visit:

- Patrick Frenette (InnovExplo) visited the site on January 30 and 31, 2018. Patrick was accompanied by François Girard and Catherine Boudreau from Osisko Gold Royalties and Nicolas St-Onge, formerly from Golder Associates. He visited the camp site, the existing infrastructure and the underground ramp. He did not visit the Osborne-Bell site.
- Stéphane Faure (InnovExplo) and Judith St-Laurent (InnovExplo) visited the Windfall Lake Property. Stéphane Faure visited the core logging facilities on March 20 to 22, 2017 and examined the lithologies, mineralization and structural features on selected core intervals. On July 12 and 13, 2017, Judith St-Laurent visited the core logging and storage facilities, and examined selected drill collars in the field. The site visit also included a review and independent resampling of selected core intervals as well as a review of logging and assaying procedures, QA/QC program and down hole survey methodologies.
- In January 14, 2018, Stéphane Faure (InnovExplo), visited the Quévillon Property and the long-term core storage facility of Osisko in Lebel-sur-Quévillon, the core shack and splitting room, the Osborne-Bell deposit area and drill pads. It also included a review of selected core intervals, drill hole collar locations, assays, the QA/QC program, down hole surveys, and the descriptions of lithologies, mineralization and alterations.
- Pierre-Luc Richard (BBA), who was then an employee of InnovExplo, has visited the Quévillon Property, the core shack and the core storage facilities on several occasions between 2006 and 2013.



- Anne-Marie Dagenais (Golder Associates) visited the Windfall Lake Mine and Plant/TMF sites on April 19 and 20, 2018. The visit included the Windfall Lake site surface infrastructure and the TMF and Plant sites in Lebel-sur-Quévillon. The Osborne-Bell site was not included in the QP's visit.
- Eric Poirier (WSP) visited the Windfall Lake Mine Site on November 8 and 9, 2018 accompanied by François Vézina and Daniel Mathieu from Osisko Gold Royalties to assess the existing infrastructure and plan the future ones. The Osborne-Bell site was not included in the QP's visit.

As of the effective date of this report, the following QPs have not visited the Project site(s):

- Colin Hardie (BBA);
- Jorge Torrealba (BBA);
- Michael Bratty (Golder Associates);
- Paul Palmer (Golder Associates);
- Luc Gaulin (SNC-Lavalin);
- Simon Latulippe (WSP);

2.7 Currency, Units of Measure, and Calculations

Unless otherwise specified or noted, the units used in this Report are metric. Every effort has been made to clearly display the appropriate units being used throughout this Report.

- Currency is in Canadian dollars ("CAD" or "\$");
- All ounce units are reported in troy ounces, unless otherwise stated; 1 oz (troy) = 31.1 g = 1.1 oz (Imperial);
- All metal prices are expressed in US dollars ("USD");
- A Canadian dollar (CAD) to United States dollar (USD) exchange rate of 0.78 USD for 1.00 CAD was used;
- All cost estimates have a base date of the second quarter (Q2) of 2018.

This Report includes technical information that required subsequent calculations to derive subtotals, totals and weighted averages. Such calculations inherently involve a degree of rounding and consequently introduce a margin of error. Where these occur, the QPs consider them immaterial.



2.8 Definitions

The following definitions of Mineral Resources and Mineral Reserves have been prepared by the CIM Standing Committee on Reserve Definitions and Adopted by the CIM Council on November 27, 2010. The QPs believe that these definitions are important with respect to understanding Resources and Reserves and how they are applied within the context of a Preliminary Economic Assessment.

2.8.1 Mineral Resource

Mineral Resources are sub-divided, in order of increasing geological confidence, into Inferred, Indicated, and Measured categories. An Inferred Mineral Resource has a lower level of confidence than that applied to an Indicated Mineral Resource. A Measured Mineral Resource provides the highest level of confidence.

2.9 Acknowledgement

BBA and the other study contributors would like to acknowledge the general support provided by the following personnel during this assignment.

The Project benefitted from the specific input of Catherine Boudreau, Alex Brodeur-Grenier, Frédéric Côté, Guy Desharnais, Manon Dussault, Antoine Fecteau, Éric Gagnon, François Girard, Walter Dorn, Alexandra Drapack, Andrée Drolet, Olivier Dufresne, Louis Grenier, Marie-Eve Lajoie, Christian Laroche, Alexandria Marcotte, Daniel Mathieu, Kim-Quyên Nguyễn, Matthew Quigley, Isabelle Roy, Mathieu Savard, Rebeccas Sproule and François Vézina. Their contributions are gratefully acknowledged.



3. RELIANCE ON OTHER EXPERTS

3.1 Introduction

The Qualified Persons (“QPs”) have relied upon reports, information sources and opinions provided by outside experts related to the Project’s mineral rights, surface rights, property agreements, royalties, and fiscal situation.

As of the date of this Report, Osisko indicates that there are no known litigations potentially affecting the Windfall Lake Project.

A draft copy of the Report has been reviewed for factual errors by Osisko. Any changes made as a result of these reviews did not involve any alteration to the conclusions made. Hence, the statements and opinions expressed in this document are given in good faith and in the belief that such statements and opinions are neither false nor misleading at the date of this Report.

3.2 Mineral Tenure and Surface Rights

Osisko supplied information about mining titles, option agreements, royalty agreements, environmental liabilities and permits. The QPs from InnovExplo consulted the Québec government’s online claim management system via the GESTIM website at: <https://gestim.mines.gouv.qc.ca> for the latest status regarding ownership and mining titles. Although the QPs have reviewed the option agreements and available claim status documents, they are not qualified to express any legal opinion with respect to the property titles or current ownership and possible litigation. A description of such agreements, the property, and ownership thereof, is provided for general information purposes only. In this regard, the QPs have relied on information supplied by Osisko and the work of experts they understand to be appropriately qualified.

This information is used in Chapter 4 of the Report. The information is also used in support of the mineral resource estimate in Chapter 14, and the financial analysis in Chapter 22.

3.3 Taxation

Colin Hardie, QP has fully relied upon, and disclaims responsibility for, information supplied by Osisko Gold Royalties staff and experts retained by Osisko for information related to taxation as applied to the financial model. This information is used in support of the financial analysis in Chapter 22 (Economic Analysis).



4. PROPERTY DESCRIPTION AND LOCATION

4.1 Introduction

The Windfall Lake Project consists of the following three properties:

- Windfall Lake;
- Urban Barry;
- Quévillon.

This PEA is based on mining resources from the Windfall Lake and Quévillon properties. The process plant and tailings management facility (“TMF”) are planned to be located on a property near the town of Lebel-sur-Quévillon. As of the effective date of this PEA, Osisko has not completed the transaction to purchase the required property for the process plant and TMF, however, a binding letter of intent (“LOI”) has been signed.

Table 4-1: Property summary

Property	Deposit	Claims	Area (ha)
Windfall Lake	Windfall Lake	285	12,467
Urban-Barry		1,997	110,748
Quévillon	Osborne-Bell	4,211	224,371
Total		6,493	347,586

4.2 Location

The Windfall Lake, Urban-Barry and Quévillon properties are located in the province of Québec, Canada. The land package covering the properties is located in the vicinity of the town of Lebel-sur-Quévillon, approximately 620 km north-northwest of Montréal and 155 km northeast of Val-d'Or. The Urban Barry property lies approximately 115 km east of the town of Lebel-sur-Quévillon and surrounds the Windfall Lake property. The centre of the Windfall Lake Project is located at approximately 75.66° longitudinal west and 49.05° latitude north (Figure 4-1). The Quévillon property surrounds the town of Lebel-sur-Quévillon and the centre of the Osborne-Bell project is located at approximately 76.10° longitudinal west and 49.05° latitude north in the middle of it.

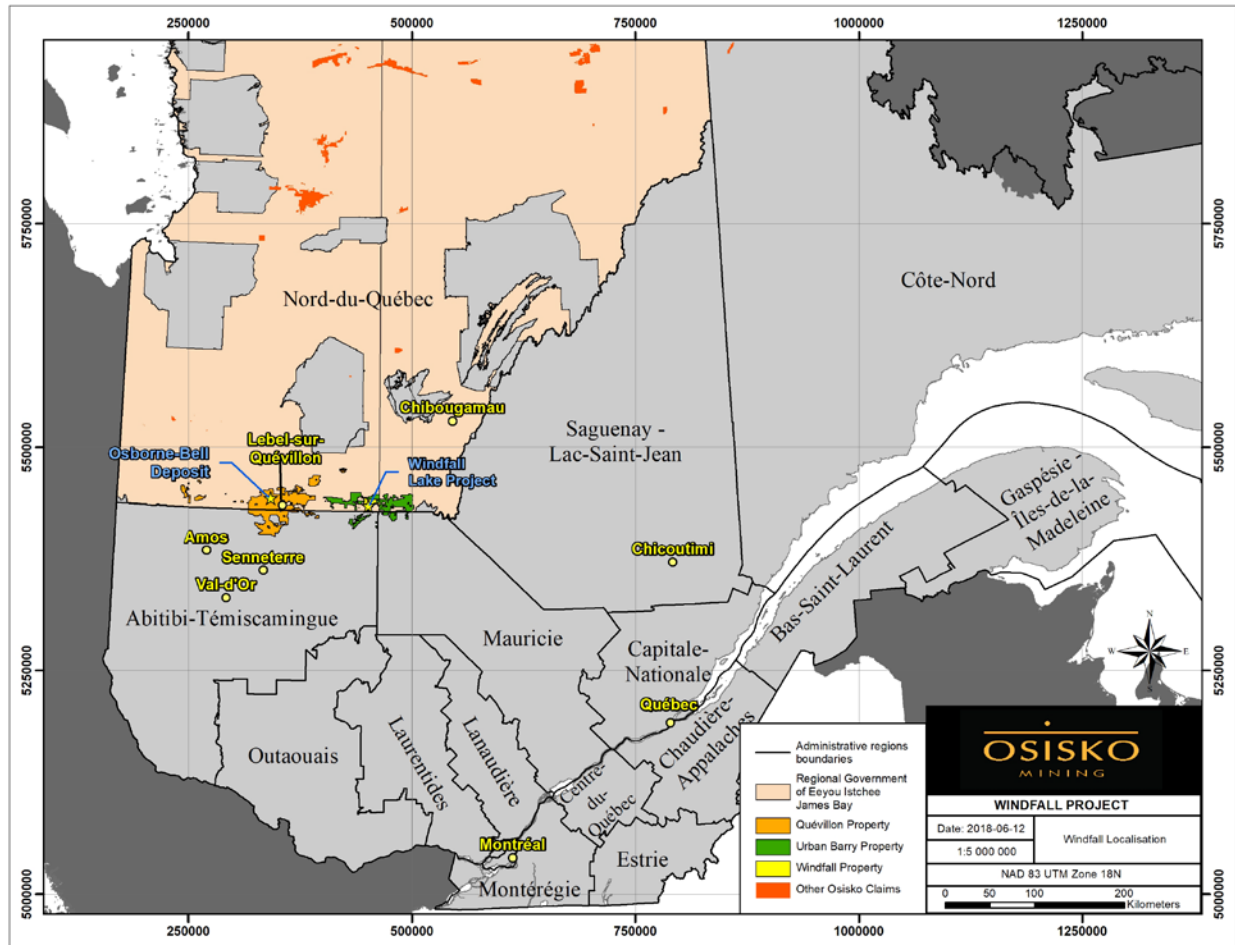


Figure 4-1: Location of the Windfall Lake Project and the Osisko claims in the province of Québec, Canada, with provincial administrative divisions.

4.3 Mining Rights in Québec

The following discussion on the mining rights in the province of Québec was mostly summarized from Guzun (2012), Gagné and Masson (2013), and from the Act to amend the *Mining Act* (Bill 70; the “*Amending Act*”) assented on December 10, 2013 by the National Assembly.



In the province of Québec, mining is principally regulated by the provincial government. The Ministry of Energy and Natural Resources (“MERN”: *Ministère de l’Énergie et des Ressources Naturelles du Québec*) is the provincial agency entrusted with the management of mineral substances in Québec. The ownership and granting of mining titles for mineral substances are primarily governed by the *Mining Act* and related regulations. In Québec, land surface rights are distinct property from mining rights. Rights in or over mineral substances in Québec form part of the domain of the State (the public domain), subject to limited exceptions for privately owned mineral substances. Mining titles for mineral substances within the public domain are granted and managed by the MERN. The granting of mining rights for privately owned mineral substances is a matter of private negotiations, although certain aspects of the exploration for and mining of such mineral substances are governed by the *Mining Act*.

4.3.1 The Claim

A claim is the only exploration title for mineral substances (other than surface mineral substances, petroleum, natural gas and brine) currently issued in Québec. A claim gives its holder the exclusive right to explore for such mineral substances on the land subject to the claim but does not entitle its holder to extract mineral substances, except for sampling and only in limited quantities. In order to mine mineral substances, the holder of a claim must obtain a mining lease. The electronic map designation is the most common method of acquiring new claims from the MERN whereby an applicant makes an online selection of available pre-mapped claims. In rare territories, claims can be obtained by staking.

4.3.2 The Mining Lease

Mining leases are extraction (production) mining titles that give their holder the exclusive right to mine mineral substances (other than surface mineral substances, petroleum, natural gas and brine). A mining lease is granted to the holder of one or several claims upon proof of the existence of indicators of the presence of a workable deposit on the area covered by such claims and compliance with other requirements prescribed by the *Mining Act*. A mining lease has an initial term of 20 years, but may be renewed for three additional periods of 10 years each. Under certain conditions, a mining lease may be renewed beyond the three statutory renewal periods.



4.4 Mining Title Status

4.4.1 Windfall Lake Property

The Windfall Lake property is 100% owned by Eagle Hill Exploration Corp., which is a 100% subsidiary of Osisko Mining Inc. The property is mainly located in the National Topographic System (“NTS”) map sheet 32G04 and on the Urban township. On April 9, 2018, the property consisted of 285 individual claims covering an aggregate area of 12,467 ha. The actual property was consolidated from several agreements concluded with previous owners and presented in Figure 4-2.

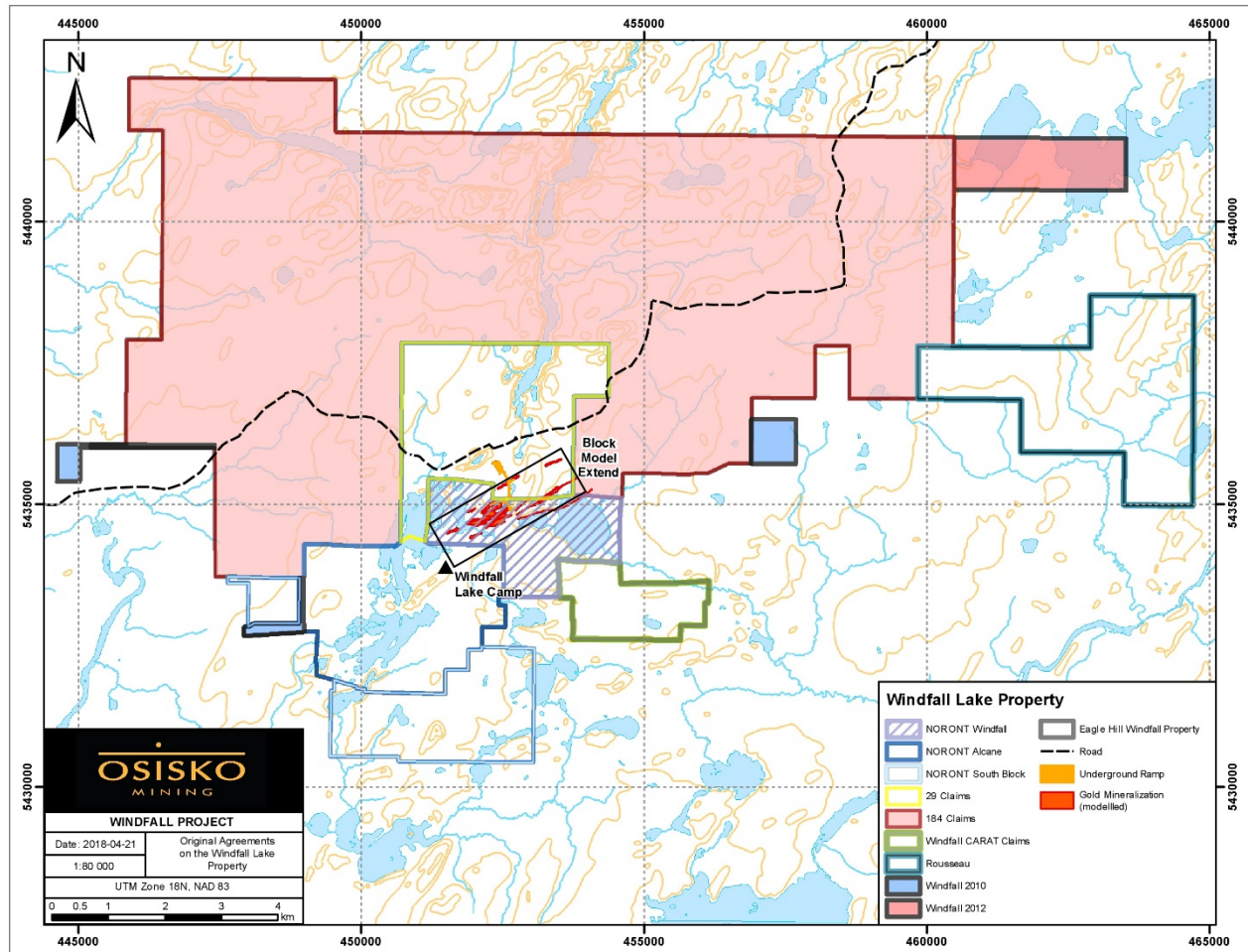


Figure 4-2: Land tenure plan showing the various original agreements on the Windfall Lake property.



A summary of the tenure information as extracted from the Québec government GESTIM (*Gestion des titres miniers*) website (as of the effective date of this technical report) is presented in Table 4-2. A complete listing of the mineral titles is presented in Appendix A at the end of this report. All claims are in good standing, with expiry dates varying between August 2, 2018 and May 3, 2020. Eagle Hill Exploration Corp. (Osisko Mining Inc.) has sufficient work credit to renew all the claims and maintain them in good standing.

**Table 4-2: Mineral tenure summary of the Windfall Lake Property
(April 9, 2018)**

Option / Joint venture	Registered Owner	No. of claims	Area (ha)	Expiry date	Mineral resource	Percentage held by Eagle Hill
Windfall Lake-Noront Option	Eagle Hill	6	76.48	22-Jan-20	Yes	100%
		50	1,794.54	25-Sep-18		
The 29 Claims Expansion	Eagle Hill	2	112.74	10-Jun-19	Yes	100%
		9	405.5	05-Mar-19		
		13	429.64	10-Mar-19		
184 Claims Expansion Includes the Carat Claims	Eagle Hill	27	1,521.29	10-Jun-19	-	100%
		13	732.76	24-Sep-19	-	
		15	578.85	4-Dec-18	-	
		6	338.13	5-Dec-18	-	
		40	2,253.41	10-Dec-18	-	
		43	2222.26	05-Mar-19	-	
		16	282.82	10-Mar-19	-	
Rousseau	Eagle Hill	11	620.11	2-May-20	-	100%
		7	394.61	3-May-20	-	
Windfall Lake 2010	Eagle Hill	13	148.15	2-Aug-18	-	100%
Windfall Lake 2012	Eagle Hill	5	281.65	14-Aug-18	-	100%
Total		285	12,467	-	-	-

The active underlying royalties affecting the different portions of the property is presented in Figure 4-3. The boundaries of the claims have not been surveyed legally.

Eagle Hill's rights to the property arose from several distinct agreements that are discussed in Section 4.4.1.1. The main claim blocks inherited from the original agreement are: The Windfall Lake-Noront Option (including the Windfall Lake, Alcane, and South blocks), 29 Claims Expansion, 184 Claims Expansion, Rousseau property, Windfall Lake 2010, Windfall Lake 2012,



and Carat Claim. Following a series of transactions during the first half of 2014, Eagle Hill Exploration Corp. (Osisko Mining Inc.) now holds a 100% interest on all the claim blocks of the property, barring various NSRs discussed in Section 4.6. The mineral resources discussed herein are located within the Alcane Block of the Windfall Lake option and the 29 Claims Expansion claim blocks, as shown in Figure 4-2.

In March 2013, the Québec government converted all remaining staked claims of the property into one or more map-designated claims. Unlike the perimeter of a staked claim, which is defined by posts staked in the ground, the map-designated claims perimeter is defined by the geographic coordinates as determined by the Québec government. The basic unit is 30 seconds of latitude in a north-south direction, and 30 seconds of longitude in an east-west direction. Depending on the latitude, the designated claim cells vary from 40 ha to 60 ha in area.

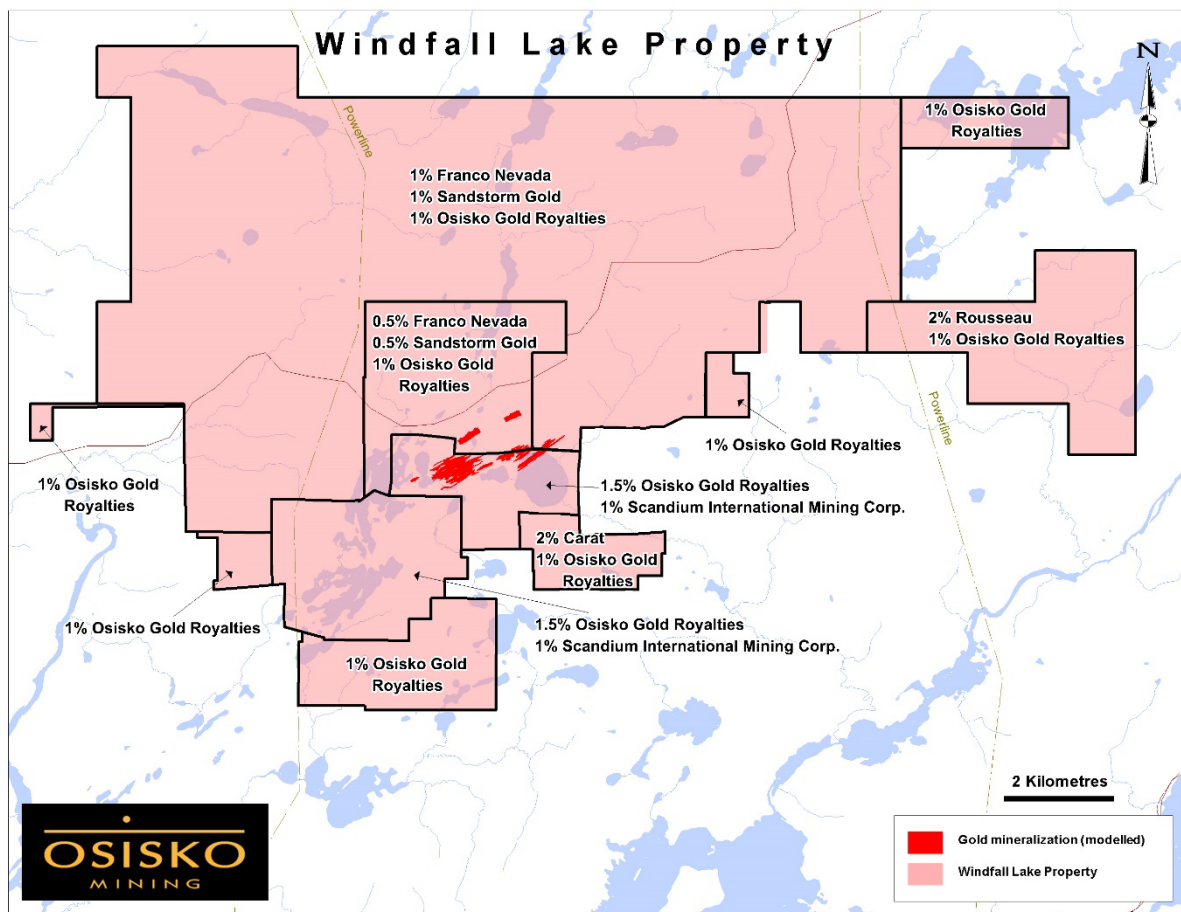


Figure 4-3: Net smelter royalty agreements for the Windfall Lake property.



4.4.1.1 Windfall Lake Property Surface Rights Option Agreement

Eagle Hill Exploration Corporation's (Osisko Mining Inc.) rights to the property arise from a series of option agreements executed with third parties during 2009, 2010, 2013 and 2014:

- The original property option agreement with Noront Resources Ltd. ("Noront") in July 2009;
- The 29 Claims Expansion with Noront, Murgor, and Freewest Resources Canada Ltd. (Freewest) (since acquired by Cliffs) in October 2009;
- The 184 Claims Expansion with Murgor and Cliffs in October 2009;
- The Rousseau joint venture with Murgor on the Rousseau property in March 2010;
- The purchase of Noront's remaining 25% interest in August 2013;
- The purchase of Murgor's and Cliffs' remaining interests in April 2014;
- The purchase of the Duval and the Boudreault royalties in May 2014.

4.4.1.2 Original Windfall Lake Property Option Agreement with Noront

On July 20, 2009, Eagle Hill entered into an option agreement with Noront, whereby Eagle Hill earned a 75% interest in Noront's interests in 80 claims (156 claims prior to the Québec government conversion) in the property area, and could earn, at Noront's option, a 100% interest subject to a 2% NSR. The property included four contiguous blocks (80 claims) covering a total area of 2,757 ha. Noront had a 50% interest in 24 of the claims post-conversion (the 29 Claims Expansion) and a 100% interest in the remaining 56 claims (127 claims prior to conversion) (the Windfall Lake block of claims). Eagle Hill's primary obligations, as outlined in the option agreement, were as follows:

- Complete an equity financing of at least \$1,500,000 on or before October 15, 2009;
- Make an initial consideration payment of \$400,000 upon completion of the above financing and receipt of regulatory approval;
- Incur exploration expenditures on the claims and option payments to earn an interest in the claims as follows:
 - \$500,000 in exploration expenditures and a cash payment of \$200,000 to Noront on or before December 31, 2010 to earn 10% of Noront's interest in the claims;
 - \$2,000,000 in additional exploration expenditures on or before December 31, 2011 to earn 51% of Noront's interest in the claims;
 - \$2,500,000 in additional exploration expenditures and a cash payment of \$400,000 to Noront on or before December 31, 2012 to earn 75% of Noront's interest in the claims.



Purchase of the 100% Interest from Noront

As of April 20, 2012, Eagle Hill Exploration Corporation had earned the 75% interest in Noront's interest in the property, after completing the required expenditures and payments. On June 28, 2013, Eagle Hill entered into a binding letter agreement to acquire the remaining 25% ownership, all royalties, and all other interests in the mineral claims of the property from Noront, by making aggregate cash payments of \$5,000,000 and issuing 25,000,000 freely tradable common shares of Eagle Hill to Noront. The transaction was completed on August 14, 2013, and as a result, Eagle Hill now holds 100% of the Windfall Lake block. A further result was that Eagle Hill held a 75% interest in the 29 Claims Expansion.

The property, originally owned by Noront, is further divided into three blocks, characterized by different NSR agreements with third parties (Figure 4-3).

The Noront-Windfall Lake block, which contains the mineral resource, is subject to a 0.5% NSR to Osisko Gold Royalties Ltd. and a 1.0% NSR to Scandium International Mining Corporation ("Scandium", formerly EMC Metals). Each 0.5% of Scandium's NSR can be bought back for \$500,000 at any time Eagle Hill chooses.

The Noront-Alcane block is subject to a 0.5% NSR to Osisko Gold Royalties, and a 1.0% NSR to Scandium. On May 6, 2014, Eagle Hill bought back the 2% NSR from Boudreault on the Noront-Alcane block. In addition, each 0.5% of Scandium's NSR can be bought back for \$500,000.

The Noront South block is not subject to any NSR.

4.4.1.3 Original Windfall Lake Property Expansion with Murgor and Cliffs

On October 8, 2009, Eagle Hill entered into two separate agreements with Murgor and Cliffs to increase its holdings at the property. Eagle Hill, Murgor, and Cliffs agreed to an amendment to the option agreements on November 23, 2011. The following section describes the details of the option agreements with Murgor and Cliffs.

The 29 Claims Expansion and the 184 Claims Expansion – Murgor and Cliffs

The first of these agreements was an option to acquire the remaining 50% interest in the 29 Claims Expansion block from Murgor and Cliffs. Eagle Hill had acquired the other 50% of these claims through completion of its agreements with Noront. The number of claims was established at 24 claims (for a total of 891 ha), following the consolidation of staked claims into map-designated claims. The terms of the option agreement with Murgor and Cliffs on the 29 Claims Expansion were as follows:



- During the year ended October 31, 2010, Eagle Hill earned an additional 10% interest in the 29 Claims Expansion by issuing 2,500,000 common shares, making a cash payment of \$300,000, incurring \$400,000 in exploration expenditures, and issuing to Murgor and Cliffs a 2% NSR;
- For an additional 15% interest in the 29 Claims Expansion, Eagle Hill had to incur an additional \$1,600,000 in exploration expenditures on or before April 30, 2012;
- For the remaining 25% interest in the 29 Claims Expansion, Eagle Hill had to incur an additional \$2,000,000 of exploration expenditures on or before December 31, 2012.

The second agreement was an option to earn up to 100% interest in an additional 172 claims (184 claims prior to conversion) contiguous to the property from Murgor and Cliffs (the "Optionors"). In the event that Eagle Hill did not earn more than a 50% interest in these claims, Murgor and Cliffs had the right to re-purchase such interest for \$255,000. In the event that Eagle Hill ultimately earned 100% interest in these claims but did not complete a bankable feasibility study within three years from the date the 100% interest was earned, Murgor and Cliffs had the right to re-purchase the 100% interest in these claims from Eagle Hill for \$1,755,000. The terms of this option agreement were as follows:

- For an initial 20% interest in the claims, Eagle Hill had to:
 - Issue 1,000,000 common shares to the Optionors on or before October 31, 2009;
 - Pay \$100,000 to the Optionors on or before December 31, 2010;
 - Incur \$350,000 of exploration expenditures on or before December 31, 2010.
- For an additional 30% interest in the claims, Eagle Hill had to incur an additional \$500,000 of exploration expenditures on or before April 30, 2012;
- For the remaining 50% interest in the claims, Eagle Hill had to incur an additional \$650,000 of exploration expenditures on or before December 31, 2012.

Consolidation of the Windfall Lake Property Extension

On March 13, 2014, Eagle Hill entered into an agreement with Murgor and Cliffs to purchase the remaining interests in the 29 Claims Expansion and the 184 Claims Expansion. In consideration for the remaining interest in the claims, Eagle Hill paid \$250,000 and issued 9,500,000 common shares to each of Murgor and Cliffs.

In addition, Eagle Hill granted a 0.5% NSR for the 29 Claims and a 1% NSR for the 184 Claims to each of Murgor and Cliffs. Eagle Hill retained the right to buy back any of the NSRs at any time prior to first commercial production, by paying \$500,000 to each holder of the NSR.



On April 7, 2014, Murgor sold all its interests in the property to Gold Royalties Corporation (“Gold Royalties”). The 29 Claims Expansion is subject to a 0.5% NSR to each of Gold Royalties and Cliffs, and the 184 Claims Expansion is subject to a 1% NSR to each of Gold Royalties and Cliffs.

Following the acquisition of Gold Royalties by Sandstorm Gold Ltd. on April 24, 2015, the 29 Claims Expansion subject to a 0.5% NSR and the 184 Claims Expansion subject to a 1% NSR are therefore owned by Sandstorm Gold Ltd.

In addition, one portion of the 29 Claims Expansion was subject to a 2% NSR to Duval, and another distinct portion of the 29 Claims Expansion was subject to a 2% NSR to Boudreault (Figure 4-3). On May 6, 2014, Eagle Hill acquired the NSRs from Duval and Boudreault by paying \$30,000 and issuing 1,666,667 shares of Eagle Hill to each of the vendors.

In order to finance the acquisition of Cliffs Naturals Resources Inc. subsidiaries (Cliffs Chromite Ontario Inc.) by Noront concluded on April 28, 2015, Noront entered into an amended and restated USD25 loan agreement with Franco-Nevada in exchange for 3% NSR over the Black Thor chromite deposit and a 2% royalty over all of Noront’s property excluding Eagle’s Nest. In addition, Noront received USD3,500,000 in cash consideration as part of the granting of the royalty over the existing Noront property. Considering that Noront acquired Cliffs Chromite Ontario Inc. on March 22, 2015 (amended on April 17, 2015), which owned a 0.5% NSR royalty over 29 Claims Expansion and a 1% NSR over of the 184 Claims Expansion of the Windfall Lake Project, and following the subsequent transaction between Noront and Franco-Nevada, the latter is considered to hold a 0.5% NSR royalty over 29 Claims Expansion and a 1% NSR over of the 184 Claims Expansion. However, both NSRs are subject to buy back.

4.4.1.4 The Rousseau Property Joint Venture

In May 2010, Eagle Hill entered into a joint venture agreement with Murgor (the “Rousseau Joint Venture”) whereby an equal partnership joint venture was formed.

The Rousseau Joint Venture purchased 100% of a group of 18 mineral claims, contiguous to the property, from another non-related company (9187-1400 QUEBEC INC.) subject to a 2% NSR. Eagle Hill’s share of the cost to acquire these claims was \$5,000 and 100,000 common shares.

On August 2, 2011, Eagle Hill entered into an agreement whereby it acquired the remaining 50% of the Rousseau Joint Venture by paying \$5,000 and issuing 200,000 common shares to Murgor. Eagle Hill now holds a 100% interest in the Rousseau property claims block, subject to the NSR provisions of the original agreement. Eagle Hill has the right to buy back 1% of the royalty for \$1,000,000 and has the right of first refusal to purchase the remaining 1% royalty.



4.4.1.5 Windfall Lake 2010

In August 2010, Eagle Hill staked 13 mineral claims (7 claims pre-conversion), covering 102.16 ha, to make the property contiguous. These claims were registered under the name Murgor, as Murgor was operating the exploration activities for Eagle Hill at the time and were subsequently transferred to Eagle Hill. These claims are not subject to NSR provisions.

4.4.1.6 Windfall Lake 2012

In August 2012, Eagle Hill staked five claims (281.65 ha) in the northeast corner of the property to cover the extension of a favourable structure in an underexplored sector.

4.4.1.7 Windfall Lake 2015-2016

Following an agreement between Osisko Gold Royalties Ltd. and Osisko Mining Inc. and pursuant to an investing agreement dated August 25, 2015, Osisko Mining granted, on October 4, 2016, a 1% NSR royalty over every block of the Windfall Lake property and over the Urban-Barry property, as it was standing on the date of transaction, to Osisko Gold Royalties Ltd. in exchange for a \$5,000,000 payment. Following that investment agreement, as long as Osisko Gold Royalties holds Osisko Mining shares equal to at least 10% of the issued and outstanding Osisko Mining shares on a non-dilutes basis, Osisko Gold Royalties will have the right of first refusal over any royalty, stream, forward, off-take, gold loan or other agreement involving the sale of a similar interest in products from properties of Osisko Mining that Osisko Mining proposed to enter into from time to time and from properties owned by third parties that Osisko Mining holds from time to time. Moreover, Osisko Gold Royalties shall have the right, as long as Osisko Gold Royalties holds Osisko Mining shares equal to at least 10% of the issued and outstanding Osisko Mining shares, to cause Osisko Mining to exercise its rights of repurchase over any existing royalty, stream or similar right at the expense of Osisko Gold Royalties for the purpose of assigning or conveying such royalty, stream or similar right to Osisko Gold Royalties. Otherwise, under the same condition, Osisko Gold Royalties shall have the right to purchase from any third party any royalty, stream or similar right held over properties of Osisko Mining by such third party and to cause Osisko Mining to sell, assign or transfer to Osisko Gold Royalties, on such commercially reasonable terms as may be negotiated between arm's length commercial parties, any royalties, streams or similar rights from properties owned by third parties that Osisko Mining may hold from time to time.



4.4.2 Urban-Barry Property

The Urban-Barry property is 100% owned by Osisko Mining Inc. On April 9, 2018, the property comprises 1,997 individual claims covering an aggregate area of approximately 110,748.44 ha. The actual property is mostly constituted by claims that were acquired through designation from GESTIM at different period from 2015 to 2017. Claims acquired from agreement from Mutli-Ressources Boréal and from Terrence Coyle were consolidated within the Urban-Barry party as shown in Figure 4-4. The claims are distributed in 17 townships: Bailly, Barry, Belmont, Bressani, Buteux, Carpiquet, Effiat, Kalm, Lacroix, Lespinay, Marceau, Maseres, Picquet, Prevert, Ralleau, Souart, and Urban. The property lies on NTS map sheets 32B13, 32C16, 32F01, 32G03, 32G04 and 32G05.

A summary of the tenure information, as extracted from the Québec government GESTIM on April 9, 2018, is presented in Figure 4-2. All claims are in good standing, with expiry dates varying between November 24, 2018 and November 20, 2019. A complete listing of the mineral titles is presented in Appendix A. Osisko may not, for strategic or prospectivity reason, renew all of the 1,997 claims of the Urban-Barry property but they are currently all in good standing. Given the size and the scale of the Urban-Barry, Osisko, might, from time to time, abandon or lapse some claims presenting less potential for mineral exploration. On the other hand, Osisko might also acquire a few claims presenting good potential for mineral exploration.

Table 4-3: Mineral tenure summary of the Urban-Barry property
(April 9, 2018)

Option/Joint Venture	Registered Owner	No. of claims	Area (ha)	Expiry date (d-m-y)	Mineral resource	Percentage held by Osisko Mining
Urban Barry Project Initial Claims Designation	Osisko Mining	72	4,061.78	24-Nov-18	No	100%
		42	2,366.41	25-Nov-18		
		275	15,507.59	30-Nov-18		
		115	6,487.63	01-Dec-18		
		119	6,707.86	02-Dec-18		
		360	20,297.08	03-Dec-18		
		226	12,759.86	04-Dec-18		
		60	3,386.66	29-Dec-18		
		1	52.32	21-Jan-19		
Terrence Coyle Claim Acquisition	Osisko Mining	2	112.72	10-May-19		
		1	56.35	18-May-19		
		2	112.76	20-Aug-19		
		2	112.56	11-Jan-19		



Option/Joint Venture	Registered Owner	No. of claims	Area (ha)	Expiry date (d-m-y)	Mineral resource	Percentage held by Osisko Mining
Urban-Barry Project Additional Claims Designation	Osisko Mining	33	1,861.59	07-Apr-20		
		1	56.38	11-Apr-20		
		36	2,026.96	25-Apr-20		
		47	2,645.33	25-Apr-18		
		1	43.81	21-Jun-18		
		11	252.67	22-Jun-18		
		4	88.83	21-Jul-18		
		10	564.85	14-Aug-18		
		186	10,481.64	30-Aug-18		
		14	788.09	26-Oct-18		
		15	849.63	04-Jan-19		
		189	10,646.38	08-Jan-19		
		12	262.42	19-Jan-19		
		6	223.16	12-Jan-19		
		80	4,521.69	29-Jan-19		
		7	394.53	30-Jan-19		
		10	321.28	15-Mar-19		
		2	113.11	4-May-19		
		6	338.81	23-May-19		
		4	226.34	8-Jun-19		
10	563.75	10-Aug-19				
3	169.18	20-Nov-19				
Mutli-Ressources Boréal Claim Acquisition	Osisko Mining	33	1,286.43	30-Jul-19		100%
Total		1,997	110,748.44	-	-	-

The active underlying royalties affecting the different portions of the Urban-Barry property are presented in Figure 4-4. The boundaries of the claims have not been surveyed legally.

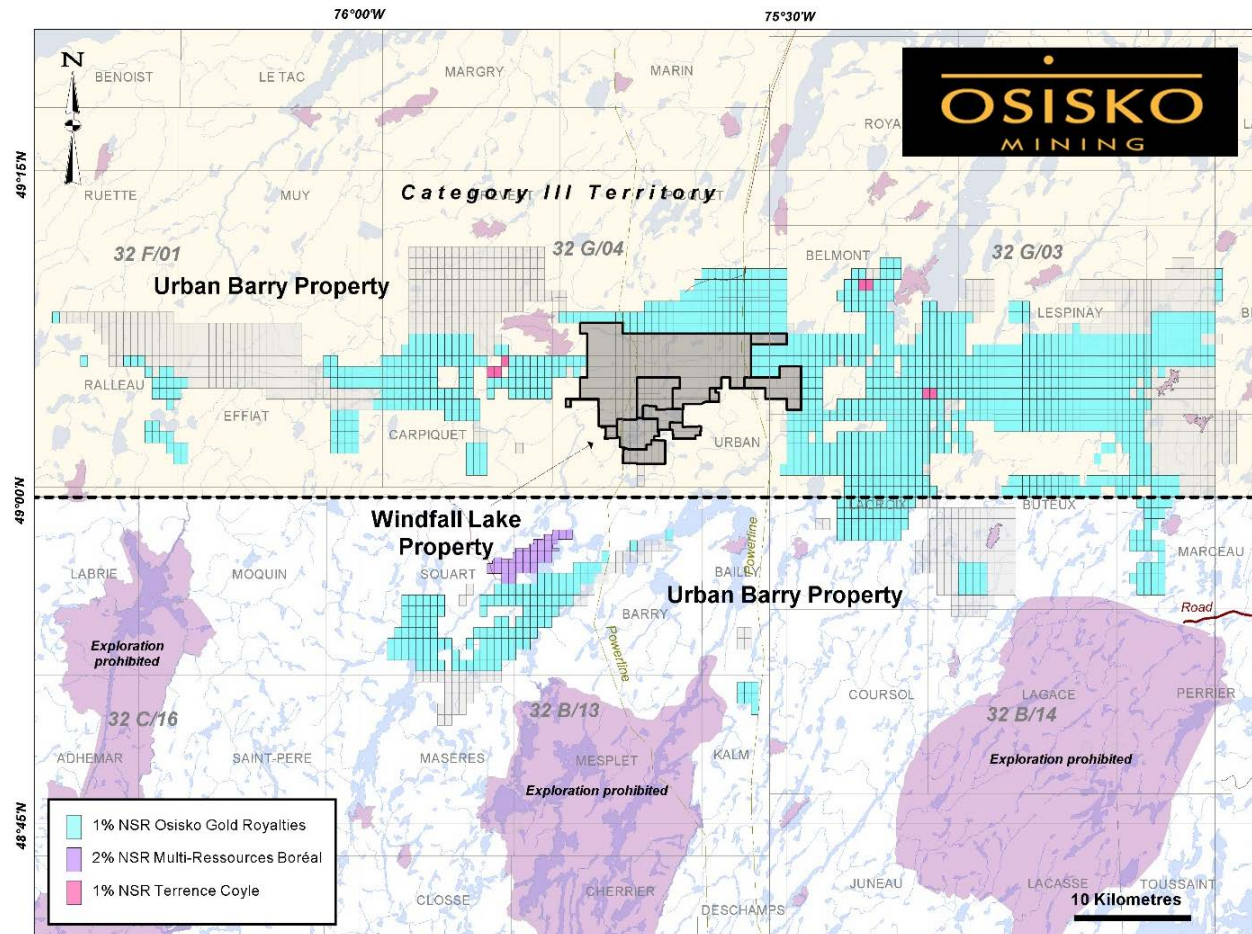


Figure 4-4: Claim map of the Windfall Lake (in gray) and Urban-Barry properties (April 9, 2018). Category III Territory corresponds to Eeyou Istchee land.

4.4.2.1 Urban-Barry Surface Rights Agreement Multi Ressources Boréal

On February 2, 2016, Osisko acquired 33 claims from Multi-Ressources Boréal (Souart property) in exchange for the payment of \$200,000, the issuance of 500,000 shares of Oban (formerly Osisko Mining) and a 2% NSR with a buyback of 2% for \$2,000,000. Souart property is now a part of the Urban-Barry property.

4.4.2.2 Urban-Barry Surface Rights Agreement from Terrence Coyle

On January 19, 2017, Osisko Mining acquired 7 claims from Terrence Coyle in exchange for the payment of \$7,000 and a 1% NSR with a buyback of 1% for \$1,000,000. The claims are now part of the Urban-Barry Project.



4.4.2.3 Urban Barry Property Option Agreement with Osisko Metals

Osisko Mining Inc. signed an option agreement with Osisko Metals Inc. on March 26, 2018 where Osisko Metals could earn a 50% interest in the Urban-Barry Base Metals Project, a select package of 151 claims located within Osisko Mining's Urban-Barry claim group. Osisko Mining shall retain a 100% interest over any fortuitous precious metals (gold-silver) discoveries on the claims covered by the agreement and will be project operator during the earn-in period.

Pursuant to the Agreement, Osisko Metals Inc. may earn a 50% interest in the Project by funding an aggregate of \$5,000,000 in exploration expenditures over four years as outlined below:

- \$500,000, on or before the 1st year anniversary of the Effective Date (the "Initial Option Expenditure Payment");
- \$1,000,000, on or before the 2nd year anniversary of the Effective Date;
- \$1,500,000, on or before the 3rd year anniversary of the Effective Date;
- \$2,000,000, on or before the 4th year anniversary of the Effective Date.

4.4.3 Quévillon Property

The Osborne-Bell deposit is located in the Quévillon property. On February 20, 2018, the Quévillon property consisted of 4,211 non-contiguous mining titles registered under Osisko Mining Inc. The land package covers 224,370.78 hectares (2,244 km²; Figure 4-5). The property can be subdivided into three blocks of claims. The Central Block surrounds the town of Lebel-sur-Quévillon and consists of 3,675 claims for a total of 1,966.8 km². Most claims are contiguous except for a few satellite claims. The Western Block comprises 282 claims covering 134.4 km². The Northeastern Block surrounds the settlement of Miquelon and comprises 254 claims divided in two smaller blocks with surface areas of 120.7 km² and 21.8 km² (Table 4-4)



Table 4-4: Mineral tenure summary of the Quévillon property (February 20, 2018)

Claim Bloc / Option	Registered Owner	No. of claims	Area (ha)	Expiry date	Mineral Resource	Percentage held by Osisko Mining Inc.
Eastern	Osisko Mining Inc.	15	840.19	2018-02	—	100%
		12	672.15	2018-06		
		4	224.02	2018-08		
		160	8,984.84	2019-01		
		55	3,085.36	2019-02		
		8	448.21	2020-02		
Sub-Total		254	14,254.77			
Central	Osisko Mining Inc.	56	3,156.31	2018-03	YES	100%
		52	2,931.30	2018-05		
		50	2,733.51	2018-06		
		11	361.00	2018-07		
		3	120.31	2018-08		
		61	2,444.92	2018-09		
		4	226.05	2018-10		
		1	56.36	2018-11		
		3	169.32	2018-12		
		338	17,708.09	2019-01		
		2,138	119,293.72	2019-02		
		478	25,543.74	2019-03		
		42	926.69	2019-04		
		48	2,516.71	2019-05		
		9	510.43	2019-06		
		19	1,041.11	2019-07		
		55	3,099.49	2019-08		
		7	20.00	2019-09		
		28	1,544.87	2019-10		
		35	1,740.76	2019-11		
218	9,575.85	2019-12				
8	451.10	2020-01				
11	508.88	2020-02				
Sub-Total		3,675	196,680.52			



Claim Bloc / Option	Registered Owner	No. of claims	Area (ha)	Expiry date	Mineral Resource	Percentage held by Osisko Mining Inc.
Western	Osisko Mining Inc.	2	69.62	2018-03	—	100%
		4	170.80	2018-05		
		3	118.56	2018-06		
		7	226.92	2018-07		
		2	84.72	2018-10		
		60	3,291.65	2018-12		
		1	21.73	2019-01		
		1	6.94	2019-02		
		3	67.39	2019-04		
		83	3,774.64	2019-07		
		35	1,731.61	2019-08		
		64	3,174.54	2019-10		
		17	696.37	2020-01		
		Sub-Total		282		
Total		4,211	224,370.78			

Osisko acquired their first strategic position in the Lebel-sur-Quévillon area in early 2017 by staking 2,942 claims by electronic map designation (“map-designated cells”) (Osisko press release of March 6, 2017). In April, Osisko acquired an additional land package in the area of Lebel-sur-Quévillon from Deloitte Restructuring Inc. for a cash payment of \$1,000,000 and the issuance of 1,000,000 shares. Deloitte Restructuring was acting as trustee in bankruptcy for the assets, undertakings and properties of the former owner, Maudore Minerals Ltd. The 1,205-claim package, known at the time as the Comtois property, enclosed the Osborne-Bell deposit area located 17 km northwest of the town of Lebel-sur-Quévillon (Figure 4-6). This acquisition consolidates the strategic position of Osisko with their nearby flagship Windfall Lake Project.

The claims have regular shapes and sizes (30" by 30" cells) except on the edges of the northwestern part of the central block of claims and adjacent to restrictive constraints (Figure 4-5). The claims are distributed in 28 townships; Bartouille, Benoist, Carqueville, Celoron, Chaste, Comtois, Cuvillier, Dalet, Despinassy, Duplessis, Fonteneau, Franquet, Fraser, Glandelet, Grevet, Holmes, Hurault, Josselin, Laas, Labrie, Mazarin, Mountain, Quévillon, Ruelle, Themines, Tonnancour, Verneuil and Wilson. A detailed list of the claims and related information is provided in Appendix B. On February 20, 2018, InnovExplo verified the status for all claims using GESTIM, the Government of Québec’s claim management system available online via the website of the *Ministère de l’Énergie et des Ressources Naturelles* (“MERN”) at the address: gestim.mines.gouv.qc.ca. At that time, 73 claims of the 4,211 claims were in the process of being renewed with the Government of Québec. Osisko provided proof of renewal for those claims.

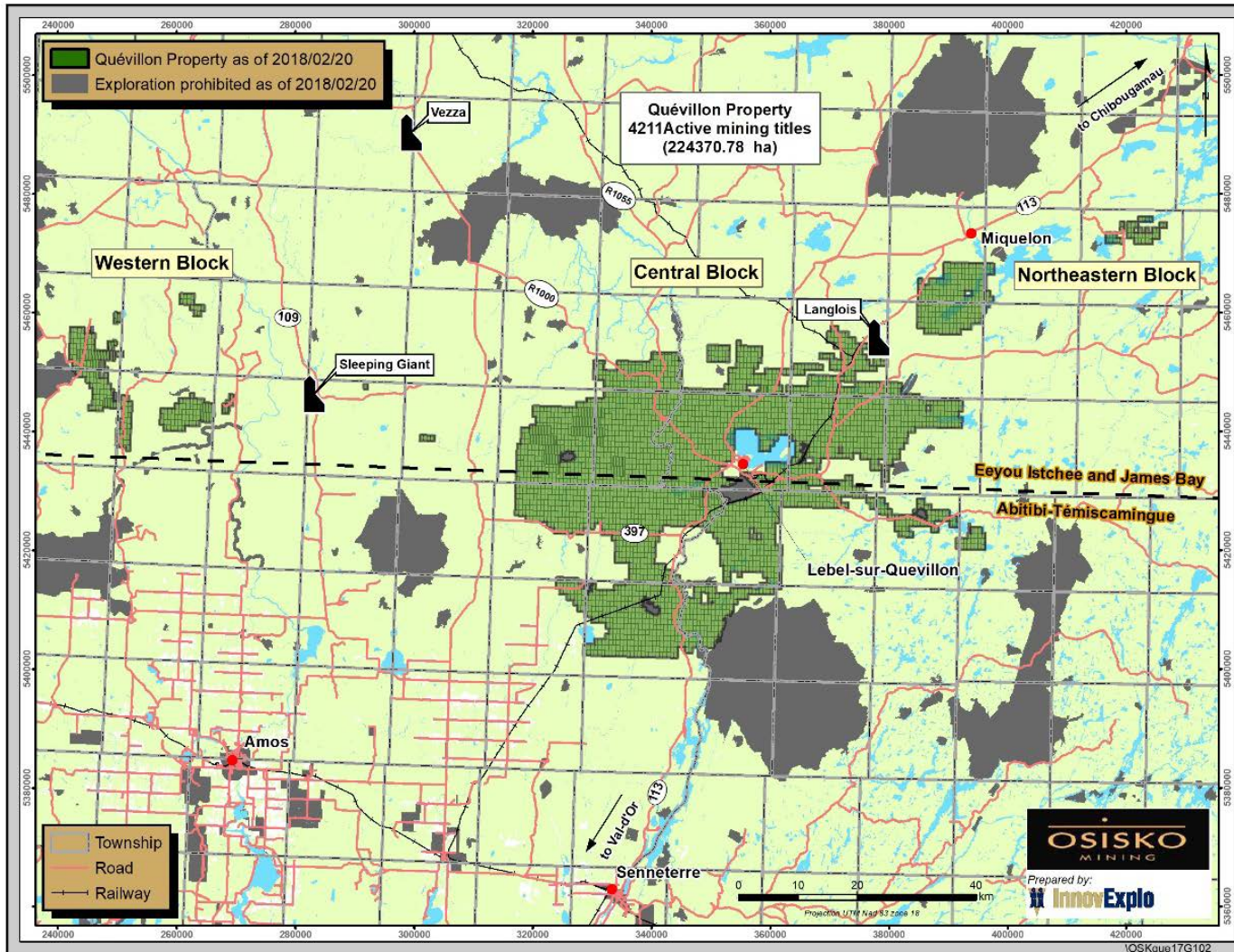


Figure 4-5: Claim map of the Quévillon property showing the main blocks of claims discussed in the text.

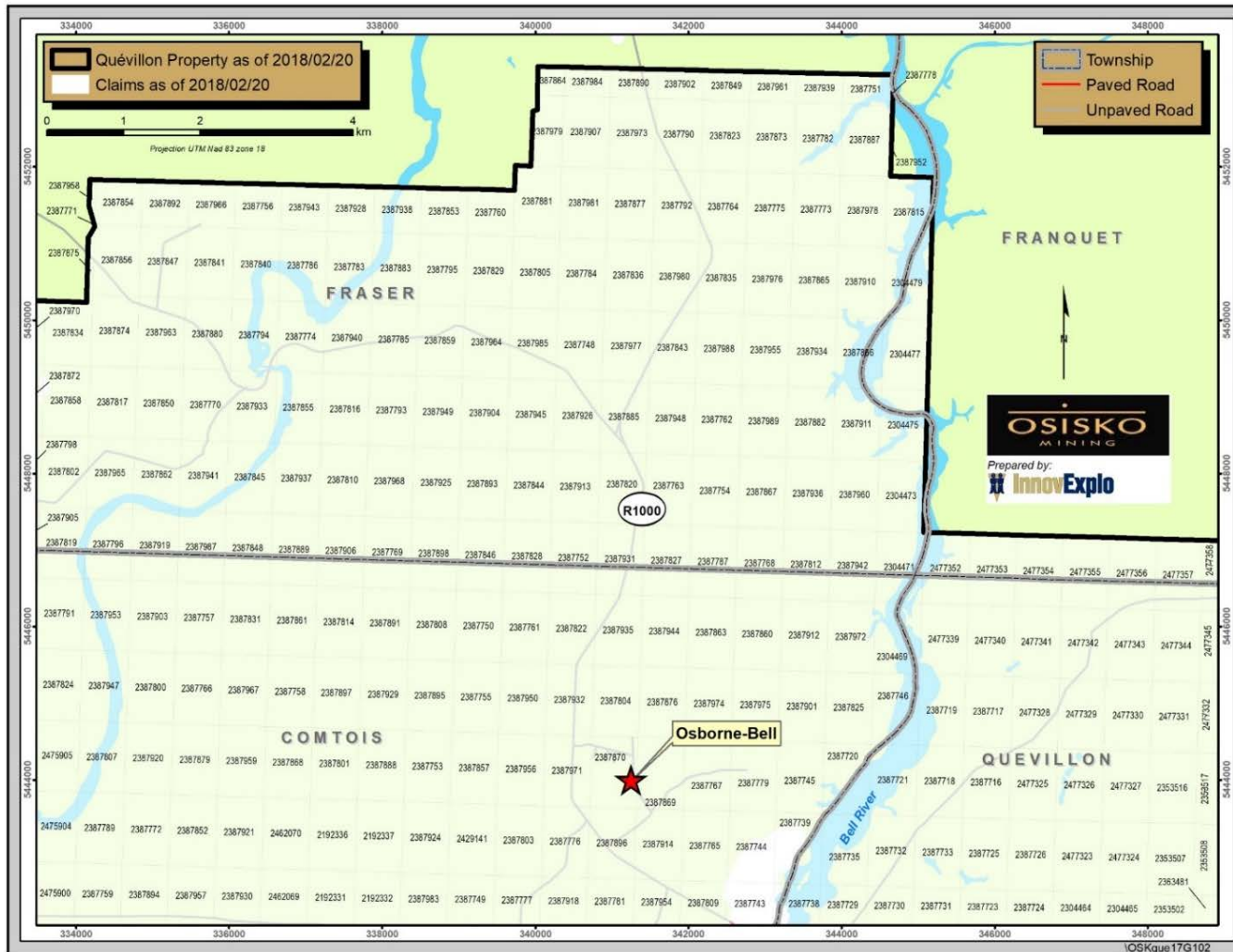


Figure 4-6: Detailed claim map in the vicinity of the Osborne-Bell deposit.



4.5 Royalties

4.5.1 Windfall Lake Property

The following NSRs are applicable for various parts of the Windfall Lake property: A 1% NSR to Franco-Nevada and 1% to Sandstorm Gold Ltd.: buyback each 1% NSR for \$1,000,000; a 0.5% NSR to Franco-Nevada and 0.5% to Sandstorm Gold Ltd.: buyback each 0.5% NSR for \$500,000; a 1% NSR to Scandium International Mining Corp.: buyback 1% for \$1,000,000; 2% Carat: buyback 1% for \$500,000, 2% Rousseau: buyback 1% for \$1,000,000. A 1% to 1.5% to Osisko Gold Royalties Inc. (Figure 4-3).

4.5.2 Urban-Barry Property

The following NSRs are applicable for the Urban-Barry property: a 1% NSR to Osisko Gold Royalties; a 2% NSR to Multi-Ressources Boréal: buyback 2% for \$2,000,000; a 1% NSR to Terrence Coyle: buyback 1% for \$1,000,000 (Figure 4-4).

4.5.3 Quévillon Property

There is currently no Royalty covering the Osborne-Bell deposit since it was acquired from the Bankruptcy from Deloitte Restructuring Inc. acting from Maudore Minerals Ltd. (Québec Superior Court, April 10, 2017, file No. 615-11-001496-167). It is also the case for all the blocks that were amalgamated from that acquisition into the Quévillon property. However, the following NSRs are applicable on some portions of the Quévillon property: a 2% NSR to Ressources Francnord Inc.: buyback 1% for \$1,000,000; a 2.5-3.0% GMR to Globex Mining Enterprises Inc.: Buyback 1.5% for \$1,500,000; a 2% NSR to Kintavar Exploration Inc.; Buyback 1% for \$1,000,000; 2% NSR to SOQUEM Inc.: Buyback of 1% for \$1,000,000; a 1% NSR to SOQUEM Inc.: Buyback of 0.5% for \$500,000; a 1% NSR to Diagnos (Ressources Majescor Inc.): Buyback of 0.5% for \$500,000 (Figure 4-7).

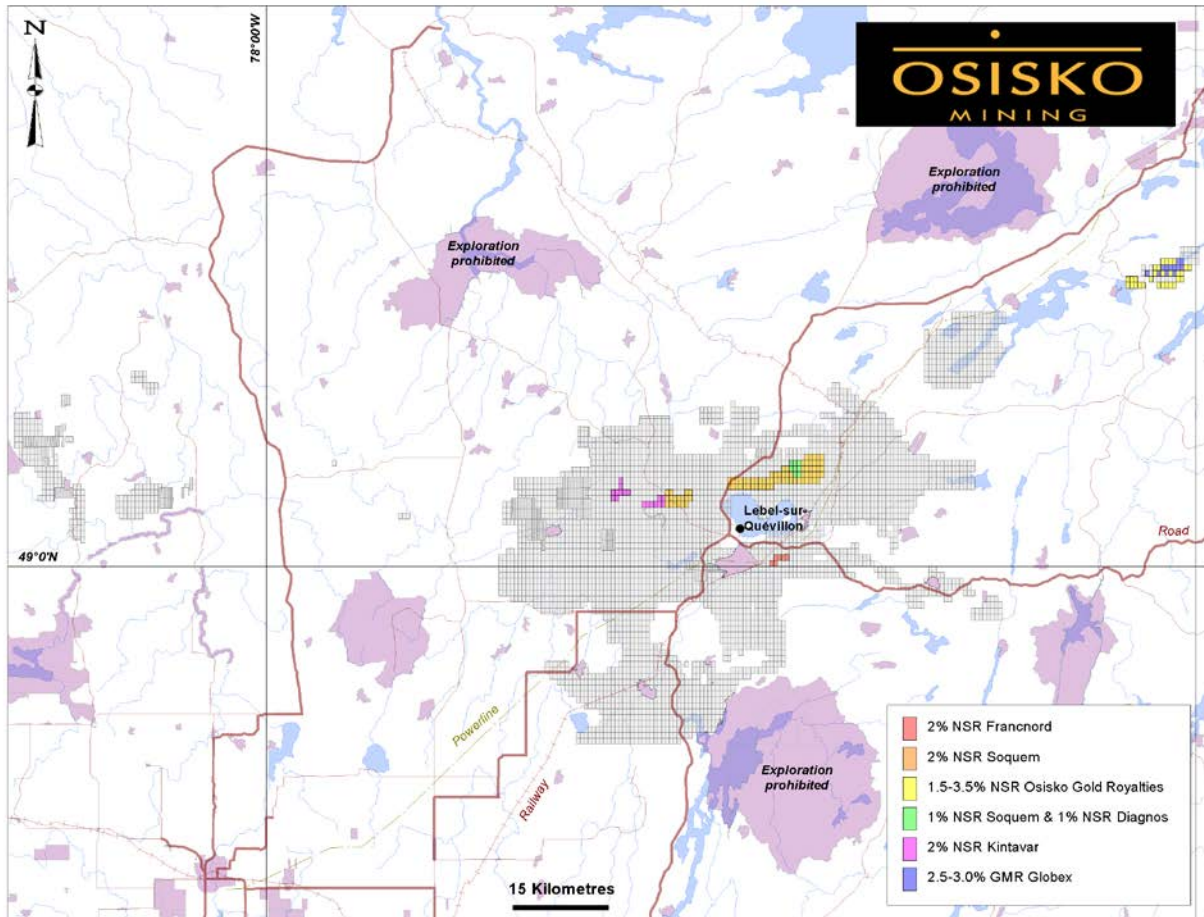


Figure 4-7: Claim map of the Quévillon (in gray) properties with applicable Royalties (April 9, 2018).

4.6 Constraints and Restrictions

4.6.1 Windfall Lake and Urban-Barry Properties

The Windfall Lake property and the northern half of the Urban-Barry property are in the Eeyou Istchee James Bay territory (Figure 4-4). Since 2013, this area corresponds to Category III lands where exploration is allowed under specific conditions. A claim titleholder is invited to communicate directly with the Cree Nation Government and the Eeyou Istchee James Bay Regional Government.

Five areas where exploration is prohibited under the *Mining Act* are adjacent to the Urban-Barry property (Figure 4-4). They are designated as a “Biological Refuge” and the status triggers a temporary suspension of issuance of mineral titles. One area is an experimental forest where exploration is allowed under specific conditions.



4.6.2 Quévillon Property

The northern half of the Central Block and all of the Western and Northeastern blocks are in the Eeyou Istchee James Bay territory with the same restrictions as for Section 4.6.1 above (Figure 4-5).

In the Central Block, 12 areas where exploration is prohibited under the *Mining Act* are adjacent to the property (Figure 4-5). Eight areas are designated as a “Biological Refuge” and two are classified as an “Exceptional Forest Ecosystem” under the *Sustainable Forest Development Act*. Both statuses trigger a temporary suspension of issuance of mineral titles. One area is a proposed protected area and is reserved to the State. Finally, the former Domtar industrial facility, south of Lebel-sur-Quévillon, is withdrawn from mining activities.

In addition to being on Category III lands, the Western Block of the Property is also a territory referred to by an agreement with the Council of the First Nation of Abitibiwinni. The objective of the consultation with the Council of the First Nation of Abitibiwinni is to express its concerns regarding natural resource development projects, including mining activities, on the Territory covered, and if applicable, have the parties determine accommodations to take these concerns into account. Two seed orchards where exploration is prohibited are adjacent to the westernmost block of claims.

At this time, no exploration activities have been performed on these claims. If Osisko plans any exploration work on these claims, Osisko will initiate consultation with the First Nation of Abitibiwinni.

4.7 Permits and Environmental Liabilities

This section provides a summary of current permits and environmental liabilities for the three properties. Osisko Mining and its 100% subsidiary Eagle Hill have obtained all necessary permits and certifications from government agencies to allow for surface drilling, exploration and bulk sampling on the Windfall Lake property. The Quévillon property has permitting for the surface drilling and exploration.

Osisko Mining has a land use lease with the MERN for the Windfall Lake exploration camp sector and has applied for a second lease for the ramp sector. Both sectors are 2 km apart.

Permits are required for any exploration program that involves tree cutting to create road access for the drill rig. Permitting timelines are short, typically about three to four weeks. The permits are issued by the *Ministère des Forêts, de la Faune et des Parcs* (“MFFP”).



In 2007, Noront obtained all necessary authorizations to proceed with a bulk sample at the Windfall Lake Site. Noront started ramp advancement in February 2008, but prematurely suspended the work in October 2008 before completing the planned work. When work stopped, 18,500 tonnes of waste rocks were stored on the lined stockpile and 79,000 tonnes of waste rocks were stored on the unlined stockpile.

In 2017, Osisko undertook steps to continue the bulk sampling work started by Noront and obtained the following authorizations:

- Attestation of exemption from the environmental and social milieu impact assessment and review procedure stipulated under Chapter II of the *Environment Quality Act* ("EQA") issued October 10, 2017, for the completion of the bulk sampling program;
- Transfer of the certificate of authorization issued under section 22 of the EQA for Noront to collect a bulk sample to Osisko, authorized by the MDDELCC on March 17, 2017;
- Certificate of authorization issued under section 22 of the EQA to treat water from initial dewatering of the ramp and on-going dewatering during ramp extension and bulk sample extraction, obtained on May 25, 2017;
- MERN authorization issued on October 16, 2017 under section 69 of the *Mining Act* to extract a bulk sample of 5,000 tonnes of mineralized material for the Caribou and 27 zones.

With the current bulk sampling program for the Caribou and 27 zones, the tonnage of the lined stockpile will increase from 18,500 to 90,000 tonnes of waste rocks.

Osisko has filed the same three requests (Attestation of exemption from the environmental and social milieu impact assessment and review procedure, certificate of authorization for the waste rock stockpile expansion and authorization from the MERN for a bulk sample) to take bulk samples of the Lynx and Underdog zones. Osisko received the attestation of exemption from the environmental and social milieu impact assessment and review procedure on June 20, 2018 and is awaiting responses for the certificate of authorization for the waste rock stockpile expansion and the authorization from the MERN for a bulk sample.

Noront prepared a closure plan of the Windfall Lake site for the MERN in 2007. The plan was updated in November 2012 and approved in June 2014. As requested by the *Mining Act*, the closure plan must be updated every five years; it was therefore updated in June 2017 and was accepted by the MERN on June 6, 2018 and a financial guarantee of \$2,814,505 was given to the provincial government to cover the closure costs. The closure plan will be updated again on June 5, 2021.

A land package in Lebel-sur-Quévillon has been proposed for the process plant and the TMF. While almost all of the infrastructure would be located on this identified land package, a small portion of the TMF would be located on Crown land. A phase 1 environmental assessment was completed for this land in order to assess the environmental liabilities. Osisko is currently in the process to purchase this land.



5. ACCESSIBILITY, CLIMATE, LOCAL, RESOURCES, INFRASTRUCTURE AND PHYSIOGRAPHY

5.1 Accessibility

Access to the Windfall Lake, Urban-Barry and Quévillon properties can be achieved through the Lebel-sur-Quévillon town. The town can be accessed from Val-d'Or travelling east on the paved Québec TransCanada Highway 117 for about 30 km to provincial Highway 113, then 36 km northbound on paved Highway 113 to the village of Senneterre, and then continue northbound on Highway 113 for about 87 km to the town of Lebel-sur-Quévillon.

5.1.1 Windfall Lake and Urban-Barry Properties

Access to the Windfall Lake Project area can be done from the historical (closed) Domtar pulp and paper mill next to the town of Lebel-sur-Quévillon. The property can be reached by travelling eastbound on well-maintained un-paved logging road R1050 (Road 1000)¹ for about 12 km towards the Gonzague-Langlois mine and continuing east towards the Urban-Barry area for about 55 km on R0853 (Road 5000) to the junction with R1053 (Road 6000), heading east-northeast on road R1053 passing through the Metanor Resources Inc. hauling route for about 46 km to the main Windfall Lake camp gravel road turnoff heading south (Figure 5-1). The main project zone is located about 2 km south along the main camp road, the camp office and core shack are another 0.5 km south along this main road. The Windfall Lake camp expansion is completed for new accommodations (new core logging area and other facilities) for the approximately 300 people working at site (Figure 5-2).

¹ Text in parentheses denotes the historical road designation.

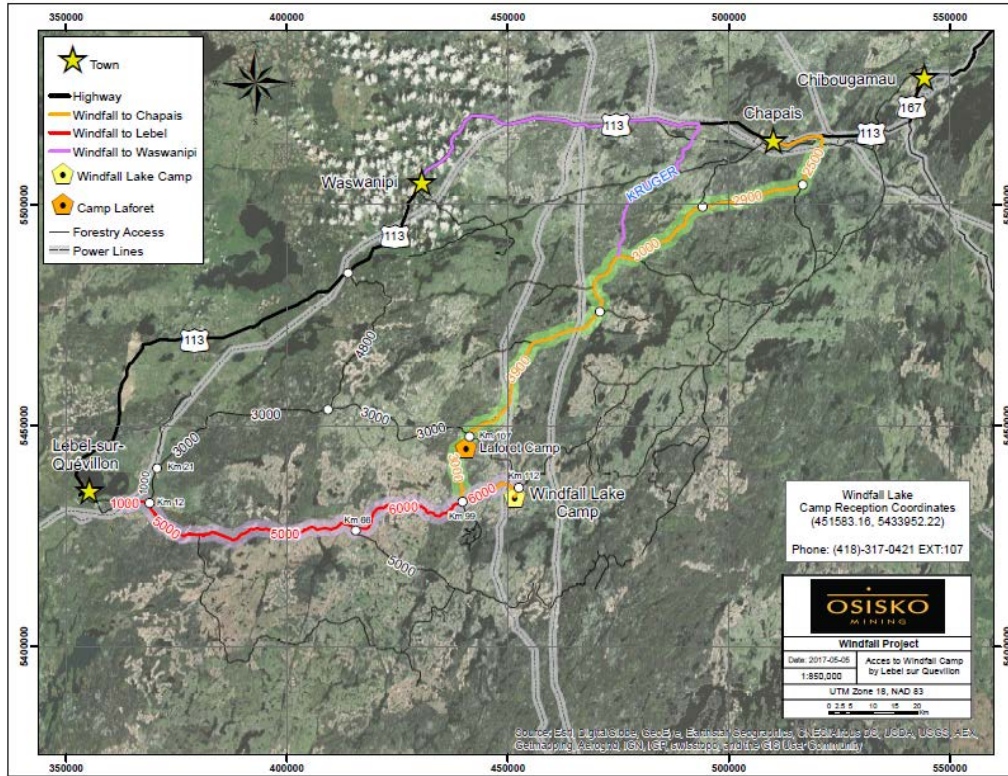


Figure 5-1: Map of the Windfall Lake property area showing various access routes.



Figure 5-2: Aerial photograph showing the Windfall Lake camp and typical physiography of the area.



5.1.2 Osborne-Bell Deposit, Quévillon Property

The Osborne-Bell deposit can be accessed from the town of Lebel-sur-Quévillon travelling west, for 18 km along a paved portion of R1000 until the Comtois sawmill, and then another 2 km along a gravel road heading north (Figure 5-3). R1000 links the towns of Lebel-sur-Quévillon and Matagami and is open year-round. Lebel-sur-Quévillon is 138 km from the town of Amos and 88 km from the town of Senneterre.

The Central Block of claims is crossed by several roads radiating from Lebel-sur-Quévillon. The Western Block is accessible from Amos via paved Road 109 and then forestry roads R0809 and R0804. The Northeastern Block is reachable from Highway 113 and secondary roads around the small settlement of Miquelon.

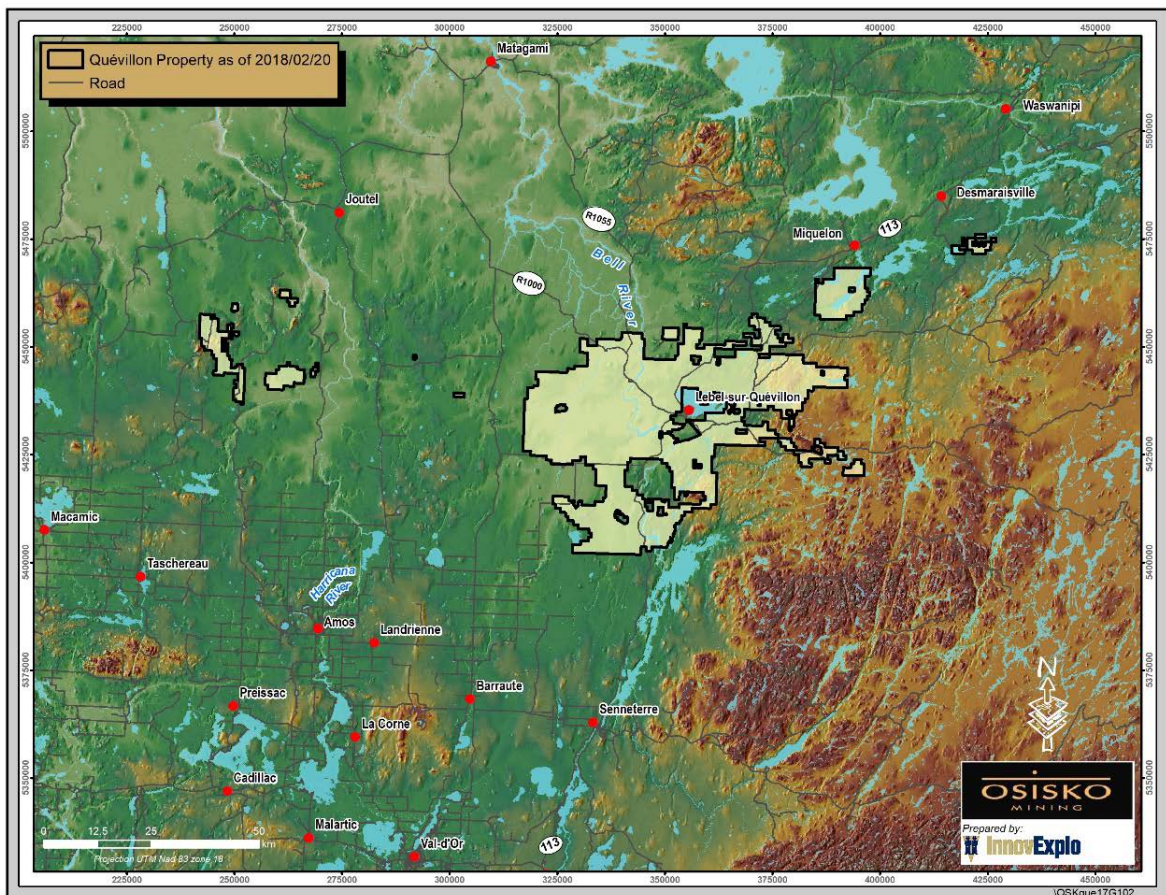


Figure 5-3: Topography and accessibility of the Quévillon property.



5.2 Climate

The climatic conditions are typically temperate characterized by continental extremes ranging from cold winters during the months of December to March with temperature lows usually less than -20°C and warm to hot summers often exceeding 25°C. Precipitation is sufficient to sustain a boreal forest environment including periods of spring-summer drought that often experience sporadic forest fires. Snow accumulation during winter months can be considerable, requiring the use of snow removal equipment to clear access roads and snowmobiles for off-road transportation.

5.3 Physiography

The Properties are part of the James Bay hydrographic basin. In the case of the Windfall Lake property the physical relief is characterized by topographically low-lying ridges and valleys modified by remnants of Wisconsin aged glacial activity. Mean altitude is 360 m. However, for the Quévillon property the area is covered by thick Pleistocene glacial and glaciolacustrine sediments producing a generally flat topography with the Bell River running across the central part of the property. The land areas are covered with boreal forests and numerous fresh water lakes, streams and muskeg (Figure 5-2 and Figure 5-3).

5.4 Local Resources and Infrastructure

The Windfall Lake property is located in a remote area, approximately 115 km east of Lebel-sur-Quévillon, while the Osborne-Bell project is only 17 km from the town. Lebel-sur-Quévillon is the closest municipality with a population of 2,015 (Statistics Canada 2016). The mining and forestry industries are the historical cornerstones of Lebel-sur-Quévillon's local economy. Although Lebel-sur-Quévillon has its own small airport, Val-d'Or has the closest commercial airport with regularly scheduled direct flights to Montreal. Additionally, the communities of Senneterre, Waswanipi, Chibougamau, and Chapais are also in the vicinity of the Windfall Lake property with populations in 2016 of 2,239, 1,759, 6,862, and 1,318, respectively. Full infrastructure and experienced mining workforce are also available in number of well-established mining towns nearby, such as Val-d'Or, Rouyn-Noranda, Amos, La Sarre, and Matagami. Any future mining project would need to bring in skilled workforce from these surrounding communities by road or, if necessary, from elsewhere in the province, by road or chartered flight. Supplies would also have to be trucked or brought by train.



5.4.1 Windfall Lake Site

The Windfall Lake area is serviced by a complete network of well-maintained logging roads R1050 (Road 1000) (Km 12), R0853 (Road 5000) (Km 66) and R1053 (Road 6000) (Km 112). The main users of the logging roads between Lebel-sur-Quévillon and the Windfall Lake camp are workers and personnel staff from Beaufield Resources Inc., Metanor Resources Inc., Bonterra camp and Osisko Mining Inc.

Several infrastructure components are still present on the Project site from previous owners. These include an unlined waste rock stock pile, an overburden stockpile, and a lined stock pile containing mineralized material waste rock. Also present are a ramp portal dating back to 2008, a sedimentation pond, and a polishing pond. Further south is the Windfall Lake exploration camp, which can accommodate 300 people (Figure 5-2). The exploration camp area includes:

- Temporary trailer-type structures for administrative offices, dormitories, and infirmary as well as the kitchen and the dining room;
- Septic fields and an enviro-septic unit;
- Four separate core shacks with core racks;
- Two drill core storage areas;
- A core cutting building;
- Three drinking water wells;
- Three megadomes, one for the storage of contaminated residual materials;
- Three temporary maintenance and storage areas for diamond drilling companies (Forages Rouillier Drilling, Orbit-Garant, and Major);
- Two generators (2 MW);
- Fuel tanks;
- A helicopter landing area;
- Containers and sheds for storage of equipment.

The ramp portal sector currently includes the following facilities:

- Access roads;
- A portal and a ramp totaling approximately 1,450 m underground (Noront);
- Underground exploration tunnels totaling approximately 480 m of underground advancement (Osisko);
- An overburden pile;
- An unlined waste rock stockpile;



- A lined stockpile (mineralized material and waste rock) with lined perimeter ditches;
- A sedimentation basin and a polishing basin;
- Water treatment units and geotubes;
- A concrete slab from the historical Noront garage;
- Sanitary facilities (septic tank and leaching field) built by Noront for about 15 people;
- Construction trailers serving as offices and drys (2017);
- Depots of explosives and detonators (2017);
- A megadome with concrete foundations (2017);
- A fuel storage tank (2017).

5.5 Community

5.5.1 Human Environment

The Windfall Lake and Osborne-Bell projects are in the Nord-du-Québec administrative region (Region 10). The Eeyou Istchee James Bay territory includes the municipalities of Chibougamau, Chapais, Lebel-sur-Quévillon, and Matagami, as well as the nine Cree communities of Nord-du-Québec: Chisasibi, Eastmain, Waskaganish, Wemindji, Whapmagoostui, Mistissini, Nemaska, Oujé-Bougoumou and Waswanipi. With 6,862 inhabitants, Chibougamau has the largest population in the region. Other agglomerations include Lebel-sur-Quévillon with a population of 2,015 (2016) and Waswanipi with a population of 1,759 (2016).

The projects are located on Category III land, that is, crown land part of the domain of the State, most of which is dominated by forestry activities. It should be stated that on this land, the First Nation people have an exclusive right to harvest certain aquatic species and certain fur-bearing animals.

For the Windfall Lake Project, with the exception of Mr. Icebound's family camp and two non-Aboriginal seasonal hunting camps, the site is characterized by the absence of dwellings. Indeed, the closest residential areas are in Lebel-sur-Quévillon, Chapais and the Cree community of Waswanipi. Furthermore, there are five outfitters in a 10-km radius of the Project namely, Pourvoirie Lac Hébert, Pourvoirie Lac Lacroix, Pourvoirie St-Cyr Royal, Pourvoirie Lac Berthelot and Pourvoirie WeteNagami (Les Pourvoiries du Québec, 2014).

Lebel-sur-Quévillon, just a little more than 115 km from the Windfall Lake Project, is an urbanized area that groups together residential, public and commercial uses, small hospital, services, industrial zones and public institutions.



5.5.2 Information and Public Consultation Process

5.5.2.1 Cree Community of Waswanipi

The Windfall Lake Project is located on the traditional lands of the Cree community of Waswanipi, specifically on the traplines of Mr. Marshall Icebound (W25B) and Mr. Gary Cooper (W25A). The Cree village of Waswanipi is located about 75 km north-northwest of the Project.

Information on exploration work was forwarded to the Chief, the Deputy Chief, the Director of Natural Resources, the Mining Coordinator, the tallymen, the Cree Trappers' Association, the Cree Mineral Exploration Board, and the Cree Human Resources Development. The information was shared through meetings, presentations and information letters. Meetings were held with the tallymen to explain the nature of the work and to understand how they use the territory. Osisko also presented the Windfall Lake Project to the entire community at the Waswanipi Mining Exposition in February 2017, during the Cree Trapper's Association General Assembly on November 2, 2017, during the Open House events in Waswanipi on November 2, 2017 and February 28, 2018, and during the Waswanipi General Assembly on January 9, 2018. In addition, the bulk sampling project has been discussed with the Cree community of Waswanipi since last October.

Before Osisko acquired the Project, several information meetings had been held between Eagle Hill representatives and Waswanipi representatives, including former Chief Paul Gull. These meetings led to the signing in 2012 of an Advanced Exploration Agreement with the Cree First Nation of Waswanipi, the Grand Council of the Crees and the Cree Regional Authority. Osisko continues to honour the terms of the 2012 Exploration Agreement between Eagle Hill and Waswanipi. Among other things, the Agreement stipulates the negotiation of a Social and Economic Participation Agreement (essentially an impact and benefit agreement: IBA) in the event the Project is shown to be economically viable. However, discussions are underway with Waswanipi representatives, and preliminary negotiations for an IBA commenced on December 19, 2017 in Waswanipi.

Roughly 80 people from Cree communities (mainly Waswanipi) work at the Windfall Lake site. Two other First Nation communities have been identified as having an interest in the Project: the Algonquin Anishinabeg Nation of Lac Simon and the Atikamekw d'Obedjiwan community. Up to now, these two communities were visited twice and the details of the Windfall Lake Project description and of the bulk sampling project towards Lynx and Underdog were presented.



5.5.2.2 Communities of Lebel-sur-Quévillon, Chapais, Chibougamau and Senneterre

Osisko held various meetings and information sessions with representatives and members of local communities. In addition, information letters on exploration activities were sent to municipalities. It should be noted that before Osisko acquired the Project, Eagle Hill representatives met informally with Lebel-sur-Quévillon representatives and attended an information session organized by the Economic Development Corporation of Lebel-sur-Quévillon in November 2014. Osisko presented the Windfall Lake Project to the population in 2016 and 2017. Two Open House events were organized in Lebel-sur-Quévillon on October 2, 2017 and February 27, 2018 in order to present the Windfall Lake Project to the population.

An agreement has been reached between Osisko and the city of Lebel-sur-Quévillon. This collaborative process primarily aims to ensure transparency and effective communication with the city, to foster the social acceptability of the Project, and to maximize the socioeconomic benefits of the Project for Lebel-sur-Quévillon, all in a spirit of partnership.

As for Senneterre, Chapais and Chibougamau, even though the Windfall Lake Project is not on their territory, stakeholders felt that local entrepreneurs could benefit from business opportunities generated by the Project.

As the Project progresses, a formal communication and consultation plan will be developed by the Corporation to engage both the Aboriginal and non-Aboriginal stakeholders. The objectives of these activities will be to inform and consult the First Nations and the public on the Project's activities, to address their concerns and to collect their comments.



6. HISTORY

The Windfall Lake and Urban-Barry properties, as well as the Osborne-Bell deposit and Quévillon property, have a long history of exploration. Details of their respective historical work are hereafter presented separately for the purpose of clarity.

6.1 Windfall Lake Property

6.1.1 Summary of Historical Work

The Windfall Lake Project was subject to several grassroots exploration programs undertaken by various companies from 1943 to 2016. Table 6-1 lists the historical work and sources in the Urban-Barry area. There has been no historical resource estimate, nor has there been any production from the Windfall Lake Project.

Table 6-1: Historical exploration work in the Urban-Barry area

Year	Company or Individual	Work Completed	Source
1943	Ministère des Ressources Naturelles du Québec	Geological Mapping	Milner (1943)
1946	Ministère des Ressources Naturelles du Québec	Geological Mapping	Fairbairn (1946)
1947	Ministère des Ressources Naturelles du Québec	Geological Mapping	Graham (1947)
1975 to 1977	Shell Canada	Airborne electromagnetic, prospecting, geological mapping, drilling	Côté (1977)
1983	Ministère des Ressources Naturelles du Québec	Airborne electromagnetic	Relevés Géophysique Inc. (1983)
1986	Kerr-Addison	Airborne electromagnetic	Frazer (1986)
1987 to 1988	DeMontigny	Line cutting, ground electromagnetic, geological mapping, drilling	Gaudreault (1987); Gaudreault (1988)
1988 to 1990	Shiva Ventures	Geophysical surveys and drilling (no significant results)	Lambert (1988)
1994	Murgor	Discovery of gold showing in Barry Township	Gaudreault (1995)
1996 to 1998	Murgor / Freewest Resources / Fury	Line cutting, ground mag, induced polarization, prospecting, trenching, drilling, discovery of debris showing (72 g/t Au over 1.0m)	Coyle (1996); Lapointe (1999)
1997	Ressources Orient	Drilling (no significant results)	Chainey (1997)



Year	Company or Individual	Work Completed	Source
1996 to 1998	Alto Exploration / Noront	Line cutting, ground mag, geological mapping, induced polarization, prospecting, MaxMin II, discovery of Alto Exploration showing (9.3 g/t Au over 1.7m)	Farrel (1998); Tremblay (1999a); Tremblay (1999b); Tremblay (1999c); White (1998)
1998 to 1999	Inmet Mining	Line cutting, deep electromagnetic survey, geological mapping, diamond drilling (27.5 g/t Au over 4.3m)	Bernard (1999a); Bernard (1999b)
1999	Provenor	Drilling	Cloutier (1999)
2002	Ministère des Ressources Naturelles du Québec	Geological Mapping, sampling, geochronology	Bandyayera et al. (2002)
2003-2004	Fury Exploration	Compilation, line cutting, diamond drilling (85.9 g/t Au over 5.4 m)	Coyle (2004); Thorsen (2004); Tremblay and Bottomer (2002); Tremblay (2003).
2004-2006	Murgor	Induced polarization, transient electromagnetic surveys, core drilling and trenching. Discovery of the F-17, F-51, and F-11 gold zones (17.8 g/t Au over 6.8m)	Coyle (2005); Gagnon (2005); Gagnon (2006); Lanthier (2004 and 2005)
2005 to 2009	Noront	Trenching, mapping, diamond drilling, underground exploration ramp and drifts (140.8 g/t Au over 12.0 m)	Armstrong (2006); Armstrong (2007); Chance (2009a)
2009	Eagle Hill Exploration	Sampling historical core, trenching, channel sampling, BHPEM, IP survey	Chance (2009b)
2010	Eagle Hill Exploration	BHPEM, TDEM, IP survey, diamond drilling	Turcotte (2011)
2011	Eagle Hill Exploration	SRK resource November, IP survey	SRK (2011); Armstrong (2011); G&T Metallurgical Services Ltd. (2011)
2012	Eagle Hill Exploration	IP survey, Till survey, SRK resource update March 2012, diamond drilling	SRK (2012); Lambert (2012)
2013	Eagle Hill Exploration	Diamond drilling, down-hole IP & resistivity, ground magnetometer survey, surface IP survey	Cheman (2013); Lambert (2014)
2014	Eagle Hill Exploration	Diamond drilling, IP survey	Simard (2014); Brown and Cheman (2014); Desrochers and Blouin (2015)
2015	Oban Mining Corp.	Diamond drilling, Till survey	Gaumond and Trepanier (2016);



Year	Company or Individual	Work Completed	Source
2016	Oban Mining Corp./Osisko Mining Inc.	Diamond drilling, till sampling, airborne magnetic survey, airborne electromagnetic survey	Gaumont et al. (2016); SkyTEM (2016); Geotech Ltd. (2017)
2017	Osisko Mining Inc.	Diamond drilling, IP survey	Clearview Geophysics Inc. (2017)
2018	Osisko Mining Inc.	Diamond drilling	

6.1.2 Summary of Historical Reports

The Urban-Barry greenstone belt, where the Windfall Lake Project is located, has a long history of exploration. Multiple agencies and companies have explored the area in the last eight decades. During a reconnaissance geological survey, Milner (1943), Fairbairn (1946), and Graham (1947) of the *Ministère des Ressources Naturelles* ("MRN") mapped the area, and in 1958, the MRN completed a survey of the area. In the last half of the 1970s and through the 1980s, several companies, notably Shell Canada Ltd. ("Shell Canada"), carried out sporadic exploration activity in the Urban-Barry greenstone belt.

6.1.3 Kerr-Addison Mining Ltd.

The first systematic exploration started in 1986 when Kerr-Addison Mines Ltd. ("Kerr-Addison") drilled three drill holes (388 m) in the western part of the Windfall Lake Project to test electromagnetic conductors, which were identified by an airborne geophysical survey carried out by the *Ministère de l'Énergie et des Ressources Naturelles* ("MERN") du Québec in 1983.

6.1.4 DeMontigny

In 1987-1988, DeMontigny carried out a ground magnetic and electromagnetic survey, and the mapping and drilling of nine drill holes (1,421 m) on the western half of the Windfall Lake Project. The drilling resulted in the discovery of a gold-bearing graphitic argillite, intruded by units of altered quartz-eye intrusive and mafic units. In 1988, five additional drill holes (1,088 m) extended the strike extension of the previously intersected gold-bearing graphitic conductor.

6.1.5 Shiva Ventures

From 1988 to 1990, Shiva Ventures conducted magnetic and HEM surveys and drilled five drill holes (1,033 m) to test the extension of the gold mineralization identified by DeMontigny. The permit for DeMontigny's 40 claims on the Windfall Lake Project expired in 1995.



6.1.6 Freewest Resources Canada Ltd.

In 1995, Freewest Resources Canada Ltd. ("Freewest Resources") staked the claims that DeMontigny had let lapse and completed two drill holes (289 m). The drill holes intersected encouraging gold grades.

6.1.7 Ressources Orient

In 1997, Ressources Orient drilled four drill holes (666 m) in the southern part of the property as part of a larger drill program.

6.1.8 Alto Exploration Ltd. / Inmet Mining Corporation / Fury Exploration Corporation

Alto Exploration Ltd. ("Alto Exploration") drilled three drill holes (977 m) in 1997 and optioned the Windfall Lake Project to Inmet Mining Corp. ("Inmet Mining"), which drilled 30 drill holes (9,024 m) in 1998 and 1999. Inmet Mining dropped the option, which Fury Exploration Corp. ("Fury Exploration") subsequently picked up.

6.1.9 Noront

Noront explored the Windfall Lake Project with trenching, mapping, and diamond drilling from 2004 to 2006. Following the encouraging results from the 2004 to 2006 surface diamond drilling programs, Noront decided to undertake an underground sampling program. Genivar provided and supported the planning, engineering, and permitting for this project. The underground development included the excavation of a 4.5 m by 4.7 m ramp driven for about 1,202 m, with approximately 233 m of access crosscuts and drifts along each of the three zones. The underground excavations were generally restricted, following narrow, high-grade gold intervals that lacked any persistence or continuity. The underground ramp excavation, completed by Noront in 2009, did not reach the Windfall Lake Main zone of gold mineralization delineated by Eagle Hill through drilling in 2010 and 2011.

6.1.10 Murgor

In 1998, Murgor drilled six drill holes (1,130 m) to the northeast of the Windfall Lake Main zone and Provenor drilled one drill hole (186 m) in the western part of the Windfall Lake Project. Fury Exploration drilled 26 drill holes (7,152 m) in 2003 and 2004, and then assigned its 37.5% option interest to Noront in 2004.



Between November 2004 and July 2006, Murgor commissioned Abitibi Geophysics Inc. ("Abitibi Geophysics") to conduct seven induced polarization surveys (336.8 line-km), and one transient electromagnetic survey (51 line-km). The induced polarization ("IP") surveys identified 16 moderate to strong chargeability anomalies. Murgor verified some of the anomalies by mechanical trenching and/or diamond drilling. The transient electromagnetic survey identified four significant anomalies. Two small, very conductive anomalies were located in the northeast corner of the surveyed area and were interpreted to lie close to the surface. During this period, Murgor drilled a total of 114 drill holes (15,993 m) to test several showings and geophysical anomalies. They discovered the F-17, F-51, and F-11 gold bearing zones.

Between the winter 2010 and summer 2011 drilling programs, a borehole pulse electromagnetic ("BHPEM") survey was conducted on borehole EAG-10-196. This borehole was selected due to the high-grade gold assay intersections and the observation of visible gold in the core. Additionally, a surface gradient time domain electromagnetic ("TDEM") survey was conducted over and adjacent to the main mineralized zone on the property. Both the BHPEM and TDEM surveys were completed by Koop Geotechnical Services Inc. during May 2010. In July 2010, Insight Geophysics Inc. ("Insight Geophysics") completed surface gradient and deep penetrating IP surveys using the existing grid previously employed by Noront. The survey covered the main mineralized zone and the immediate surrounding area near the main deposit and associated structures. In light of the positive results obtained by the survey during the winter of 2011, Eagle Hill decided to extend the survey further to the west where historical IP surveys had identified important chargeability anomalies.

One objective of the survey was to identify chargeability anomalies below the Red Dog dike. In total, Insight Geophysics surveyed an area measuring 2.5 km east-west by 1.6 km north-south of surface gradient IP and completed 10 lines of deep-penetrating IP-resistivity sections. The results of the surveys showed a good correlation between the high chargeability anomalies and the known pyrite-rich gold zones delineated by drilling.

In addition, the survey identified additional chargeability anomalies below the shallow-dipping Red Dog quartz monzonite intrusion tested by just a few drill holes. These observations also support the interpretation that the quartz monzonite is a late to post gold mineralization intrusion that crosscuts the pyritic gold mineralization.

6.1.11 Eagle Hill Exploration Corporation (2013-2015)

Between January and April 2012, Eagle Hill again carried out an IP geophysical survey on the property. Géophysique TMC completed 96 line-km of ground survey in two grids situated on the northwest and northeast portions of the property, respectively. The survey picked up multiple sub-vertical anomalies trending east-west (Lambert 2012).



In 2012, Eagle Hill carried out a till survey on the property. The sampling was done by Eagle Hill personnel and supervised by Les Consultants Inlandsis. Forty-nine samples, 15 kg to 20 kg each, were collected and processed for visual count of gold. Results from multiple samples indicated values higher than background values of about five to six gold grains typical of gold-bearing Archean greenstone belts. The results are indicative of a significant bedrock gold source within 100 m to 1,000 m up an ice from the till anomalies and in area that corresponds roughly to targeted large east-trending regional prospective structural corridor.

In October 2013, Eagle Hill contracted DGI Geoscience Inc. to survey six historical drill holes (NOT-07-150, EAG-11-259, EAG-11-295, EAG-12-365, EAG-13-466, and EAG-13-469) with an optical and an acoustic televiewer. The goal of the survey was to identify the orientation of certain structural features of significance intersected with those drill holes.

Between November 1 and 24, 2013, and between October 16 and November 2, 2014, Abitibi Geophysics completed two geophysical hole-to-hole resistivity/IP surveys. The objective of the surveys was to investigate the outer and inner periphery of the volume encompassing the drill holes and to assess the potential for gold mineralization at depth below the Red Dog intrusion as well as directly below the Main zone. The survey detected chargeability and lower resistivity anomalies below the Red Dog intrusion that are similar to the anomalies associated with the sulphide-rich gold mineralization located above the Red Dog intrusion.

Sixty-eight pairs of receiver drill holes were surveyed at the property to provide the best coverage at a depth of more than 500 m below surface. The collected data were then inverted using Res3D software by Abitibi Geophysics and DCIP3D software by Mira Geoscience Ltd. to provide a possible three-dimensional geometry for the deep gold mineralization at Windfall Lake. The results of the inversion show two high-priority targets located below the Red Dog intrusion.

Between December 6 and 17, 2013, Pro-Tech Géophysique Ltd. completed a magnetic survey to the south of the Main zone. The survey comprised 79.7 line-km on a cut grid consisting of 36 north-south lines with 100 m spacing. Total field readings were measured every 12.5 m along the lines. The results of the survey identified two main east-northeast-trending lineaments that are parallel to the magnetic lineament associated with the Main zone.

Furthermore, in December 2013, Abitibi Geophysics completed a dipole-dipole IP survey using the same survey grid used for the magnetic survey. Sixteen high-priority exploration targets were identified for follow-up exploration work.

Between February 19 and 25, 2014, Géophysique TMC completed a 23.9 km line dipole-dipole IP survey over the Rousseau claims, located some 10 km to the east of the Main zone. Survey lines were oriented north-south with 100 m separation. Survey station spacing was 25 m along the survey lines. Initial data interpretation showed five anomalies in the survey area.



6.1.12 Mineral Resource Estimates

In the period between 2011 and April 2015, Eagle Hill Exploration Corporation mandated three NI 43-101 compliant mineral resource estimates (“MRE”) from SRK Consulting (Canada) Inc. (“SRK”) (2011, 2012 and 2014) and one preliminary economic assessment from Tetra Tech (2015). In 2018, Osisko mandated InnovExplo for a new NI 43-101 on the Windfall Lake deposit (St-Laurent et al., 2018). The supporting technical reports are available from SEDAR (sedar.com).

In 2015, Tetra Tech produced a preliminary assessment report (“PEA”) for Eagle Hill Exploration Corporation (Tetra Tech, 2015) in which SRK reviewed the mineral resource estimate in November 2014 to 748,000 oz. of gold, with a grade of 8.42 g/t Au and 2,762,000 tonnes in Indicated category and 860,000 oz, with a grade of 7.62 g/t Au and 3,512,000 tonnes in Inferred category at a minimum cut-off grade of 3.0 g/t. The PEA also proposed mineral processing and metallurgical testing recovery methods and addressed the surface water management, tailings storage, and the environmental aspect of the Project.

6.2 Urban-Barry Property (Western, Eastern, Central and Southern Sectors)

6.2.1.1 Previous Work

The exploration history of the Urban-Barry property outside of the Windfall Lake deposit area was subdivided into four different sectors: West, East, Central and South (Figure 6-1). According to the SIGEOM database, 114 drill holes were drilled on the Urban-Barry property. This is not surprising given the large size of the property and the fact that exploration work was mostly performed in the Souart, Barry and Urban Townships. The Urban-Barry belt is host to numerous gold deposits/showings that include the Lac Rouleau (Beaufield Resources), Souart (Nubar) (Osisko Mining), Barry (Metanor Resources), Windfall Lake (Osisko Mining), and Gladiator (BonTerra Resources) deposits.

The Urban-Barry greenstone belt has been, in recent years, the subject of several regional mapping surveys performed by the Québec Government. The entirety of the belt was covered by 1:50,000 mapping from 2001 to 2004. The western area was mapped in 2002 (RG200212), the Windfall Lake claims and the Southern portion in 2001 (RG200114) the central and eastern sectors in 2003 (RG200307), and the southeastern limit of the belt in 2004 (RG200402).



There are over 300 geological assessment reports (*gîte minier* “GM”) on file with the Québec Government that describe historical exploration work that was done partly or entirely within the bounds of the current Urban-Barry property. Various companies have conducted prospecting campaigns and secondary environment surveys over the years but due to the general lack of outcrop, exploration has tended to rely upon geophysics to define targets. With the exception of the northernmost part, most of the Urban-Barry belt has been covered by airborne surveys. These included MAG, EM, VLF-EM, and more recently VTEM surveys. A few companies also re-interpreted the INPUT data from government surveys to generate targets. The largest airborne surveys on file with the government were carried out by Shell Canada Resources Ltd. in the mid-seventies. Ground geophysics such as IP, MAG, VLF and other EM surveys usually followed.

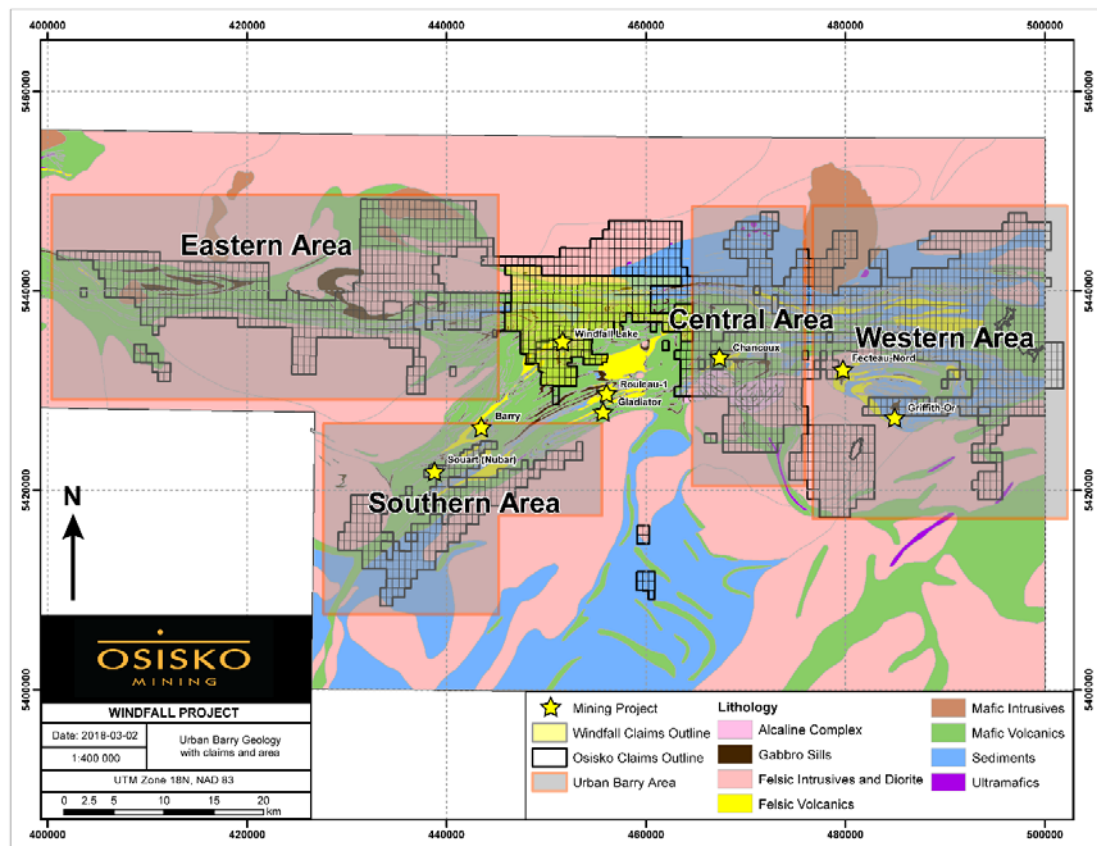


Figure 6-1: Exploration history in the Urban-Barry greenstone belt outside of the Windfall Lake deposit area subdivided into four sectors: Eastern, Southern, Central, and Western areas.



6.2.1.2 Western Block

The earliest drilling on the Urban-Barry property that is listed in the SIGÉOM files was done in the Effiat-Carpiquet sector, an area dominated by an E-W oriented band of volcanic rocks with EM conductors that hosts three gold showings (not on the property) from west to east: Lac Thubièrè NE, Rivière Panache Ouest, and Panache. The drilling was conducted by Merrill Island Mining Corp in 1957. Six of their 13 drill hole programs were drilled on the property to the WSW of the Lac Thubièrè NE gold showing, which had been discovered early in the same program. Between 1959 and 1964, Nightlen Mines drilled four holes approximately 6 km to the east of this showing, but no significant gold values were reported. At the end of this decade, Falconbridge drilled four holes 2.5 km southwest of the Lac Thubièrè NE showing and reported minor chalcopyrite and sphalerite. In 1986, Mines Sullivan Inc. completed the most important drill program in this sector by drilling 19 holes for a total of 3,780 m to the south and to the west of this showing. However, only a few isolated values up to 0.18 g/t Au were reported with the rest being at or below detection limits. One more hole was drilled on the Urban-Barry property as part of a multi-hole program undertaken by Cambior from 1987-1988, but no significant values were reported.

6.2.1.3 Central Block

This area occurs along part of the NE-SW oriented Masère-Barry Lake shear corridor in the townships of Belmont and Lacroix. The Lac Chanceux Ouest gold showing, discovered in 1997 by drilling, is located in this sector as well as the Lacroix alkaline complex.

In 1983, Mines Camchib Inc. drilled 14 drill holes of which three were on the property in this sector (MB-83-06, -6b and -07). In MB-83-07, a 7.62 m interval from 40.48 m to 48.46 m contained samples from 0.187 g/t Au to 0.373 g/t Au. There are a few other isolated samples in this hole within this range as well. Beaufield Resources and Falconbridge Ltd. drilled five holes to the southwest of the Lac Chanceux Ouest showing. These holes encountered graphite and iron sulphide and returned mostly trace gold values and a few values up to 100 ppb gold in drill hole 104-05. Kinross Gold and Beaufield drilled seven holes in this sector in 1997, four of which are on the Urban-Barry property. The best gold interval from drill hole BUL97-02 of the Lac Chanceux Ouest showing returned 1.384 g/t Au over 0.81 m. A few other intervals returned weak gold values (less than 250 ppb). Aur Resources drilled ten drill holes in 1998, three of which are on the Urban-Barry property; none of the three reported any significant gold value. The only significant value, 1.7 g/t Au over 0.7 m, came from drill hole 13501-10. Lastly, in 2004, Beaufield Resources drilled 11 holes. The last one, BFRL 411, is on the Urban-Barry property just southwest of the Belmont showing; no significant gold value was returned from this drill hole.



6.2.1.4 Eastern Block

This area occurs at the easternmost limit of the Urban-Barry belt and is bordered to the east by the Grenville front. It is dominated by the Freeman and Buteux volcanic felsic complex and most of historical work performed over the area focused on gold and base metals. Nineteen holes were drilled in the volcanic and volcanoclastic rocks in this sector.

In 1977, Shell Canada Resources Ltd. completed a 19 drill holes campaign on their Barry project. Nine drill holes (7515-77-19, -23, -24 and 7515-78-1A, -3, -7, -8, -10, and -13) were completed in this sector of the property. Only traces or below detection limits were reported from these drill holes. From 1987 to 1989, SOQUEM completed a 32 drill holes campaign on their Freeman-Buteux property. Of these drill holes, ten are on the Urban-Barry property (87-4, -5, -8, -9, -11, -12, -13, -26 and 88-31). Most of the samples returned gold values at or below the detection limit. Only a few samples reported grades up to a maximum of 0.83 g/t Au over 0.85 m (hole 88-31).

6.2.1.5 Southern Block

This area occurs in the southernmost limit of the Urban-Barry belt. The Souart (Nubar) gold deposit was the main focus of drilling exploration in this area with other gold showings following the NE-SW oriented Souart Fault. Historical work performed over the area focused on gold and base metals. The Barry deposit (Métanor Resources Inc.) as well as the Black Dog project (Osisko Mining Inc.) located approximately 1 km northeast of the Souart (Nubar) deposit, are also located in this sector.

In 1950, three auriferous zones at the Souart (Nubar) deposit were discovered by Roybarn Uranium and Gold Mines Ltd. following a resistivity survey, known as the Central, West and East zones. In the same year, underground workings began in the auriferous zones and workings were suspended in 1951. From 1971, geological mapping, geochemical, and geophysical surveys, by Shell Canada Resources Ltd. and Exploration Minière Kidd Creek Ltd., led to the discovery of numerous polymetallic showings. In 1985, Oasis Ressources Inc. completed a 37 drill holes campaign in the three mineral zones (Central, East and West zones) on their Souart (Nubar) deposit for a total of 6,096 m. Gold intervals from the West zone allowed to evaluate a Mineral Resource Estimate of 47,505 tonnes, grading at 5.39 g/t Au (not in compliance with the NI 43-101 standards).

Between December 1988 and February 1989, Société d'exploration Minière Dufresnoy Inc. completed a 11 drill holes campaign NE of the Souart (Nubar) deposit for a total of 2,123.9 m. Best gold intervals included 5.15 g/t Au and 28 g/t Ag over 1 m (hole BAO-89-02). A total of 28 drill core intersections superior to 1 g/t Au were intersected.



6.3 Osborne-Bell Deposit, Quévillon Property

Due to the large size of the Quévillon Property, the historical work is presented at two different scales:

- The scale of the Osborne-Bell deposit and its vicinity (the former Comtois property from Maudore), in the northwestern part of the Central Block (Section 6.3.1); and
- The rest of the Central Block and the remainder of the property (Section 6.3.3).

This review summarizes all work completed prior to the acquisition of the property by Osisko in 2017.

6.3.1 Osborne-Bell Deposit Area

Historical data prior to 2006 is mainly based on information from the SIGEOM database of the MERN (<http://sigeom.mines.gouv.qc.ca/>), whereas information for the period between 2006 and May 2016 was obtained from Maudore.

The following sections summarize historical drilling for each area of interest around the Osborne-Bell deposit (Figure 6-2, Table 6-2 and Table 6-3), which collectively correspond to the limits of the former Comtois Property in 2016. The former names of property areas and showings have been changed in the text, figures and tables to reflect current nomenclature and facilitate comprehension.

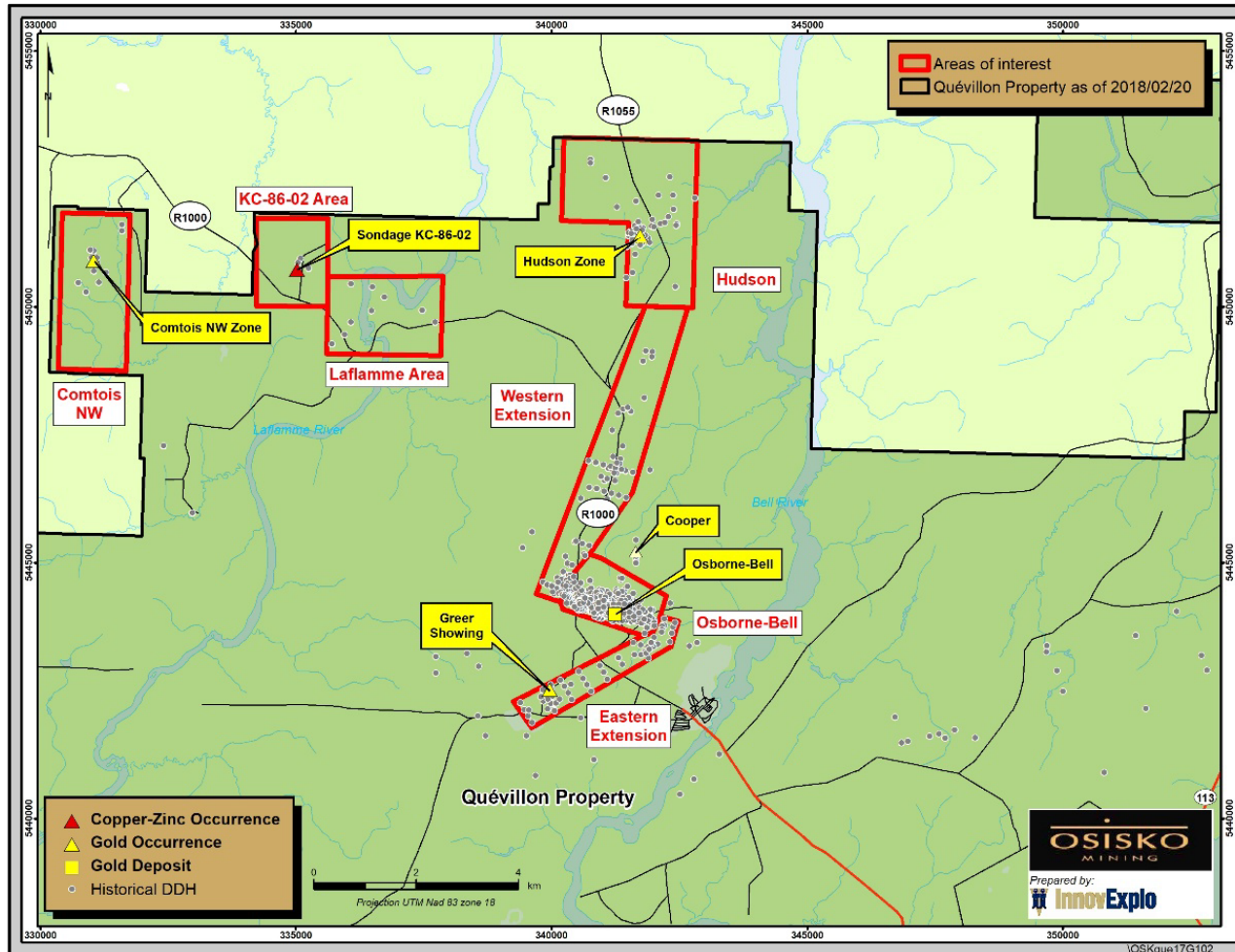


Figure 6-2: Map of the main areas of interest (red) around the Osborne-Bell deposit (yellow square) showing locations of mineral occurrences (triangles) and historical drill hole collars. (Names reflect current nomenclature.)



Table 6-2: Historical holes drilled on the Osborne-Bell deposit area from 1966 to 2012 by area of interest (shaded cells from 1967 and 1986 indicate missing information on final hole depths)

Year	Company	Areas of interest	Number of DDH	Total Length	Year	Company	Areas of interest	Number of DDH	Total Length
1967	Beehler Syndicate & Kerr Addison	Osborne-Bell	4	293.2	2001	Maude Lake & Noranda	Osborne-Bell	25	6,803.1
		Western Extension	3	294.7			Hudson	13	2,727.0
		Hudson	6	102.2			Western Extension	4	841.4
1968	Sullico Mines	Exploration	2	181.4	2002	Maude Lake	Osborne-Bell	7	1,499.2
1970	North Shore Uranium	Exploration	3	383.1	2003	Maude Lake	Osborne-Bell	6	1,942.6
1976	Newmont	Exploration	2	271.3	2006	Maudore Minerals	Osborne-Bell	32	9,190.7
1977	Hudbay Mining	Exploration	1	144.4			Western Extension	1	562.5
1978	US-CA-MEX Explorations	Exploration	6	719.9	2007	Maudore Minerals	Osborne-Bell	36	14,616.0
1979	Mattagami Lake	Hudson	4	495.9			Western Extension	2	495.0
1980	Selco Mining & SEREM	Exploration	2	192.9			Eastern Extension	3	931.0
		Western Extension	1	140.6	2008	Maudore Minerals	Cooper	8	1,506.5
1981	Mattagami Lake & Selco Mining	Hudson	2	252.4			Eastern Extension	4	1,224.5
		Exploration	1	87.5			Hudson	3	729.0
1982	SEREM	Exploration	2	430.8			KC-86-02 Area	3	882.0
1984	Noranda & Teck Explorations	Western Extension	1	121.9			Osborne-Bell	69	28,660.5
		Hudson	2	243.2	2009	Maudore Minerals	Comtois NW	1	111.0
Exploration	3	304.8	Hudson	6			1,798.1		
1985	Noranda	Hudson	2	441.7			Western Extension	5	1,075.0
1986	Société Exploration Kery	KC-86-02 Area	1	228.0	Osborne-Bell	83	31,818.3		
		Western Extension	3	3.0	2010	Maudore Minerals	Comtois NW	1	222.0
		Exploration	1	196.9			Osborne-Bell	287	77,172.2
Hudson	7	1,435.7	Exploration	2			255.0		
1994	Cameco	Osborne-Bell	5	1,069.5	Western Extension	8	2,091.0		
1995	Cameco	Osborne-Bell	10	3,078.5	Eastern Extension	2	471.0		
		Eastern Extension	1	190.0	2011	Maudore Minerals	Comtois NW	4	619.5
		Western Extension	1	196.9			Eastern Extension	44	11,008.8
Eastern Extension	1	84.0	Osborne-Bell	198			45,430.7		
Osborne-Bell	3	1,074.0	Exploration	2			231.0		
Exploration	3	454.0	Western Extension	44			11,082.2		
1997	Cameco	Eastern Extension	4	781.8	2012	Maudore Minerals	Exploration	2	361.0
		Western Extension	4	704.9			Eastern Extension	22	8,294.4
		Exploration	2	302.4			Osborne-Bell	69	31,202.0
1998	Maude Lake	Osborne-Bell	1	361.0			Western Extension	21	6,755.4
1999	Maude Lake	Osborne-Bell	18	4,881.1			Hudson	11	4,709.0
		Eastern Extension	1	144.0	La flamme	9	2,005.0		
		Exploration	2	399.6	Comtois NW	10	2,190.0		
2000	Maude Lake & Phelps-Dodge	Osborne-Bell	5	681.0	TOTAL			1,175	333,790.6
		Exploration	5	494.0					



Table 6-3: Historical holes drilled on the Osborne-Bell deposit area from 1966 to 2012 by area of interest

Areas of interest	Number of DDH	Total length
Osborne-Bell	858	259,773.6
Western Extension	100	24,604.4
Eastern Extension	82	23,129.5
Hudson	56	12,934.1
Exploration	42	5,584.9
Comtois NW	16	3,142.5
Cooper	8	1,506.5
KC-86-02 Area & Laflamme	13	3,155.0
Total	1,175	333,830.5

6.3.1.1 Period: 1962 to 1967

In 1962, Rio Tinto Canadian Exploration Ltd. completed ground geophysics on the Western Extension and identified a north-south-trending EM anomaly. The anomaly was explained by a trench exposing a 9-m wide band of semi-massive to massive sulphides, but no significant gold or base metal values were obtained.

During a prospecting program in 1966, F. Beehler discovered the Beehler showing (within the current Osborne-Bell resource limit). The showing was an east-west-trending sulphide-rich zone from which a grab sample returned 68.6 g/t Au. The following year, Beehler Syndicate explored the property using geophysical surveys and carried out a 6-hole diamond drilling program totalling 523.0 m, with 4 diamond drill holes (“DDH”) on Osborne-Bell and 2 DDH on the Western Extension. The best result came from Osborne-Bell with 3.1 g/t Au over 0.76 m.

In 1967, Kerr Addison Mines Ltd. (“Kerr Addison”) followed up on the regional airborne EM survey with ground geophysics, 6 DDH on the Hudson Zone and 1 DDH on the Western Extension. The first gold intercepts on the Hudson Zone reached up to 13.0 g/t Au over 6 cm (KAJ-67-01A).

6.3.1.2 Period: 1975 to 1986

During the period of 1975 to 1986, the following exploration companies flew regional EM surveys over part or all of the northwest portion of the current Central Block: Shell Canada Ltd. (“Shell Canada”; 1975), Mattagami Lake Mine Ltd. (“Mattagami Lake”; 1976), SEREM Ltée (“SEREM”; 1978) and Kerr Addison (1985).



The targets generated by these surveys were followed up by mapping, geophysics and soil geochemistry in specific areas, including the Hudson Zone (Mattagami Lake in 1978; Noranda from 1982 to 1986), the Eastern Extension (Shell Canada in 1976; Noranda Exploration Ltd. (“Noranda”) in 1982; Teck Exploration Ltd. (“Teck”) in 1984), and the Western Extension (SEREM in 1978 and 1979; Noranda in 1984).

Hudson Zone

In 1979 and 1981, Mattagami Lake drilled 6 DDH totalling 748.3 m. Hole TN-79-11 yielded a significant gold intercept of 5.3 g/t Au over 1.5 m. From 1984 to 1986, Noranda drilled 10 DDH totalling 2,119.6 m. Hole TN-85-02 yielded several significant gold intercepts, the best being 10.4 g/t Au over 2.6 m.

Western Extension

SEREM drilled 1 DDH of 140.6 m in 1980 without significant values. In 1984, Teck drilled 3 DDH totalling 304.8 m, but no significant values were obtained. That same year, Noranda drilled 1 DDH of 121.9 m, also without significant results.

KC-86-02 Area

Société en Commandite Exploration Kery drilled 1 DDH in 1986 that returned anomalous zinc and silver values explained by narrow sphalerite stringers: 0.6% Zn and 4.1 g/t Ag over 0.6 m in KC-86-02 (228.0 m).

Also, during the period of 1975 to 1986, other companies explored for commodities such as uranium, copper and zinc (e.g., North Shore Uranium, US-CA-MEX Exploration, Selco and SEREM).

6.3.1.3 Period: 1990 to 1992 (Osborne)

In 1990, Bryan S. Osborne carried out basal till sampling surveys over areas of favourable geology for gold between Casa Berardi and Lebel-sur-Quévillon. Three samples over 1,000 ppb Au prompted Osborne to stake 12 claims in the Comtois Township and carry out a B-horizon soil survey east of the historical Beehler showing (Osborne, 1992). The survey identified an east-west-trending gold anomaly in the B-horizon, some 250 m long by 100 m wide with a maximum gold value of 1,500 ppb. Subsequent prospecting in the area exposed areas of weakly auriferous volcanic rocks with minor sulphides, mainly fine-grained pyrite.

In 1992, an 85-m long north-south trench was excavated to expose the mineralized zone. Anomalous gold values were encountered over almost the entire trench length except where cut by late dikes. The sample with the highest grade ran 8.6 g/t Au over 1.1 m. This original trench is located within the current Osborne-Bell resource area.



6.3.1.4 Period: 1993 to 1997 (Cameco Corporation)

In 1993, Cameco Corporation (“Cameco”) optioned Osborne’s property and completed geophysical surveys over the Osborne-Bell deposit. The company progressively acquired more claims to extend the coverage of this sector.

Since 1994, Cameco undertook a major exploration program surrounding the deposit that included geological mapping, prospecting, stripping, sampling and two geochemical surveys. Based on these results, Cameco drilled 34 DDH from 1994 to 1997, for a total of 7,936 m, with the majority in the immediate vicinity of the deposit.

In 1997, Maude Lake Exploration Ltd. (“Maude Lake”) optioned a claim block from Cameco. The agreement allowed Maude Lake to acquire a 50% interest by incurring \$1.3 million in exploration expenditures and paying \$175,000. A joint venture was to be formed between the two companies according to the conditions in the option agreement.

6.3.1.5 Period: 1998 to 2004 (Maude Lake Exploration Ltd.)

In 1998, Phelps Dodge Corporation of Canada Ltd. (“Phelps Dodge”) carried out geophysical surveys, geological mapping and a humus survey to the west of the Eastern Extension (Figure 6-1). A number of geophysical anomalies were detected and two years later, in 2000, Phelps Dodge drilled 5 DDH for 494 m but did not obtain any significant values.

From 1998 to 2003, Maude Lake’s exploration activities consisted mainly of stripping, geophysical surveys, geochemical surveys and diamond drilling. The latter comprised 84 DDH totalling 20,519.9 m.

Encouraging results led Maude Lake to prepare an internal resource estimates for the Osborne-Bell deposit (Evans, 2002). Both estimates predate the NI 43-101 and are therefore unlikely to comply with current standards.

In 2001, Maude Lake entered into an option agreement with Newmont Mining Corporation (“Newmont”) who had acquired Noranda’s interests in the property. Under the terms of the agreement, Maude Lake could acquire Newmont’s 95% interest in a 15-claim block contiguous to the Comtois Property. During the fall of 2001, Maude Lake conducted ground geophysics and drilling on the claim block and uncovered the gold-bearing trend of the Hudson Zone.

In 2004, Maude Lake changed its name to Maudore Minerals Ltd.



6.3.1.6 Period: 2005 to October 2012 (Maudore Minerals Ltd.)

In 2005, exploration activities were put on hold while Cameco and Maudore Minerals Ltd. ("Maudore"; formerly Maude Lake) reached a Purchase and Sale agreement. Cameco agreed to sell, assign and transfer to Maudore the assigned interest (including any royalty) in the Comtois Property, resulting in Cameco no longer holding any liens on the property.

Following the acquisition, Maudore resumed exploration activities, specifically airborne geophysics (2006, 2008 and 2012), ground geophysics (2007 and 2009), borehole geophysics (2006 and 2007), mapping (2007, 2008, 2009 and 2012), stripping (2007), soil geochemistry (2007, 2011 and 2012) and core diamond drilling (2006 to 2012). This period was marked by major exploration programs and two mineral resource estimates, as described below.

The period between 2006 and October 2012 was highlighted by extensive diamond drilling programs resulting in 992 DDH for a total of 297,700.26 m. Throughout this period, the programs were guided by the following objectives:

- Follow up on the significant gold grades obtained from earlier Osborne-Bell drill holes and the expansion of the Osborne-Bell resource base. This was a main focus in 2010 and 2011 when the definition drilling program aimed to upgrade the confidence level and add near-surface resources with the perspective of developing an open-pit scenario for the first 150-200 m below surface.
- Develop and delineate lateral extensions of known mineralized trends (particularly in the Western Extension and Eastern Extension areas between 2010 and 2012) and investigate the area immediately north of the Osborne-Bell deposit (the Mafic North area) where mineralized intersects run parallel to the main resource body. The bulk of drilling in the Osborne-Bell area in 2012 was concentrated in this area.
- Target exploration areas for potential new discoveries and investigate historical areas of activity. As the drilling grid on the deposit tightened, it became possible, particularly in 2012, to investigate the Comtois NW and Laflamme areas, as well as the Greer showing in the Eastern Extension area. In addition, drilling returned to the Hudson area in 2008 after a hiatus of 7 years. A total of 12,475.6 m was drilled in 46 holes to investigate exploration targets and define historical values.

Other exploration activities during that period consisted of a Novatem high-resolution magnetic survey over the Comtois Property with a line spacing of 100 m (50 m locally), for a total flight path of 2,267 km. More details about this survey are available in the 2012 technical report (Carrier et al., 2012).



6.3.1.7 Period: October 2012 to May 2016 (Maudore Minerals Ltd.)

Since the publication of the October 2012 technical report (Carrier et al., 2012), no other technical report has been produced for the property. InnovExplo's involvement in the former property ceased once Maudore focused its capital and efforts on finalizing the 2013 acquisition of the Vezza and Sleeping Giant mines. In the following years, as Maudore and its subsidiary, Mines Aurbec, faced economic difficulties and financial restructuring, the available capital to develop the former Comtois Property dwindled to the point where no major exploration programs were conducted after October 2012. Eventually, Maudore was obliged to commence proceedings under the Bankruptcy and Insolvency Act during the second quarter of 2016.

Because InnovExplo has not been actively involved in the Maudore's Comtois Property since 2012, a former agent of Maudore was contacted to provide any new or relevant information on project activities that may have occurred during that period. Below is a summary of the exploration work conducted by Maudore from October 2012 to May 2016. The information was provided by former agents that were involved in the exploration programs.

- Maudore completed three internal reports on the Osborne-Bell gold deposit. The reports touched on various subjects, such as host rock lithogeochemistry (March 12, 2013), a petrography and electron microprobe study on selected samples (November 25, 2012), and an investigation into the controls on mineralization at the deposit.
- SGS Lakefield Research Ltd. finalized their report entitled "A scoping-level gold recovery test program on the Osbell deposit samples" with the addition of grindability tests (Dymov and Hendry, 2012).
- The 2012 Novatem airborne magnetic survey of 2012 was consolidated with a previously completed property-wide survey. In addition, a ground magnetic survey was also completed on the Osborne-Bell, Comtois NW and Hudson areas.
- Eleven (11) kilometres of core were logged and imported into the Geotic database. The core was from the end of the 2012 drilling program.

Other work was planned but did not materialize. After the discovery of Comtois NW in 2009, only 16 more holes were drilled from 2009 to 2012, even though more had been planned. Drilling permits were obtained following an environmental study, but Maudore never carried out the work after budget cuts limited all exploration activities.

Also, in March and August 2012, InnovExplo supervised the drilling of HQ-calibre DDH for metallurgical testwork, but the half-core samples were never sent. The split core remains in core boxes at the Osisko core storage facilities in Lebel-sur-Quévillon.



Only one DDH was completed after October 26, 2012, the effective date of the 2012 technical report (Carrier et al., 2012). Hole COM-12-952 was drilled in the Mafic North area, just north of the Osborne-Bell deposit, and completed on November 2, 2012. The hole was mentioned in the 2012 technical report.

Of the 144 DDH completed in 2012, the assay certificates for 63 holes were received after the database close-out date of August 13, 2012. Of these, 50 were drilled in the Osborne-Bell area and could therefore be added to the database for the current resource estimate (see Chapter 14). Table 6-4 summarizes the significant mineralized intercepts contained in the certificates.

The reader should refer to Carrier et al. (2012) for detailed information on past drilling campaigns.

Table 6-4: Summary of Maudore 2012 drill holes from which assay certificates were received after the database close-out date for the 2012 MRE (August 13, 2012)

Area	Number of drill holes	Total metres drilled (m)
Osborne-Bell	18	13,120.5
Osborne-Bell (Mafic North)	27	11,704.5
Eastern Extension	11	3,780
Western Extension	7	3,044
Total	63	31,649

6.3.2 Mineral Resource Estimates

From 2006 to October 2012, Maudore mandated two NI 43-101 mineral resource estimates for the Osborne-Bell deposit from InnovExplo, one in 2010 and the other in 2012. In 2018, Osisko mandated InnovExplo to prepare a new mineral resource estimate for the Osborne-Bell deposit and a supporting Technical Report on the Quévillon Property. The supporting technical reports are available on SEDAR (sedar.com).

6.3.3 Quévillon Property (Western, Central and Northeastern Blocks)

The exploration history of the Quévillon Property outside the Osborne-Bell deposit area (i.e., the former Comtois Property; see section 6.3.1) is presented below in three parts, one for each claim block (Figure 6-3). The information was compiled from the MERN's SIGEOM database (<http://sigeom.mines.gouv.qc.ca/>).

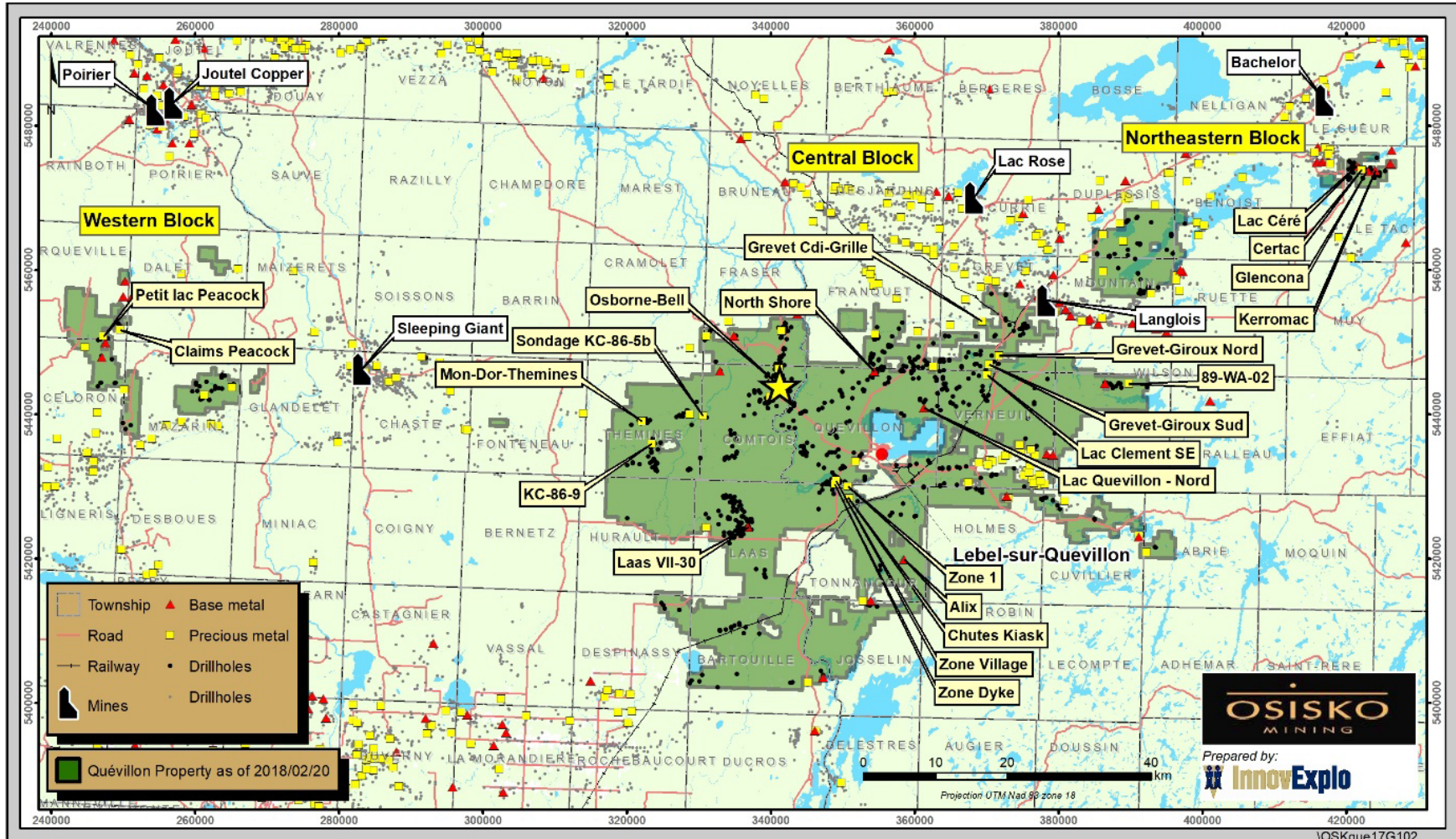


Figure 6-3: Map of principal mines, prospects, occurrences and showings on and around the Osborne-Bell Deposit (Quévillon Property), as well as historical DDH (black = on the property, grey = outside). Sources: SIGEO



6.3.3.1 Central Block

A total of 625 assessment reports concern the Central Block of the Quévillon Property. Of this total, 452 reports are on aerial and ground geophysical surveys, and the remainder relate to geological work such as drilling, mapping, trenching, sampling, geochemistry and geological interpretation. The reader is reminded that all work conducted in the Osborne-Bell deposit area (i.e., Maudore's former Comtois Property) is excluded from this discussion on the Central Block.

Most of the mapping done by the government took place in the northern portion of the Central Block in 1935 (RP 108), 1937 (RP 114), 1938 (RP 122), 1939 (RG 002), 1946 (RG 024) and 1958 (MAP 1257). The northeast corner of the Central Block was mapped in the 1990s (MB 91-14, RG 96-07, RG 97-09, and RG 97-10). Compilation maps were published in 1984 (CG 032F/02) and 2010 (CG SIGEOM32F). The southern portion of the Central Block is poorly covered by recent mapping. Most information in this area comes from regional reconnaissance maps dating from 1934 (RASM 1934-C3), 1935 (RASM 1935-C1), 1939 (RG 002) and 1946 (RG 024).

Areas covered by geophysical surveys range in size from 1 km² to 500 km². Most surveys exceeding 100 km² are concentrated in the central and northern parts of the Central Block. The distribution of geophysical assessment reports over time reveals a major period of data acquisition from 1975 to 1998. This period of exploration corresponds to the 1982 discovery of the Langlois base metal mine (VMS deposit). This mine lies just outside the Quévillon Property, near its northeastern boundary, approximately 30 km from the town of Lebel-sur-Quévillon. The peak of geophysical data acquisition corresponds to ground surveys (EM and IP/Res surveys) between 1986 and 1988. This period coincides with the 1985 discovery of a few other massive sulphide deposits in the Matagami camp.

A Mark IV INPUT survey in 1974 covered all of the southern portion of the Central Block (DP 237), whereas three other Mark IV INPUT surveys covered the northern portion in 1981 (DP 819), 1984 (DP-83-32) and 1985 (DP-85-19). From 2001 to 2003, Noranda and Virginia Gold Mines Inc. ("Virginia") jointly carried out a MEGATEM®II survey, which was publicly released in 2009 (DP 2008-41).

Two major periods of drilling took place on the Central Block: 1956 to 1961 and 1986 to 1990. The total meterage drilled from 1956 to 2016 on the claim block but outside the Osborne-Bell deposit area (former Comtois Property) is 91,172 m in 674 holes (Figure 6-3 and Table 6-5), but when the deposit area is included, the total is 456,611.6 m (Figure 6-3, Table 6-5 and Table 6-6).



During the period 1956 to 1961, drilling programs covered the Central Block from the town of Lebel-sur-Quévillon to the western limit of the property and in the area north of the town. This period of activity coincides with the discovery of several base metal massive sulphide deposits in Matagami (Mattagami Lake Mine in 1957) and Joutel (Joutel Copper Mine in 1958), roughly 100 km northwest of Lebel-sur-Quévillon (Figure 6-3). In 1958, Quebelle Mines Ltd. concentrated their drilling on the Cedar Rapids prospect, discovered in 1939, at 7 km southwest of Lebel-sur-Quévillon. The Village Zone of the Cedar prospect occurs on the Quévillon Property, whereas Zone 1 is a few hundred metres outside its limits. This period of exploration also led to the discovery of five prospects all located in the Quévillon Property: Grevet-Giroux South and North, Alix, North Shore and Laas VII-30. Between 1959 and 1961, Hudson Bay Exploration & Development Co. Ltd. (“Hudson Bay Exploration”) drilled 86 DDH in the eastern part of the Central Block, with 59 of them around the Laas VII-30 prospect in Laas Township.

The period from 1962 to 1984 was relatively quiet in terms of exploration, with small drilling programs sparsely distributed in the northern portion of the Central Block and south of the Osborne-Bell deposit. The principal interest was the INPUT conductors located in the felsic and intermediate volcanic units of the Quévillon Group. SEREM was particularly active between 1980 and 1982 in the northeastern part of Grevet, Verneuil and Quévillon townships (Figure 6-3).

During the period from 1986 to 1990, drilling concentrated on the northeastern part of the Central Block following the discovery of the Langlois mine. During this period, more intense drilling and follow-up work led to the discovery of six occurrences: Mon-Dor-Thémines, Sondage KC-86-5b and KC-86-9 in the western portion of the Central Block, and Grevet Cdi-Grille and 189-WA-02 in the northeastern corner (Figure 6-3).

Drilling after 1990 was sporadic. Between 1997 and 2000, SDBJ drilled 31 DDH on the property, most of them concentrated around the Cedar Rapids prospect. The SDBJ campaign led to the discovery of a third zone at Cedar named the Dyke Zone. Between 2008 and 2012, Maudore drilled 71 DDH north of the town of Lebel-sur-Quévillon, and between the town and the western limit of the Central Block.

Only a few significant gold, silver, copper and zinc intervals were encountered. In 2015 and 2016, SOQUEM drilled 9 DDH on EM conductors in the Verneuil and Quévillon townships for a total of 1,709 m (GM 69675). No significant values were reported. Three occurrences were also discovered during this period: Lac Quévillon North in 1993 and Lac Clément SE in 1996, both by prospecting, and Chutes Kiask in 2012 by drilling.

The best mineralized intervals in drill holes on the Central Block (outside the deposit area) are listed in Table 6-6. The most significant area for gold mineralization in Central Block (aside from the deposit and surrounding prospects) is the Cedar Rapids area.



**Table 6-5: Summary of historical drill holes on the Central Block
(excluding the Osborne-Bell deposit area; i.e., Table 6-2)**

Period	Companies	Number of DDH	Total length (m)
1956-1961	New Jersey Zinc Expl Co Ltd, Canadian Shield Mining Corp, East Sullivan Mines Ltd, Hudson Bay Expl & Dev Co Ltd, and 6 others	155	15,054.2
1962-1968	Cambridge Mining Corp Ltd, Coniagas Mines Ltd, Noranda Expl Co Ltd, Sullico Mines Ltd, and 5 others	33	4,783.0
1969-1973	Groupe Minier Sullivan Ltée, Naganta Mining & Dev Co Ltd, North Shore Uranium Corp, SOQUEM, Sullico Mines Ltd, and 1 other	34	2,686.0
1974-1977	Amax Potash Ltd, Naganta Mining & Dev Co Ltd, and 2 others	11	1,233.0
1978-1984	Hudbay Mining Ltd, Mattagami Lake Expl Ltd, Selco Mining Corp Ltd, SEREM Ltée, Shell Canada Ltée, SOQUEM, Teck Expls Ltd, and 4 others	86	8,642.0
1986-1990	Caliente Resources Ltd, Exploration Kerr Addison Inc, Midnapore Resources Inc, Mines D'or Perron Ltée, Ressources Beaufield Inc, SOQUEM, and 13 others	176	26,419.8
1993-2004	BHP Minerals Canada Ltd, Cambior Inc, Minerals Lac Ltée, Mines D'or Virginia Inc, Noranda Inc, Phelps Dodge Corp of Canada Ltd, Société de Développement de la Baie James, and 6 others	85	17,115.0
2008-2016	Minéraux Maudore Ltée, SOQUEM, and 1 other	94	15,238.8
Total		674	91,171.8



Table 6-6: Significant historical gold and base metals intercepts in the Central Block (excluding the Osborne-Bell deposit area). Data from SIGEOM

Report	Area	HOLE-ID	Year	Township	Easting_UTMZ18	Northing_UTMZ18	LENGTH (m)	Au (g/t)	Zn (%)	Cu (%)	Company
GM 10518-B	Cedar Rapids	10	1959	Quévillon	349003	5430869	4.6	4.30			Quebelle Mines Ltd
GM 10518-A	Cedar Rapids	12	1960	Tonnancour	350689	5430188	1.1	3.20			Claims Boucher
GM 56136	Cedar Rapids	CDR97-2	1997	Quévillon	349147	5430872	1.0	6.05			SDBJ
GM 56136	Cedar Rapids	CDR97-6	1997	Quévillon	349170	5430944	12.7	0.70			SDBJ
GM 56136	Cedar Rapids	CDR9807	1998	Laas	348932	5430401	1.0	21.35		0.86	SDBJ
GM 56136	Cedar Rapids	CDR9818	1998	Laas	348986	5430451	1.1	4.44		0.50	SDBJ
GM 56641	Cedar Rapids	CDR9830	1998	Quévillon	349260	5430579	1.0	1.41		0.29	SDBJ
GM 57567	Cedar Rapids	CDR9934	1999	Quévillon	349057	5430511	1.0	6.40			SDBJ
GM 58308	Cedar Rapids	CDR9933	1999	Quévillon	349357	5431249	2.0	2.60	0.54		SDBJ
GM 57567	Cedar Rapids	CDR9936	1999	Quévillon	349104	5430286	4.2	0.60			SDBJ
GM 57567	Cedar Rapids	CDR9937	1999	Quévillon	348783	5430706	31.4	2.00			SDBJ
GM 58308	Cedar Rapids	CDR00-39	2000	Quévillon	349398	5430843	1.9	1.69			SDBJ
GM 66564	CSW-09-01	CSW-10-06	2010	Thémines	328750	5439940	1.0	8.33			Mineraux Maudore Ltee
GM 15106	Franquet-Coin SE	G-1	1961	Grevet	363499	5447325	1.5			0.42	East Sullivan Mines Ltd
GM 15111	North Shore	Q11	1961	Quévillon	354542	5445694	2.3		3.70	1.30	East Sullivan Mines Ltd
GM 21553	North Shore	S-Q-2	1966	Quévillon	354427	5445892	4.4		0.80	0.60	Sullico Mines Ltd
GM 22443	0.6 km South of Josselin-Tonnancourt	T-22	1968	Josselin	353870	5413561	2.0	1.04			Noranda Expl Co Ltd
GM 15111	1.4 km East-North-East of North Shore	F-4	1961	Franquet	355749	5446555	11.3			0.20	East Sullivan Mines Ltd
GM 39316	5 km southeast of Osborne-Bell	78-3	1969	Quévillon	344749	5440471	1.5		0.67		Naganta Mining & Dev Co Ltd
GM 39361	5 km southeast of Osborne-Bell	82-QV-C-1	1982	Quévillon	356492	5445066	1.6		0.20		Serem Ltee
GM 15114	Regional Exploration	Q-20	1962	Quévillon	358204	5446168	1.5	1.09			East Sullivan Mines Ltd
GM 13302	Regional Exploration	D.H.3	1963	Tonnancour	358096	5426110	15.0			0.10	Cambridge Mining Corp Ltd
GM 45986	Regional Exploration	H-1416-05	1986	Franquet	359454	5447345	1.7	1.30			Expl Min Golden Triangle Inc
GM 48238	Regional Exploration	88-9	1988	Cuvillier	377940	5428430	1.4	1.76			Soquem
GM 64381	Regional Exploration	08-BART-03	2008	Bartouille	346994	5404486	1.2		0.32		Claims Lacasse
GM 64381	Regional Exploration	08-BART-02	2008	Bartouille	347302	5403869	1.5		0.70		Claims Lacasse

6.3.3.2 Western Block

A wide range of exploration work has been conducted on the Western Block since 1957. The main activities were geophysical surveys (83 assessment reports), compilation studies (31 assessment reports) and 49 DDH between 1960 and 2012. A regional government mapping program covering the entire Western Block was carried out in 1937 by the Geological Survey of Canada (Wilson, 1940). The Western Block was covered later by other regional mapping programs in 1949 (RP 236), 1959 (RG 088 and RG 089), 1981 (DP 851) and 1983 (DP 83-25), and by a geological compilation map in 1984 (CG 032E/01). No mapping has been done since then by the government.

Most of the historical exploration work on the Western Block took place during four periods.



During the period 1959 to 1961, following the discovery of the Lac Mattagami Zn-Cu deposit in 1957 about 75 km northeast of the Western Block, base metal exploration work started in the area covered by the Quévillon Property. As for the Mattagami deposit, geophysics played a major role in the discovery of the Joutel copper (1958) and Poirier (1959) zinc and copper deposits located 30 km north of the Western Block (Figure 6-3). In 1958, American Metal Climax Inc. flew a MAG and EM survey over the eastern portion of the Western Block (GM 07238). The central part of the westernmost block of claims (Celoron and Carqueville townships) was investigated in 1959 and 1960 by Mining Corp. of Canada and Turgeon Syndicate with ground EM, MAG and gravimetric surveys. Turgeon Syndicate drilled two short DDH.

Period from 1963 to 1984, SOQUEM, SDBJ, Eagle Gold Mines Ltd., Adcura Ltd., and Deeprobe Syndicate covered much of the Western Quévillon Block with aerial magnetic surveys as well as several square kilometres of ground electric and EM surveys. In 1971, Colleen Copper Mines Ltd. flew a MAG survey over much of the western portion of the Western Block (GM 27412). In 1973, a regional airborne MAG survey was conducted by the Geological Survey of Canada and the MERN over the entire Western Block (DPV 164). In 1974, Deeprobe Syndicate surveyed most area of the Western Block using airborne Turair EM and MAG techniques (GM 30872). A total of four DDH were drilled by SOQUEM (GM 28565) and Falconbridge (GM 32984) on ground EM anomalies (Table 6-7). This period corresponds to the discovery of the Sleeping Giant mine in 1976, about 13 km to the east of the Western Block limit (Figure 6-3).

The period from 1985 to 1992 was characterized by surface work (prospecting, mapping, trenching, sampling), ground and aerial geophysics, and drilling programs (33 DDH for 4,334 m of core). In 1987, Golden Trend Energy Ltd. and Eastern Mines Ltd. drilled 21 holes in Mazarin Township, following east-west-trending EM anomalies in the eastern part of the Western Block. No significant mineralization was obtained in drill core. All other holes in the Western Block during this period were concentrated in the westernmost part of the Quévillon Property, especially around the Mont Hébert and Claims Peacock showings (both outside of the property) discovered by prospecting in 1972 and 1986, respectively (Figure 6-3).

Since 1989, little exploration work has been conducted on the Western Block. In 2007, Exploration Lounor Inc. drilled five DDH in Carqueville Township. The drilling program led to the discovery of the Lac Fumerton base metal showing. In 2012, Maudore discovered two silver showings (MAZ-12-04 and MAZ-12-03) in Mazarin Township. All three showings are on the property. Noranda and Virginia carried out a MEGATEM®II survey between 2001 and 2003 in the southern portion of the Western Block. The survey was publicly released in 2009 (DP 2008-17).

The best mineralized intervals in drill holes on the Western Block are listed in Table 6-8. The most significant gold values occur in Craqueville Township, near the Claims Peacock and Petit Lac Peacock showings outside the property.



**Table 6-7: Summary of historical drill holes on the Western Block
(data from SIGEOM)**

Period	Companies	Number of DDH	Total length (m)
1960	Turgeon Synd	2	25.0
1968	Claims Arcand & Carrière	1	61.0
1972	SOQUEM	1	107.0
1977	Falconbridge Nickel Mines Ltd	3	341.0
1985-1992	Cogema Canada Ltd, Eastern Mines Ltd, Exploration Omega Inc, Golden Trend Energy Ltd, Mines Sigma, Ressources Orient Inc, Exploration Rio Algom Inc, and 3 others	33	4,334.0
2007	Exploration Lounor Inc	4	341.0
2012	Minéraux Maudore Ltée	5	992.4
Total		49	6,201.4

**Table 6-8: Significant historical gold and base metal intercepts on the Western Block
(data from SIGEOM)**

Report	Area	HOLE-ID	Year	Township	Easting_UTMZ17	Northing_UTMZ17	LENGTH (m)	Au (g/t)	Zn (%)	Cu (%)	Company
GM 50313	Claims Peacock	443-90-5	1990	Carqueville	686627	5450067	0.9		0.6		Ressources Orient Inc
GM 43552	Claims Peacock	CAR-86-3	1986	Carqueville	686833	5449835	1.0	1.4			Exploration Omega Inc
GM 43552	Petit Lac Peacock	CAR-86-7	1986	Carqueville	684237	5447690	1.1	1.4			Exploration Omega Inc
GM 32984	Regional Exploration	768-7	1977	Céloron	684453	5441137	0.9		0.4		Falconbridge Nickel Mines Ltd
GM 32984	Regional Exploration	768-8	1977	Céloron	686131	5445072	0.2		0.2		Falconbridge Nickel Mines Ltd
GM 32984	Bieber	768-9	1977	Céloron	684659	5445408	0.3		0.2		Falconbridge Nickel Mines Ltd
GM 28565	MAZ-12-03	429-30-01	1972	Mazarin	703214	5442995	3.0		0.2		SOQUEM
GM 62992	Lac Fumerton	CA-07-06	2007	Carqueville	687101	5455971	0.2		1.89	0.3	Exploration Lounor Inc

6.3.3.3 Northeastern Block

The Northeastern Block consists of two groups of claims (Figure 6-3). The larger group of claims is located close to the Central Block, mainly in Mountain and Duplessis townships, roughly 7 km and 17 km, respectively, from the active Langlois base metal mine (discovered in 1982) and the Lac Rose historical gold mine (discovered in 1934). Most of the historical work was concentrated on this larger group of claims. The other block of claims is in Le Tac Township 10 km southeast of the active Bachelor gold mine (discovered in 1946).

The first reconnaissance mapping covering the whole area was carried out by the MERN in 1934 (RASM 1934-C4). The western portion was mapped by the MERN in 1989 (MB 89-34). The most recent map is a compilation produced by the MERN in 2010 (CG SIGEOM32F).

Four major periods of exploration work are distinguished on the Northeastern Block.



The period from 1949 to 1961 began when Hollinger Mining Company carried out trenching, stripping, sampling (around 800 assays) in 1949 and discovered four showings in Le Tac Township: Certac, Glenconna, Kerromac and Lac Céré (GM 34949). The Certac deposit and the Lac Céré prospect are located on the Quévillon Property (Figure 6-3). In 1950, American Metal Co. Ltd. (“American Metal”) produced a regional geological map between the Bell River and Lake Opawica (GM 05845). In 1951, Louvicourt Goldfield Corp. Exploration executed trenching, stripping and sampling at Certac, followed by geophysics. In 1952, Lichen Lake Mining Co. Ltd. (“Lichen Lake”) acquired the Certac Property and conducted prospecting, trenching, exploration and assessment work until 1956. In 1953, Glenconna Mining Co. Ltd. and South Bachelor Mining Co. drilled seven DDH (Table 6-9 and Table 6-10). In 1961, Lichen Lake drilled 930 m of core in 11 DDH in the vicinity of the Certac deposit (Table 6-10). The first aerial magnetic survey covering the Duplessis and Mountain townships was done by American Metal in 1957 (GM 05515).

At the beginning of the period from 1962 to 1978, small areas were surveyed by electromagnetic methods from 1962 to 1966. In 1965, after completing a regional airborne MAG and EM survey (GM 16313), Hudson Bay Exploration carried out a 10-hole drilling program for a total of 1,130 m in the southern portion of the Northeastern Block (Mountain Township) and intercepted several metre-thick semi-massive sulphide horizons without significant economic base metal values (GM 17652). SOQUEM, who was active on the Northeastern Block from 1969 to 1974 carried out six MAG, EM and gravimetric ground surveys in 1969 (GM 25045, GM 25047, GM 25690, GM 25049, GM 25685, and GM 25692). Selected geophysical targets were later tested in 1972 and 1974 by six DDH for a total length of 400 m. In 1977 and 1978, Certac Mining Corp. drilled 30 DDH on the Certac deposit for a total of 2,536 m and delineated a north-south-trending zone of gold and copper mineralization (GM 33807, GM 33809 and GM 34949).

During the period from 1980 to 1996, SEREM was particularly active in the larger block of claims, especially in the beginning of the 1980s and 1990s. The company completed several mapping, prospecting and stripping programs, and numerous ground VLF, MAG, electric and EM surveys. SEREM drilled a total of 10 DDH in 1981, 1982, 1990 and 1991, principally on previously identified geophysics conductors. The only anomalous values were for zinc and gold, mainly associated with graphitic and pyrrhotite horizons. In 1981, 1984 and 1985, the MERN covered the Northeastern Block with INPUT MK VI surveys (DP-83-32, DP-84-4, and DP-85-19). From 1989 to 1994, Ressources Minières RPM Inc. also conducted several geological surveys (mapping, sampling) as well as ground VLF and MAG surveys in the southernmost portion of the Northeastern Block. Geological mapping by Freewest Resources Inc. generated a new map in 1991 (GM 51611).



Exploration resumed in 2001 on the centre of the larger block (southeast corner of Duplessis Township) with Hudson Bay Exploration carrying out line cutting, rock sample analyses, ground HLEM and MAG surveys, geological mapping, and two DDH. The exploration program focused on VMS base metals. One of the geophysical conductors was explained by a 12-m wide intersection of massive and semi-massive pyrite, slightly anomalous in base metals. All the Northeastern Block claims were covered by the Noranda and Virginia MEGATEM®II regional airborne survey in 2003 (DP 2008-41). In 2004, Noranda conducted heliborne EM surveys on several previously identified MEGATEM anomalies over small tracts of land in the Grevet area, one of which falls within the larger large block of claims. A single DDH was drilled on a geophysical anomaly without significant result.

**Table 6-9: Summary of historical drill holes on the Northeastern Block
(data from SIGEOM)**

Period	Companies	Number of DDH	Total length (m)
1952-1953	Glencona Mining Co Ltd, South Bachelor Mining Co Ltd, and 1 other	8	1,084
1958-1965	Hudson Bay Expl & Dev Co Ltd, Lichen Lake Mining Co Ltd, and 6 others	32	3,297
1969-1974	Dome Expl Ltd, SOQUEM, and 3 others	14	1,507
1977-1994	Certac Mining Corp, SEREM Ltée, and 5 others	115	19,286
2001-2004	Hudson Bay Expl and Dev Co Ltd, Exploration Orbite VSPA Inc, Falconbridge Ltée	9	1,213
Total		178	26,387



**Table 6-10: Significant historical gold and base metal intercepts in the Northeastern Block
(data from SIGEOM)**

Report	Area	HOLE-ID	Year	Township	Easting_UTMZ18	Northing_UTMZ18	LENGTH (m)	Au (g/t)	Cu (%)	Company
GM 02427	Certac	SB-2	1953	Le Tac	422297	5473897	0.6	8.00	3.80	Glencona Expls Mining Ltd
GM 02427	Certac	SB-3	1953	Le Tac	422243	5473877	1.0	1.30	1.40	Glencona Expls Mining Ltd
GM 02427	Certac	SB-4	1953	Le Tac	422127	5473827	1.7	1.70	1.85	Glencona Expls Mining Ltd
GM 12080	Certac	2	1961	Le Tac	422095	5473867	3.0		0.90	Lichen Lake Mining Co Ltd
GM 12080	Certac	3	1961	Le Tac	422107	5473853	2.8		0.80	Lichen Lake Mining Co Ltd
GM 12080	Certac	4	1961	Le Tac	422107	5473853	2.3		4.70	Lichen Lake Mining Co Ltd
GM 12080	Certac	5	1961	Le Tac	422106	5473827	1.0		2.15	Lichen Lake Mining Co Ltd
GM 33807	Certac	C-2	1977	Le Tac	422194	5473980	4.6		0.75	Certac Mining Corp
GM 33807	Certac	C-4	1977	Le Tac	422191	5473989	12.8		0.28	Certac Mining Corp
GM 33809	Certac	C-77-12	1977	Le Tac	422038	5473965	1.1	23.00	0.63	Certac Mining Corp
GM 33809	Certac	C-77-7	1977	Le Tac	422068	5473976	2.1	2.67	1.52	Certac Mining Corp
GM 33809	Certac	C-77-8	1977	Le Tac	422066	5473973	3.3		0.74	Certac Mining Corp
GM 34949	Certac	C-78-13	1978	Le Tac	422205	5473936	6.1	2.58	3.40	Certac Mining Corp
GM 34949	Certac	C-78-15	1978	Le Tac	422167	5473932	1.8	29.33	2.63	Certac Mining Corp
GM 34949	Certac	C-78-16	1978	Le Tac	422167	5473883	4.3		0.55	Certac Mining Corp
GM 34949	Certac	C-78-17	1978	Le Tac	422239	5473935	3.9		0.55	Certac Mining Corp
GM 34949	Certac	C-78-18	1978	Le Tac	422276	5473994	9.7	2.97	0.96	Certac Mining Corp
GM 34949	Certac	C-78-19	1978	Le Tac	422274	5473994	1.3	12.67	0.49	Certac Mining Corp
GM 34949	Certac	C-78-20	1978	Le Tac	422255	5473958	12.7	2.53	0.63	Certac Mining Corp
GM 34949	Certac	C-78-21	1978	Le Tac	422279	5473939	12.7	2.87	0.57	Certac Mining Corp
GM 34949	Certac	C-78-22	1978	Le Tac	422278	5473938	4.8	2.87	0.22	Certac Mining Corp
GM 34949	Certac	C-78-23	1978	Le Tac	422277	5473906	1.8	1.03	1.25	Certac Mining Corp
GM 34949	Certac	C-78-27	1978	Le Tac	422277	5473906	1.4	22.73	0.70	Certac Mining Corp
GM 34949	Certac	C-78-28	1978	Le Tac	422271	5473973	7.6		0.90	Certac Mining Corp
GM 41893	Certac	OR-84-5	1984	Le Tac	422120	5473803	1.8		1.10	Exploration Orbite V.S.P.A. Inc
GM 41893	Certac	OR-84-6	1984	Le Tac	422132	5473829	2.0		2.47	Exploration Orbite V.S.P.A. Inc
GM 41893	Certac	OR-84-8	1984	Le Tac	422061	5473847	1.0	4.00		Exploration Orbite V.S.P.A. Inc
GM 42903	Certac	OR-85-32	1985	Le Tac	422612	5473825	2.7		1.12	Exploration Orbite V.S.P.A. Inc
GM 47528	Certac	OR-57	1987	Le Tac	422312	5474089	1.2		0.93	Exploration Orbite V.S.P.A. Inc
GM 52065	Certac	LT-93-4	1993	Le Tac	422351	5473626	1.2	2.00	1.60	Exploration Orbite V.S.P.A. Inc
GM 25932	Glencona	H-1	1970	Le Tac	423339	5473868	2.3		1.27	Glencona Expls Mining Ltd
GM 42266	Regional	OR-84-15	1985	Le Tac	420343	5473986	1.2	1.33		Exploration Orbite V.S.P.A. Inc



7. GEOLOGICAL SETTING AND MINERALIZATION

7.1 Regional Geology

The Windfall Lake, Urban-Barry and Quévillon properties are located within the Abitibi sub province of the Archean Superior Province. The Abitibi greenstone belt, divided into the Southern Volcanic zone ("SVZ") and the Northern Volcanic zone ("NVZ"), represents a collage of two arcs, delineated by the Destor-Porcupine-Manneville Fault zone (Figure 7-1). The SVZ is separated from the Pontiac sedimentary rocks, an accretionary prism to the south, by the Cadillac-Larder Lake Fault zone (Daigneault et al. 2004). The 2735-2705 Ma NVZ is ten times larger than the 2715-2697 Ma SVZ and both granitoid bodies and layered complexes are abundant in the former.

The Windfall Lake and Urban-Barry properties occur within the Urban-Barry greenstone belt in the eastern part of the Abitibi geological sub province. The Urban-Barry greenstone belt has an east-west extent of 135 km and is 4 km to 20 km wide. The greenstone belt is part of the NVZ of the Archean Abitibi sub province (Figure 7-1). It is bounded to the north by the Father plutonic suite, to the east by the Proterozoic Grenville province, to the south by granitoid and paragneiss rocks of the Barry Complex, and to the west by syn- to late-tectonic granitoid rocks of the Corriveau and Souart Plutons (Figure 7-2).

The Quévillon property occurs in a greenstone belt formed by volcanic rocks of the Vanier-Dalet and Quévillon Groups in proximity of the Level-sur-Quévillon area, 115 km west of Windfall Lake (Figure 7-1). Several major structures are present within this greenstone belt. The greenstone belt is comprised between the Marest Batholith, to the north, and the Bernetz Intrusion and Josselin Batholiths, to the south.

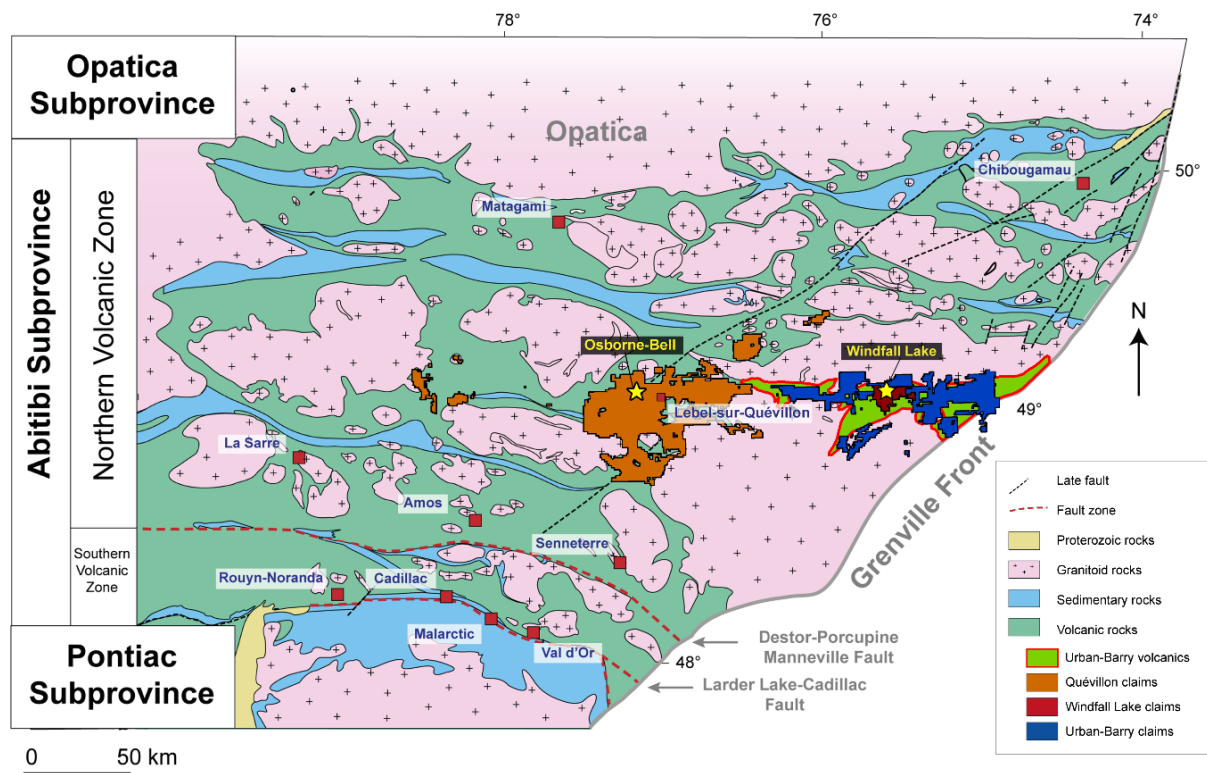


Figure 7-1: Generalized geology of the Archean Abitibi sub province with the location of the Urban-Barry and Quévillon properties and the Windfall Lake and Osborne-Bell deposits.
Modified from Daigneault et al. (2004).

7.2 Windfall Lake and Urban-Barry Properties

7.2.1 Local Geology

The Urban-Barry greenstone belt contains mafic to felsic volcanic rock units and is cross-cut by several east-trending and east-northeast trending shear zones that delineate three major structural domains easily visible on the regional total magnetic intensity map (Figure 7-3). The first domain is the Urban Deformation zone, a major sub-vertical, east-west-trending and dextral ductile shear zone extending along the northern margin of the greenstone belt (Bandyayera et al. 2002). The second domain is located in the central portion of the Urban-Barry belt and consists of a moderate strain fault-related folds style. The main foliation in this domain is oriented east-northeast and contains the Urban Syncline. The central portion of the belt is transected by the east-northeast-trending Milner and Masères ductile shear zones (Figure 7-2 and Figure 7-3). The latter is a thrust fault that strikes N60E dipping 60°E and is interpreted to cross-cut the Windfall Lake deposit. The Masères fault at Windfall Lake is also named the Bank Fault. The Milner and Masères shear zones are truncated to the north by the Urban Deformation zone. The third



domain is in the southern portion of the belt and is named the Barry Deformation zone. A set of north-northeast-trending brittle-ductile faults associated with slickenlines and stretching lineations that are moderately plunging to the northeast (Joly 1990) cross-cut all other structures and include the Thubière, Croft, Picquet, Father, Roméo, and Windfall faults.

Rocks of the Urban-Barry greenstone belt were deformed during the Kenoran orogeny (Card 1990; Hoffman 1991; Jackson and Cruden 1995). The age of the ductile deformation in the NVZ is bracketed between 2701 and 2692 Ma (Daigneault et al. 2004). Volcanics south of the Urban Deformation zone feature a Z-shape regional fold where the short limb is the site of a second order northeast-trending fault system (including the Milner, Mazère, Windfall, and Macho faults). Regional kinematic indicators point to a dextral transpressional setting. While approaching the Grenville Front, major Proterozoic discontinuities extending northeast become more prominent. The regional foliation generally strikes northeast to east-northeast with a variable dip from 30 to 85 degrees to the southeast (Hocq 1989; Joly 1990). The regional foliation is associated with a stretching lineation that plunges steeply to moderately to the east (Bandyayera et al. 2002). Associated regional folds are generally isoclinal with steeply plunging axes (Chown et al. 1992), although Bandyayera et al. (2002) interpreted a shallowly-plunging regional-scale syncline south of the Windfall Member (named Urban Syncline). The axial trace of the Urban Syncline is trending to the east-northeast and is interpreted to pass between Lac Rouleau and Windfall Members.

Rocks of the Urban-Barry greenstone belt are generally metamorphosed to greenschist facies, although near intrusions, conditions locally reached amphibolite assemblages (Joly 1990). The regional metamorphic temperature-pressure gradient generally increases eastward towards the Grenville Front (Joly 1990).

The Urban-Barry greenstone belt is divided in four informal rock formations that are aged between 2791 and 2707 Ma (Rhéaume and Bandyayera 2006): 1) The oldest Fecteau Formation (2791 Ma) is located in the southeast limit of the belt. It mainly consists of mafic to felsic volcanics including graphitic sedimentary units (Bandyayera et al. 2004). 2) The Chanceux Formation (2727 Ma) mainly consists of tholeiitic basalt, thin beds of rhyodacitic or rhyolitic tuffs interlayered with greywackes and graphitic argillite (Bandyayera et al. 2004). Its geometry and extent are poorly constrained. 3) The Macho Formation (2718 Ma) located in the central part of the belt, mainly consists of basalt, andesite and basaltic andesite with comagmatic gabbroic sills (Bandyayera et al. 2002, 2004). The Macho Formation includes the Windfall and Rouleau members. Uranium-lead age dating of a felsic volcanic unit of the Windfall Member collected on the Windfall Lake property indicates an age of $2,716.9 \pm 2$ Ma (Bandyayera et al. 2002). 4) The Urban Formation (2707 to 2714 Ma) is the largest formation and consists of glomeroporphyritic tholeiitic basalt with minor synvolcanic gabbro inferred to be coeval with the Obatogamau Formation in Chibougamau. It equally includes felsic volcanics and sediments (Bandyayera et al. 2002). Finally, a series of quartz and/or feldspar porphyry dikes cut across volcanic rocks of the Macho Formation, including rocks of the Windfall Member. The dikes have been dated at 2697 ± 0.6 Ma at the Barry gold deposit (Kitney et al. 2011) and at 2697 ± 0.9 Ma at the Windfall Lake deposit (Davis 2016, unpublished; Figure 7-3), which is located approximately 10 km southwest of the Windfall Lake deposit.

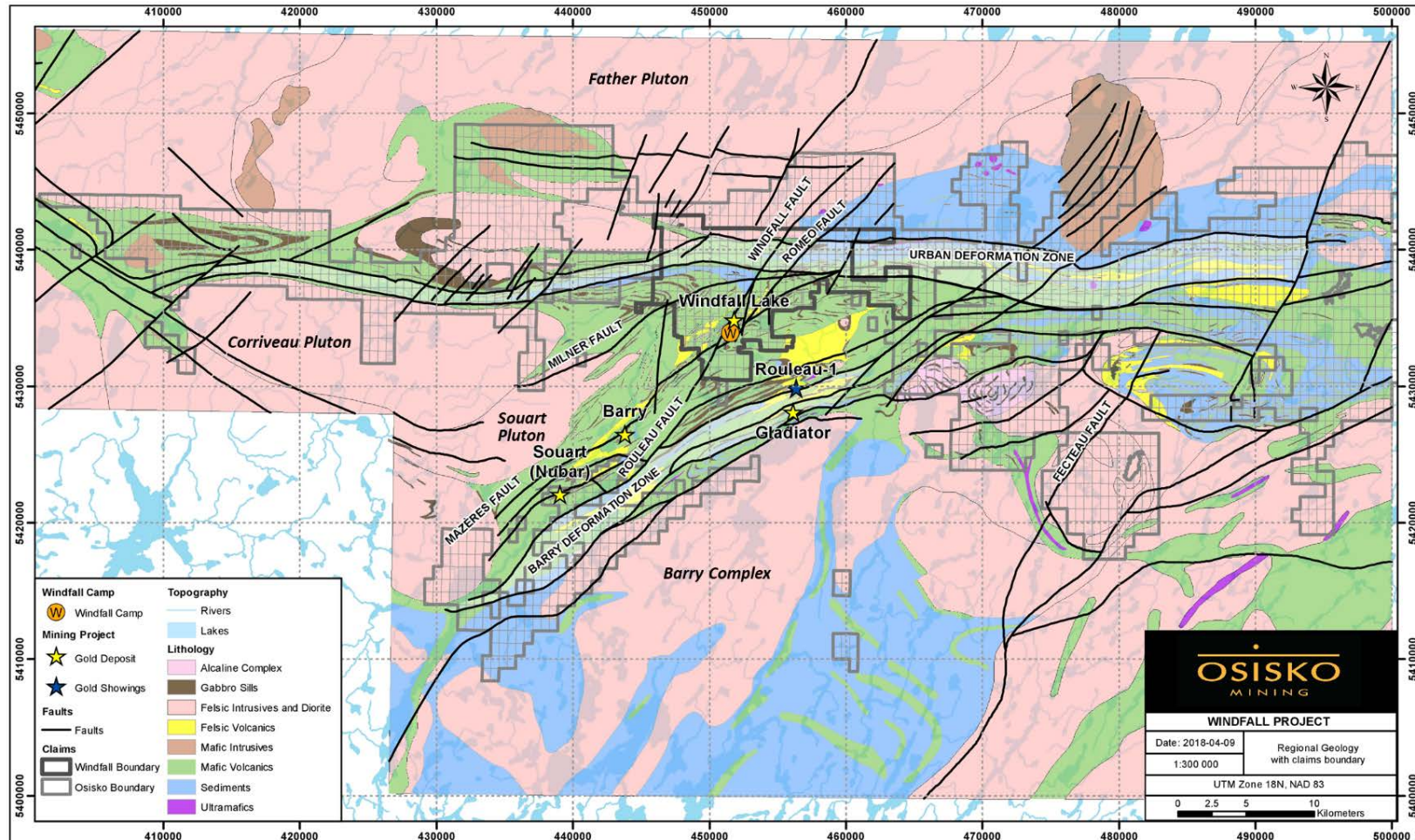


Figure 7-2: Regional geologic setting of the Urban-Barry greenstone belt and the location of the Windfall Lake claim boundary (light grey). Modified after Bandyayera (2002).

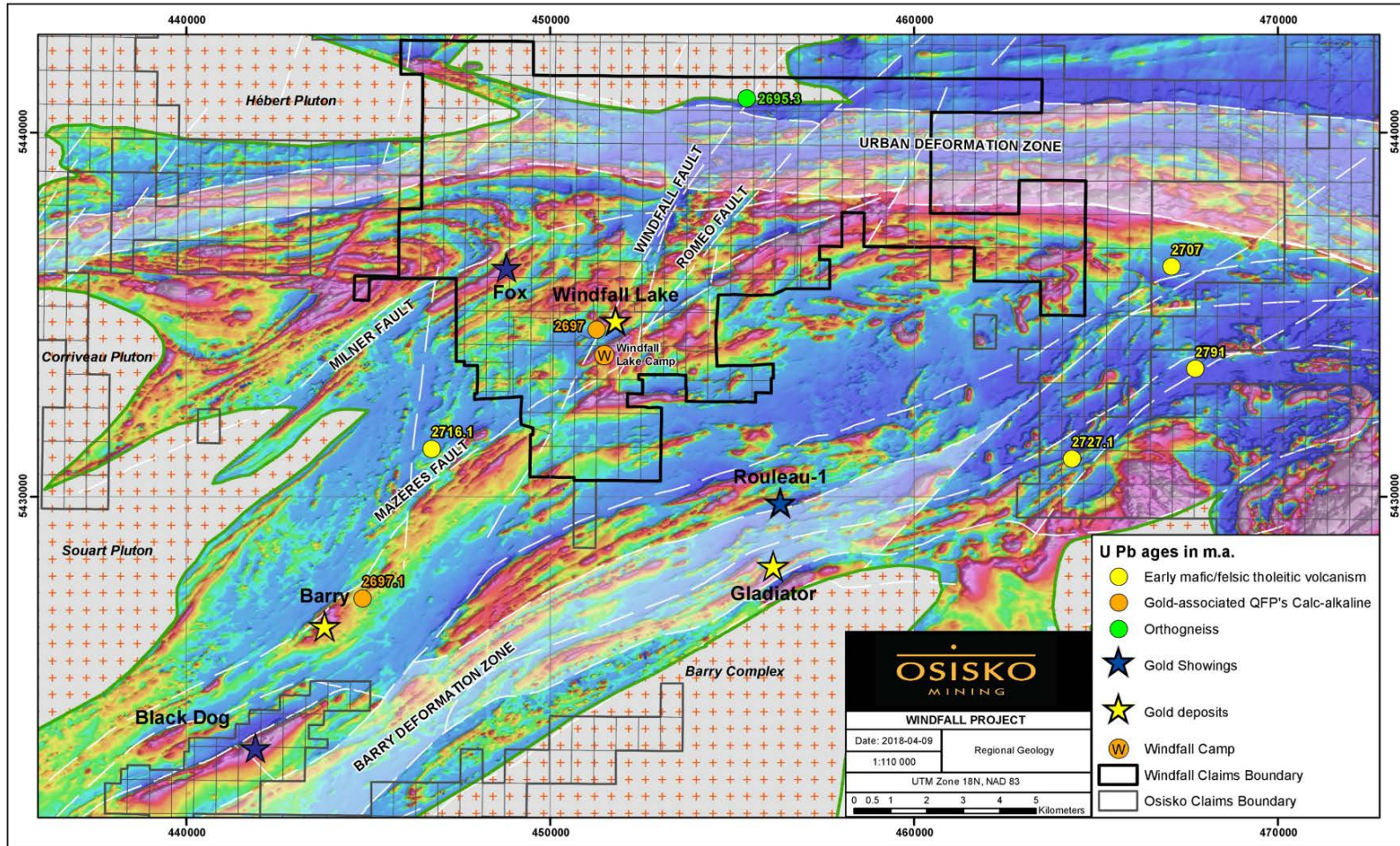


Figure 7-3: Regional magnetic map of the Urban-Barry greenstone belt and the location of U-Pb ages (yellow, orange, and green circles). Main gold mineralized zones owned by Osisko Mining Inc. are illustrated by the yellow stars. Barry deposit (Metanor Inc.), the Gladiator deposit (Metanor Inc.), and the Rouleau showing (Beafield Resources Inc.) are indicated by the blue stars.



7.2.2 Windfall Lake Property Geology

The Windfall Lake property is located in the central part of the Urban-Barry greenstone belt. The Windfall Lake deposit is hosted within the Windfall Member of the Macho Formation, which primarily consists of felsic and intermediate volcanic rocks including tuff and lava units. In the Windfall Lake deposit area, the stratigraphy trends northeast and dips moderately towards the southeast. Volcanic rocks are intruded by a series of younger quartz-feldspar porphyry dikes, commonly referred to quartz-feldspar porphyry ("QFP") dikes, including early quartz-phyric felsic to intermediate dikes with fragments comprising quartz phenocrysts ranging from 1 mm to 2 mm and quartz-phyric felsic to intermediate dikes containing quartz phenocrysts up to 7 mm in size.

All dikes and volcanic rocks are affected by the regional foliation. The intensity of the foliation and the overall strain vary greatly within individual rock units and the alteration and mineralization can locally be overprinted by foliation.

7.2.3 Lithological Units in the Windfall Lake Deposit

The following paragraphs describe, as per core logging observations and geochemical data, the main features of each rock unit and associated core logging codes in brackets, described to date in the area of the Windfall Lake deposit.

7.2.3.1 Synvolcanic Rocks (2717 Ma)

Intermediate to Mafic (V2, V2D)

The mafic volcanic rocks are of tholeiitic affinity and are constituted by basalts and andesites in composition. They consist of massive, pillowed, fragmental, and breccia flows that are locally vesicular or porphyritic with phenocrysts of plagioclase. The rock is commonly fine grained, medium green to dark green in colour, and is weakly to moderately foliated. In the south-western part of the deposit, and to the south of the Masères shear zone, a dark trachytic volcanic unit containing large reddish feldspar phenocrysts is present.

Felsic (V1)

The felsic volcanic rocks are dacitic to rhyolitic in composition and consist of massive and breccia flows that are often porphyritic containing small (1 mm to 3 mm) phenocrysts of quartz that vary in abundance from 2% to 10%. The rock is commonly fine grained, yellowish beige in colour that can locally be green when chloritized and is weakly to moderately foliated. Felsic volcanics are stratigraphically located above the mafic volcanics.



Gabbro (I3)

In the Lynx zone, a gabbroic sill (I3A) was injected in the felsic volcanics prior to the emplacement of pre- to syn-mineralized quartz-feldspar porphyry dikes. Both the felsic volcanics and the gabbroic sill are affected by the deformation associated to the Bank Fault, inducing a parallelization along the deformation zone, verticalizing the units along its contact and locally dismembering the gabbro.

7.2.3.2 Late Intrusive Rocks (2697-2701 Ma to Post-Mineralization)

There are six different types of dikes recognized to date at the Windfall Lake deposit: pre-mineral fragmental granodiorite porphyry dikes, syn-mineral granodiorite large quartz eyes porphyry dikes, post-mineral quartz monzonite, fine grained quartz monzonite, and intermediate to mafic dikes. Pre-mineral dikes are commonly fragmental and contain xenoliths of the hosting volcanic rocks. They likely represent magmatic-hydrothermal breccias related to the intrusion of the porphyry dikes within the wall rocks. Syn-mineral granodiorite dikes contain quartz eye porphyries (1 mm to 7 mm) hosted in an aphanitic quartzo-feldspathic matrix. The pre- and syn-mineral granodiorite and dikes are generally sub-vertical and plunge 35° east-northeast. The other dikes are post-mineral, smaller (except the Red Dog intrusion) and are generally less than 2 m thick. They all cross-cut the pre- and syn-mineral dikes. The post-mineral Red Dog intrusion trends to the north-northeast and dips at 30° to 40° to the east-southeast.

The following paragraphs describe all the dike units starting from the oldest unit to the youngest unit as defined by cross-cutting relationships observed on the drill core. The three main generations of dikes are illustrated in Figure 7-4.

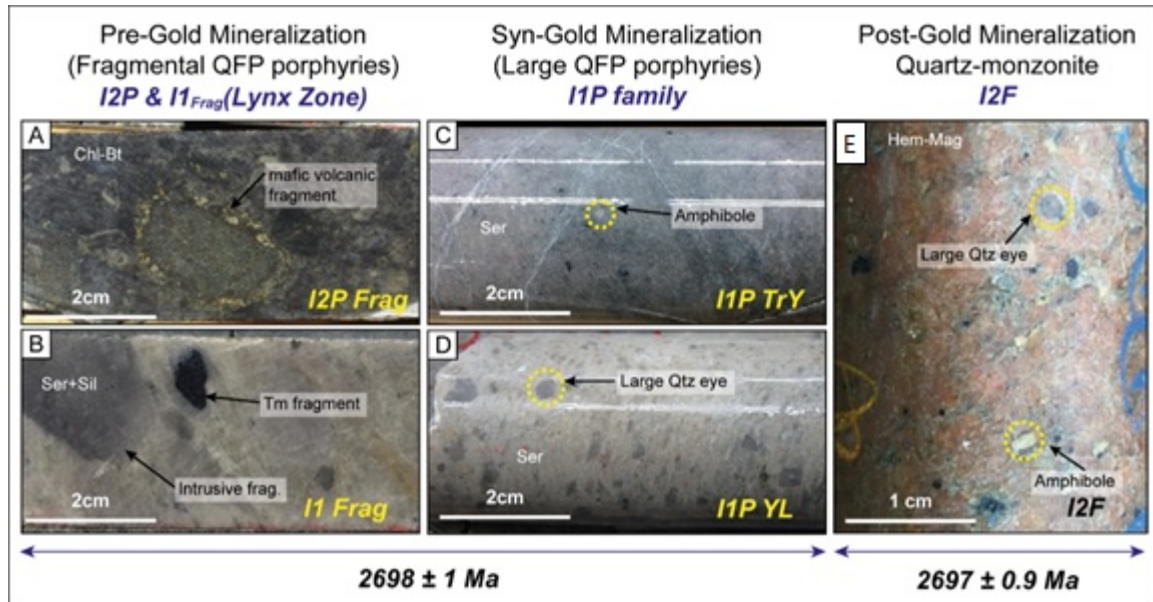


Figure 7-4: Core pictures of the three main types of porphyry dikes.

A) Common pyritized mafic volcanic fragments hosted in pre-mineral fragmental granodiorite porphyry dikes; these dikes vary from massive with small quartz eyes to fragmental (*I2P*); B) Magmatic-hydrothermal breccia in the Lynx zone (*I1 Frag*) showing the presence of sericite to silica-altered felsic intrusive fragments, and tourmaline fragments; C-D) The syn-mineral granodiorite large quartz eyes porphyry dikes are generally sericite-altered and contain traces (*I1P TrY*) to 10% (*I1P YL*) of larger quartz eyes and is intimately associated with the pyrite-rich gold mineralization; E) The quartz monzonite Red Dog unit contains similar large quartz eyes as in the large quartz eyes porphyry dikes but its groundmass is well crystallized; the Red Dog unit cross-cuts the gold-bearing pyrite stockwork. Reference photos are from Osisko's drill core.

7.2.3.3 Pre-mineral Dikes

Fragmental Porphyry Unit (*I2P*, *I2P Frag*, *I1 Frag*)

The fragmental granodiorite porphyry dike unit ranges from medium grey, with a greenish to pinkish or reddish tint, to light grey where it is more sericite altered. It is characterized by 2% to 10% small quartz eyes generally less than 2 mm in diameter. This unit has internal texture variations ranging from massive and porphyritic to fragmental with up to 30% sub-angular to sub-rounded fragments. The fragments are generally 1 cm in diameter but can reach up to 10 cm locally. Fragments are comprised of volcanic fragments, both intermediate and felsic compositions, that are locally sericitized and pyritized. In some cases, the high percentage of fragments led previous geologists to misinterpret this unit as a fragmental volcanic rock unit or a tuffaceous unit. However, the similar geochemical composition of this unit with other dikes, combined with its sub-vertical geometry that cross-cuts the moderately dipping volcanic rock units, confirms the current interpretation that it represents an intrusive unit. The presence of fragments suggests that this intrusive unit was emplaced at shallow crustal levels. The



presence of pyritized volcanic fragments in the porphyry dike indicates that pyrite mineralization/alteration occurred in the host volcanic rock units prior to the emplacement of this porphyry dike unit (Figure 7-4a).

In the Lynx zone, another intrusive phase is present and is referred to as the I1 Frag (Figure 7-4b). The I1 Frag differentiates from the I2P Frag as it contains abundant intrusive fragments that contain large quartz eyes and pyrite disseminations, minor felsic volcanic fragments, and pyrite-replaced fragments. Additionally, the I1 Frag contains abundant, angular, strongly tourmaline-altered fragments of unknown origin, which is unique to this unit. This unit is generally moderately to strongly sericite-silica-altered.

7.2.3.4 Syn-mineral Dikes

Large Quartz Eyes Porphyry Dikes (I1P YB, I1P YL, I1P TrY)

The large quartz eyes porphyry granodiorite dikes (I1P family) form a series of sub-vertical dikes trending NE or E-W and cross-cut the pre-mineral fragmental granodiorite porphyry dike (I2P).

This rock unit ranges from dark reddish to greenish gray up to light grey or yellowish beige depending on the intensity of alteration. It is characterized by trace (I1P TrY; Figure 7-4c) to 10% (I1P YL; Figure 7-4d) large quartz phenocrysts reaching up to 11 mm in diameter hosted in a fine-grained groundmass. The unit locally contains 2% to 5% smaller quartz phenocrysts, generally less than 2 mm. These syn-mineral dikes are also composed of 1 mm to 3 mm, euhedral beige, sericite-altered amphibole crystals. Large quartz eyes granodiorite dikes located in the Underdog mineralized zone (I1P YB) are distinguished by the presence of large, often ghostly-textured feldspar phenocrysts (5% to 10%) accompanying the quartz eyes. Petrographic descriptions indicate that the larger quartz phenocrysts display well-developed resorbed textures, which may suggest a rapid ascent of magma in the presence of fluorite-rich magmatic hydrothermal fluids (Chang and Meinert 2004). Although gold mineralization is found in all rock units, including host volcanic sequences and pre- and post-mineral dikes, it is generally more abundant within or in the vicinity of those large quartz eyes porphyry dikes.

7.2.3.5 Post-Mineral

Quartz Monzonite (“Red Dog”) (I2F)

The quartz monzonite dike, or herein referred to the Red Dog, is a 100-metre thick unit that trends to the north-northeast and dips at 30° to 40° to the east-southeast. Minor splays of the Red Dog dike are typically up to 15 m thick. The Red Dog unit is a late intrusive phase that cross-cuts all the others volcanic and felsic porphyry units and locally hosts gold-bearing quartz-carbonate tension veins.



This unit is the most obvious of all the porphyry rock units due to its brick red colour (Figure 7-4e). The red colour is due to the hematite content, as observed in thin sections and by the absence of staining for K-feldspar in the etched offcut. It contains 3% to 10% quartz phenocrysts (up to 1 cm) and 5% to 10% poorly defined relict feldspar, together with 2% to 10% altered mafic minerals in a brick red and generally well-crystallized, fine-grained groundmass. The rock is weakly to strongly magnetic and shows minor slow reaction to cold diluted HCl.

Fine Grained Quartz Monzonite Dikes (I2F)

These dikes are fine-grained equivalents of the Red Dog unit. They form sub-horizontal to horizontal dikes that lie generally at 10 m to 50 m above the Red Dog unit. The dikes are less than 10 m thick and cross-cut andesite units, and felsic/intermediate porphyries. The quartz monzonite dikes are pinkish red, fine-grained and massive and are weakly to moderately magnetic. They generally have traces of quartz eyes smaller than 0.5 mm.

I13 Dikes (I13)

The fine-grained quartz monzonite unit consists of metric-scale sub-horizontal dikes that can reach up to 20 m in thickness. They are interpreted as a later intrusive unit as it cross-cuts all other rock units including the Red Dog. This unit is pinkish to slightly orange and is fine to medium grained and homogeneous, non-magnetic, and contains less than 1% quartz eyes smaller than 2 mm. This unit is associated with gold mineralization at the Fox gold occurrence, located northwest of the Windfall Lake deposit, and occurs within sericite- and silica-rich alteration envelope at the contacts with the host rock.

Intermediate to Mafic Dikes (I2J, I3A)

Intermediate to mafic green dikes are characterized by medium to dark green colour and are fine- to coarse-grained. These are generally non-magnetic, massive to weakly foliated, and characterized by chlorite and carbonate alteration. They are oriented north-northeast and dip shallowly to the east-southeast. They are a minor unit and cross-cut all volcanic and intrusive units and are therefore the latest magmatic event at Windfall Lake.

7.2.4 Geochemical Characterization of the Rock Units

Rock units at Windfall Lake are often difficult to differentiate due to alteration overprinting. This resulted in the misinterpretation of the rock units in historical drill cores and trenches. The result of the geochemical analysis was critical in discriminating the rhyolite flow units from the porphyry dikes (Desrochers 2013). However, geochemistry is insufficient to discriminate between individual porphyry dikes themselves and they cannot be resolved from each other suggesting they are all part of a same parental magmatic source.



A summary of geochemical characteristics of porphyry dikes and volcanic units based on whole-rock geochemistry are listed in Table 7-1. The intermediate to mafic volcanic units are characterized by Zr/Y ratios <4 in general, which indicates that they are of tholeiitic affinity (Barrett and MacClearn 1994). The porphyry intrusions show Zr/Y ratios >4 and up to 20, which makes them transitional to calc-alkalic. The difference in the Zr/Y ratio between the volcanic rock units and the porphyry dikes suggests that they are from two different magmatic sources (Figure 7-5).

Table 7-1: Summary of geochemical characteristics

Rock Code	TiO ₂ wt%	Zr ppm	Zr/TiO ₂	Y ppm	Zr/Y	Nb ppm
I1P YB	0.2-0.35	75-150	200-500	<10	5-25	<8
I1P YL	0.1-0.5	75-150	250-525	Two populations <10 and >40	3-50	<18
I1P TrY	0.2-0.5	75-275	250-550	<20	5-40	<11
I2P	0.1-0.6	75-225	200-525	<20	3-36	<16
V1	<0.4	>200	>600	>20	<4	>10
V2	>0.5	>100	>400	--	3-7	6-12

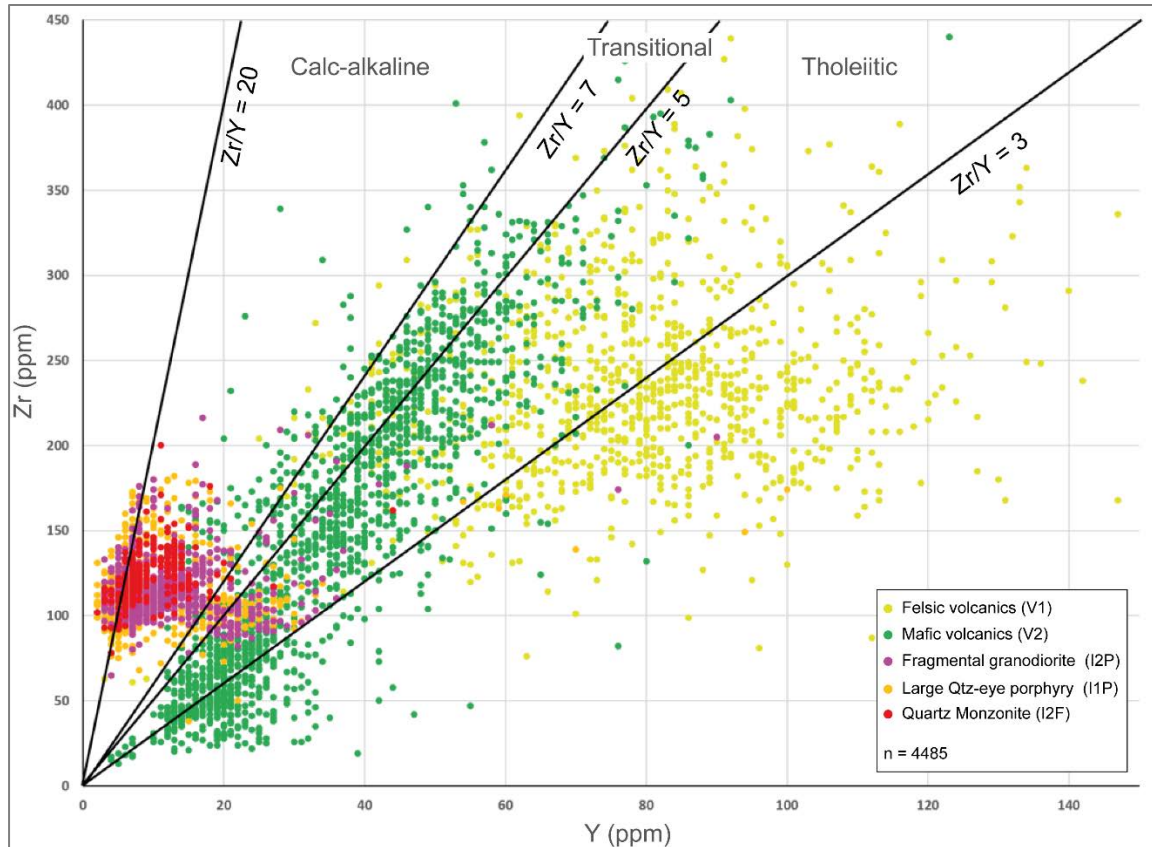


Figure 7-5: Magmatic affinity of Windfall Lake rocks on a Zr vs. Y diagram.
(Units are in ppm).

The rock units can also be further divided on a TiO_2 vs. Zr diagram (Figure 7-6). On this diagram, the intermediate to mafic flows and dikes are localized on the left side of the diagram whereas the felsic volcanic flows are dispersed at the bottom of the diagram. The porphyry dike units, including the Red Dog unit, form a group centred around 100 ppm Zr and 0.35% TiO_2 . Those units also have Nb values that are generally <6 ppm, which is lower than the rhyolite (generally >10 ppm). The Nb values are another chemical element used to discriminate between the felsic volcanic rocks and the porphyry intrusions.

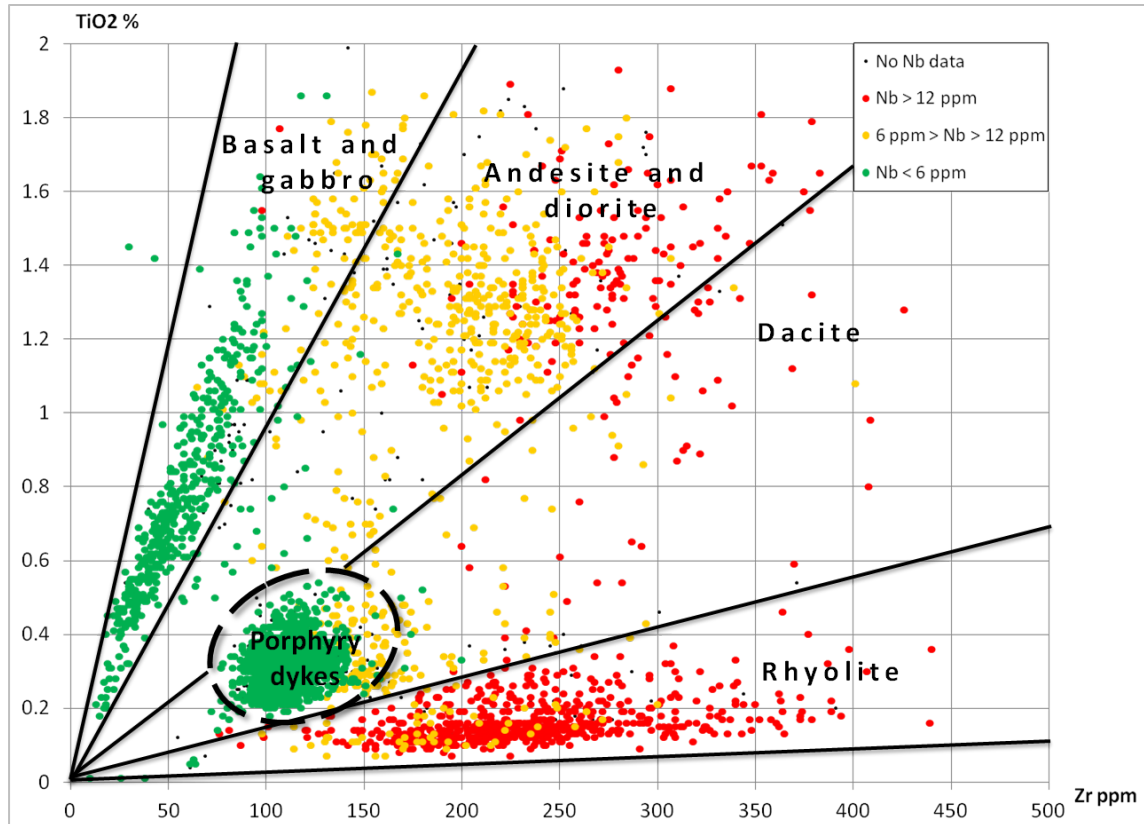


Figure 7-6: Discrimination of rock units on a TiO_2 vs. Zr diagram with Nb values in coloured dots.

7.2.5 Mineralized Zones

At Windfall Lake, the main gold event is temporally and spatially constrained by the emplacement of quartz porphyry dikes (i.e., I1P family). The best gold mineralization is contained in narrow high-grade gold bands and stockworks at the dikes contacts with host volcanic rocks. Mineralization consists of pyrite-rich and silica > sericite-carbonate-tourmaline (and some base metals) mineral association that is zoned outward into erratic to low gold grade sericite > silica-carbonate-tourmaline halos, which in turn pass into an outer barren chlorite > sericite-rutile zone.

The mineralization is currently known for a vertical extent of approximately 1,200 m, separated in three sectors, the Main zone (Zone 27, Caribou, and Mallard), the Underdog zone, and the Lynx zone. All zones trend east-northeast and plunge roughly 35° (Figure 7-7 to Figure 7-10). The Main and Underdog zones are separated by the thick, low-angle post-mineral quartz monzonitic sill “Red Dog”. The Main zone is located in the hanging wall, above the Red Dog quartz monzonitic sill, and is constrained along east-northeast oriented contacts of narrow sub-vertical granodioritic dikes (I1P) within tilted volcanic rocks (Figure 7-9). The Underdog mineralized zone



is located in the footwall, beneath the Red Dog sill. The understanding of the Underdog mineralized zone is progressing with the results of the ongoing exploration drilling program. The top of this deeper mineral zone starts at around 600 m depth and continues to a depth of roughly 1,200 m where it is still open towards vertical depth and plunge. The Lynx mineralized zone (discovered in 2016) is located approximately 3 km to 6 km northeast of the Main zone and is also located in the hanging wall of the Red Dog intrusion (Figure 7-7, Figure 7-8 and Figure 7-10). The mineralized zone between the Caribou and Lynx zones has been recently recognized as the Bobcat zone (Figure 7-10). Additional gold mineralization is also present in the peripheral F-11, F-17, and F-51 zones (Figure 7-7 and Figure 7-8).

The spatial relationship between all mineralized zones composing the Main zone (Zone 27, Caribou, Mallard and Underdog) and the geological context of the area is illustrated in Figure 7-8 and Figure 7-9.

Significant gold mineralization defined to date on the Windfall Lake property occurs in the Main zone, located in the central-south portion of the property, and the Lynx zone, located to the NE of the Main zone. The Lynx zone is associated with shallow, high-grade gold mineralization. The gold mineralization is controlled by the geometry of the dikes, specifically for Zone 27 and the Caribou corridor, which are spatially associated with 2 m to 30 m thick sub-vertical northeast-trending quartz-feldspar porphyry dikes. Gold mineralization is typically associated with sulphide replacement, generally pyrite, occurring as disseminations, stockworks and breccias. The gold mineralization in the Lynx zone is localized at the contacts between the I1P syn-mineral dikes and the wall-rock lithologies and is interpreted to be localized in pinch-and-swell areas between different rock units. Gold mineralization in the Lynx zone is also observed in the fragmental facies of the magmatic-hydrothermal breccia unit.

Gold-bearing pyrite stockwork mainly consists of pyrite stringers with minor tourmaline needles; the stringers are typically less than 1 cm in thickness and are oriented in several directions. Trace amounts of chalcopyrite, sphalerite, pyrrhotite, arsenopyrite, tetrahedrite and bismuth sulphosalts are also present around pyrite grains and as inclusions in pyrite in the pyrite stockwork. Sub-millimetre specks to local centimetre patches of gold are sometimes visible in the pyrite stringers and in semi-massive sulphide bands, tourmaline veins or in the altered part of the rock around these features. Some of the fragments in porphyry dikes were altered and mineralized prior to being brecciated and porphyry dikes locally cross-cut the pyrite stockwork mineralization, suggesting that emplacement of the gold mineralization was broadly coeval with the intrusion of the quartz-feldspar porphyry dikes. Gold mineralization (up to several ounces per tonne) is locally associated with brecciated quartz veins with local colloform and crustiform banding.



Visible gold mineralization in the Main zone can occur as auriferous quartz-carbonate-chalcopyrite-pyrite extensional veins. Such veins are found in all rock units (Red Dog dike, other quartz-phyric dikes, mafic dikes, and volcanic rocks) frequently near or within shear zone intervals. They are typically 1 cm to 10 cm in thickness but locally reach up to 1.5 m. These veins cross-cut the pyrite stockwork and are interpreted to be associated with a separate hydrothermal event controlled by brittle-ductile shear zones that postdates the auriferous pyrite stockwork. Gold zones in the Red Dog are in those types of veins, the intrusion itself being barren.

The style of gold mineralization at the F-17 and F-51 zones differs from that of the Main and Lynx zones. The F-17 and F-51 zones are two separate zones of gold mineralization containing typical orogenic gold mineralization (also termed greenstone-hosted quartz-carbonate vein mineralization). The two zones trend to the northeast, subparallel to the Main Zone, but dip steeply to the north. Both zones are aligned along the same trend but separated by approximately 500 m. Limited drill hole data are available from this gap zone. Continuity between the two zones cannot be established from the current drilling data.

The F-11 zone is a small gold mineralized area located near the portal of the ramp. Gold mineralization consists of small quartz-carbonate extensional veins, typically less than 1 cm thick, characterized by their high content of visible gold. Continuity of this gold mineralization has not been demonstrated.

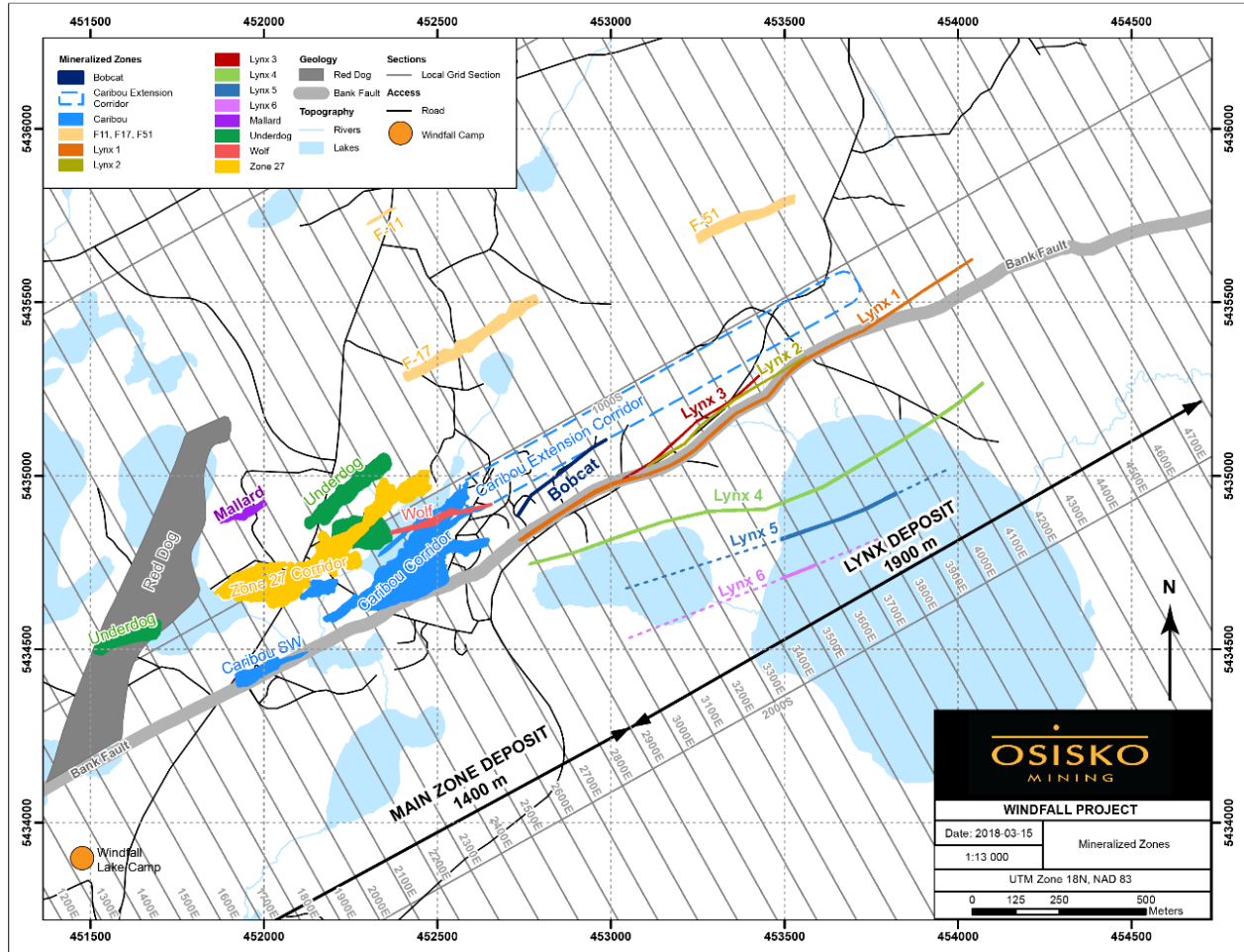


Figure 7-7: Topographic map with surface projection of the Caribou (blue), Zone 27 (yellow), Mallard (purple), Underdog (green), Lynx zones (right), F-11, F-17, F-51 zones (light yellow), and barren Red Dog intrusion (dark grey). Developing targets are also illustrated and include the Bobcat (dark blue) and Caribou SW zones (blue).

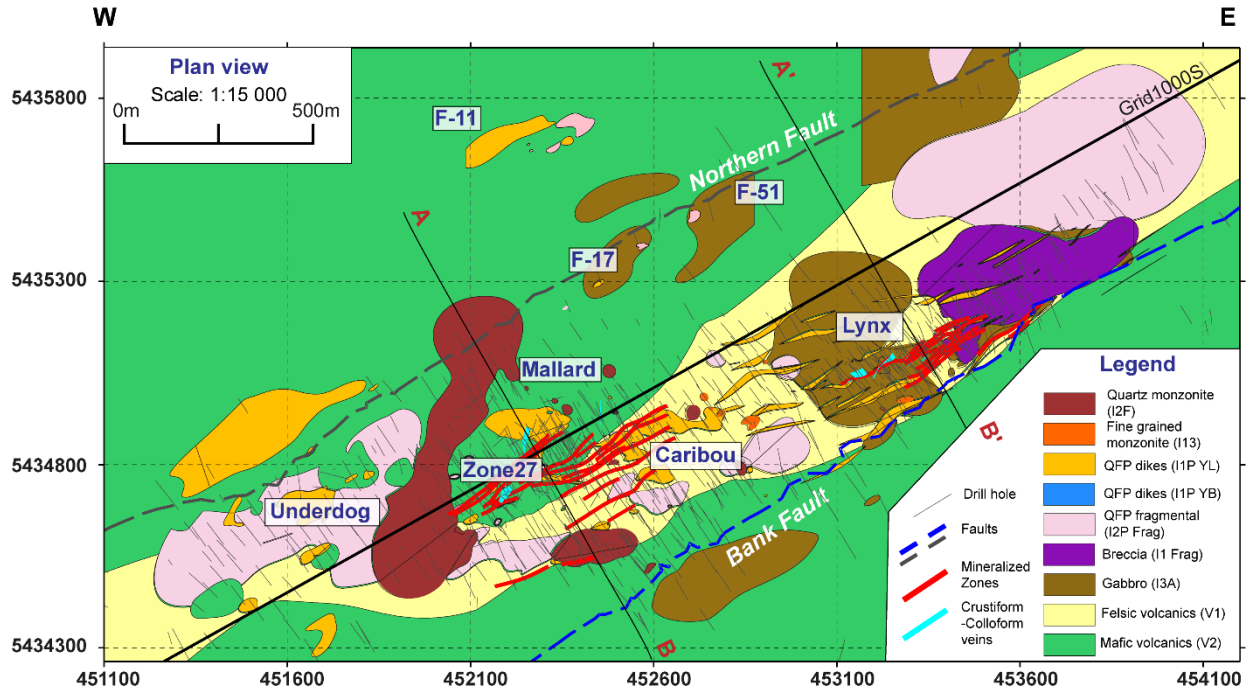


Figure 7-8: Interpreted surface geology of the Windfall Lake gold deposit with logged mineralized zones and lithologies projected to surface illustrating the spatial relationship between syn-mineral I1P dikes (orange) and gold mineralization (red). Refer to Figure 7-9 and Figure 7-14 for vertical cross-sections (A - B "Main zone") and (A' - B' "Lynx zone").

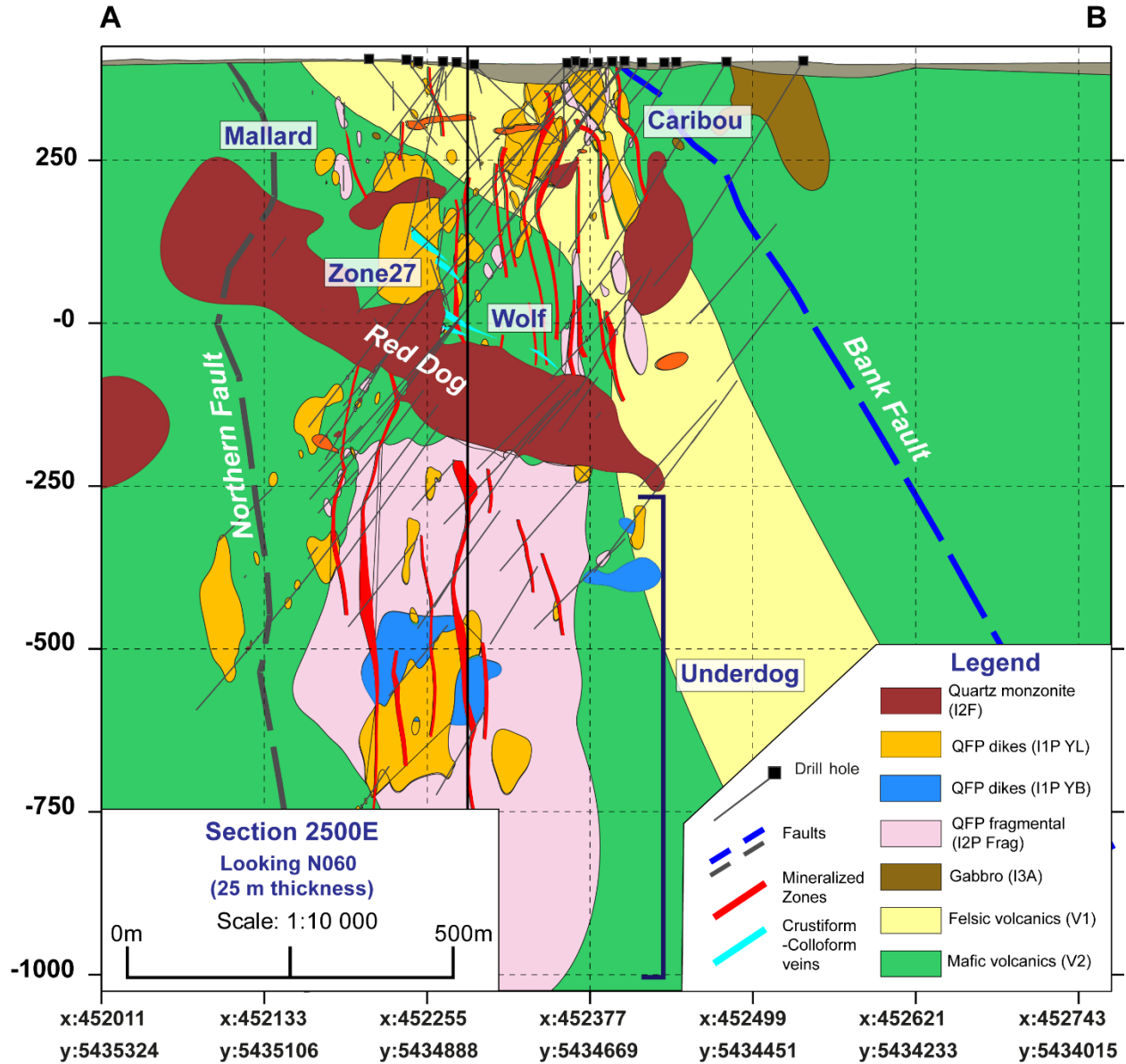


Figure 7-9: Simplified NW-SE vertical cross-section of the geology of the Main zone of the Windfall Lake deposit along grid line 2500E. (A-B in Figure 7-8), showing the spatial setting and geometry of mineralized zones shown in red (Caribou/Wolf, Zone 27, Underdog).

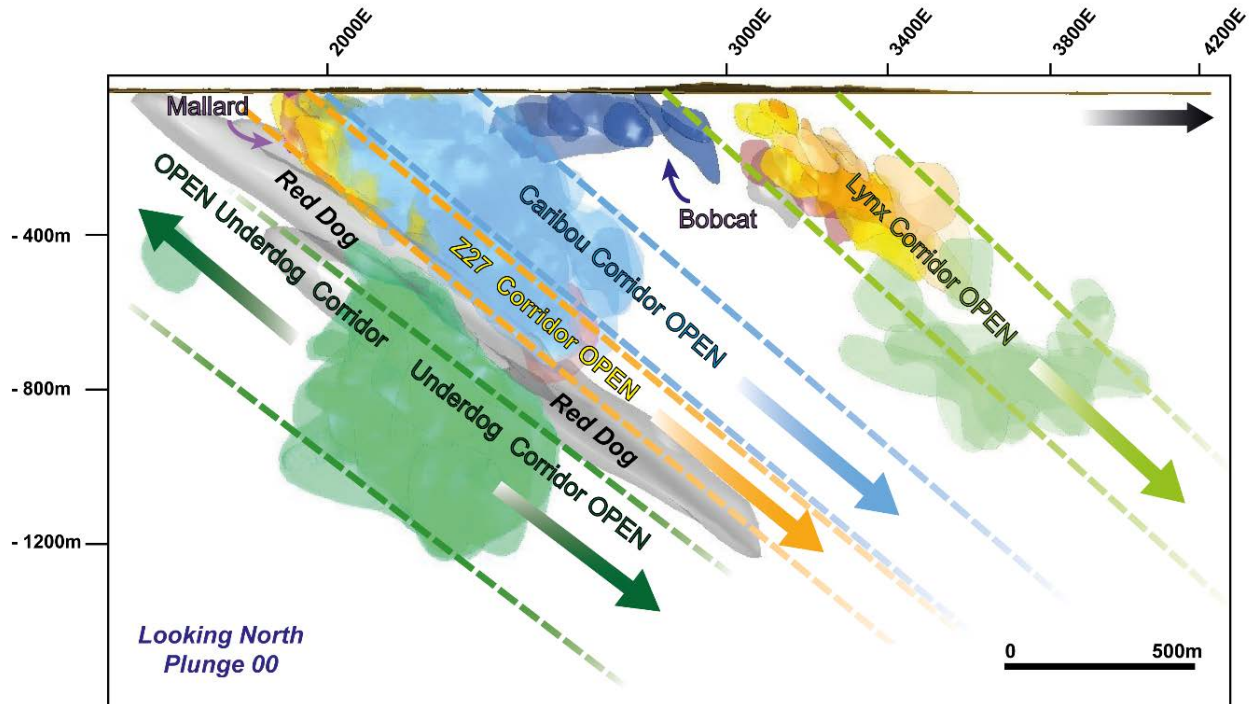


Figure 7-10: Leapfrog 3D modelling illustrating idealized vertical cross-sections (looking north) of the geometry of the mineralized zones plunging 30° to the NE (Caribou, Zone 27, Underdog, and Lynx zones). The Mallard and Bobcat zones are indicated by the purple and dark blue arrows, respectively. Exploration is open at depths for all zones. The Underdog zone is also open up-plunge for exploration.

The following paragraphs describe the typical alteration assemblages and mineralization textures found in each mineralized zone.

7.2.6 Zone 27

Zone 27 is characterized as a package of mafic to felsic volcanic rocks that have been intruded by quartz-feldspar porphyry dikes. Gold mineralization is spatially associated to syn-mineral granodiorite (I1P TrY) dikes. These intrusives have a sub-vertical thin irregular elongated lensoid shapes and plunge 35° towards the N60E. The separation of the I1P TrY dikes from other early generation of felsic porphyry dikes, which are not spatially associated to significant gold mineralization, has provided a geological constraint for gold mineralization in Zone 27.



7.2.6.1 Alteration

Proximal to the mineralized intervals, the rocks have a phyllic alteration assemblage consisting of sericite > pyrite > silica > chlorite (Figure 7-11a). The mafic volcanic rocks that are close to the mineralized zone locally have weak pervasive to patchy chlorite alteration, moderate to strong pervasive and/or banded sericite alteration, and locally have pervasive silicification. Less common is fuchsite alteration that typically occurs as a pervasive or spotted alteration. The felsic volcanic rocks at the contacts with the mineralized quartz-feldspar porphyry dikes also have strong pervasive and/or banded sericite, and pervasive or patchy silica alteration. Where alteration is most prevalent there is a strong correlation with economic gold mineralization.

Distal alteration assemblages consist of a chlorite > sericite assemblage and can occur as narrow zones a few metres wide to large zones greater than 10 m in lateral distance from the mineralized interval. The mafic volcanic rocks that are distal to the mineralized zone have a green to slightly bleached colour, pervasive, patchy or fracture filling moderate to strong chlorite alteration, and/or a weak to moderate pervasive or banded sericite alteration. The felsic volcanic rocks and quartz-feldspar porphyry dikes that are distal to the mineralized zones have weak pervasive and/or fracture filling chlorite alteration, with weak to moderate pervasive and/or banded sericite alteration. This alteration assemblage is difficult to separate from the background alteration which has a typical greenschist facies assemblage.

7.2.6.2 Mineralization

Mineralization in Zone 27 is recognized as sub-vertical to steeply dipping envelopes, with true widths averaging 2 m to 12 m and oriented east-northeast (060-075°N). These mineralized zones are known as the Z27 FW, Z27 HW, and Z27 zones. The main setting for gold mineralization is auriferous pyrite stockwork veinlets that are controlled by the contacts of the quartz-feldspar porphyry dike (specifically, the I1P TrY; e.g., Figure 7-11b) and can expand into the dike or several metres into the hanging wall and footwall rocks. Economic gold mineralization occurs as sub-vertical lensoids that mimic the shape of the intrusive body and plunge roughly 35° at N60°E strike. These mineral lenses can vary in thickness from 1 m to 12 m and can locally be discontinuous. Gold grade can vary from a few parts per million to very high grade (greater than 100 g/t). Very high gold grades are reported generally in the tens of g/t over several metres in thickness and locally can reach over 1 kg/t over intervals less than 1 m, in locally intense silicified zones. Economic gold mineralization occurs where a sericite-pyrite ± silica assemblage is observed. Pyrite dominantly occurs as disseminations and as diffuse stockworks of veinlets that locally contain significant amounts of tourmaline, Fe-carbonates and locally traces of chalcopyrite and sphalerite. Gold mineralization associated to pyrite mineralization and intense phyllic alteration makes up greater than 90% of recorded mineralized intervals in Zone 27 (Figure 7-11a-b). Other observed mineralization styles that contain economic gold grade in Zone 27 include quartz-tourmaline ± pyrite crustiform veins

that are locally brecciated and are dominantly oriented east-northeast, and quartz-carbonate-pyrite colloform veins that have variable thickness, typically several centimetres (~1% of total Au mineralization). Locally visible gold is observed in areas that are dominated by intense silicification with abundant pyrite and tourmaline mineralization (Figure 7-11c).



Figure 7-11: Typical mineralization and associated alteration styles in Zone 27 of the Windfall Lake deposit. A) Pyrite stringers associated with strong phyllic alteration within a quartz-feldspar porphyry dike (I1P TrY). B) Strong silica alteration associated with gold-bearing pyrite mineralization at the contact between two phases of quartz-feldspar porphyry dikes. C) Visible gold associated with abundant pyrite and tourmaline mineralization in a strongly silica-sericite altered quartz-feldspar porphyry dike. All gold grades (Au g/t) are cut to 100 g/t unless indicated.



7.2.6.3 Drilling Highlights

Drilling highlights for the Zone 27 are listed in Table 7-2.

Table 7-2: Drilling highlights from Zone 27

Zone	Hole	From (m)	To (m)	Interval (m)	Au uncut (g/t)	Au cut (g/t) to 100 ppm
Z27	OBM-16-603	188	207.9	19.9	12	11.4
Z27	OSK-W-17-973	57.4	59.8	2.4	60.5	51.6
Z27	OSK-W-17-1095	88.2	90.7	2.5	58.8	52.9
Z27	OSK-W-17-903	539	543	4	36.1	34.2
Z27 FW	OBM-16-610	221	226	5	87.9	24.2
Z27 HW	OBM-16-572	101.5	103.5	2	97.3	50.3
Z27	OBM-16-608	177.3	186.6	9.3	17.4	10.3
Z27	OSK-W-17-1203	27.9	30	2.1	128	42.9
Z27	OBM-16-643	245.6	247.9	2.3	58.7	25.2
Z27 FW	OSK-W-17-1191	235.4	237.5	2.1	218	34.6

7.2.7 Caribou Zone

The Caribou zone is characterized as a package of felsic volcanic rocks that have been intruded by several quartz-feldspar porphyry dikes. Towards the southeast, the Caribou zone is bounded by the Bank Fault. Gold mineralization is hosted in the felsic volcanic rocks close to the contact or within the quartz-feldspar porphyry dikes.

7.2.7.1 Alteration

Proximal to the mineralized intervals, the rocks have a phyllic alteration assemblage consisting of sericite > pyrite > silica > chlorite. The volcanic rocks and quartz-feldspar porphyry dikes that are spatially close to the mineralized zone contain strong pervasive and/or banded sericite, and pervasive or patchy silica alteration (Figure 7-12a-b). There is a strong correlation with economic gold mineralization where silica alteration is most prevalent.



Distal alteration assemblages in the pre-mineral dikes consist of an early potassic alteration consisting of a chlorite > biotite > sericite assemblage and can occur as narrow zones a few metres wide to large zones greater than 10 m in lateral distance from the mineralized interval. In contrast to the quartz-feldspar porphyries, the volcanic host rocks, particularly the andesite-basalt sequence, and gabbro dikes display propylitic assemblages defined by chlorite, actinolite, carbonate and magnetite. The pyrite in this assemblage is accompanied locally by pyrrhotite.

7.2.7.2 Mineralization

Mineralization in the Caribou zone is recognized as sub-vertical to steeply dipping envelopes, with true widths averaging 2 m to 8 m and oriented east-northeast (060-075°N). These mineralized zones are known as the CS1, CS2, CS3, CN1, CN2 and Wolf zones. The main setting for gold mineralization is auriferous pyrite veinlets that are controlled by the contacts of the quartz-feldspar porphyry dikes and can expand into the dikes or several metres into the hanging wall and footwall rocks. Gold mineralization occurs as sub-vertical lensoids that mimic the shape of the intrusive bodies and plunge roughly 35° at N60E strike. These mineral lenses can vary in thickness from 0 m to 12 m and locally can be discontinuous. Economic gold mineralization occurs where a sericite-pyrite ± silica assemblage is visually observed. Very high gold grades are reported from 10 g/t to >100 g/t over thicknesses from 0.3 m to several metres with local visible gold, in locally intense silicified zones. Pyrite dominantly occurs as disseminations and fracture filling veinlets that locally contain significant amounts of tourmaline (Figure 7-12a-b) along with traces of other sulphide species, chiefly chalcopyrite. Gold mineralization associated to pyrite mineralization and intense phyllic alteration makes up greater than 90% of recorded mineralized intervals in the Caribou zone.

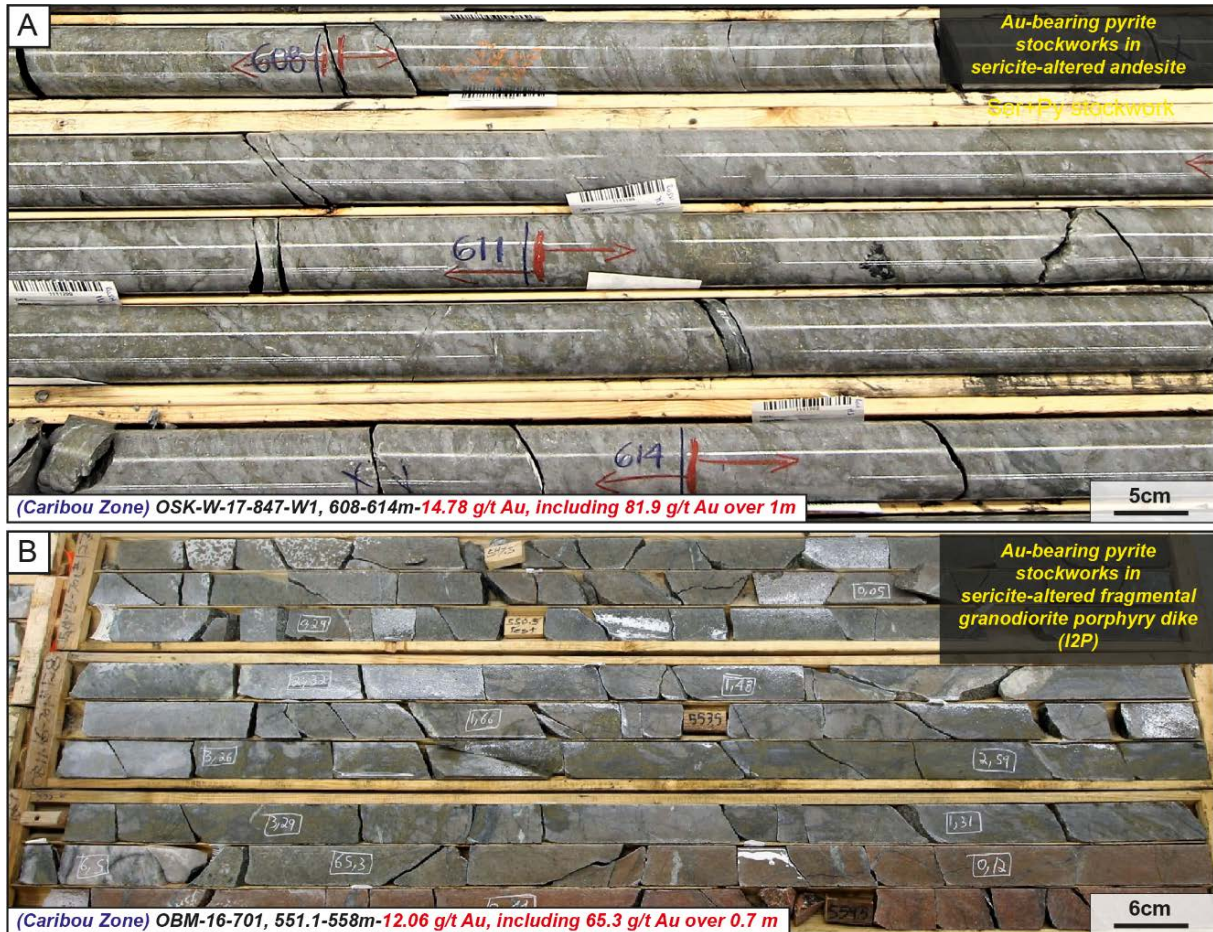


Figure 7-12: Typical mineralization and alteration style in the Caribou zone of the Windfall Lake deposit.

A) Pyrite stringers associated with strongly sericite-altered andesite. B) Strong sericite alteration associated with gold-bearing pyrite stockworks at the contact between a fragmental granodiorite porphyry dike (I2P) and a red quartz-monzonite (Red Dog). All gold grades (Au g/t) are cut to 100 g/t, unless indicated.



7.2.7.3 Drilling Highlights

Drilling highlights for the Caribou zone are listed in Table 7-3.

Table 7-3: Drilling highlights from the Caribou zone

Zone	Hole	From (m)	To (m)	Interval (m)	Au uncut (g/t)	Au cut (g/t) to 100 ppm
Caribou	OSK-W-16-735	101.8	137.2	35.4	17	6.06
CS1	OSK-W-17-820	558.5	564.5	6	31.4	25.4
Caribou	OSK-W-16-720	260	265.7	5.7	34.4	20.9
CS1	OSK-W-16-706-W1	546.5	563	16.5	5.75	3.53
Caribou	OBM-16-626	40.5	43	2.5	54.8	41.8
Caribou	OSK-W-17-871	152	156.8	4.8	17.9	13.4
CS1 FW	OSK-W-17-820	616.5	619	2.5	936	32.1
Caribou extension	OSK-W-17-1391	453	455	2	42.7	33
CS1	OSK-W-17-842	540	545.5	5.5	14.5	8.55
CN1 FW	OSK-W-17-1079	597	599.3	2.3	108	17.5

7.2.8 Mallard Zone

The Mallard mineralized zone is located northwest of the Main zone and above the large monzonitic Red Dog sill (I2F). The Mallard zone is hosted within bimodal volcanic sequences with mafic volcanics (V2) dominating the lower stratigraphy and felsic volcanics (V1) dominating the upper portion of the area near the surface (Figure 7-9). Gold mineralization is mostly associated within quartz-feldspar porphyry dikes (I1P) that plunge roughly 35° and strike 145°N. It is also hosted in bleached mafic volcanics (V2) adjacent to quartz-feldspar porphyry dikes (I1P).

7.2.8.1 Alteration

Proximal to the mineralized intervals, the rocks have a phyllic alteration assemblage consisting of sericite > pyrite > silica > chlorite. Sericite alteration is mainly associated with quartz-feldspar porphyry dikes and is also observed as bleaching in the mineralized andesitic host rock, adjacent to these porphyry dikes. Distal alteration assemblages consist of a chlorite > sericite assemblage with most of the quartz-porphyry dikes containing abundant chlorite spots. Distal alteration assemblages are associated with lesser gold grades.



7.2.8.2 Mineralization

The main setting for gold mineralization is auriferous pyrite veinlets that are controlled by the contacts of the quartz-feldspar porphyry dikes. The mineralization expands into the dike or several metres into the wall-rock lithologies, mainly within bleached andesite. Economic gold values occur as sub-vertical lensoids that mimic the shape of the intrusive bodies and follow a general strike of 145°N with higher concentrations of gold restricted to the interior of the quartz-feldspar porphyry dikes. Pyrite stringers and local pyrite clusters are mainly associated with strong sericite and local silica alteration. Mineralization is also found in bleached andesite as pyrite stringers and disseminations, marginal to the quartz-feldspar porphyry dikes. The fragmental felsic porphyritic intrusive (I2P) in the Mallard zone is locally mineralized, although the grades are poorer than elsewhere on the Windfall Lake property. Most of the mineralization associated with the I2P is found at or near the contacts with andesite.

7.2.8.3 Drilling Highlights

Drilling highlights for the Mallard zone are listed in Table 7-4.

Table 7-4: Drilling highlights from the Mallard zone

Zone	Hole	From (m)	To (m)	Interval (m)	Au uncut (g/t)	Au cut (g/t) to 100 ppm
Mallard	OSK-W-17-1087	354	356.6	2.6	191	19.6
Mallard	OSK-W-17-1225	245.2	247.5	2.3	20.5	-
Mallard	OSK-W-17-1124	204.6	207	2.4	18.3	-
Mallard	OSK-W-17-1276	176	178.8	2.8	12.6	-
Mallard	OSK-W-17-1276	195.6	197.6	2	13.3	-
Drake	OSK-W-17-969	58.2	61.5	3.3	7.39	-
Mallard	OSK-W-17-977	269.5	271.7	2.2	12	-
Mallard	OSK-W-17-969	210.6	213	2.4	10.1	-
Drake	OSK-W-17-1224	70.3	73.1	2.8	15.7	-
Mallard HW	OSK-W-17-1225	201.3	203.6	2.3	9.58	-



7.2.9 Underdog Zone

The main lithological feature of the Underdog mineralized zone is a large composite felsic to intermediate porphyritic stock hosted in low angle dipping felsic to mafic volcanic rocks (Figure 7-9). The intrusive stock forms a large ellipsoidal shape with its main axis plunging ~35° toward the east-northeast. The porphyritic stock is composed of three intrusive phases that show good continuity up and down plunge. The earlier phase forms the large fragmental intrusive body (I2P) with biotitic alteration. The stock is later intruded by two smaller volumetric phases, including a quartz-feldspar-plagioclase porphyry dike with biotitic and sericitic alteration (I1P YB), and a quartz porphyry dike (I1P) with silica-sericite (tourmaline) alteration. The I1P dikes are generally restricted within the core of the I1P YB intrusive body and appear to be the latest felsic intrusive phase associated with gold mineralization.

7.2.9.1 Alteration

Two main alteration mineral assemblages affect the rocks of the Underdog mineral zone that locally completely or partially obliterated the original texture of the intrusive rocks. The first is an early and barren potassic alteration represented by fine grained pervasive biotite (phlogopite), and a later phyllic (sericite-silica-pyrite-tourmaline ± chlorite) alteration assemblage associated with gold mineralization. The potassic alteration affects the majority of the fragmental felsic porphyry (I2P) stock and is locally observed in the large quartz-eye porphyry dikes (I1P YB). The latter phyllic alteration is an acidic lower temperature assemblage that is observed in all the rocks including the syn-mineral quartz porphyry (I1P) dikes and altered the rocks that were previously altered to biotite.

The presence of sericite and strong silica alteration is typical of the high-grade gold zones intersected in the Underdog mineralized zone. Beyond the sericite dominated halo, the early biotitic alteration retrogrades to a chlorite > sericite + pyrite and is normally barren or weakly and erratically mineralized.

7.2.9.2 Mineralization

Mineralization in the Underdog zone is recognized as sub-vertical to steeply dipping envelopes, with true widths averaging 2 m to 8 m and oriented east-northeast (060-075°N). These mineralized zones are known as the Z14, FW0, FW1, FW2, FW3, FW3U, and FW4 zones. The contacts of the quartz-feldspar porphyry dikes may have acted as conduits for gold-rich hydrothermal fluids, an interpretation that is reinforced by the presence of strong sericite (+/-) silica alteration coupled with gold mineralization found proximal to the dike contacts (Figure 7-13). Sulphide minerals include pyrite ± sphalerite-chalcocopyrite-molybdenite and occur as disseminations and as stringers typically millimetric in size.

Although gold mineralization generally follows main intrusive contacts, some gold mineralization is not bounded by intrusive contacts (e.g. gold mineralization within the I2P stock). Gold mineralization in this case can be attributed to unknown or unrecognized structural features in the Underdog mineralized zone, which may have caused remobilization of the gold along such structures. Another potential postulation could be rheological or structurally-influenced inflexion points in the quartz-feldspar porphyry (I1P YB) stock that may have focused the gold-rich hydrothermal fluids in the pre-mineral fragmental granodiorite porphyry stock (I2P) near the inflexion points in the quartz-feldspar porphyry (I1P YB).

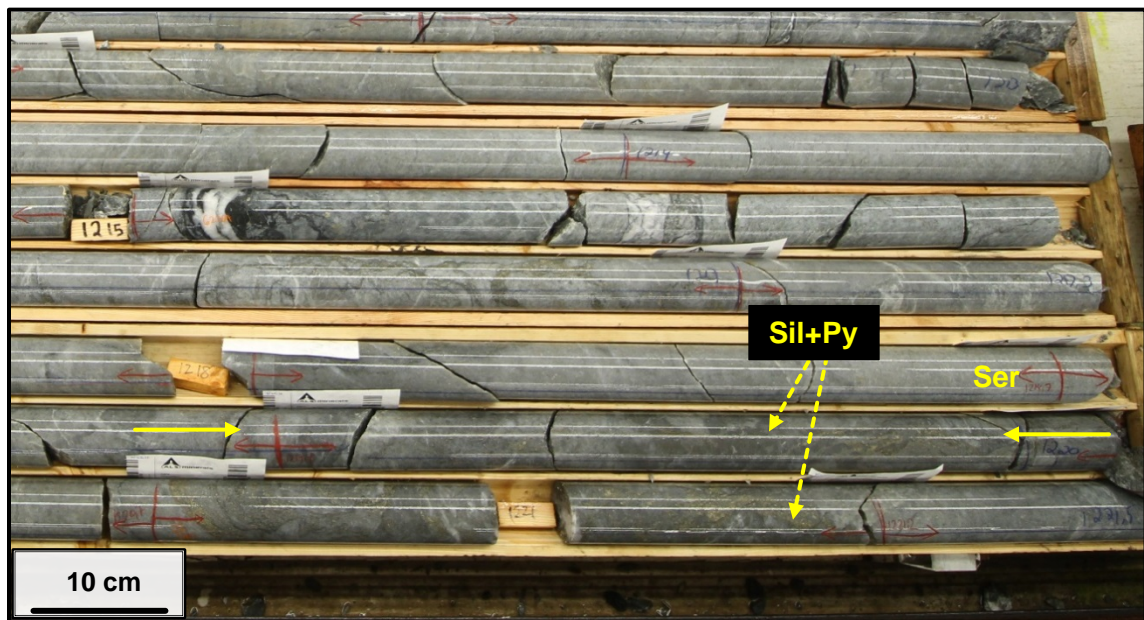


Figure 7-13: Drill hole OSK-W-17-821-W1.

Strong sericite with localized zones of strong silica alteration coupled with pyrite-gold mineralization within a syn-mineral quartz porphyry dike (I1P) in the Underdog mineralized zone. The average gold assays from 1,219.4-1,220.1 m (marked by solid yellow arrows) is 13.75 g/t gold (cut to 100 g/t).



7.2.9.3 Drilling Highlights

Drilling highlights for the Underdog zone are listed in Table 7-5.

Table 7-5: Drilling highlights from the Underdog zone

Zone	Hole	From (m)	To (m)	Interval (m)	Au uncut (g/t)	Au cut (g/t) to 100 ppm
FW1	OSK-W-17-821-W1	1110	1141	31	24.9	16.4
FW3U	OSK-W-17-1275	844	849	5	76.5	59.9
FW3U HW	OSK-OBM-16-693	654.1	664	9.9	30.8	22.2
FW3U	OSK-OBM-16-609	654.3	662	7.7	63.2	23.7
FW1	OSK-W-17-789	853	860.9	7.9	19.4	16.4
FW3	OSK-W-16-706-W1	1033	1041.9	8.9	16.6	15.9
FW2	OSK-W-16-743	1233.7	1236.3	2.6	303	47
FW2	OSK-W-17-833-W2	1014	1017	3	43.9	41.6
FW3	OSK-EAG-12-333	848.1	850.2	2.1	116	59.4
FW0	OSK-W-17-821-W1	937	941	4	36.7	35.4

7.2.10 Lynx Zone

The geological interpretation for the Lynx zone is based on the relative timing of rock units and the spatial relationship of the gold mineralization with the I1P dikes. From oldest to youngest lithologies, these are: rhyolite (V1), gabbro (I3A), felsic porphyry dikes with small quartz eyes (I2P), magmatic-hydrothermal breccia (I1 Frag), felsic intrusive porphyry with large quartz eyes (I1P) followed by late quartz porphyry monzonitic intrusions (I13) (Figure 7-15).

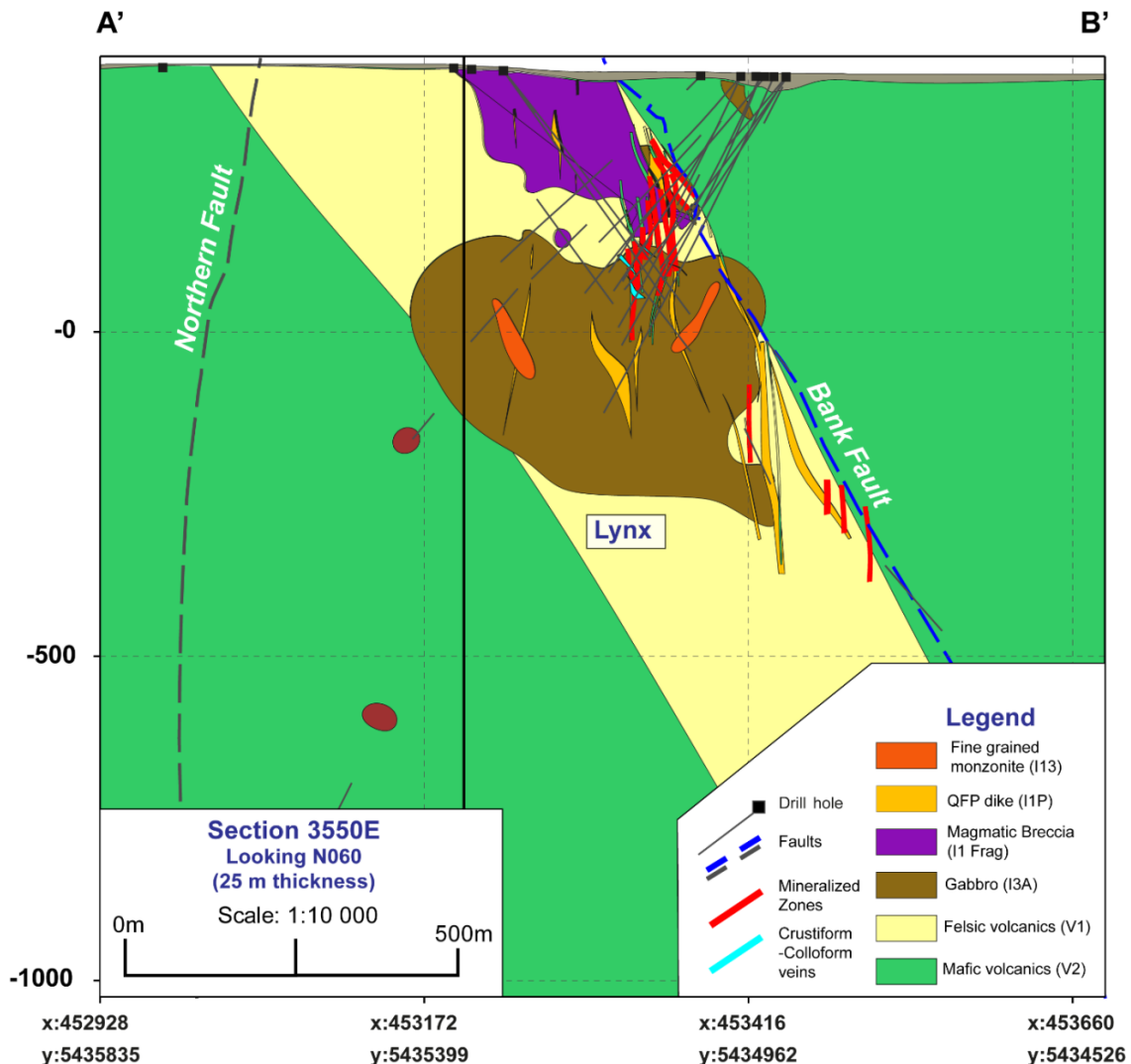


Figure 7-14: Simplified northwest-southeast vertical cross-section of the geology of the Lynx zone of the Windfall Lake deposit along grid line 3550E (A'-B' in Figure 7-8), showing the spatial setting and geometry of mineralized zones shown in red.

Often, the gold mineralization is constrained to the silicified-sericitized contacts of the large quartz eyes felsic porphyry intrusive (I1P) with the other rock types. A second significant gold mineralization is hosted within crustiform veins generally occurring near the upper contacts of the gabbro with the other rock types.

The injection of quartz porphyry dikes (I1Ps) occurred later, plunging towards the fragmental granodiorite porphyry stock (I2P) margins and cross-cutting all the lithologies described above. The dikes are emplaced along a shear zone roughly parallel to the Bank Fault.



7.2.10.1 Alteration

Sericite and silica hydrothermal alteration in the Lynx zone are associated with gold mineralization. The alteration occurs as large sericitic envelopes or halos (up to several tens of metres) to narrow (less than 10 m) pervasive silica flooding. Silica may also be weakly to moderately pervasive, occur within fractures, veins, and as patches.

The silica alteration is interpreted as the main pathfinder to gold mineralization. Usually the best mineralized intervals, locally with visible gold, are often related to the pervasive silica flooding or crustiform-like veining.

7.2.10.2 Mineralization

Mineralization in the Lynx zone is recognized as sub-vertical to steeply dipping envelopes, with true widths averaging 2 m to 6 m and oriented east-northeast (060-075°N). These mineralized zones are known as the Lynx Hanging Wall, Lynx 1, Lynx 2, Lynx 3, and Lynx 4 zones and are spatially associated with the vertically emplaced sericite-(±silica) altered quartz-feldspar porphyry (I1P) dikes (Figure 7-15a). Mineralization is also associated with silica and sericite alteration and often near the contacts of the dikes and the felsic volcanic rocks with the breccia, the gabbro, and the Bank Fault. Gold grade can vary from a few parts per million to very high grade (greater than 100 g/t). Very high gold grades (bonanza zones) are reported generally in the tens of g/t over several metres in thickness and locally can reach over 1 kg/t over intervals less than 1 m, in locally intense silicified zones (Figure 7-15b).

Gold mineralization is also associated with weakly to locally moderately developed crustiform-colloform veins that often occur within the gabbro near the contacts with rhyolite and quartz-feldspar porphyry dikes. The length of the crustiform-colloform veins may extend up to 1 m to 2 m on average and appear to extend up to 150 m along the same trend, however they are discontinuous.

Mineralization hosted within the fragmental felsic intrusive unit (I1 Frag) is mainly observed in the fragmental facies occurring as stringers, dissemination (within silicified zones), crustiform-colloform-like quartz-carbonate veins, and quartz-tourmaline veining. Minor-narrow-discontinuous gold bearing hydrothermal tourmaline-pyrite-silica breccia dikes are also present, cutting all previously described gold mineralization styles (Figure 7-15c).

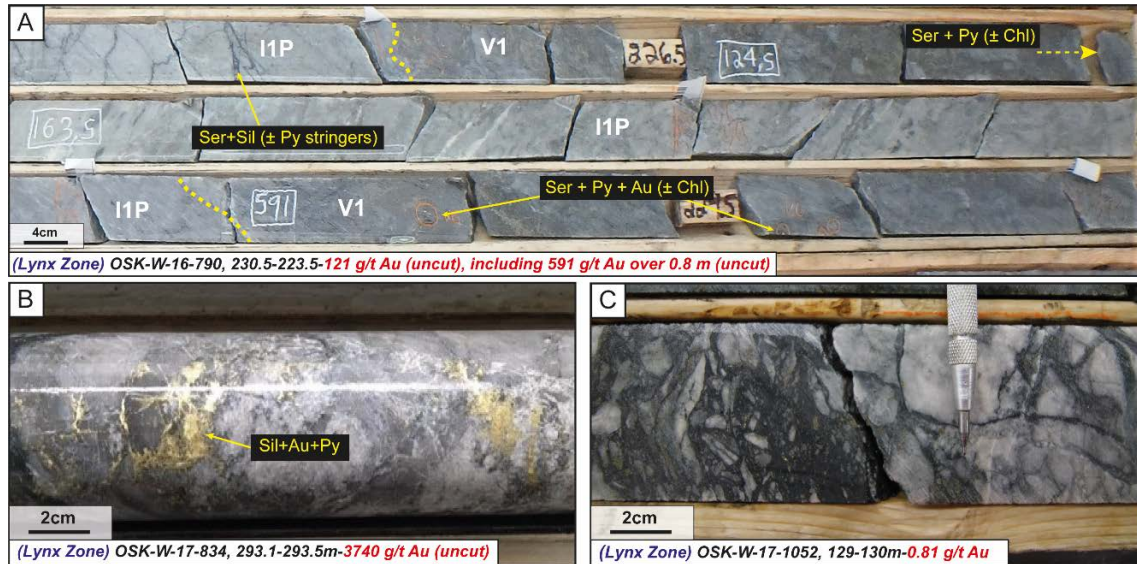


Figure 7-15: Typical mineralization and associated alteration styles in the Lynx zone of the Windfall Lake deposit.

A) Silicified and strongly sericitized rhyolite containing abundant pyrite stringers and local specks of gold in contact with porphyry dikes (I1P). B) Bonanza-grade zone associated with strong silica-pyrite alteration. C) Gold-bearing silica-tourmaline hydrothermal breccia. All gold grades are cut to 100 g/t unless indicated.

7.2.10.3 Drilling Highlights

Drilling highlights for the Lynx zone are listed in Table 7-6.

Table 7-6: Drilling highlights from the Lynx zone

Zone	Hole	From (m)	To (m)	Interval (m)	Au uncut (g/t)	Au cut (g/t) to 100 ppm
Lynx 4	OSK-W-17-1166-W1	1027	1032.9	5.9	415	69.6
Lynx 4	OSK-W-17-909	912	918.2	6.2	301	53.7
Lynx 1	OSK-W-17-834	292	295.7	3.7	421	27.8
Lynx HW	OSK-W-17-1169	761	763	2	479	30.3
Lynx HW	OSK-W-17-1343	541	546	5	140	30.8
Lynx 2	OSK-W-17-881	412	414	2	379	30.7
Lynx 1	OSK-W-16-760	223	232	9	95.3	42.7
Lynx 4	OSK-W-17-923	890.1	892.5	2.4	210	44.3
Lynx 2	OSK-W-17-837	320	328.4	8.4	97.4	33.7
Lynx 1	OSK-W-17-792	309.5	318.7	9.2	42.1	25.2



7.2.11 Zones F-17, F-51 and F-11

The mineralized F-zones are of second order in terms of scale compared to the zones composing the main Windfall Lake deposit (Figure 7-7 and Figure 7-8). The F-17 and F-51 zones are two separate zones of gold mineralization containing typical orogenic gold mineralization (also termed greenstone-hosted quartz-carbonate vein mineralization). The two zones, located approximately 450 m north-northeast from the Main zone, trend subparallel to the Main zone along a shear zone and dip steeply to the north. Both zones are aligned along the same trend but separated by approximately 500 m. Zones F-17 and F-51 are characterized by multiple quartz-feldspar porphyry dikes (I1P) cross-cutting host mafic volcanic rocks (V2). Gold mineralization is spatially associated with quartz-porphyry dikes restricted to the shear zone. Limited drill hole data are available from this gap zone. Continuity between the two zones cannot be established from the current drilling data. Both zones are characterized by strongly developed foliation associated with sericite fuchsite- tourmaline-pyrite alteration.

Zone F-11 is located 900 m NNE of the main deposit and forms a narrow corridor of alteration and mineralization oriented ENE. Zone F-11 is characterized by multiple quartz-feldspar porphyry (I1P) dikes cross-cutting host mafic volcanic rocks (V2). Gold mineralization is spatially associated with the contacts of the quartz-feldspar porphyry dikes (I1P) and host mafic volcanics (V2).

7.2.11.1 Alteration

Alteration in zones F-11, F-17 and F-51 is confined to the lithological contacts and their margins. More specifically, alteration seems to be restricted to the contacts between the quartz-porphyry dikes (I1P and I2P) and the host mafic volcanics. There are slight differences in terms of spatial distribution and intensity between zones. All zones present a similar sericite-carbonate alteration mineral assemblage, though zone F-11 seems to be lacking silica.

In zones F-17 and F-51, the alteration appears to have been solely constrained within the area of the shear zone. Pervasive sericite-carbonate-fuchsite (\pm) silica alteration assemblage is strong along the shear zone. It was observed that most of the I1P and the I2P dikes composing the zone F-17 are found within the shear. The few quartz-feldspar porphyry dikes found outside of the shear lack alteration.



7.2.11.2 Mineralization

In zones F-17 and F-51, gold distribution is constrained to the shear zone suggesting a genetic link between the host structure and the mineralization. In zones characterized by strongly developed foliation, alteration is dominated by sericite-fuchsite-tourmaline-pyrite that can contain up to 15% of white quartz-albite-carbonate veins with 1% to 10% pyrite and traces of sphalerite and chalcopyrite. Visible gold is also frequently present in the veins. The highest gold grades are associated in brecciated zones where fuchsite and tourmaline are abundant.

The F-11 zone is a small gold mineralized area located near the portal of the ramp. Gold mineralization consists of small quartz-carbonate extensional veins, typically less than 1 cm thick, characterized by their high content of visible gold. Continuity of this gold mineralization has not been demonstrated.

7.2.12 Other Mineralization Styles

Other minor mineralization styles that locally contain significant gold grade occur at the Windfall Lake deposit and generally cross-cut the main gold mineralization event associated with sericite-silica alteration zones at the contacts with other rock units. These other types of mineralization are seen in all zones of the deposit. Examples from the Caribou zone include pyrite disseminations and fracture filling veinlets that locally contain significant amounts of tourmaline (ptygmatic) and Fe-carbonates (Figure 7-16a) along with traces of other sulphide species, chiefly chalcopyrite. Other observed mineralization styles include quartz-tourmaline ± pyrite hydrothermal breccia/veins (Figure 7-16b), and quartz-carbonate ± pyrite colloform-crustiform veins (Figure 7-16c) that have variable thicknesses, typically several centimetres. The colloform-crustiform veins can extend over 500 m along the same trend in the Main zone, however they are discontinuous. These other minor mineralization styles are often at low-angle to the core.

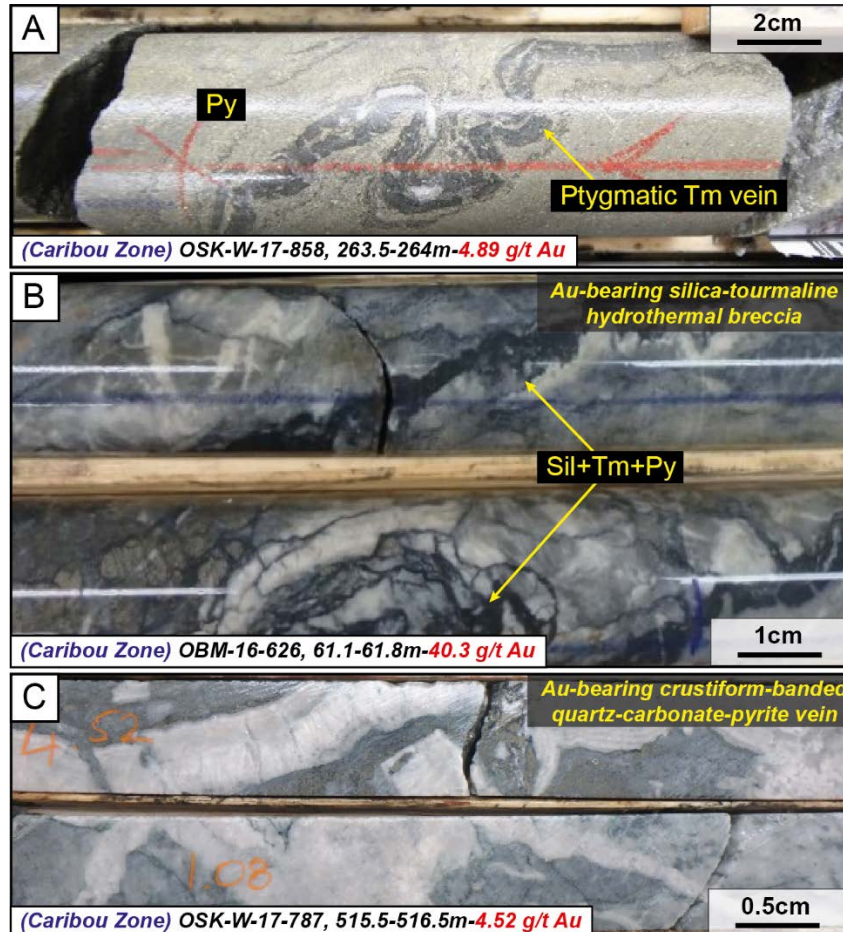


Figure 7-16: Other mineralization types and associated alteration styles present in the Windfall Lake deposit.

- A) A pygmatic tourmaline and Fe-carbonate vein in disseminated to semi-massive pyrite. B) Low-angle gold-bearing silica-tourmaline hydrothermal breccia. C) Low-angle gold-bearing crustiform quartz-carbonate-pyrite veins. All gold grades (Au g/t) are cut to 100 g/t unless indicated.

7.2.13 Structural Geology

Major structures are observed in drill core, trench surfaces and as major lineaments interpreted from both ground and airborne geophysics (magnetic, gradient EM and IP-resistivity surveys). Current information supports northeast trending (050° to 060° azimuth) shear and fault zones with both northwest and southeast dipping (55° to 60°) inclination. These are referred to as the Northern Fault located northwest of the deposit and the Bank Fault located southeast of the deposit (Figure 7-8, Figure 7-9 and Figure 7-14). Several shear zones cross-cut the property, including the east-trending Urban Deformation zone and the east-northeast-trending Milner and Masères shear zones. The latter, also known as the Bank Fault at Windfall Lake, is interpreted to

cross-cut the Windfall Lake deposit. Some of the shear zones are spatially related to distal gold mineralized zones (e.g., zones F-51 and F-17). The Milner and Masères shear zones are truncated to the north by the Urban Deformation zone. The Windfall fault is interpreted as a brittle feature that bisects the property and cuts all shear zones.

Osisko has done a preliminary structural study of the Windfall Lake deposit to define the attitude of specific structural features, such as schistosity, pyrite stringers, and veins. The study compared structural data measured in oriented core from four zones in the deposit: Zone 27, Caribou, Lynx, and proximal or beyond the Bank Fault. The structural data from Underdog and Mallard were not compared to these data sets. Results of this preliminary study are briefly described below.

The schistosity is dominantly observed in volcanic rocks as quartz-feldspar porphyry dikes generally tend to not develop schistosity. The volcanic rocks tend to develop a well-defined penetrative schistosity that is weak to moderate in intensity and locally can be very strong forming discreet shear zones that vary in thickness from several centimetres to a few metres. These shear zones have not been mapped for their continuity but likely represent sub-vertical subtle features. The attitude of the schistosity in the Caribou zone strikes N15E dipping 40°E, whereas, the schistosity in Zone 27 strikes north-northwest and dip 30°E (Figure 7-17). The schistosity becomes more intense towards the Bank Fault and parallelize to its general trend (i.e., the Lynx zone; Figure 7-17).

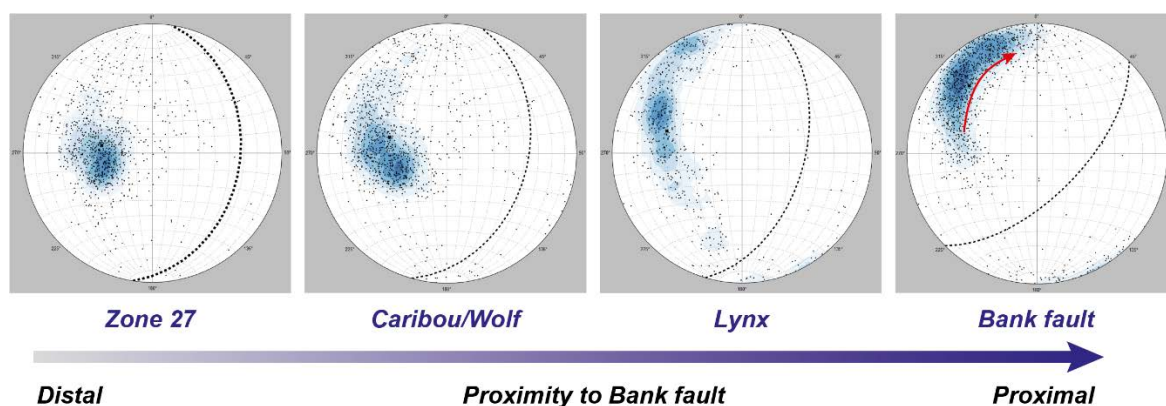


Figure 7-17: Stereographic projection of the schistosity measured in oriented DDH core within volcanic rocks by zones.

Pyrite stringers in the Caribou zone have two preferred orientations (Figure 7-18). One is oblique to schistosity and one is nearly parallel to it in felsic volcanic rocks. The most dominant orientation strikes N50E dipping 65°E. This attitude is similar to the orientation of the schistosity in the Bank Fault. The least dominant orientation strikes roughly N15E dipping 60°E. This attitude is similar to the orientation of foliation observed in the felsic volcanic rocks of the Caribou zone. Pyrite stringers in Zone 27 also have two preferred orientations, one oblique to foliation and one nearly

parallel to foliation (Figure 7-18). The most dominant orientation strikes ENE and dips at 70°SE which is similar to the orientation of the schistosity recorded in the Bank Fault. The least dominant orientation strikes roughly north-northeast and dips 50°E like schistosity in the volcanic rocks.

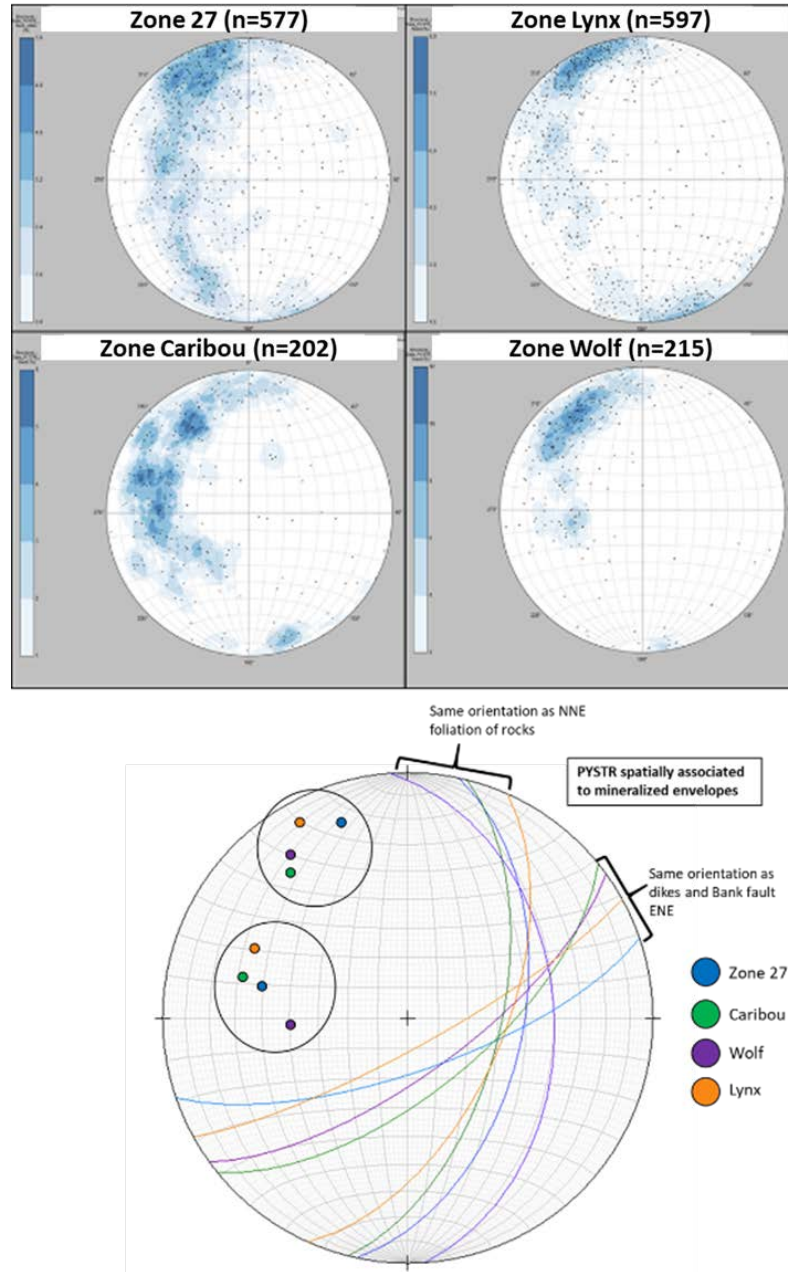


Figure 7-18: Stereographic projection of pyrite stringers (PYSTR) proximal to mineralized envelopes from Zone 27, Caribou, Wolf and Lynx along with the interpretation.



Quartz veins in the Caribou zone have two preferred orientations (Figure 7-19). One vein set strikes north and dips roughly 40°E nearly parallel to foliation in the volcanic rocks. A second vein set is observed striking roughly south-southeast dipping 40°SW. Veins of this orientation are the only vein set recorded in the post-mineral Red Dog dike, and thus represents a late hydrothermal event. Quartz veins in Zone 27 have three preferred orientations. One vein set is oriented near parallel to the foliation of the rocks striking north-northwest dipping 40°E. Two vein sets occur oblique to foliation, one striking N60E dipping 70°SE and the other striking south-southeast dipping 33°SW (Figure 7-19). The vein set striking northeast has a similar attitude to the foliation measured in the Bank Fault and could possibly be related to the same deformational event. The vein set striking south-southeast is not a typical structural orientation observed at the Windfall Lake deposit. They are late fracture filling barren quartz veins that do not contain economic gold mineralization. This type of vein set is commonly observed in the Red Dog dike and therefore is interpreted as a late hydrothermal event.

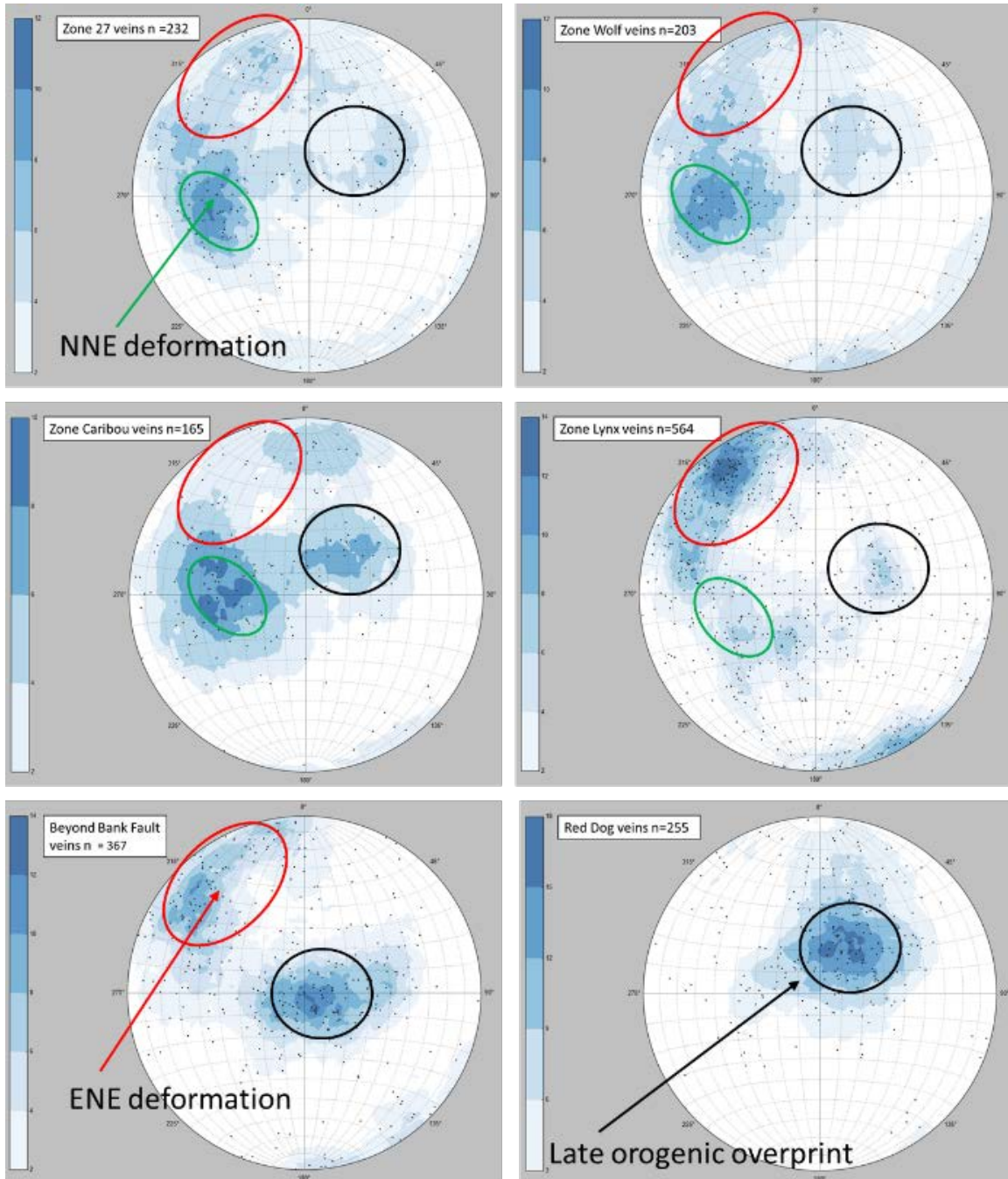


Figure 7-19: Stereographic projection of vein orientation data. Data indicates that at least three quartz vein sets are present.



7.3 Quévillon Property

7.3.1 Local Geology

Bedrock exposures are generally scarce on the Quévillon property. Most are found on the Western and Northeastern blocks and eastern portion of the Central Block.

The property is in the NVZ of the Abitibi Greenstone Belt. Most parts of the property are underlain by thick, effusive, generally non-explosive sequences of pillowed, massive, or brecciated basalts characterizing a submarine basalt plain environment (Figure 7-20). Synvolcanic and cogenetic mafic to ultramafic sills and dikes intruded the mafic volcanic sequences. Locally, felsic to intermediate volcanic edifices occur within mafic sequences. Geochronological data indicates that the volcanic rocks range between 2721 and 2722 Ma in the western part of the property (Deschênes et al., 2014) and between 2714 and 2718 Ma in the eastern part (David et al., 2007; Davis et al., 2005; Bandyayera et al. 2003). Many layer-parallel faults and shear zones transect the property with northwest-southeast, east-west, and northeast-southwest dominant orientations. These faults exhibit a subvertical mylonitic foliation with a dominant dip-parallel stretching lineation (Daigneault et al. 2004). They delimit volcanic rocks of different lithologic groups and late Archean sedimentary basins such as Glandelet and Taibi (Figure 7-3). Sedimentary basins result from uplift and erosion of the felsic edifices (Mueller et al. 1989). Principal intrusions surrounding the property are the felsic composition Marest, Bernetz and Mistaouac synvolcanic plutons (Davis et al. 2000). In the Central Block, smaller and sub-circular felsic plutons are interpreted as syn- to post-tectonic in ages (Chown et al., 2002).

North of the Glandelet sedimentary basin and the E-W-trending Laflamme and Maizerest shear zones lie the mafic volcanics belonging to the Vanier-Dalet Group (Figure 7-20). The past-producing Sleeping Giant gold mine as well as the Osborne-Bell deposit are located in this group at more or less the same distance from the fault-bounded basin. South of the Glandelet basin, the property straddles the volcanic package of the Quévillon Group. This group is mainly composed of andesitic flows and tuffs and minor felsic volcanic and graphitic horizons. North of the Cameron Shear (where all claims of the Northeastern Block are located), glomeroporphyric basalts and minor andesitic rocks constitute the southern end of the Obatogamau Formation.

The major ductile deformation zones cutting through the property are the Maizerest, Laflamme, Rivière Kiask and Cameron shears (Figure 7-20). The WNW-ESE trending Cameron Shear is a steeply dipping ductile structure, 80 km long by up to 5 km thick. This fault has an unusual dextral sense of movement compared to other major faults in the Abitibi (Roy, 2000). The Langlois mine is hosted within the Cameron Shear and its VMS lenses are strongly stretched parallel to the foliation. The Lamarck-Wedding Fault cuts across the northeastern part of the Central Block. It is also an unusual NE-SW orientation for the Abitibi and displays brittle-ductile rheologic behaviour (Roy, 2000). The Lamarck-Wedding Fault cuts across the Cameron Shear and E-W faults.

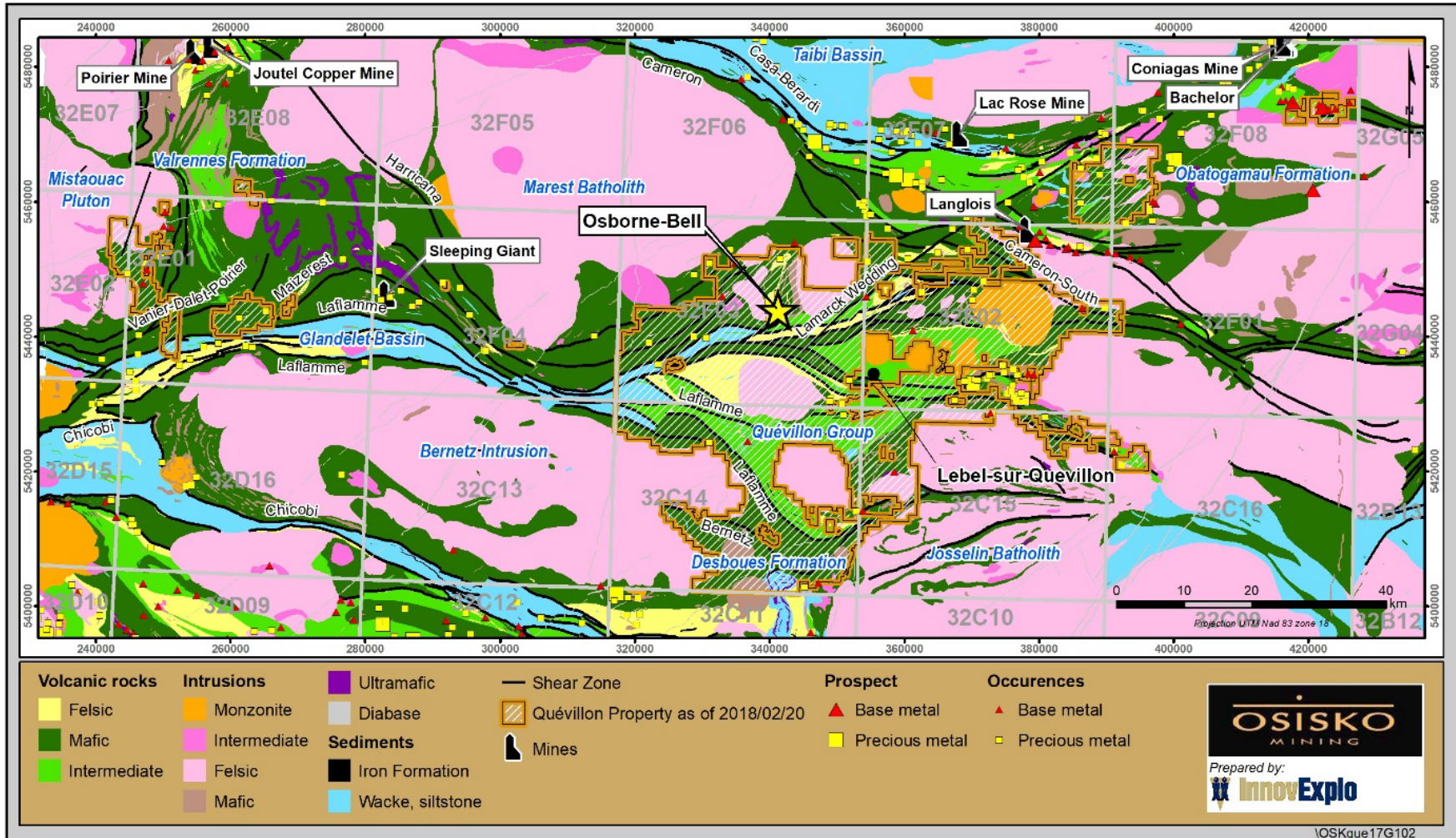


Figure 7-20: Regional geology of the Osborne-Bell deposit (Quévillon property). (SIGEOM database).



7.3.2 Geology of the Osborne-Bell Area

The geology of the Osborne-Bell area (Figure 7-21) is dominated by undifferentiated mafic and intermediate volcanic rocks of basaltic to andesitic compositions belonging to the Vanier-Dalet-Poirier Group (Dupré, 2010). Felsic volcanic and volcanoclastic rocks of dacitic to rhyolitic compositions (Dupré, 2010), and local interlayers of various sedimentary rocks (argillites, graphitic shales and iron formations) have also been documented. The rocks are mainly metamorphosed to greenschist facies, locally reaching amphibolite facies along the fringes or margins of late intrusive stocks.

The Osborne-Bell units mainly strike WNW-ESE, changing to NNE-SSW in the northeastern part of the property and to NE-SW in the western part of the property (Figure 7-21). These changes in orientation may be related to the presence of numerous intrusions and regional deformation. The most important intrusions in the vicinity of the Osborne-Bell deposit are the Marest Stock and the Franquet Stock. Inside the property itself, notable multi-kilometre intrusions are the Comtois Stock, Beehler Stock and an as yet unnamed mass that straddles the northern boundary and is interpreted as a late stock based on geophysical data.

The geology of the Osborne-Bell area is characterized by a package of synvolcanic felsic units striking WNW and dipping steeply to the north (N290/80), enclosed within a broad package of mafic volcanic rocks (volcanoclastic units and lava flows) (Figure 7-22). The structural data measured by Riopel and Waldie (2003) indicates an E-W schistosity with a subvertical dip to the north or south.

The south end of the post-tectonic Beehler Stock truncates the felsic and mafic Osborne-Bell rocks (Figure 7-22). A swarm of feldspar-amphibole porphyry dikes related to the Beehler Stock also cuts through the pile of mafic and felsic rocks.

Pillowed mafic flows, felsic units and sedimentary rocks in the Bell-VMS area at the western extremity of Osborne-Bell deposit display a significantly different strike (N042°-N222°) compared to the felsic units further east (Figure 7-22). This orientation carries through into the northeastern part of the property (Figure 7-21). The structural data demonstrates that the change in lithological orientation is caused by the presence of a fold, not a fault, thereby confirming the stratigraphic continuity between Osborne-Bell and the Eastern Extension. Three distinct planar features are evident.

The current interpretation is that of a synvolcanic felsic dike swarm injected in the mafic volcanic pile of the main part of the Osborne-Bell deposit, representing the root or part of the root of a bimodal volcanic centre at the west end of Osborne-Bell (Bell-VMS area), thus explaining the change in orientation of felsic units from one end of the deposit to the other (see Section 8.2.2 and Figure 8-2).



Foliation (N280/85) is documented in both felsic and mafic synvolcanic units and developed during regional deformation. The orientation is similar to that of the late feldspar-amphibole porphyry dike swarm, suggesting that foliation planes served as preferential pathways for injection. Foliation at the western extremity trends NNE-SSW.

All holes drilled during the depth extension program passed through the typical Osborne-Bell lithological succession and mineralization settings. From north to south, drill holes intersected mafic volcanoclastic units containing trace to 3% sulphides, with the percentage increasing to 5% near the contact with the main felsic units. The main felsic units generally contain 1% to 3% sulphides. Drill holes were then stopped in the barren Beehler Stock, which marked the end of the favourable sequence. Drill holes in the Midway area intersected another mafic volcanoclastic unit after the main felsic package, before ending in the Beehler Stock.

The felsic rocks intercepted at depth in the deep holes and wedges are identified as "Felsic" ($Zr/TiO_2 \times 10000 > 0.035$) in Figure 7-23. Alteration is still present at great depth in the Osborne-Bell deposit but is stronger in the Camten and Osborne areas than the Midway and Bell areas, as is the case for the shallower parts of the system in those areas.

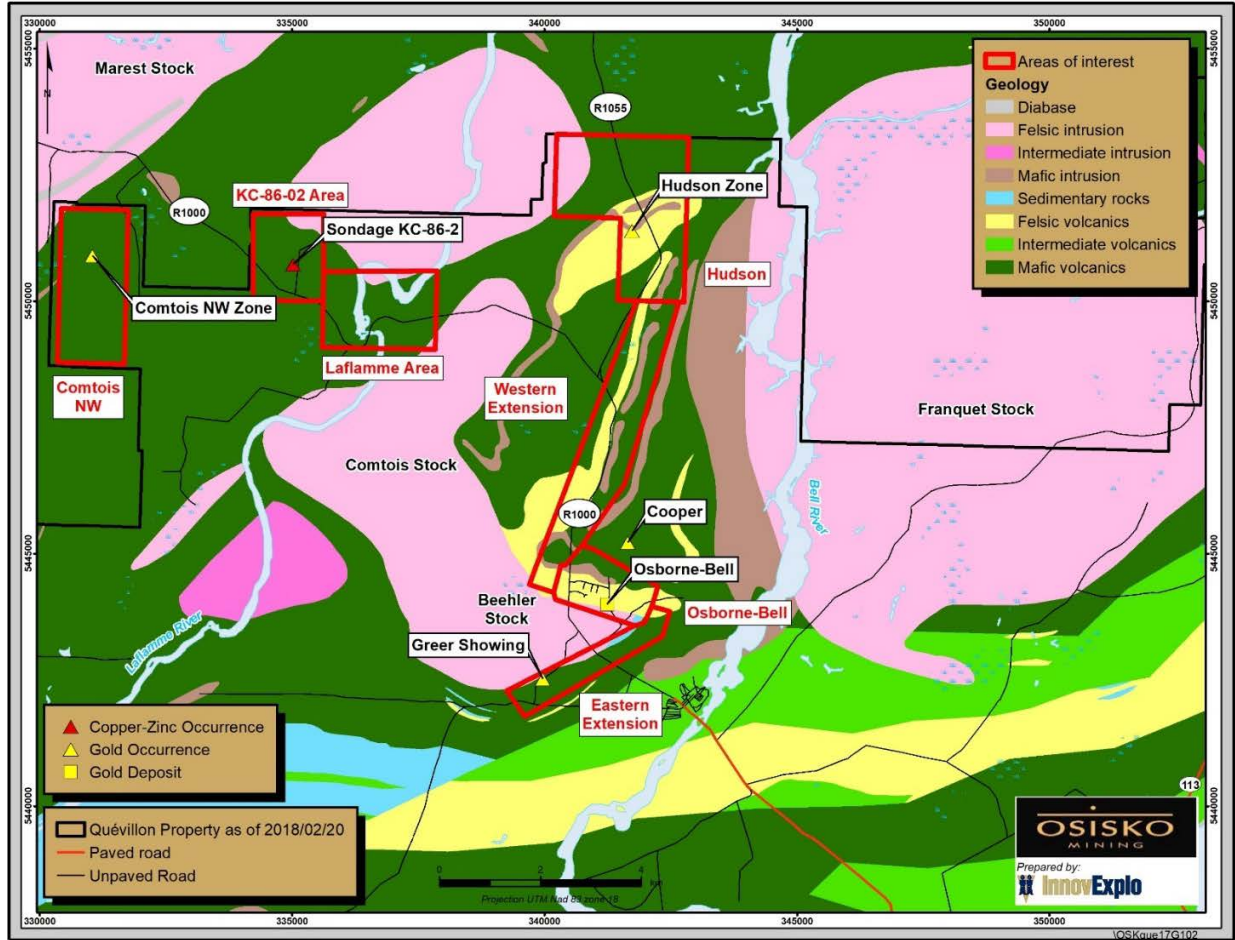


Figure 7-21: Local geology and location of mineral occurrences and areas of interest on the Osborne-Bell deposit area.

Figure 7-22, and Figure 7-25 to Figure 7-28 provide close-up views of Osborne-Bell deposit.

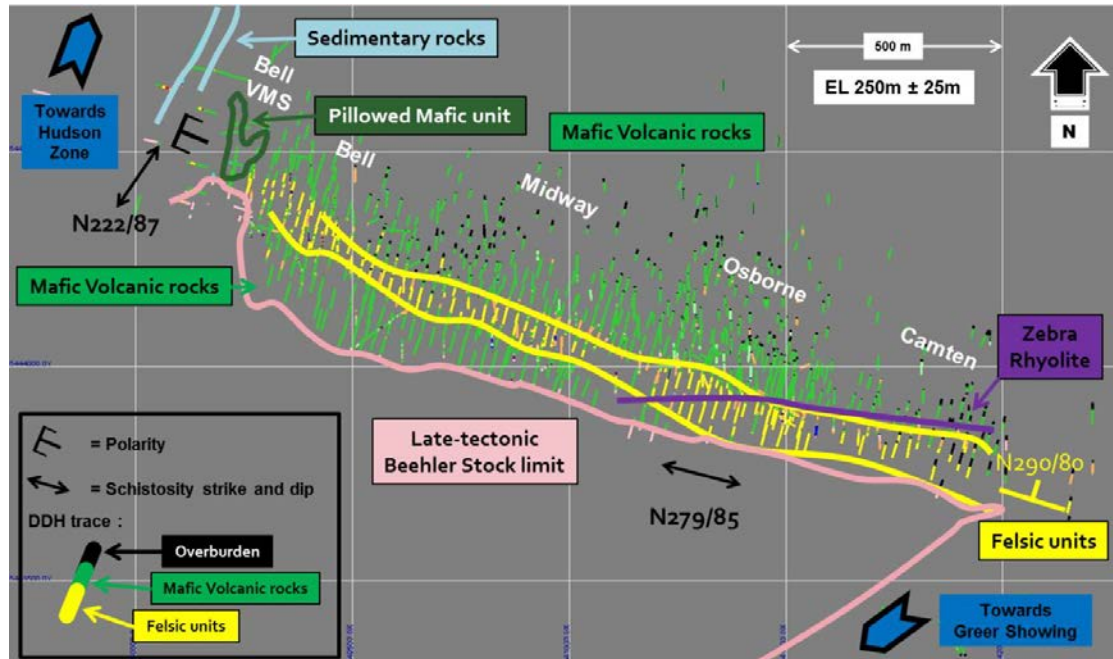


Figure 7-22: Local Osborne-Bell deposit geology on a subsurface plan view (50 m below surface) using the main lithologies encountered along DDH (colour-coded DDH traces). Osborne-Bell deposit is subdivided into the Bell-VMS, Bell, Midway, Osborne and Camten areas along an E-W axis.

7.3.2.1 Geochemistry of Mafic Volcanic Rocks

Mafic volcanoclastic (V2-V3 on Figure 7-23) and massive to pillowed units (V3 on Figure 7-23) represent the greatest volume of volcanic rocks (collectively “mafic volcanic rocks” on Figure 7-22). Primary layering is generally evident due to textural contrasts (tuffaceous layers) and/or changes in mineralogy (original compositional differences emphasized by the effects of alteration and metamorphism).

Geochemically, the felsic and mafic rocks at Osborne-Bell are distinguished by a $Zr/(TiO_2 \times 10,000)$ threshold of 0.035 (Figure 7-23). Mafic to intermediate rocks, which range from basalts to dacites, typically have lower ratios whereas felsic ratios are generally higher.

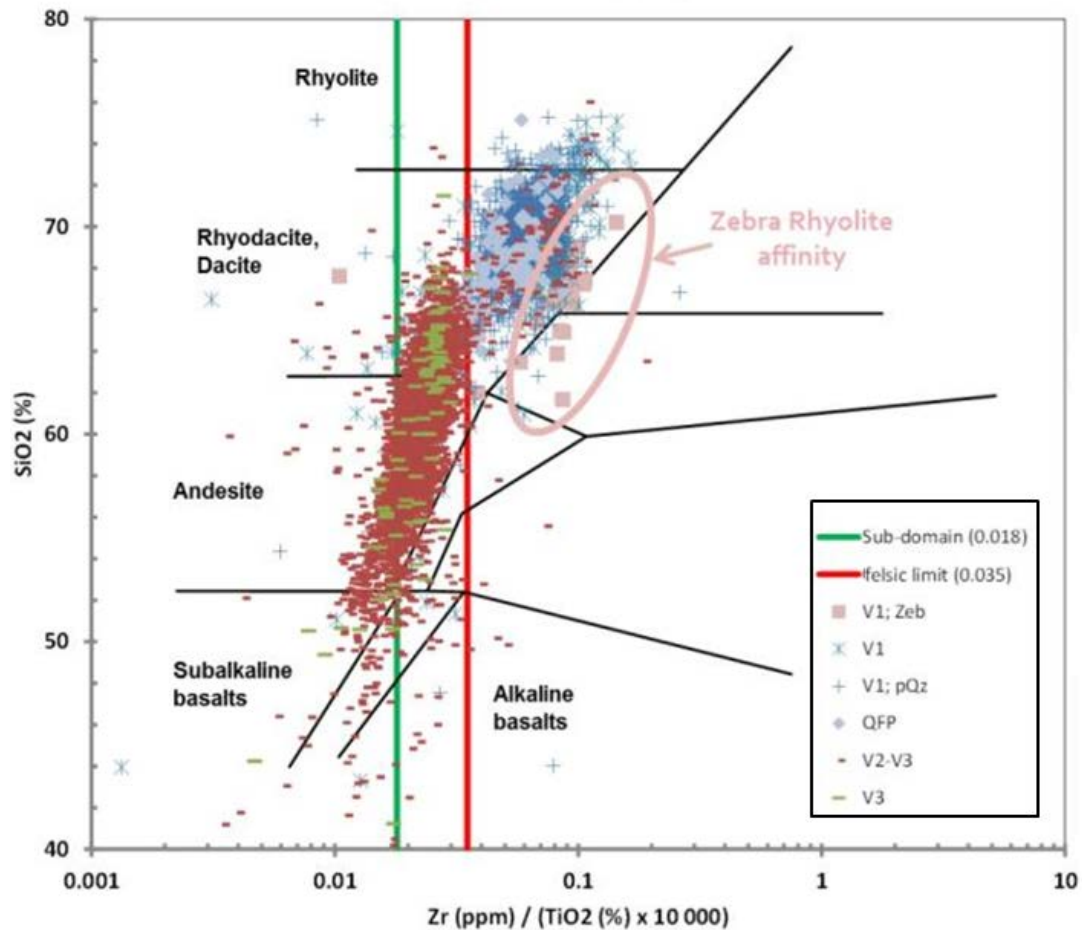


Figure 7-23: Binary diagram of silica vs. Zr/TiO_2 (from Winchester and Floyd, 1977) for rocks of the Osborne-Bell deposit. The majority of intermediary to mafic volcanic rocks (V3 and V2-V3 in the legend) plot less than the 0.035 Zr/TiO_2 threshold, whereas most synvolcanic felsic rocks (V1, V1; pQz and QFP) plot above this threshold. Note the relatively high Zr/TiO_2 values of the Zebra Rhyolite.

7.3.2.2 Mafic Volcaniclastic Rocks

Mafic volcaniclastic rocks constitute the most voluminous mafic facies at Osborne-Bell and occur on both sides of the felsic package (Figure 7-22). Their visual appearance is characterized by coloured bands ranging from dark grey to hues of green and plum. Chlorite-altered elongated clasts (lapilli to block sizes) are common features in the volcaniclastic units. In some cases, clasts margins are marked by an assemblage of amphibole, biotite and magnetite.



Weak and pervasive silicification accompanied by biotite is common. Felsic fragments or silica-altered clasts, when present, can constitute up to 15% of the rock and display strong silicification and sericitization. Layering is suggested by concentrations of subrounded to subangular fragments or/and by changes in mineralogy (primary compositional differences emphasized by the effects of alteration and metamorphism).

Massive and Pillow Lava Flows

Mafic massive flows were mostly documented north of the felsic package and pillow lavas in the Bell-VMS area at the western extremity of Osborne-Bell (Figure 7-22). In outcrop, the pillows are almost spherical and poorly defined, rendering tops determination ambiguous, although the general impression is that of stratigraphic tops to the W or NW (Figure 7-22). The fine-grained and weakly deformed pillowed basalts display a medium greenish-grey colour and intervals of feldspar phenocrysts and centimetre-scale epidote nodules.

Synvolcanic Mafic Dikes

The youngest volcanic unit is represented by dark green, fine-grained to aphyric, synvolcanic mafic dikes. They commonly contain late quartz ladders (Riipel and Waldie 2003).

7.3.2.3 Synvolcanic Felsic Units

Quartz-phyric Felsic Unit

This is the most abundant facies of the felsic package. Quartz-phyric felsic rock has been documented in drill core along the entire trend for 1.8 km (Figure 7-22) and constitutes the deepest felsic rock encountered to date at Osborne-Bell. The thickness of the quartz-phyric felsic (rhyodacite) pile can reach 100 m. The unit contains millimetre-scale blue quartz eyes (2%-10%). The texture is generally massive or weakly to moderately foliated. The unit is strongly altered.

Quartz-feldspar Porphyry Unit (QFP)

Mostly located in the Bell area at the western end of Osborne-Bell, the QFP unit (rhyodacite or rhyolite) is pale grey to apple green with medium grey intervals. This unit is also characterized by bluish quartz eyes (trace amounts to 5%; 1 mm to 3 mm, rarely 3 mm to 5 mm) and by 2% to 15% feldspar phenocrysts (<2 mm). Strong silicification, moderate sericitization, and a weak schistosity are also present.



Aphyric Felsic Unit

The aphyric felsic facies typically occurs adjacent to and/or intercalated with the quartz-phyric felsic unit. The facies E-W continuity is limited in extent, from tens of metres to 100 m, and ranges from metres to tens of metres thick. The aphyric facies displays alteration patterns very similar to those of the quartz-phyric felsic unit.

Brecciated Felsic Unit

The brecciated felsic unit contains intermediate to felsic clasts and is strongly sericitized with some siliceous bands. Foliation is well developed and appears to be more visible in this unit than in the massive units. This facies has also been documented within mafic volcanic rocks as thin (decimetre-scale) isolated intervals.

Zebra Felsic Unit

Clearly distinguishable in drill core and found in the Camten and Osborne areas at the eastern end of Osborne-Bell, the zebra felsic unit cuts across both mafic volcanic rocks and felsic units ("Zebra Rhyolite" on Figure 7-22). This uncommon, weakly magnetic, foliated, greyish-purple aphyric rock is characterized by a dense stockwork of pale micro-cracks displaying preferential orientation subparallel to the general foliation, imparting a thinly banded texture (hence the name). Geochemically, it has a higher Zr/TiO₂ ratio than other felsic units (Figure 7-23) and displays Na₂O enrichment. These features suggest it could represent one of the last episodes of synvolcanic felsic magmatism.

7.3.2.4 Late Intrusive Rocks

Beehler Stock

The monzonitic to granodioritic Beehler Stock (Figure 7-21 and Figure 7-22) displays a characteristic unfoliated intergranular texture composed of 20% to 30% coarse feldspar phenocrysts (5 mm to 20 mm) and up to 8% ferromagnesian minerals (mostly amphibole and chlorite). Feldspar-amphibole porphyry dike swarm intrude the surrounding volcanic mafic rocks and synvolcanic felsic units.

Feldspar-amphibole Porphyry Dikes

The feldspar-amphibole porphyry dikes strike almost east-west (280° N) and dip steeply (85°) to the north (Figure 7-24). They become increasingly numerous and contiguous closer to the Beehler Stock. Their unfoliated texture indicates they were not affected by the various phases of penetrative deformation affecting other rocks in the area, indicating a late to post-tectonic age of emplacement. The dikes range from decimetres to several metres thick. They contain 3% to 20% feldspar phenocrysts (2 mm to 15 mm) and 3% to 8% ferromagnesian phenocrysts (millimetre scale; mostly amphibole and chlorite) in a fine-grained matrix. Their colour ranges

from grey to shades of red, the intensity depending on the degree of hematization. They are typically moderately magnetic, but the degree of magnetism can change rapidly from weak to intense.

Aplite/Pegmatite Dikes

In addition to the dominant porphyritic phase of the Beehler Stock, lesser amounts of aplite and pegmatite dikes were also observed (Riopel and Waldie, 2003). These late-tectonic intrusions are oriented N030/30 and crosscut the volcanic units and feldspar-amphibole porphyry dikes. The aplite dikes are generally white to pale grey or pale pink, fine-grained, massive and homogenous, ranging in width from 1 cm to 30 cm. They contain 2% to 5% ferromagnesian minerals, are locally weakly magnetic, and are strongly hematized, displaying intense pink to red hues. The pegmatite dikes contain coarse quartz and white to reddish feldspar crystals, and traces of non-magnetic ferromagnesian minerals.



Figure 7-24: Late-stage feldspar-amphibole porphyry dikes oriented along a N280° axis in the Midway area adjacent to the Beehler Stock.



Lamprophyre Dikes

Rare grey to dark green lamprophyre dikes crosscut all other lithological units (Riopel and Waldie, 2003). They have a very calcitic fined-grained matrix composed of sub-millimetre amphibole phenocrysts. An absence of secondary tectonic fabric indicates a late stage of emplacement.

7.3.2.5 Sedimentary Rocks

Graphitic Black Shale Unit

Documented at surface and down several drill holes at the western extremity of Osborne-Bell (Figure 7-22), the graphitic units are generally oriented N042°-N222°, range from centimetres to decimetres thick, and are interlayered with massive and/or pillowed lavas and/or volcanoclastic mafic units. They display a fine-grained texture and generally dark colour due to the presence of graphite. Barren sulphide stringers and/or barren massive sulphide (pyrite and pyrrhotite) layers occur in the vicinity or are directly associated with these meta-sedimentary rocks. Graphitic black shale units currently serve as “marker horizons” for volcanic massive sulphide (“VMS”) mineralization in the Bell-VMS area and continue northward to the Hudson Zone. These units are locally enriched in zinc and lead.

7.3.3 Osborne-Bell Structural Geology

The Osborne-Bell rocks experienced intense deformation characterized by intermediate to high strain, producing a weak to moderate schistosity and a pronounced dominant lineation. Structural measurements (Riopel and Waldie, 2003) revealed that the schistosity in the Osborne area is generally oriented N279/85, whereas the schistosity in the Bell area is generally oriented N222/87 (Figure 7-22). The average attitude for the lineation is N027/81. Altered clasts are elongated parallel to schistosity, forming ribbons in the intermediate to mafic volcanoclastic units.

Dupré (2010) reports several NE-SW brittle faults displaying centimetre- to metre-scale dextral displacement. The total magnitude of the overall displacement produced by the brittle faults has not yet been determined. Chronologically, the brittle faults crosscut all geological units and represent the last deformational event at Osborne-Bell.

7.3.4 Osborne-Bell Zone Alteration

Alteration at Osborne-Bell is represented by an assemblage of variable amounts of quartz, white micas (mostly sericite), aluminosilicates, cordierite and biotite accompanied by sulphides and gold enrichment. In drill core, alteration imparts a speckled appearance to some intervals, with the spots representing medium-grey silicification surrounded by a fairly sericitic matrix. In thin section, aluminosilicates may be very abundant (up to 40%; Renou, 2010). This assemblage represents



moderate to strong silicification and sericitization, along with argillic alteration. All felsic units were pervasively altered to varying degrees, and alteration crossed the northern contact of the felsic package to extend up to several tens of metres into the mafic volcanic sequence. Altered mafic volcanic rocks range from pale to dark grey, making them easily distinguishable from fresh (unaltered) mafic volcanic rocks (darker green or darker grey tones). Primary compositional layering in all affected rocks is emphasized by alteration, which created layers with abundant white micas, aluminosilicate minerals and biotite.

7.3.5 Osborne-Bell Deposit – Gold Mineralization

The Osborne-Bell deposit area hosts disseminated pyrite gold mineralization ($\pm\text{Ag}$, $\pm\text{Cu}$, $\pm\text{Zn}$), volcanogenic massive sulphide mineralization ($\pm\text{Zn}$, $\pm\text{Pb}$), and other occurrences of gold and zinc.

The Osborne-Bell deposit is a disseminated pyrite gold deposit and therefore not a typical Archean lode gold deposit like those generally found in the Abitibi Belt. Although there has been some great improvement in the understanding of this deposit type in recent years, the origin of the Osborne-Bell gold and its geological controls are not yet fully understood.

The deposit can be subdivided from west to the east into five zones: Bell VMS, Bell, Midway, Osborne and Camten. These zones are historical names given at the time of their discovery. They are part of the same mineralized system. The sulphide-rich gold mineralization of the Osborne-Bell deposit extends over a 1,900-metre strike length in a N280° direction with a steep (85°) dip to the north. It is up to 430 m wide and is known to a vertical depth of 1,300 m below surface in the Osborne area. It includes a lower grade gold envelope averaging several hundred ppb Au. The Maudore drilling program, completed in 2012, was able to validate the continuation at depth of the gold-bearing mineralized system.

Gold-bearing mineralization is characterized by disseminated sulphides, concentration of sulphides in millimetre- to centimetre-scale lenses and by millimetre-scale stringers and veinlets of fine-grained sulphides. Higher-grade stringers and veinlets display two main orientations: one parallel or subparallel to schistosity (Figure 7-22), and the other perpendicular to it. Sulphide minerals are typically pyrite with some pyrrhotite, chalcopyrite and sphalerite. Higher gold grades are generally associated with the presence of 5% to 10% sulphides mainly occurring as sulphide stringers and veinlets with minor chlorite.

Free gold is not commonly observed in the Osborne-Bell deposit but has been documented. Gold grains are spatially associated with pyrite, some coating pyrite grains and some occurring as inclusions in anhedral pyrite (Koziol and Faber, 1996). Koziol and Faber (1996) noted in thin sections that gold appears to predate fractures in pyrite and thus concluded it was emplaced prior to regional deformation.

In addition to gold, many intervals in the Osborne-Bell deposit returned significant results for copper (Cu), zinc (Zn), silver (Ag) or lead (Pb), or a combination thereof. In many cases, gold is present in intervals with base metal grades.

Figure 7-25 to Figure 7-28 show the distribution of selected metals along the Osborne-Bell deposit. The colour scale is the same for all metals and corresponds to a 5-level percentile discrimination for each metal population.

This process highlights the presence metallic enrichment zones along the Osborne-Bell trend. These zones overlap the boundaries between different rocks domains and contain several metallic associations. The most significant zone is in the Osborne area, where gold, silver, copper and zinc are strongly associated (Figure 7-25 to Figure 7-28). Furthermore, this same polymetallic zone corresponds to the strongest IALT signature.

VMS mineralization has been documented in the western extremity of Osborne-Bell (Bell-VMS area). Anomalous zinc and lead values have been documented in drill core from this area. Zinc contents exceed 1.0% in places (Figure 7-28), and in these cases, narrow sphalerite stringers are observed in graphitic black shales. Lead, which is rarely present in concentrations greater than 0.5% Pb, is typically associated with anomalous zinc values.

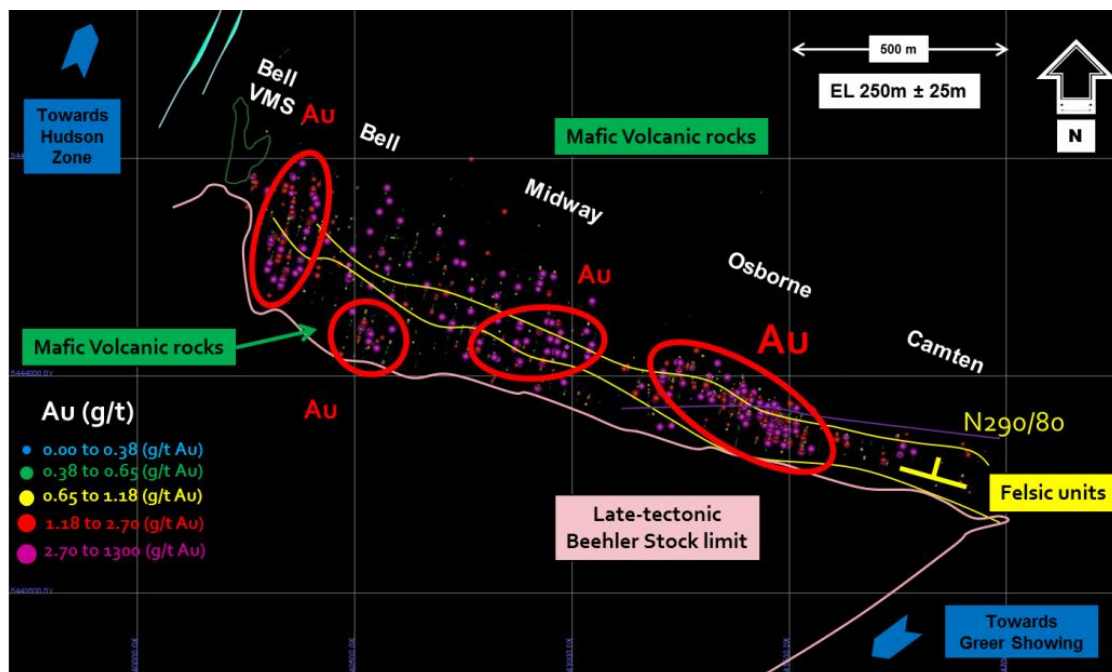


Figure 7-25: Gold distribution in the Osborne-Bell area.

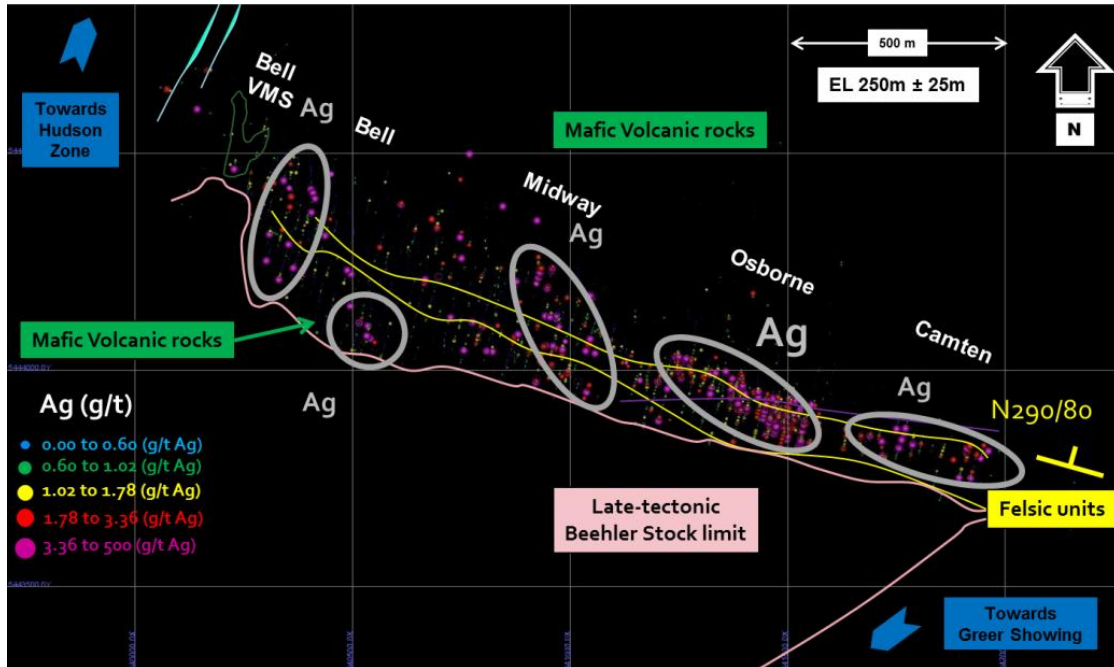


Figure 7-26: Silver distribution in the Osborne-Bell area.

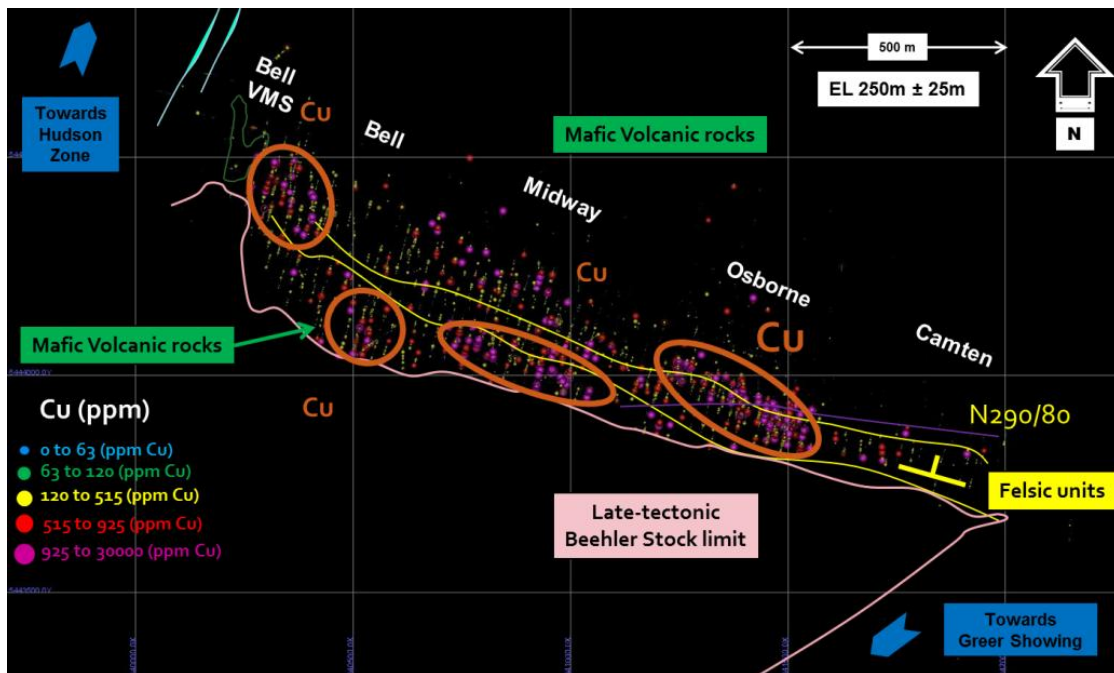


Figure 7-27: Copper distribution in the Osborne-Bell area.

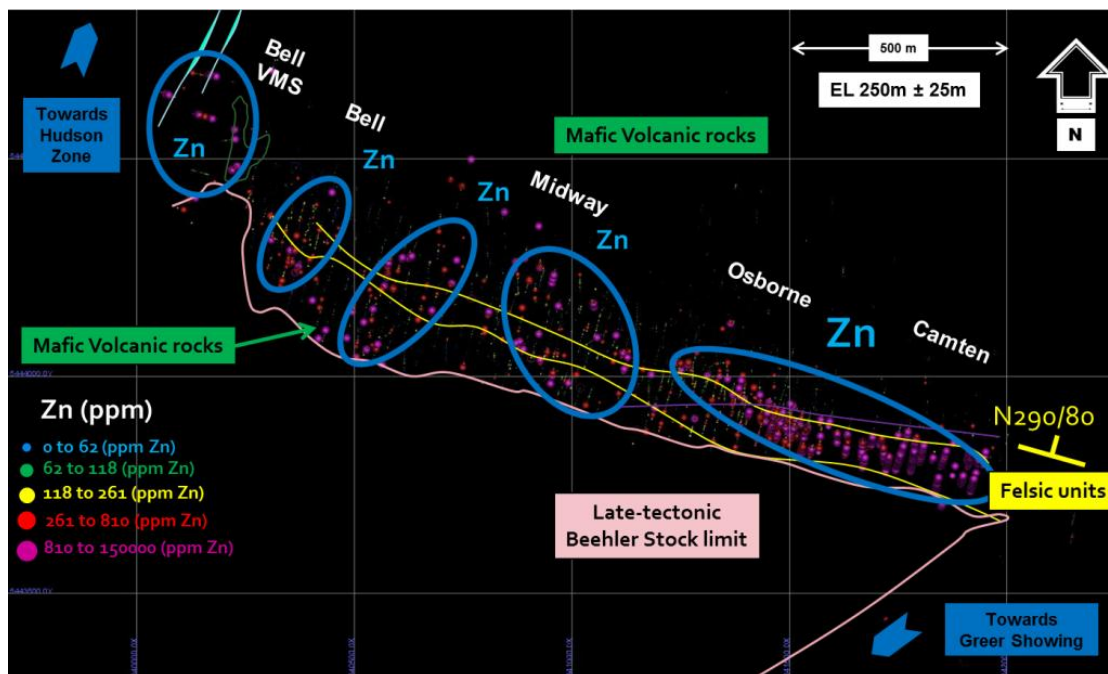


Figure 7-28: Zinc distribution in the Osborne-Bell area.

7.3.6 Known Occurrences Near the Osborne-Bell Deposit

Refer to Figure 7-21 for locations.

Hudson Zone

Located 8 km north of the Osborne-Bell deposit, the Hudson Zone yielded several significant historical drill hole intervals in gold: 1.21 g/t Au over 10.5 m (hole TN-01-12); 4.21 g/t Au over 1.5 m (TN-01-10); 2.19 g/t Au over 3.0 m (TN-01-13); 6.07 g/t Au over 1.7 m and 3.43 g/t Au over 5.3 m (TN-86-3); 3.53 g/t Au over 2.1 m including 9.77 g/t Au over 0.6 m (TN-86-4); 1.65 g/t Au over 7.3 m (TN-86-6); 10.42 g/t Au over 2.6 m (TN-85-02); and 5.31 g/t Au over 1.5 m (TN-79-11). Work conducted by Maudore also identified significant intervals (e.g., 18.40 g/t Au over 1.5 m in COM-08-222; 3.86 g/t Au over 1.6 m at the end of hole COM-08-222). Mineralization is typically marked by 2% to 5% pyrite and pyrrhotite (as disseminations and stringers) generally subparallel to schistosity, although this is not always the case. It is hosted by dacitic flows occurring within the sedimentary and felsic pyroclastic units. Alteration minerals, such as sericite and biotite, are generally recognized, as well as a silicate-carbonate assemblage that is locally developed.



Western Extension

The Western Extension represents a corridor oriented N015°, linking the western extremity of the Osborne-Bell deposit with the Hudson Zone. Defined by geophysical anomalies and drill intercepts in volcanic/sedimentary rocks, this corridor shows exploration potential for Osborne-Bell-type gold and VMS (\pm Au) mineralization.

Previous drilling programs defined mineralized intercepts in what is interpreted as a felsic dome, and also intersected a band of graphitic sediments as well as lenses of semi-massive sulphides that can sometimes carry good zinc values. The structural data indicates a NNE-SSW schistosity with a steep dip to the SE.

Past intercept values in hole COM-12-862A, which targeted the area below the 0.5-metre interval of 14.2% Zn encountered in hole COM-11-751 (section 3700N), included two significant gold grades: 1.1 g/t over 1.2 m in the mafic unit to the east, as well as 6.0 g/t over 1.0 m in a felsic volcanic band. Traces of disseminated pyrite in both units explain these values. Hole COM-12-860 intercepted a gold value of 1.2 g/t over 1.0 m. Pyrite and chalcopyrite were observed (2%).

Eastern Extension and Greer Showing

The Eastern Extension constitutes the area between Osborne-Bell (Camten area) and the Greer showing. It has a 2.5-km strike length oriented N240° and corresponds to the underexplored southern margin of the Beehler Stock.

Historical gold intercepts showed 6.3 g/t over 1.0 m within an interval of 1.9 g/t over 5.1 m as well as a 6.7 g/t over 0.6 m within a 1.8 g/t over 7.7 m intercept. Both holes were drilled on section G1500E on an emerging gold-bearing zone dipping 70° associated with mafic volcanics, the dominant rock type in the area. Mineralization often, but not always, consists of disseminated pyrite (trace to 4%) or presents itself as fine veinlets or millimetre-scale stringers locally associated with chalcopyrite (trace to 1%).

The Greer showing yielded 4.3 g/t Au over 2.0 m in historical hole COM-97-26. Mineralization is very similar to the Osborne-Bell type. A felsic to intermediate volcanoclastic sequence hosts the mineralization, which is present as 0.5% to 2% disseminated pyrite with minor pyrrhotite and chalcopyrite. Each gold-bearing interval is accompanied by disseminated sulphides or fine sulphide veinlets (pyrite and chalcopyrite), exclusively in mafic volcanics.

Maudore's work also identified several mineralized intervals; for example: 3.17 g/t Au over 0.5 m and 2.26 g/t Au over 1.0 m in hole COM-08-188 and, from the data received after the close-out date for the 2012 MRE database, 3.59 g/t over 3.7 m in COM-12-886 and 3.57 g/t over 7.6 m, including 7.9 g/t over 2.8 m, corresponding to a pyrite veinlet carrying several gold grains in COM-12-895. Refer to Table 6-12 for other significant results received after August 13, 2012.

The structural data measured indicates a NE-SW schistosity with a steep dip to the NW.



Sondage KC-86-02

The Sondage KC-86-02 occurrence in the northern part of the Central Block historically yielded 0.8% Zn over 0.12 m, and 0.6% Zn and 4.1 g/t Ag over 0.61 m in hole KC-86-02. Mineralization was observed as narrow stringers sphalerite in locally brecciated and carbonatized basalt. Quartz-carbonate veins were also observed.

Cooper

At 500 m north of the Osborne-Bell deposit, several mineralized quartz-tourmaline veins were identified in mafic rocks in drill core. Tiny specks of visible gold were noted, but no significant assay results were obtained.

Comtois NW Gold Occurrence

In 2009, Maudore conducted field Beep Mat and VLF surveys over known airborne geophysical anomalies (mostly INPUT and some MEGATEM). Field follow-up led to the first hole ever drilled in that area, which yielded anomalous gold values from altered and mineralized felsic volcanic rocks (in the range of 0.1 to 0.4 g/t Au over 2.0 m). In 2010, one DDH was planned as a follow-up to the 2009 results. The best result was 3.7 g/t Au over 0.5 m. In 2011, three DDH were completed in the same area, two of which yielded significant results of 2.6 g/t Au over 0.5 m and 7.2 g/t Au over 0.7 m.

Comtois NW is also characterized by broad mineralized intervals (>10 m) of gold-bearing altered felsic and mafic volcanic rocks, such as 0.8 g/t Au over 40.8 m (COM-12-874), 0.8 g/t Au over 11.0 m (COM-11-699) and 0.6 g/t Au over 12.4 m (COM-12-872). Other drilling results exceeding 3 g/t Au were also obtained in 2012: 10.1 g/t Au over 0.5 m and 4.3 g/t Au over 1.5 m (COM-12-874), 5.7 g/t Au over 1.0 m and 3.8 g/t Au over 0.7 m (COM-12-872), 4.8 g/t Au over 1.4 m (COM-12-865) and 3.7 g/t Au over 1.0 m (COM-12-864).

7.3.7 Other Occurrences on the Quévillon Property

No mine or past producer is present in the property (Figure 7-20). Apart from the Osborne-Bell deposit, no other deposit is present. Table 7-7 summarizes all prospects and occurrences inside the property according to the SIGEOM database, including those previously discussed in Section 7.3.6. Most are in the Central Block.



Table 7-7: List of prospects and occurrences on the Quévillon property

Name	Category	Property block	E_UTMZ18	N_UTMZ18	NTS	Township	Commodity	Year Discovery	Host lithology	Mineralization type		
Cedar Rapids (Dyke Zone)	Prospect	Central	348932	5430401	32F03	Laas	Au Cu Ag	1998	Basalt, ultramafic sills	Vein hosted		
Cedar Rapids (Zone Village)			349078	5430827	32F03	Quévillon	Au Cu Ag	1939	Basalt, ultramafic sills	Vein hosted		
Comtois NW Zone			331048	5450906	32F03	Fraser	Au Ag	2010	Felsic and intermediate volcanics	Disseminated gold		
CSW-09-01			328751	5440027	32F03	Thémines	Au	2009	Iron formation	Iron Formation		
Grevet-Giroux Nord			371773	5448170	32F02	Grevet	Ag (Cu)	1959	Siltstones and felsic dykes	Exhalative VMS		
Grevet-Giroux Sud			370351	5446958	32F02	Grevet	Ag (Cu Zn)	1959	Siltstones, mafic volcanics and felsic dykes	Exhalative VMS		
Hudson Zone			341524	5451563	32F03	Fraser	Au Zn Ag	1985	Felsic volcanics and dykes	Disseminated gold		
NOR-09-01			354528	5451133	32F02		Au	2009	Basalts, andesites, and sediments	Vein hosted		
North Shore			354429	5445953	32F02	Quévillon	Cu Zn (Au Ag)	1961	Graphitic sediments, volcanics and porphyries	Exhalative VMS		
Osbell - Sud-Est			341817	5443268	32F03		Au Zn	2011	Rhyodacite porphyry and tuffs	Disseminated gold		
Lac Céré			Northeastern	421605	5474378	32F08	Le Tac	Cu Ag (Zn Au)	1949	Volcanics	Exhalative VMS	
89-WA-02			Occurrence	Central	389776	5444270	32F02	Wilson	Ag	1989	Dacite	Exhalative VMS
Alix					358518	5419928	32C15	Tonnancour	Mo	1961	Monzonite	Porphyry
Chutes Klask	350946	5428381			32C14	Laas	Au Ag	2012	Andesites and basalts	Vein hosted		
COM-10-378	332975	5445979			32F03		Mo	2010	Felsic porphyry	Porphyry		
Greer	339970	5442527			32F03	Comtois	Au	1997	Felsic to intermediate tuffs	Disseminated gold		
Grevet Cdi-Grille 1	369403	5452928			32F02	Grevet	Ag	1990	Graphitic sediments	Exhalative VMS		
Laas VII-30	336828	5424428			32C14	Laas	Cu Zn (Mo)	1958	Siltstone and wackes	Exhalative VMS		
Lac Clément SE	370129	5445454			32F02	Verneuil	Cu Zn Ag	1996	Andesites	Undetermined		
Lac Labrie-SE	392259	5420946			32C16	Labrie	Au (Ag)	1965	Mafic volcanics	Undetermined		
Lac Quévillon - Nord	361322	5440896			32F02	Quévillon	Cu (Au)	1993	Basalts, tuffs and felsic dykes	Vein hosted		
Mon-Dor-Thémines	322117	5439087			32F03	Thémines	Au	1985	Andesites	Vein hosted		
Cooper	341169	5446363			32F03		Au Zn	2011	Felsic porphyry volcanics	Disseminated gold		
Sondage KC-86-2	334936	5450879			32F03	Fraser	Zn (Ag)	1986	Basalts	Undetermined		
Sondage KC-86-5b	330594	5439821			32F03	Comtois	Au (Zn)	1986	Graphitic sediments and intermediate tuffs	Disseminated gold		
Sondage KC-86-9	323466	5435940			32F03	Thémines	Au (Zn)	1986	Graphitic sediments and intermediate tuffs	Undetermined		
81-DUP-L-1	Northeastern	389028			5464027	32F07	Du Plessis	Ag (Zn)	1981	Felsic tuffs	Exhalative VMS	
Le Tac-Sud	426180	5474728			32F08	Le Tac	Cu	1990	Basalts	Vein hosted		
Mountain B, Grille 1	386203	5459803			32F07	Mountain	Ag	1990	Basalts	Vein hosted		
Bieber	247028	5447900			32E01		Cu	2012	Basalts	Undetermined		
Gaby	244696	5449371			32E01		Au Cu Mo Ag	2012	Basalts	Vein hosted		
Lac Fumerton	250283	5458456			32E01	Carqueville	Zn (Cu)	2007	Gabbro	Undetermined		
MAZ-12-03	265168	5443756			32E01	Mazarin	Ag	2012	Andesites	Undetermined		
MAZ-12-04	261248	5442723			32E01	Mazarin	Ag W	2012	Felsic to intermediate volcanics	Undetermined		



8. DEPOSIT TYPE

8.1 Windfall Lake Property

The Windfall Lake deposit most likely represents an Archean intrusion-related hydrothermal gold system based on observations from drilling and geological mapping, as well as mineralogical assemblages, the close spatial and temporal association of porphyry intrusions, alteration and gold mineralization, and the lack of A/B vein type and inter-mineral intrusion phases (Thompson et al. 1999; Lang et al. 2000). The mineralization in distal parts of the system (e.g., F-17 and F-51 zones) shows strong evidence of gold-enrichment associated with orogenic greenstone-hosted quartz-carbonate veins (Dubé and Gosselin 2007). The environment of mineralization also closely resembles syenite-hosted disseminated gold deposits in the Abitibi greenstone belt (e.g., Malarctic district) as described by Robert (2001), but there is no evidence of Timiskaming-type sedimentary rocks neither alkaline intrusions in the close area of Windfall Lake. The lack of Timiskaming-type sediments is potentially consistent with the short timeline between the first pre-mineral porphyry intrusions (2701 ± 2.0 Ma; Davis 2016, unpublished) and the last post-mineral porphyry intrusions (2697 ± 0.9 Ma; Davis 2016, unpublished), which would not have generated a significant uplift required to initiate significant sedimentary material and subsequent basin. Sediment could have also been eroded.

Like most mineralized material deposits, the formation of intrusion-related gold systems involves a structural component that may have influenced the geometry and emplacement of intrusions and related mineralization and alteration (Mair et al. 2000; Miller et al. 2000; O'Dea et al. 2000; Stephens et al. 2000). The lack of detailed structural mapping in the Windfall Lake area combined with a possible overprinting of alteration and mineralization makes it difficult to identify the main structural controls in the area. However, not refuting the existence and influence of structural features, the porphyry intrusions in the Windfall Lake area are likely the source and a major factor controlling the occurrence of gold mineralization. A brief description of the genetic model of intrusion-related gold deposits is presented below.

8.1.1 Intrusion-Related Gold Deposits

The term intrusion-related gold systems ("IRGS") is a relatively newly defined gold deposit class and has been described in recent years by many workers (Sillitoe 1991; Sillitoe and Thompson 1998; Lang et al. 2000; and Thompson and Newberry 2000). IRGS are defined as magmatic-hydrothermal systems where gold mineralization is hosted primarily within the intrusions or in the immediate wall rocks of these intrusions. Although some genetic ambiguities still surround this type of deposit, many characteristics have been established to define this model. Most of the genetic characteristics related to IRGS deposits have been recognized in the best studied Tintina Gold Province of Alaska/Yukon (Hart et al. 2002; Newberry 1995; McCoy et al. 1997) and will be described below.



IRGS are most often found inboard of collisional arc settings, often superimposed on older basement rock. The intrusions that are associated with IRGS formed at depths of <1 km to >8 km with most of the intrusions being at depths of 4 km to 6 km. Fluid inclusions in these deposits show variations that likely reflect the exsolution of volatiles at different crustal levels. In general, saline fluid inclusions are found in shallow levels, whereas carbonic-rich inclusions are found in deep environments (Baker 2002; McCoy et al. 1997). These intrusions are best defined as reduced I-type magmas with oxidation states in the ilmenite series of Ishihara (1977).

Most deposits are characterized by reduced mineral assemblages dominated by pyrite, pyrrhotite, arsenopyrite. The intrusions are predominantly felsic, alkalic, and metaluminous, typically ranging from granodiorite to granite. Isotopic data from these plutonic suites indicate a large crustal contribution (Marsh et al. 2003; Mair 2004). Such intrusions, including highly fractionated intrusive phases, are often accompanied by gold mineralization, reflecting the incompatible behaviour of gold mineralization.

IRGS deposits are characterized by a range of mineralization styles reflecting proximal to distal environments to the mineralizing pluton that are associated with distinctive mineralized material assemblages (Figure 8-1). The mineralogical and spatial evolution of the intrusion-related gold system reflect temperature and hydrothermal fluid variations from the host pluton with an early, high-temperature mineral assemblage, gradually followed by a late stage low temperature mineral assemblage more distal to the pluton (Thompson et al. 1999; Hart et al. 2000, 2002; Lang and Baker 2001). Intrusion-hosted mineralization consists predominantly of sheeted veins (Au-Bi-Te \pm W, Mo, As). Mineralization styles in proximal environments occur as breccias, disseminated and fracture-controlled (Au-As \pm Sb). Base metal-rich fissure veins are characteristic of distal environments (Au-As-Sb \pm Ag-Pb-Zn).

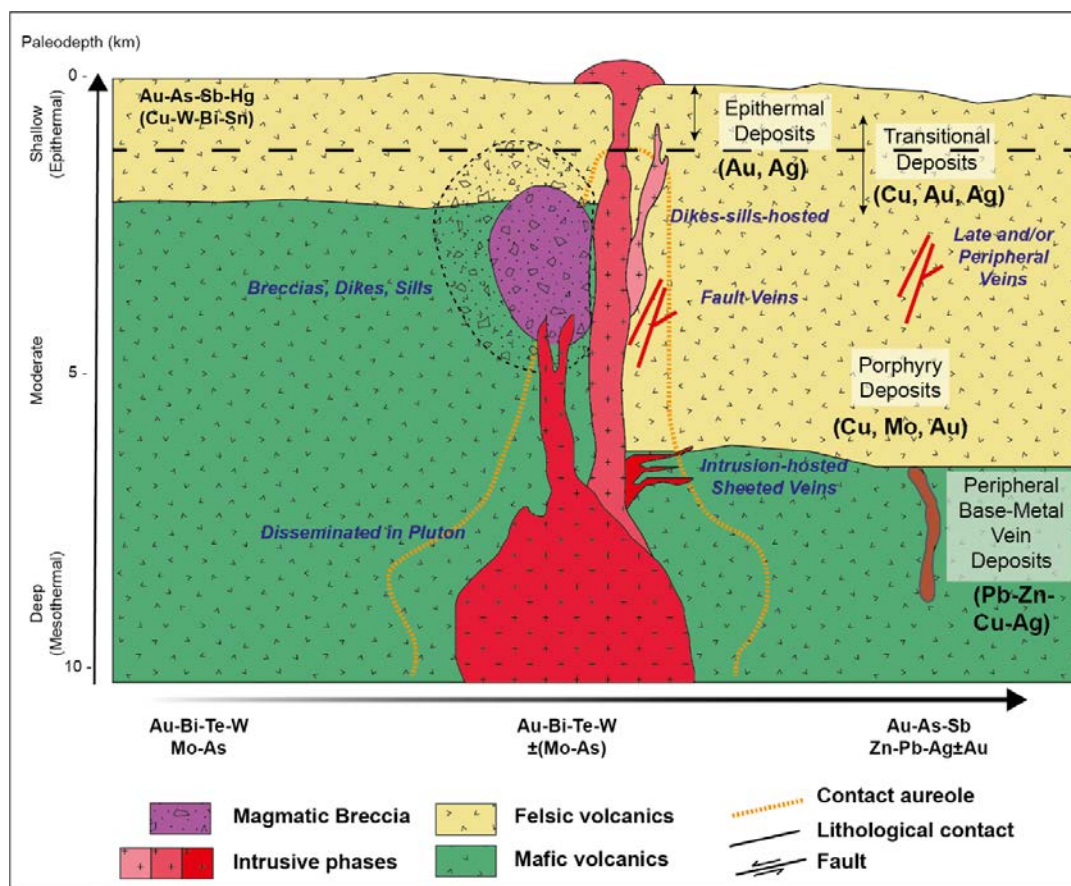


Figure 8-1: Schematic geological model for intrusion-related gold systems at Windfall showing lateral and vertical mineralogical zonation. Inspired from Lang et al. 2000.

8.1.2 Windfall Lake Deposit

The Windfall Lake gold deposit is located in the Urban-Barry greenstone belt and occurs in bimodal volcanic rocks of the Macho Formation, constituted by felsic, intermediate, and mafic volcanics of tholeiitic affinity that are intruded by a series of younger calc-alkalic quartz-feldspar porphyry dikes. The general morphology of the orebodies (i.e., quartz-feldspar porphyry dikes) in the Windfall Lake deposit is tabular and discordant to the host volcanic units that are moderately plunging 35° north-northeast. Even if the geometry of the mineralized zones is quite predictable in space, the controls and the genesis of the localization of the orebodies are not yet fully understood. So far, porphyry dikes for which contacts with hosting volcanic rocks appears to represent the main control over most of the mineralization, however, fractures, fault zones, structural fabric, and primary stratigraphic contacts are likely the influence on the emplacement of porphyry dikes but also late minor gold event.



Unmineralized volcanic rock units and the late-stage quartz-monzonite “Red Dog” sill display a propylitic alteration assemblage. Proximal to the mineralized quartz-feldspar porphyry dikes, the host volcanic rocks and the porphyry dikes have undergone phyllic alteration, pyritization, and local silicification. The most common type of mineralization occurs as millimetre- to centimetre-thick pyrite-silica stockworks and pyrite disseminations (less than 10 vol%) in or marginal to the quartz-feldspar porphyry dikes and contact volcanic rock units. Alteration haloes associated with gold mineralization are generally confined to narrow alteration envelopes restrained to the porphyry dikes and/or in the volcanic host rocks surrounding the dikes and are dominated by strong sericite-carbonate and/or silica spatially associated with pyrite mineralization. Remnants of early potassic alteration in pre-mineral quartz-feldspar porphyries (i.e., biotite transformed to chlorite) are locally visible and associated with minor chalcopyrite and molybdenite as observed in the Underdog mineralized zone. The main minerals are pyrite, followed by chalcopyrite, and minor galena, sphalerite, molybdenite, and Ag-Pb-Bi-bearing tellurides, and sulphosalts. Visible gold is a common occurrence in the Windfall Lake deposit. The alteration associated to this main stage mineralization occurs prior to the main regional deformational event since the schistosity crosscuts mineralized zones.

Milky quartz±carbonate extensional to colloform-crustiform veins overprint the main stage mineralization, and commonly contain high-grade gold mineralization, particularly in the Lynx zone. Quartz-carbonate extensional veins are also found in the late-stage Red Dog intrusion and locally contain visible gold grains. Magmatic-hydrothermal brecciated zones, composed predominantly of quartz and tourmaline, are also common and observed in all zones of the Windfall Lake deposit. Both the veins and the quartz-tourmaline breccia are interpreted to be associated with late-stage brittle deformation where gold was likely remobilized along these features.

Gold mineralization in the distal F-17 and F-51 zones exhibits clear evidence of mesothermal or shear-controlled deposits, although gold still seems to be spatially associated with quartz-feldspar porphyry intrusions confined to the shear zone. This style of gold deposit typically exhibits strong relationships with regional arrays of major shear zones. Such deposits are formed by circulation of gold-bearing hydrothermal fluids in structurally-enhanced permeable zones developed in supra-crustal rocks during regional deformation and metamorphism. Gold-associated alteration in F-17 and F-51 mineral zones consists of pervasive sericite-carbonate ± silica alteration. Gold mineralization is hosted in pyrite veinlets, quartz-ankerite-pyrite veins and silica-tourmaline-pyrite breccias

The characteristics of the gold mineralization in the Windfall Lake deposit (excluding the F-17 and F-51 zones) are similar to intrusion-related gold mineralization as discussed above. Although these atypical deposits display similar regional-scale controls and commonly occur in the same camps as orogenic deposits, they differ in styles of mineralization, metal association, interpreted crustal levels of emplacement, and relative age. Additionally, gold mineralization at the Windfall Lake deposit shows a close spatial association with high level porphyry stocks and dikes.



8.2 Osborne-Bell Deposit, Quévillon Property

The Quévillon property hosts different styles of mineralization and deposit types. Base metal and sulphide lens occurrences seem to be related to VMS models but the origin of gold, in many cases, could be related to either a synvolcanic event or/and late-tectonic overprint (or remobilization). This section describes the settings of gold-rich volcanogenic massive sulphide deposits (“Au-rich VMS”) and the Osborne-Bell deposit. The Osborne-Bell deposit itself is not a classic VMS setting but its sulphide dissemination probably originated during a synvolcanic hydrothermal event.

8.2.1 Gold-rich Volcanogenic Massive Sulphide Deposits

The following summary on Au-rich VMS deposits was slightly modified from Dubé et al., 2007.

Model Definition

Au-rich VMS deposits form a subtype of both VMS and lode gold deposits. Like most VMS deposits, they consist of semi-massive to massive, stratabound to locally discordant sulphide lenses underlain by discordant stockwork feeder zones. The main difference between Au-rich VMS and other VMS deposits is their average Au content (in g/t), which exceeds the associated combined Cu, Pb, and Zn grades (in wt%). Gold is thus the main commodity; however, the polymetallic nature of this deposit subtype makes it more resistant to fluctuating metal prices, resulting in a very attractive exploration target.

Au-rich VMS deposits occur in both recent seafloor and in deformed and metamorphosed submarine volcanic settings within greenstone belts of various ages. In the latter, they may contain local syntectonic quartz-sulphide or, more rarely, quartz-tourmaline veins, which add to their complexity. They occur in a variety of submarine volcanic terranes, from mafic bimodal through felsic bimodal to bimodal siliciclastic. Their host strata are commonly underlain by coeval subvolcanic intrusions and sill-dike complexes and are typically metamorphosed to greenschist and lower amphibolite facies. The gold has most commonly an uneven distribution within the deposit due to both primary depositional controls and subsequent tectonic modification and remobilization. Some Au-rich VMS deposits are characterized by metamorphosed advanced argillic and massive silicic alteration indicative of an oxidized low-pH hydrothermal fluid that differs significantly from the mainly reduced, near neutral to weakly acidic fluids (of low-sulphidation conditions) typical of most ancient and modern VMS deposits. Where present, the metamorphosed advanced argillic and massive silicic alteration assemblages are thought to indicate high-sulphidation conditions similar to those encountered in some epithermal environments. In such cases, the Au-rich VMS deposits are commonly interpreted as shallow-water submarine equivalents to subaerial epithermal deposits.

Three types of Au-rich VMS deposits have been proposed based on common metallic associations: 1) an Au-Zn-Pb-Ag association in which gold is concentrated towards the top or along the margins of the massive sulphide lens; 2) an Au-Cu association where gold is concentrated at the base of the massive sulphide lens or within the underlying stringer zone; and 3) a pyritic Au group where gold is concentrated within massive pyrite zones with low base metals content.

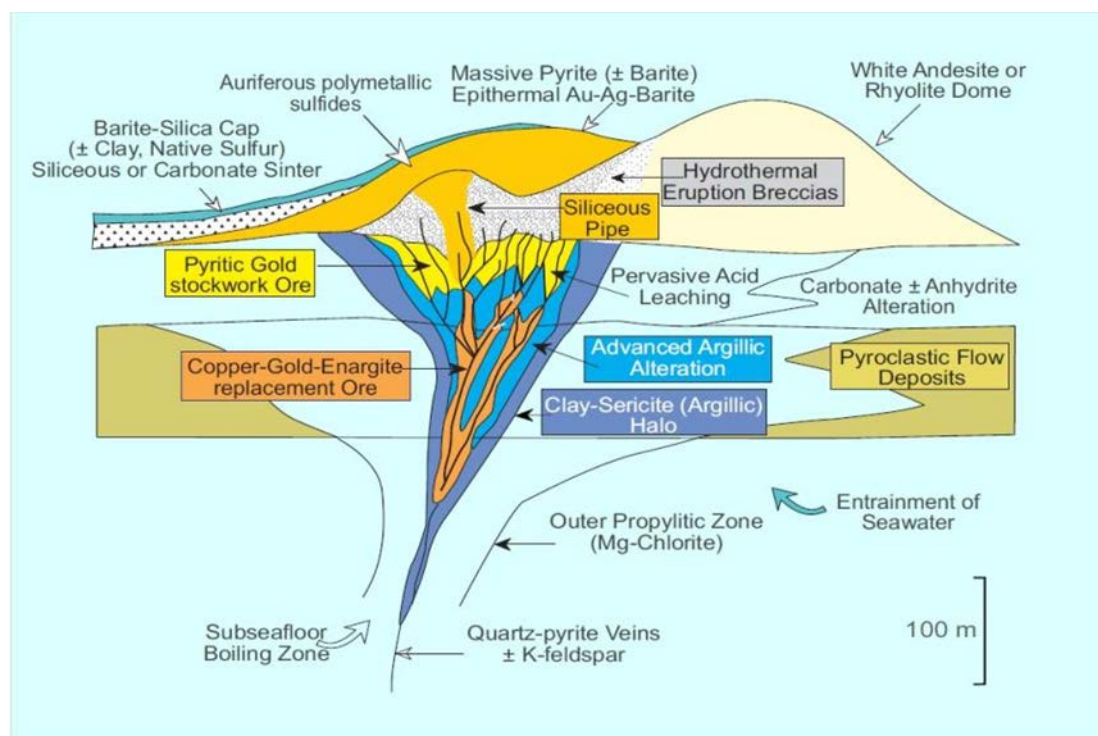


Figure 8-2: Schematic geological settings and hydrothermal alteration associated with a Au-rich volcanogenic hydrothermal system (after Hannington et al., 1999).

Morphology

The typical morphology of Au-rich VMS deposits consists of a lenticular massive sulphide body with associated underlying discordant stockwork-stringer feeders and replacement zones (Figure 8-2). Some deposits, such as LaRonde Penna, contain stacked massive sulphide lenses. The orebodies are commonly tabular and stratabound to discordant (e.g., LaRonde Penna 20 South lens). In most cases they have been deformed and tilted and have a foliation-parallel pipe-like geometry due to their strong transposition along the main foliation and stretching lineation. In these cases, the stockwork-stringer zones may have been transformed to foliation-parallel sulphide veinlets in schistose, altered rocks with quartz, white mica, and sometimes aluminous



silicates. At Horne, zones of auriferous sulphide veinlets with Fe-chlorite selvages account for some of the Au-rich mineralized material, however, the deposit lacks a well-defined stringer zone. Early VMS mineralization at the Doyon deposit (Québec) is overprinted by a large, telescoped epithermal or intrusion-related gold deposit associated with high-level emplacement of subvolcanic intrusions.

Host Rocks

The mineralization is typically hosted by felsic volcanic flows and volcanoclastic rocks (or their metamorphosed equivalents) near or at the interface with basaltic andesite, andesite or clastic sedimentary strata (e.g., LaRonde Penna, Eskay Creek, and Boliden). The Horne deposit is contained within a fault-bounded block of tholeiitic rhyolite flows and pyroclastic breccias and tuffs in contact with andesite flows to the east. It is juxtaposed against andesite flows and a diorite intrusion to the south, and rhyolites to the north that contain the Quemont deposit, another auriferous massive sulphide deposit potentially related to the same giant hydrothermal system responsible for the formation of the Horne deposit.

The Eskay Creek deposit is a low-temperature Au-rich VMS deposit characterized by a mineralogical assemblage of stibnite, realgar, cinnabar, and arsenopyrite with variable proportions of barite. The 21A zone consists of stratabound to stratiform lenses of semi-massive to massive stibnite and realgar, whereas the 21B zone is a stratiform sulphide-sulphosalt Zn-Pb-Au-Ag zone. The sedimentary textures of the stratiform 21B zone are consistent with its detrital origin; it is thus clearly distinct from other Au-rich VMS deposits.

As indicated by Hannington et al. (1999), gold occurs mainly as native metal and Au-tellurides in Cu-Au VMS deposits, whereas auriferous, polymetallic (Au-Zn-Pb-Ag) VMS typically contain electrum, which is often Ag- or Hg-rich. In some deposits, the gold is mainly hosted in commonly refractory arsenic-rich pyrite and arsenopyrite and present as submicroscopic inclusions or structurally bound to the crystal lattice. In metamorphosed deposits, such as LaRonde Penna, metamorphic remobilization and segregation has had an impact on the local distribution of gold in the ores and has played an important role in generating non-refractory gold minerals. At LaRonde Penna, free gold (as electrum) accounts for the majority (>90%) of the gold in the mineralized material. The gold grains are typically very fine (1 to 5 μm) and occur mainly as inclusions in recrystallized pyrite and chalcopyrite, and within microfractures in recrystallized pyrite. The electrum typically occurs intimately intergrown with other remobilized trace minerals.



8.2.2 Osborne-Bell Deposit Setting

8.2.2.1 Physical Properties

The Osborne-Bell deposit is hosted in a synvolcanic felsic unit package and to a lesser extent in the enclosing sequence of mafic volcanic rocks, which extends far beyond the mineralized zone. The majority of the mineralization occurs in the synvolcanic felsic units and along the interface with the mafic volcanic rocks (Figure 7-27). Felsic units may represent a synvolcanic dike swarm injected in the mafic volcanic pile, thus constituting the root or a part of the root of a volcanic system (Figure 8-2).

The Au-bearing zones of the Osborne-Bell deposit contain sulphides in disseminated or veinlet form and include a lower-grade gold envelope (several hundred ppb). This style of mineralization is also seen in the Bousquet district where detailed studies show that pyrite occurs as vein fillings and disseminations in the pyrite-rich zones of the district's gold deposits, although vein-type pyrite is dominant (Marquis et al, 1990).

The most important sulphide mineral at Osborne-Bell is pyrite; lesser phases are pyrrhotite, chalcopyrite and sphalerite, and galena occurs in trace amounts. Native gold is commonly spatially associated with Bi-telluride grains (documented in thin sections, Renou, 2010).

Gold is also spatially associated with pyrite and may be found coating pyrite grains or as inclusions in anhedral pyrite. A few gold grains reach several tens of microns across (Renou, 2010).

Koziol and Faber (1996) suggest that gold predates fractures in mineral grains and was therefore emplaced prior to regional deformation.

8.2.2.2 Chemical Properties

Mineralization chemistry at Osborne-Bell is characterized by Au, Ag, Cu and Zn with local trace amounts of Pb, Bi-Te and As. Silver is commonly associated with gold and Ag/Au ratios range from two to five for samples grading ≥ 1 g/t Au. Ratios ranging from 0.5 to 10, associated with Au-Ag-Cu-Zn associations, are typical of VMS mineralization (Dubé et al., 2007).

Alteration at Osborne-Bell is characterized by an assemblage of white micas (mostly sericite), quartz, aluminosilicate minerals, cordierite and biotite. Advanced argillic (aluminous) alteration is marked by Na_2O and CaO depletion and K_2O enrichment, represented by high IALT and AAI values. Advanced argillic alteration is typical of deposits with a Au-Cu association, as documented at LaRonde Penna and Bousquet 2-Dumagami (Dubé et al., 2007).

The timing of gold emplacement is still a controversial subject for the Osborne-Bell deposit and Au-rich VMS deposits in general. Two genetic models are proposed:



Syntectonic gold (late): conventional epigenetic, volcanic-hosted, Au-poor base metal mineralization overprinted during regional-scale deformation and metamorphism by syn-deformational gold mineralization.

Synvolcanic gold (primary): syngenetic gold forms in the VMS environment distinguished from conventional massive sulphide deposits by their anomalous fluid chemistry (acidic) and/or deposition within a shallow-water to subaerial volcanic setting.

In the current proposed model for the Osborne-Bell deposit (Figure 8-3), the felsic units in the main part of the deposit represent a synvolcanic dike swarm injecting a mafic volcanic pile and feeding felsic units in a volcanic centre in the Bell-VMS area at the west end of the deposit. The feeder zone is host to Au-rich disseminated sulphide mineralization ($\pm\text{Ag}\pm\text{Cu}\pm\text{Zn}$) whereas the volcanic centre and its vicinity host VMS-style Cu-Zn mineralization (with gold potential). According to this scenario, the Beehler Stock, a late intrusive, does not play a role in primary mineralization, although it may have caused local remobilization and it does have a major impact on the deposit by truncating the southern margin the hydrothermal system and diluting mineralization through the injection of genetically related feldspar porphyry dikes.

In this model, the argillic alteration (aluminous facies) and higher IALT values (magenta in Figure 8-3) found along the felsic feeder dike system in the eastern part of the Osborne-Bell deposit (the Osborne-Bell area) would be the result of syngenetic hydrothermal activity. In this area, the advanced argillic front is accompanied by pyrite (disseminated-veinlets type) and is particularly enriched in Au-Ag-Cu-Zn. Synvolcanic structures (usually normal faults and feeder dikes) are key features in this type of mineralized setting.

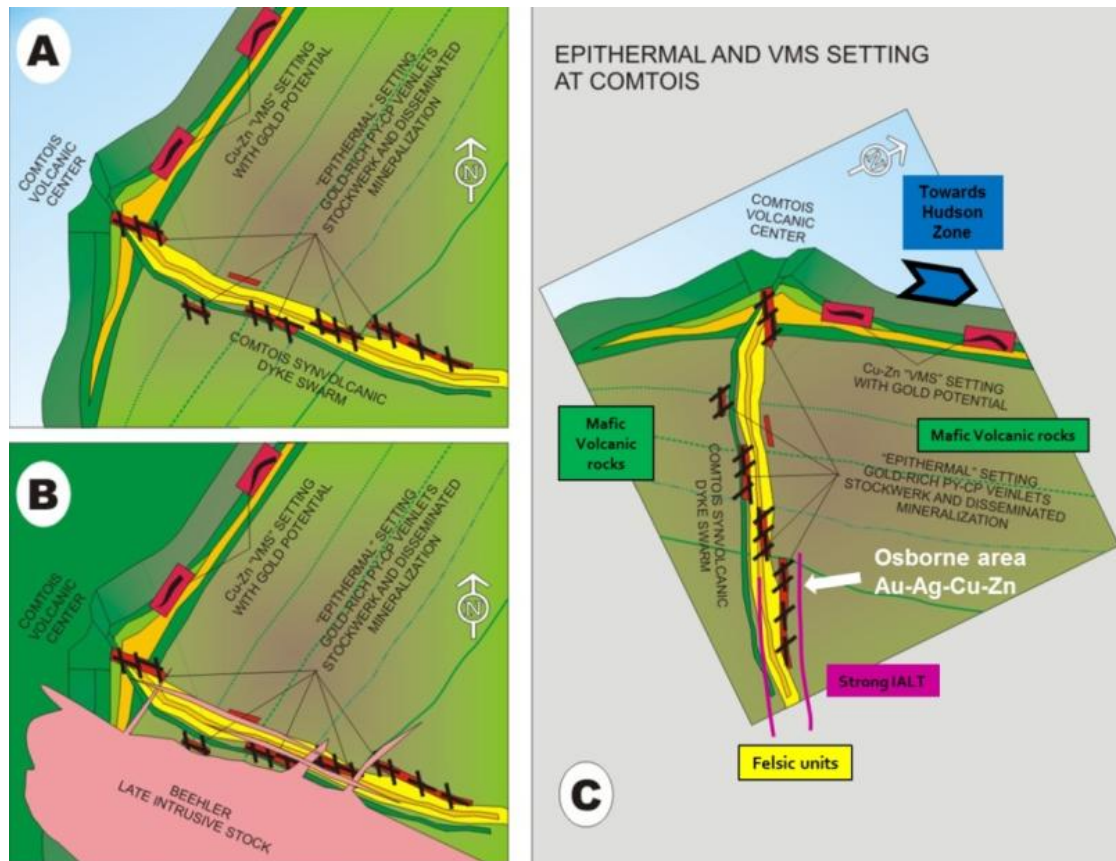


Figure 8-3: Schematic model for the Osborne-Bell gold mineralization showing proposed relationships between felsic units (synvolcanic dike swarm), stratigraphic horizons and Au-rich mineralization, as well as the position of massive sulphide lenses near an interpreted volcanic centre. A and B are rotated to represent present-day positions in plan view. (Modified from Carrier, 2004).

8.2.2.3 Exploration Model

The exploration model at the scale of the Quévillon property is based on the possibility of finding Osborne-Bell-type settings elsewhere on the property as well as Au-bearing VMS mineralization. The strong relationship and geographic proximity between VMS deposits with different mineralized expressions has been well documented and can serve as a guide here.

According to the proposed genetic model, the corridor linking the western extremity of Osborne-Bell deposit and the Hudson Zone (Figure 7-21) represents a favourable area for VMS and Osborne-Bell-type mineralization.



Regional structures may help understand the spacing between mineral occurrences at the property and regional scales. Structures can be the host of late-tectonic gold deposits and can produce late enrichment and/or remobilization in primary deposits. At the local scale, the ductility of strongly altered zones may transform rocks into schist and transpose the mineralization (sub)parallel to the main schistosity. The impact of regional structures as a primary synvolcanic control on the distribution of mineralization should be considered. Detailed mineralogical and lithogeochemical studies should be carried out to identify favourable rocks with distinctive alteration assemblages (including white micas and aluminosilicates).

8.3 Other Deposit Types

Almost all deposit types present in the Abitibi greenstone belt could be present in the Windfall Lake, Urban-Barry and Quévillon properties, which have a collective area of 3,476 km². Other than the deposit types described above, the following mineralization styles could also be present: shear hosted quartz-carbonate veins, intrusion-related, volcanogenic massive sulphides, porphyries, epithermal, and magmatic nickel.



9. EXPLORATION

9.1 Windfall Lake and Urban-Barry Properties

This chapter of the report will briefly summarize the exploration work completed on the Windfall Lake and Urban-Barry properties from April 28, 2015 (the day following the effective date of the previous Preliminary Economic Assessment report) to March 2, 2018 (Table 9-1). Drilling campaigns during that period are covered under Chapter 10.

From 2015 to present, Osisko Mining Inc. (formerly Oban Mining Corp) was in charge of the exploration on the property. A summary of exploration work is described in Table 9-1.

9.1.1 2015

During the fall of 2015, a total of 777 till samples were collected throughout the Urban-Barry property. The samples were collected by the staff of Osisko Exploration James Bay who was acting as sub-contractor. Most of the till samples are spaced by a 500 m mesh. Analysis of the fine and dense fractions was contracted to Actlabs in Ancaster, Ontario. Analysis of the gold grain counts was contracted to Overburden Drilling Management (“ODM”) in Ottawa, Ontario.

9.1.2 2016

From January 13 to March 6, 2016, SkyTEM Canada Inc. carried out a SkyTEM electromagnetic and magnetic survey over the Urban-Barry greenstone belt and the Windfall Lake deposit. A total of 9,277 line-km, specifically 722.85 line-km over the Windfall Lake deposit were acquired during the survey, with traverse line spacing of 200 m and tie line spacing of 2,000 m.

From February 8 to April 12, 2016, Geotech Ltd. carried out a helicopter-borne magnetic survey over the Urban-Barry greenstone belt and included the Windfall Lake deposit. A total of 34,240 line-km, specifically 2,761.97 line-km over the Windfall Lake deposit of geophysical data were acquired during the survey, with traverse line spacing of 50 m and 100 m and tie line spacing of 500 m.

During the summer of 2016, a second regional till survey was carried out specifically for the Windfall Lake area. A total of 28 till samples for fine fraction analysis (1 kg) and 19 till samples for gold grain counts and heavy mineral concentrate analysis (15 kg) were collected. The samples were collected by Osisko Exploration James Bay’s staff at a mean grid-space of 500 m. Detailed till survey of 1 kg till samples, spaced by a 100 m mesh, were locally performed to define anomalous results obtained during the 2015 till sampling program. Analysis of the fine fraction and the heavy mineral concentrate were contracted to Actlabs in Ancaster, Ontario. Analysis of the gold grain counts were contracted to ODM in Ottawa, Ontario.

Potential targets recognized from the compilation of till surveys and geophysical surveys carried out at the beginning of the year led to ten days of data compilation and six weeks of prospecting in the Urban-Barry belt during the months of June and July, with the aim of developing new auriferous targets.



9.1.3 2017

From December 11, 2016, to January 2, 2017, Geo Data Solutions GDS Inc. (“GDS”) performed digitally-recorded high sensitivity helicopter-borne magnetic survey consisting of 5,307 line-km over six properties in the Urban-Barry area, with traverse line spacing of 100 m and tie line spacing of 1,000 m.

Simultaneously, from the 7th to the 21st of December 2016 and from the 6th to the 19th of January 2017, Abitibi Geophysics Inc. conducted an OreVision[®] polarization survey covering an area of 35.9 km² in the Buteaux Township. The survey covered 18 lines spaced every 200 m with an azimuth of 0°.

From December 17, 2016 to January 29, 2017, Geotech Ltd. carried out a helicopter-borne electromagnetic survey (“VTEMTMplus”) over selected areas in the Urban-Barry belt, with traverse line spacing of 200 m and tie line spacing of 2,000 m.

From the 17th to the 27th of April and 23rd of May to June 5, 2017, Abitibi Géophysique Inc. performed a ground Induced Polarization (“IP”) survey in the Fox deposit area, northeast of the Windfall Lake deposit, covering 53.9 line-km. The survey covered 25 lines with maximum line lengths of 2.4 km, and with a spacing of 100 m.

The summer fieldwork program was conducted from June 5 to July 24, 2017 and consisted of prospecting and till sampling over different sectors of interest in the Urban-Barry property. Prospecting focused on targets mainly determined by high definition airborne magnetic surveys, and a compilation work including geological, geophysical and geochemical layers. The till survey (fine fraction analysis, gold grain count and heavy mineral concentrate analysis) was mainly planned on newly acquired claims or to define anomalous till clusters obtained during the 2015 and 2016 till campaigns. The till survey (fine fraction analysis, gold grain count and heavy mineral concentrate analysis) was mainly planned on newly acquired claims or to define anomalous till clusters obtained during the 2015 and 2016 till campaign. A total of 344 outcrops and 49 boulders were examined and from these 447 samples were collected for gold and multi-element analysis and four samples were collected for whole rock analysis. A total of 288 till samples were collected for fine fraction analysis, gold grain count analysis and heavy mineral concentrate analysis (1+15 kg) and 16 till samples were collected only for fine fraction analysis (1 kg).

From March 30 to April 16, 2017, Abitibi Géophysique Inc. performed an IP survey on the Black Dog deposit consisting of 57.6 line-km. The line spacing was 100 m with maximum line lengths of 2.4 km.

From July to October 2017, ClearView Geophysics Inc. carried out spectral IP/Resistivity surveys at the Windfall Lake Project, covering an area of 121 km at 50 m to 100 m spacing.



Table 9-1: Summary of exploration work performed at the Windfall Lake deposit and in the Urban-Barry property

Year	Type	Survey	Area	Company	Amount	Reference
2015	Geochemistry	Till survey	Urban-Barry belt and Windfall Lake deposit	Osisko Exploration James Bay (Osisko Gold Royalties Ltd.)	777 samples	Gaumond and Trépanier (2015)
	Geophysics	Airborne electromagnetic and magnetic survey	Urban-Barry belt	SkyTEM Canada Inc.	9,277 km (200 m spacing)	SkyTEM Canada Inc. (2016)
2016	Geophysics	Airborne magnetic survey	Urban-Barry belt	Geotech Ltd.	34,575 km (50-100 m spacing)	Geotech Ltd. (2016)
	Geochemistry	Till survey	Windfall Lake deposit	Osisko Exploration James Bay (Osisko Mining Inc.)	28 samples	Gaumond et al. (2016)
	Exploration	Prospecting	Windfall Lake area/Urban-Barry belt	Osisko Mining Inc.	6 weeks	Sroule and Tuscherer (2016)
	Geophysics	Ground IP survey OreVision®	Project Urban-Barry Canton Buteaux	Abitibi Géophysique Inc.	35.9 km (200 m spacing)	Abitibi Géophysique Inc. (2017b)
	Geophysics	Airborne magnetic survey	Urban-Barry belt	Geo Data Solutions GDS Inc.	5,307 km (100 m spacing)	Geo Data Solutions GDS Inc. (2017)
2017	Geophysics	Airborne electromagnetic survey (VTEM™)	Urban-Barry belt	Geotech Ltd.	1,496 km (200 m spacing)	Geotech Ltd. (2017)
	Geophysics	Ground IP survey	Fox deposit area	Abitibi Géophysique Inc.	53.9 km (100 m spacing)	Abitibi Géophysique Inc. (2017c)
	Geochemistry	Whole-rock analysis	Urban-Barry belt	Osisko Mining Inc.	447 samples	Girard and Roussel-L'Allier (2018)
	Geochemistry	Till survey	Urban-Barry belt	Osisko Mining Inc.	228 samples	Girard and Roussel-L'Allier (2018)
	Geophysics	IP survey	Black Dog deposit	Abitibi Géophysique Inc.	57.6 km	Abitibi Géophysique Inc. (2017a)
	Geophysics	IP survey	Windfall Lake deposit area	ClearView Geophysics Inc.	121 km (50 and 100 m spacing)	ClearView Geophysiques Inc. (2017)
	Geophysics	IP survey	Windfall Lake deposit area	ClearView Geophysics Inc.	121 km (50 and 100 m spacing)	ClearView Geophysiques Inc. (2017)



9.2 Osborne-Bell Deposit, Quévillon Property

9.2.1 Exploration Work

This section of the report briefly summarizes the exploration work carried out by Osisko Mining on the Quévillon property from April 28, 2017, (the day after Osisko acquired the land package from Deloitte Restructuring Inc.) to January 31, 2018. The drilling program during that period is covered under Chapter 10.

Osisko commissioned a 27,739.1-km high-definition airborne magnetic survey and a 8,007.43-km VTEM airborne survey over the Quévillon property. Geo Data Solutions Inc. flew the magnetic survey between October 12 and December 20, 2017. Geotech Ltd. conducted the VTEM survey between October 27, 2017 and January 29, 2018. The geophysical report for the magnetic survey has been finished but the VTEM report is pending. Osisko hired Michel Allard of Inter Geophysics Inc. to interpret the surveys.

In 2017, Osisko also began amassing baseline exploration data, including geological mapping, geological sampling and basal till sampling. In early February, this ongoing work was approximately one-third complete (Osisko press release of February 8, 2018). Osisko intends to include exploration drilling on the priority targets developed by these programs in its 2018 work program.



10. DRILLING

Information reported in this chapter was obtained from the Osisko's exploration team during the site visit and further exchanges. Osisko produces employee's reference documents for logging and sampling procedures.

10.1 Windfall Lake Project

This section of the report briefly summarizes Osisko's drilling program from October 20, 2015 to March 2, 2018 on the Windfall Lake deposit. Drilling was carried out by Rouillier Drilling, Orbit Garant-Myuka Drilling, and Major Drilling. The number of rigs has varied from 1 to 24. Most diamond drilling recovered NQ size (47.6 mm) drill core, with down hole orientation surveys performed by drilling companies using a Reflex tool (Reflex EZ-SHOT™) that simultaneously measures azimuth, inclination, total magnetic field and magnetic dip. Oban/Osisko Mining used the "CorientR" tool or "Reflex Act III RD" system to orient the core and to measure structural features.

Exploration drilling in 2017 aimed to better define the mineralized zones, with high priority of expanding the Lynx deposit and better defining the Underdog mineral zone towards the end of the year and the beginning of 2018.

10.1.1 Overview

Since 2015, a total of 535,967 m of surface exploration drilling has been completed by Oban Mining Corporation and Osisko Mining Inc. (Figure 10-1). Details of the various drilling programs are summarized in Table 10-1. Drilling also included 4,619.5 m for metallurgical studies. The distribution and orientation of drill holes in representative cross-sections in the Main zone and the Lynx zone are illustrated in Figure 10-2 and Figure 10-3.



Table 10-1: Drill hole summary and number of assay and whole-rock geochemistry samples delivered from 2015 to March 2, 2018

Company	Year	Type	DDH count	Length (m)	Assay sample count	Whole-rock geochemistry sample count
Oban Mining Corporation	2015	DDH	17	9,476	9,059	284
		Extension	1	189	160	7
Total			18	9,665	9,219	2,424
Oban Mining Corporation	2016	DDH	138	43,396	38,364	519
		Extension	2	730	684	81
		Wedge	1	627	608	25
Osisko Mining Inc.	2016	DDH	67	48,096	39,302	1,357
		Extension	3	12,202	817	29
		Wedge	18	1,015	11,313	413
Total			229	106,065	51,432	1,799
Osisko Mining Inc.	2017	DDH	678	323,934	241,778	8,793
		Extension	32	10,980	7,958	249
		Wedge	34	49,896	39,215	1,240
Total			804	384,809	288,951	10,282
Osisko Mining Inc.	2018	DDH	47	23,456	751	196
		Extension	11	3,490	123	63
		Wedge	25	8,482	482	27
Total			83	35,428	1,356	286
Total (2015-2018)			1,134	535,967	390,614	13,283

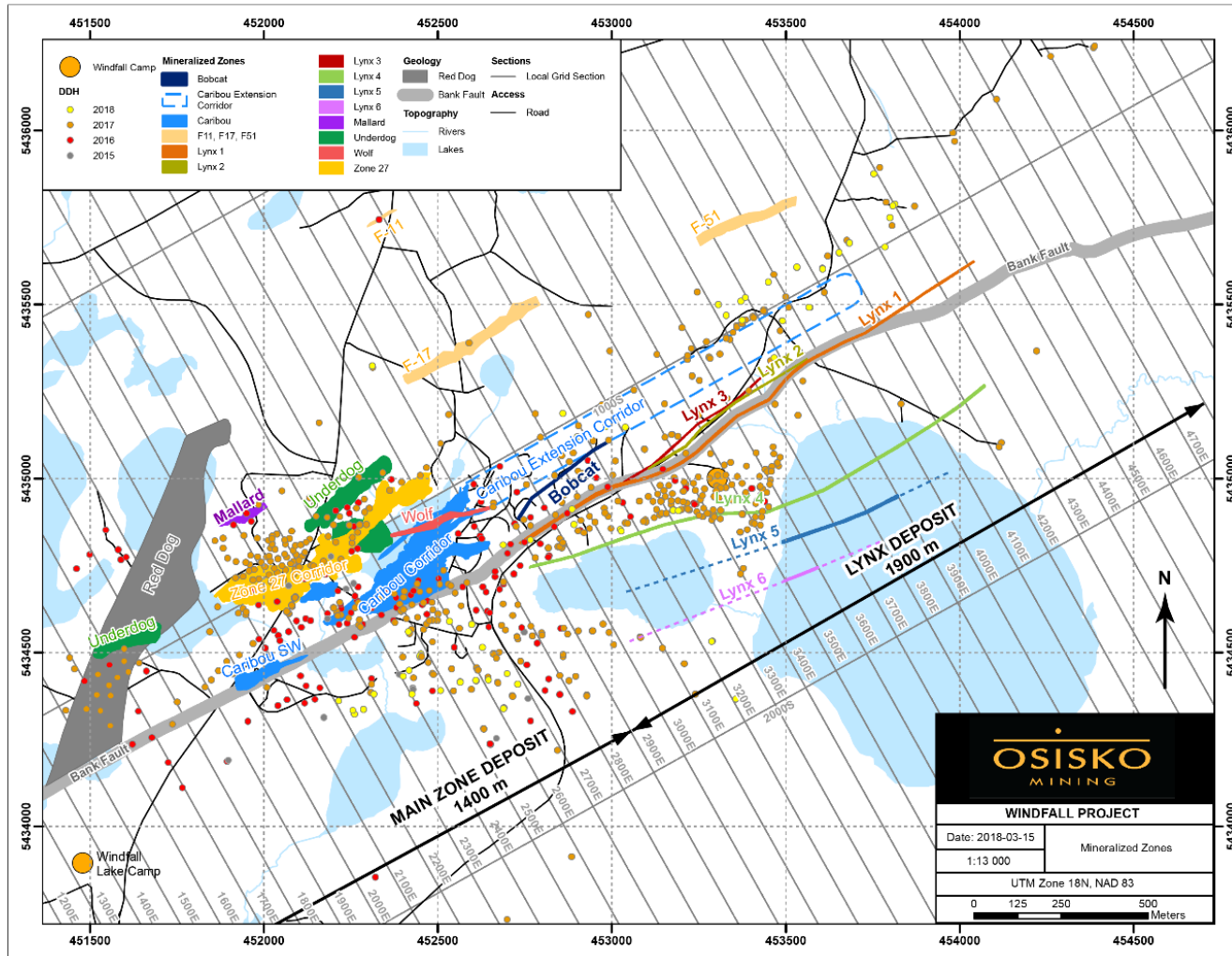


Figure 10-1: Windfall Lake property map showing drill holes completed from 2015 to 2018 by Oban Mineral Corporation and Osisko Mining Inc.

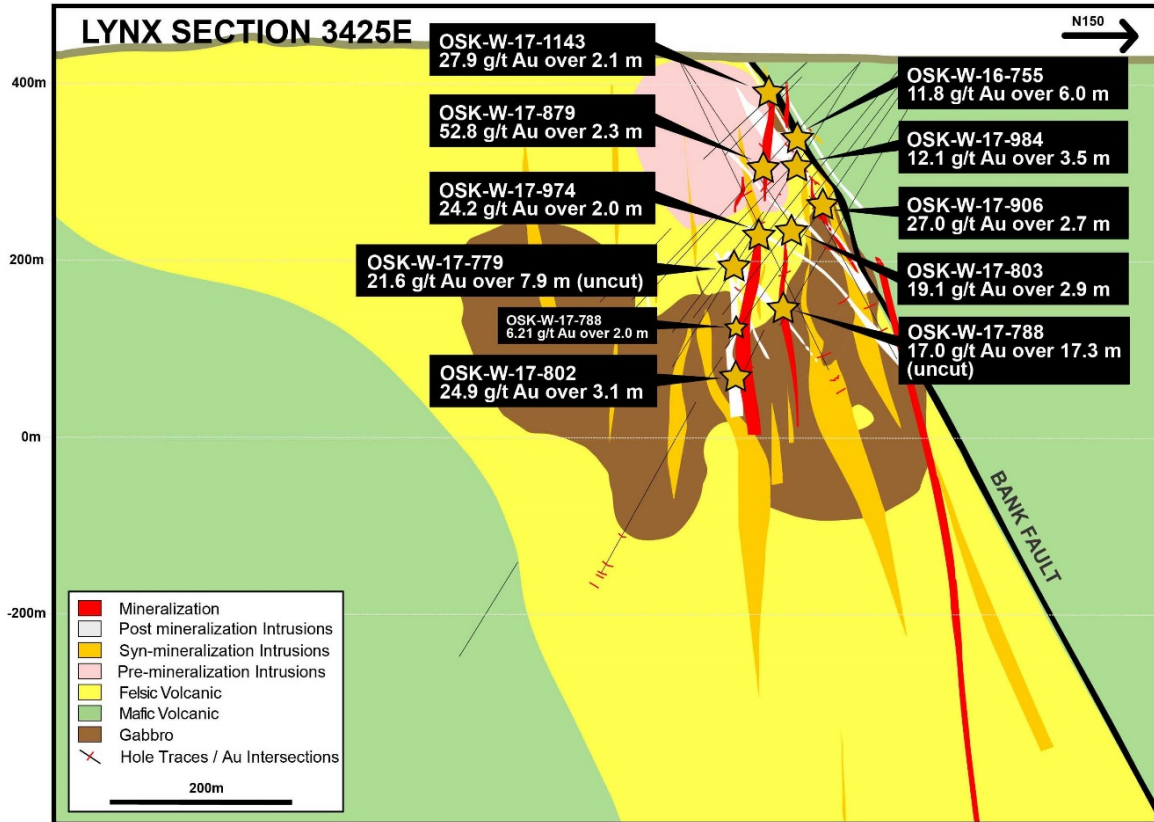


Figure 10-2: Representative geological cross-section showing the distribution of drill hole spacing and orientation and significant assay results in the Lynx zone (section 3425E).

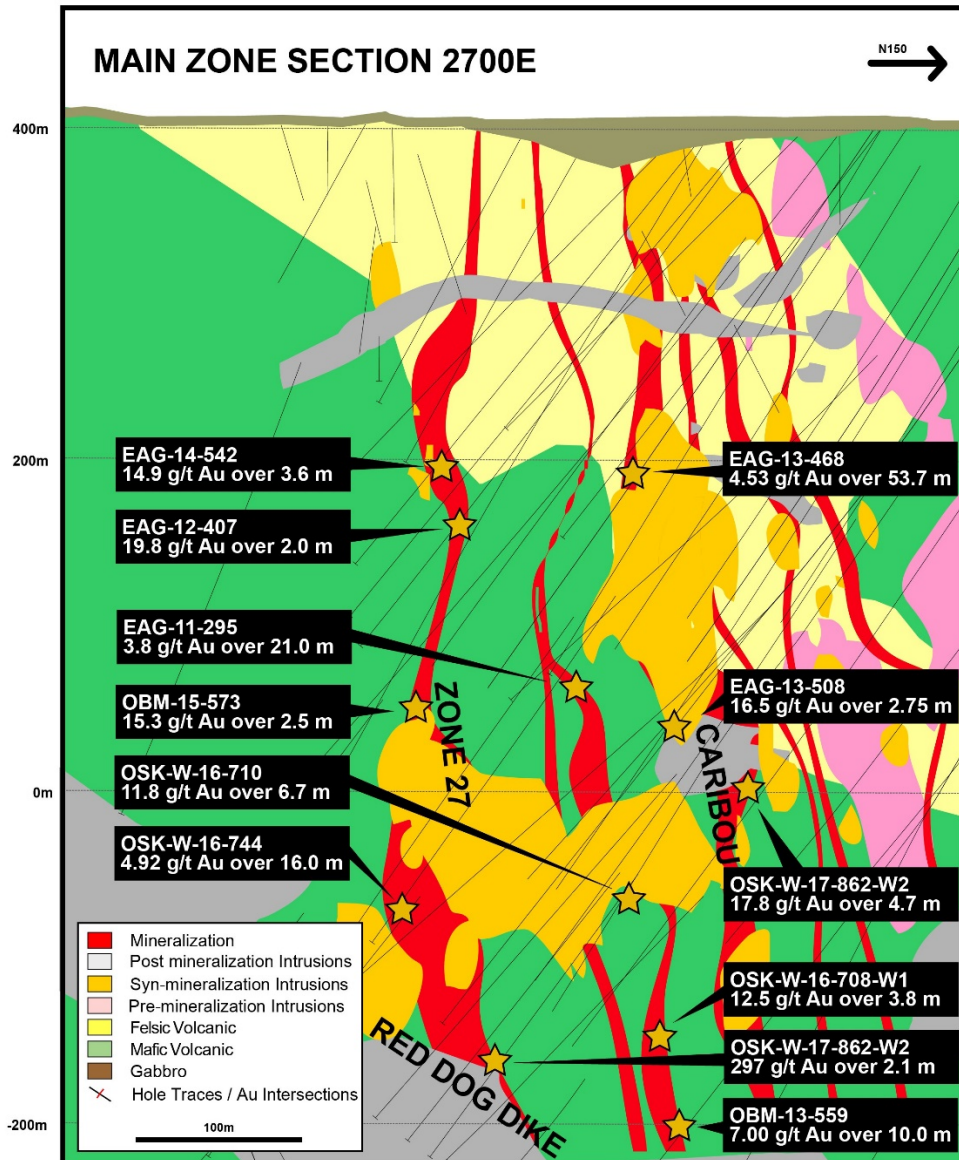


Figure 10-3: Representative geological cross-section showing the distribution of drill hole spacing and orientation, and significant assay results in the Main zone (section 2700E).

10.1.2 Drilling Methods

All core diamond drilling completed consists of wireline diamond drilling recovering NQ size (47.6 mm) drill core. Metallurgical used HQ (96 mm) and PQ sized (122.6 mm) core and directional core drilling (“Devico[®]”) used AQ sized core (36.4 mm).



Directional core drilling has been used on the Windfall Lake Project since June 2016, using Devico[®]'s tool DeviDrill[™]. The DeviDrill[™] allows controlled deviation of the drill hole path by making multiple branches from a mother-hole, reaching targets within one percent error. Field technicians from the qualified license user, Tech Directional Services Inc., are on site on a full-time basis to control the directional core drilling.

Drill hole deviation surveying at the Windfall Lake Project includes singleshots and multishots, and is achieved by using the electronic down hole instrument Reflex EZ-SHOT[™]. Singleshot measurements are taken every 30 m during drilling. Multishots are taken once the drill hole is completed and measurements are taken every 3 m up hole. From March to December 2017, the North Seeking Champ Gyro[™] system provided by TMC Géophysique was used for deviation surveying in instances where the host rock was magnetic. Since the beginning of the year, the Reflex EZ-GYRO[™] is used on all drill rigs. Measurements are taken every 10 m to 15 m up hole and down hole for accurate results.

The Reflex TN14 Gyrocompass[™] has been used to align the drill rigs to the correct azimuth and dip since May 2016. Prior to this date, the Azimuth Pointing System ("APS") was used to align the drill rigs. Drill hole coordinates are entered directly into the wireless handheld unit on site showing the live orientation of the drill rig.

All drill hole casings remain anchored in bedrock to allow future surveying, drill hole lengthening or cementation. A red metallic cap flag with the drill hole name was put on the remaining casing.

All drill cores are stored in the yard of the core shack at the Windfall Lake camp. Each core box is identified with an aluminum tag indicating the drill hole name, box number, and from-to metres of the core interval located inside the box.

10.1.3 Field Procedures

The drill core is placed into wooden core boxes at the drill site. Blocks are used to separate the core in the box at the beginning and end of each drill run. The core boxes are labelled and closed with transparent tape by the drillers. The drill core is brought back to the core shacks at the end of every shift from each drill site by drill contractor personnel. Core boxes are placed on individually labelled trestles in front of every core shack. Geo-technicians have the responsibility to place the core boxes in order and transport them into the core shacks on the core logging tables.

When working with the "CorientR" tool or the "Reflex Act III RD" system, which provided an oriented drill core reference, the drill core received from the drill at the core logging facility is aligned according to the driller marks drawn at the end of each 3 m interval drilled, to indicate lower portion of the drill hole. A blue line joining the marks is then traced by a core handling technician, indicating the bottom of the core. The core is then put back into the box oriented with the blue line in the upright (top) position.



10.1.4 Geological Logging

Once geotechnical measurements are completed, and the core is oriented, the drill core is logged by a geologist recording a detailed description of the lithologies, structures, mineralization, alteration, and veining directly into the Datamine software (“DH Logger”). Qualified professionals under the employ of Osisko are members in good standing of the OGQ or OIQ. Structures are recorded using the Reflex IQ-Logger™ electronic instrument. Rock units are also occasionally identified using a hand-held X-Ray fluorescent (XRF) device (see Section 7.4). Handheld Vanta X-ray fluorescence energy dispersive spectrometer¹, generally known as a XRF analyzer, is routinely used at Windfall Lake to discriminate between different lithologies, including porphyry dikes, felsic volcanics and intermediate-mafic rocks. A semi-quantitative analysis of a rock sample of 15-20 seconds is generally sufficient to determine the geochemical signature of a rock and respective rock unit. However, for an even more reliable result, a 40 second analysis is recommended. The values (e.g., TiO₂, Zr, Y and Nb) can be written on the core and are documented within the drill log.

After completion of the core description, the geologist is responsible for marking the samples on the core using a red water-proof marker. Photos of the core for the entire drill hole length are then taken with the sample tags (four boxes photographed per picture).

Once the core samples have been cut, the boxes containing the remaining core halves are placed in an outside permanent core rack.

10.1.5 Core Recovery

Core recovery and RQD are measured and calculated for each core and recorded in the drill log. Rock units intersected by drilling are generally solid, yielding an effective core recovery of 99.79%.

10.1.6 Collar Surveys

Surface drill hole collars are originally spotted in the field using an Azimuth Pointing System (“APS”) instrument. Down hole surveying has been performed routinely on every drill hole. A Reflex electronic instrument (Reflex EZ-SHOT™) is used every 30 m to record down hole deviations. Surveys are recorded daily in the drill log and monitored daily. The coordinate system used is UTM NAD 83 Zone 18.

¹ Only operators who have been trained and authorized to operate the XRF equipment are allowed to use the Vanta XRF analyzer. Geologists using this device at the Windfall Lake Project are required to be certified according to NRC Standard CAN/CGSB-48.9712-2006/ISO9712:2005 (Canadian Federal Regulations (Radiation Emitting Devices Act)).



After the completion of the drill hole, the collars are surveyed by Corriveau J.L. & Assoc. Inc. (Val-d'Or) using a high-precision Leica GPS (precision of ± 0.05 m). An in-house high-precision GPS system is also occasionally used by Osisko's geotechnicians for surveying completed drill holes. The final surveyed coordinates are imported in the database.

10.1.7 Drill Hole Validation

DH Logger, from the Fusion suite of software supplied by DATAMINE, is used to plan, log, view, and manage down hole-related data. In association with DH Logger, Fusion is a central database and a management system for geological, geochemical, geotechnical, geophysical, Assay, QA/QC and any field data.

The logging method at the Windfall Lake Project utilizes a compilation of best logging practices known in exploration. The method preserves the integrity of raw results and meets all the current requirements for data capture and management according to mining industry standards. All logging geologists received personal training with a supervisor upon their arrival on the Project. An internal report titled *DH Logger User's Guide* contains all explanations and procedures on the logging process and data entry (*GUIDE_UTILISATEUR_DH-LOGGER*). The *DH Logger User's Guide* is updated periodically according to the evolution of the procedures.

10.1.8 Final Validation Rules

Once the logging of a drill hole is completed, a supervisor from the planning team validates the data using a drilling closure form. If incorrect data is identified, not in conformity with the procedure or missing, the drilling closure form is returned to the logging geologist who must perform the corrections before a final validation by the supervisor. Once cleared, the data is considered finalized and signed off by the supervisor. The detailed drilling closure form is available upon request.

10.1.9 Specific Gravity

Specific gravity ("SG") is measured on a selection of samples mostly within the mineralized zones. For the resource calculation, the database contains 152,939 SG values for 515,865 samples. One sample can have different SG measurements and the totality of SG data can be found in ASSAY_EXTENDED table (153698 SG data). Four different protocols have been used:

10.1.9.1 SG_Unity_GRA08 - ALS (491 analyses)

Method used by ALS for bulk samples. The core section is weighed dry then weighed while it is suspended in water. The specific gravity is calculated from the following equation:



$$SG = [\text{sample weight (g)} / (\text{dry weight (g)} - \text{wet weight (g)})]$$

10.1.9.2 SG_Unity_GRA08b - ALS (152,226 analyses)

Method used by ALS for pulverized material. A prepared sample (3.0 g) is weighed into an empty pycnometer. The pycnometer is filled with a solvent (methanol) and then weighed. From the weight of the sample and the weight of the solvent displaced by the sample, the specific gravity is calculated according to the equation below.

$$SG = [\text{sample weight (g)} / \text{weight of solvent displaced (g)}] \times \text{specific gravity of solvent}$$

10.1.9.3 Density_sg_SPG04 – Bureau Veritas (28 analyses)

Method used by Bureau Veritas on pulps or rock chips using a gas pycnometer.

10.1.9.4 SG_Unity_ELEDEN – Osisko Mining (953 analyses)

In-house protocol using an electronic densimeter MD-300S. The process is similar to SG_Unity_GRA08 from ALS. The full detailed protocol is available (*Protocole_densité_windfall_28-01-2018.docx*). Of these 953 analyses, 427 analyses can be compared with pycnometer data (SG_Unity_GRA08b) from the laboratory for validation. Like the SG_Unity_GRA08, the electronic densimeter used the following standard calculation equation:

$$SG = [\text{sample weight (g)} / (\text{dry weight (g)} - \text{wet weight (g)})]$$

10.1.10 Drill Spacing

Drilling has been conducted over the Windfall-Lynx deposit on an area of 3,500 m of length by 1,200 m of depth. The drilling pattern was designed to sample the deposit orthogonally to the interpreted strike and dip of the gold mineralization. The majority of the drill holes were drilled with a dip varying between -45° to -70°. All core holes were drilled on sections spaced approximately 25 m apart in most parts of the deposit. Drill hole spacing of 25-30 m by 25-30 m occurs over the bulk of the orebody to a depth of approximately 600 m below surface. Before 2017, spacing on Zone 27 and Caribou zone was of 30 m by 30 m. The spacing was then reduced in 2017 to 25 m by 25 m on Lynx and in further drilling on Caribou and Zone 27. Below 600 m, down to approximately 1,200 m, and in the down plunge-extension of zones, core hole spacing of 50 m by 50 m is usually observed. The Underdog, Lynx 4, and Mallard zones are mostly drilled with 50 m by 50 m spacing. Only 23 drill holes have been drilled 1,200 m below surface. For definition drilling, drill hole spacing is generally 15 m by 15 m inside the existing 30 m drill spacing mostly



conducted on the Zone 27. An area of approximately 200 m by 200 m has been infilled with 15 m spacing.

10.2 Drilling Urban-Barry Property

The 2016-2017 Urban-Barry property drilling program was conducted from November 2016 to June 2017 over different sectors of interest in the Urban-Barry area. In 2016, drilling was carried out by Rouillier Drilling and in 2017, drilling was carried out by both Rouillier Drilling and Orbit Garant. A total of 93 drill holes were drilled for a total of 37,867.5 metres. The first part of the program started in the eastern and southern part of the Urban-Barry property on the E1, E2, E7, and Black Dog areas, which were highlighted during the summer of 2016 prospecting campaign. The second part of the program focused on properties in the vicinity but outside of the Windfall Lake deposit footprint and included Fox, Fold Hinge, Bobtar, and NE Windfall Lake areas. The location of drill holes for the entire Urban-Barry drilling program is illustrated in Figure 10-4.

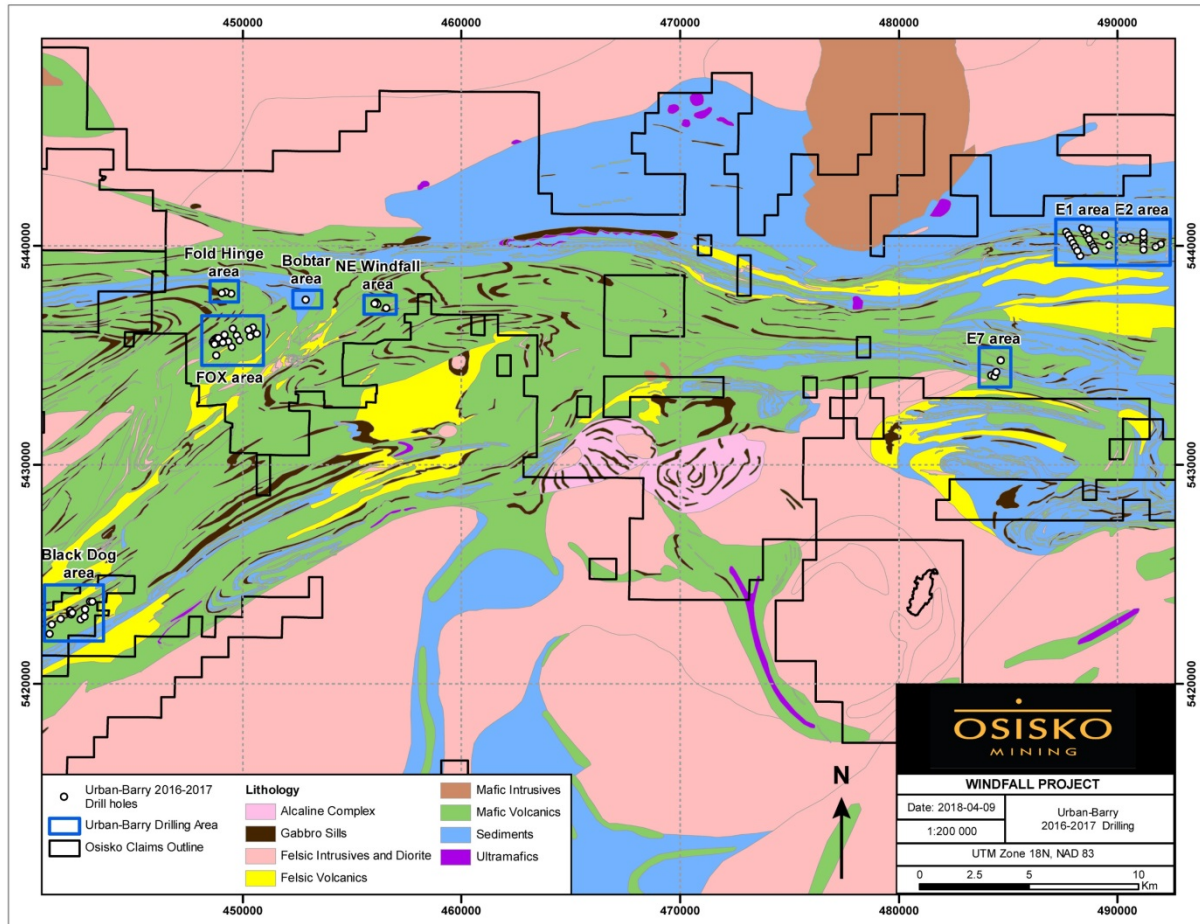


Figure 10-4: Location of the main areas of the 2016-2017 Urban-Barry project drilling campaign, Urban-Barry and Windfall Lake properties.

10.3 Osborne-Bell Deposit, Quévillon Property

This section of the report briefly summarizes Osisko’s drilling program at the Osborne-Bell deposit from December 8, 2017 to January 31, 2018. Information reported in this section was obtained from the issuer’s exploration team during the site visit and further exchanges. Drilling programs performed by Maudore before 2016 are summarized in Chapter 6.



The drilling program started with two rigs on the deposit in early December 2017 (Osisko press release of December 14, 2017). Drilling was carried out by Forages Rouillier, a contractor based in Val-d'Or. Drilling used conventional drill rigs producing NQ-diameter core (Figure 10-5). Collar locations were determined with a REFLEX APS Northfinder, a GPS-based instrument mounted on top of the drill rig's rotation unit and capable of real-time communication with a mobile device. All casings were left in place.

The drill is lined up using the REFLEX TN14 GYROCOMPASS™. The down hole dip and drill hole orientations were surveyed with a REFLEX EZ-TRAC shot unit. Reflex surveys were started 10 m below the casing, and single-shot readings were taken every 30 m down the hole during drilling, and multi-shot readings were taken every 3 m while pulling out the rods. A Reflex reading was also taken at the bottom of the hole. The digital core orientation REFLEX ACT III™ system records the orientation of the core at every 3-m run.

At the core storage and logging facilities, before logging commences, the core is pieced together end-to-end to ensure it was correctly aligned in the core boxes. Once aligned, a reference line is drawn to trace the bottom of the hole by following the marks made by the driller's assistant to identify the up-hole direction. All recorded data are stored in the DH Logger core logging software from Datamine. Photos are taken once the geologist has laid out the samples and inserted the tags. The core is sawn perpendicular to the core-orienter reference line and the top half is placed in a bag by the core cutter. The bottom half is retained for reference and returned to the core box. When sampling is completed, the bag is sealed with a zip tie. All samples are assigned a unique sample number. The sample number does not include any reference to drill hole number or meterage for security reasons. One submittal form is prepared per each hole and sent by email to the laboratory. The core box is then brought to Osisko's core storage facility in Lebel-sur-Quévillon where all historical diamond drill cores since 2003 have been stored.

10.3.1 Osborne-Bell Drilling Program

Osisko's surface drilling program is designed to infill the central HG zones of the Osborne-Bell deposit (Figure 10-6). As of January 31, 2018, 14 DDH had been drilled on the deposit for a total of 3,870.7 m (Table 10-2). Only the first four holes (OSK-OB-17-001 to OSK-OB-17-004) were used in the current mineral resource estimation (see Chapter 14) because assays and QA/QC were pending for the other holes at the database close-out date. The best mineralized intervals are summarized in Table 10-3.



Figure 10-5: Drill rig setup over the Osborne-Bell deposit.
Photo taken during the site visit on January 18, 2018.

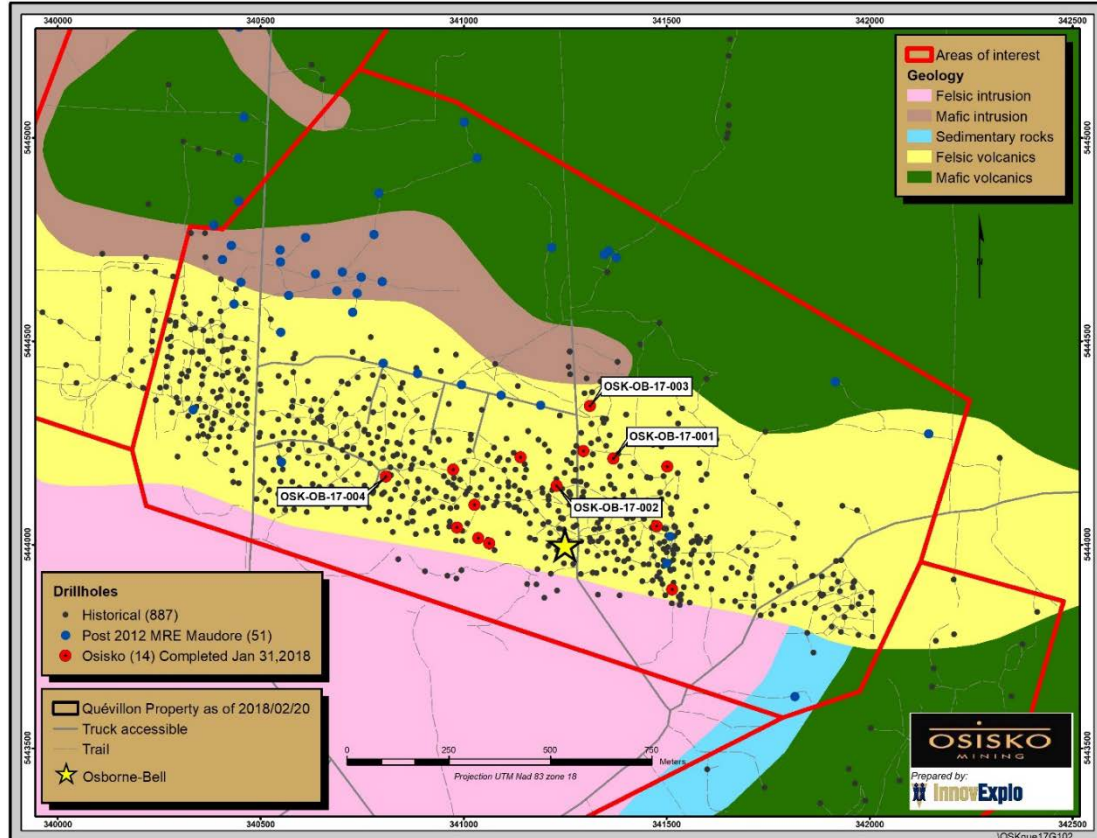


Figure 10-6: Map showing holes drilled by Osisko on the Osborne-Bell deposit (January 31, 2018) and locations of the 4 DDH used in the 2018 MRE.



Table 10-2: Summary of diamond drilling completed by Osisko on the Osborne-Bell deposit (January 31, 2018)

Hole ID	Date started	X_UTM83Z18	Y_UTM83Z18	Elevation (m)	Azimuth	Dip	Length (m)
OSK-OB-17-001	2017-12-05	341369.5	5444212	287.9	190.06	-57.95	535
OSK-OB-17-002	2017-12-06	341230	5444145	288	175.92	-44.15	358
OSK-OB-17-003	2017-12-12	341312	5444341	287.5	186.82	-59.5	622
OSK-OB-17-004	2017-12-14	340809	5444168	289	201.6	-69.3	377.7
OSK-OB-18-005	2018-01-08	341514.28	5443889.97	291.6	183.1	-48.1	112
OSK-OB-18-006	2018-01-10	341476	5444046	289	194.1	-63.1	91
OSK-OB-18-007	2018-01-12	341063.5	5444003.2	322.7	188.2	-68.1	259
OSK-OB-18-008	2018-01-13	341296	5444230	288	184.5	-52	376
OSK-OB-18-009	2018-01-17	341037	5444016	322.3	190	-60.8	193
OSK-OB-18-010	2018-01-19	340984	5444042	316	203.5	-63	232
OSK-OB-18-011	2018-01-19	341027.3	5444098.4	298.52	196	-52.7	274
OSK-OB-18-012	2018-01-21	340975	5444185	290	195.7	-52	349
OSK-OB-18-013	2018-01-25	341502	5444192	294	206.7	-61.2	52
OSK-OB-18-015	2018-01-27	341141	5444215	288	194.53	-61.8	40
Total							3,870.7

Table 10-3: Best gold intervals from Osisko's drilling program on the Osborne-Bell deposit (holes OSK-OB-17-001 to OSK-OB-17-04)

Hole ID	Zone	From (m)	To (m)	Length (m)	Au(g/t) uncut
OSK-OB-17-001		307.00	309.00	2	1.27
		313.00	315.00	2	0.99
		332.00	333.00	1	1.85
		382.80	384.30	1.5	1.50
		512.60	513.80	1.2	2.22
		518.00	521.00	3	1.10
		528.00	529.00	1	1.50
OSK-OB-17-002		201.00	202.00	1	1.45
		205.00	206.00	1	1.42
		211.00	212.00	1	1.27
		319.00	320.50	1.5	2.07



Hole ID	Zone	From (m)	To (m)	Length (m)	Au(g/t) uncut
OSK-OB-17-003		480.20	481.20	1	19.85
		499.90	501.00	1.1	1.96
		583.50	584.00	0.5	12.35
		595.30	595.70	0.4	7.86
		614.00	615.00	1	1.86
		616.70	618.00	1.3	1.32
OSK-OB-17-004		55.00	57.00	2	28.91
	<i>Including</i>	<i>56.00</i>	<i>57.00</i>	<i>1</i>	<i>56.90</i>
		93.00	94.00	1	1.43
		135.00	136.00	1	1.19
		154.00	155.00	1	1.01
		155.00	157.00	2	7.28
	<i>Including</i>	<i>155.00</i>	<i>156.00</i>	<i>1</i>	<i>11.55</i>
		161.60	170.00	8.4	0.48
	<i>Including</i>	<i>164.50</i>	<i>165.80</i>	<i>1.3</i>	<i>1.06</i>
		255.50	256.50	1	1.10
		262.50	263.50	1	1.00
		294.20	297.70	3.5	2.35
		315.70	317.70	2	7.70
	<i>Including</i>	<i>315.70</i>	<i>316.70</i>	<i>1</i>	<i>14.80</i>
	331.00	332.00	1	1.26	



11. SAMPLE PREPARATION, ANALYSES, AND SECURITY

11.1 Windfall Lake and Urban-Barry Properties

The following sections describe Osisko's sample preparation, analysis, and security procedures for the diamond drilling programs at the Windfall Lake Project. InnovExplo did not conduct any drilling or sampling on the Windfall Lake property. Data pertaining to sampling, analytical, security, and quality assurance-quality control ("QA/QC") protocols were supplied by the issuer. The information included in this chapter relates to samples taken from drilling campaigns for which the assay certificates were received after the 2014 MRE database close-out date of July 28, 2014 and before the Osisko database close-out date of March 5, 2018.

11.1.1 Laboratories Accreditation and Certification

Osisko Mining used ALS Minerals ("ALS") in Val-d'Or, Québec, Canada as their primary sample preparation and analytical (assay) laboratory. ALS is independent of Osisko Mining. The laboratory is currently accredited by the Standards Council of Canada (accredited laboratory number 689) to ISO 17025 for the analysis of gold by lead collection fire assay with atomic absorption spectrometry as well as the determination of gold by lead collection fire assay with gravimetric finish. The management system of the ALS Minerals Group laboratories is accredited International Organization of Standardization ("ISO") 9001:2008 by QMI Management Systems.

As a secondary laboratory, Osisko Mining sends shipments to the Bureau Veritas Commodities Canada Ltd. ("BV") in Timmins, Ontario, Canada where samples are processed and analyzed. BV is independent of Osisko Mining. The laboratory is registered under the corporate ISO 9001 registration. The Timmins lab is in process of seeking ISO 17025 accreditation for fire assay procedures but is listed on the Vancouver lab's ISO 17025 scope of accreditation (accredited laboratory number 720) as a qualified sample preparation facility. Off-site sample preparation and analytical procedures at Timmins follow those of Vancouver and are monitored regularly for QA/QC practices. The management systems of all BV sites are registered with the ISO 9001 Model for Quality Assurance and compliant with ISO/IEC 17025 General Requirements for the Competence of Testing and Calibration Laboratories.

11.1.2 Historical Sampling

The drill hole sampling preparation, analyses and security procedures utilized by Kerr Addison, DeMontigny, Alto, and Inmet between 1986 and 1999 are unknown. InnovExplo assumes that the exploration activities conducted by these companies were in accordance with prevailing industry standards at the time.

The drill hole sampling preparation, analyses, and security procedures from 2003 to 2014 are presented in the Tetra Tech MRE 2015 (M. McLaughlin et al., 2015).



11.1.3 Osisko Core Handling, Sampling, and Security

Routine sampling of the diamond drill core for gold analysis was accomplished by adhering to previously established sampling guidelines. This procedure ensures the quality and accurate representation of the material sampled and the remaining split core archived for future reference.

Preparation of designated drill core intervals to be sampled was completed by the following method:

- Drill core received from the drill at the core logging facility (core shack) was pieced back into continuous intervals to minimize any spaces between individual pieces of core and to check for incorrect placement of the core by the drillers.
- When working with the "CorientR" tool or the "Reflex Act III RD" system, which provided an oriented drill core reference, the drill core received from the drill at the core logging facility was aligned according to the driller marks drawn at the end of each 3 m interval drilled, to indicate lower portion of the borehole. A blue line joining the marks was then traced by a core handling technician, indicating the bottom of the core. The core was put back into the box oriented with the blue line in the upright (top) position.
- After alignment, rotation, and record made of the geotechnical measurements, which included recovery and rock quality designation ("RQD"), the core was marked (with a china pencil) with 1 m hole-depth intervals. This annotation allowed for better depth precision between the drill-run meterage block markers inserted at every 3 m run by the drillers.
- Intervals of core slated for sampling were marked with a red china pencil perpendicular to the core axis showing arrows to indicate the "from" and "to" range of each sample. The mark-ups were designed to assist the core cutters to saw each core sample between the "from-to" arrows and solid red lines marking the end/beginning of each sample.
- Individual core samples are typically taken at 1 m intervals with minimum and maximum sample intervals from 0.3 m to 1.5 m. Collecting samples less than 1 m in length is discouraged unless it is done to respect lithological and/or mineralization contacts. A sample does not cross a lithological contact (except minor veins and dikes less than 0.3 m). To minimize sample errors and simplify the entire sampling process, intervals are generally started and ended on a whole metre. Where sampled intervals fall between metre marks, subsequent samples are lengthened or shortened to bring the sequence in line with whole-number metre depths. Exceptions to the 1 m material occur to better represent the geology and or gold grade of the sample interval.
- Books containing numerical sequences of 50 pre-labeled triplicate water-durable sample tags are used: one to tag the core sample; a second to indicate the position of the sample in the core box; and the third remained with the book as an archival record of the samples particulars such as sample ID, drill hole ID, sample interval from-to hole-depths, rock type and a brief sample description. From each sample sheet consisting of three perforated



identical tags, the last two from the right (the third remaining in the sample book) were separated (torn) from the page and tucked along the side/under the core at the beginning of each sample in such a way that the tag numbers could be read by the core cutter.

- Digital photographs of the marked and tagged core are taken for archival purposes.
- Blanks and standards were inserted as the core cutting and sampling progressed to avoid mix-ups.
- Drill core, marked and tagged for sampling, is moved to the sawing room to be cut using electric motorized, diamond impregnated bladed rock saws. The core saw operator(s) cuts and samples the core, one sample at a time, starting with the first sample tagged and follows through to the next sample tagged in sequence until the end of the batch.
- Unbiased sampling is managed by consistent selection of the same side from each halved piece of cut core. The sampled core pieces pertaining to a given sample are placed in a heavy duty transparent plastic bag and the remaining pieces are placed back into their original position in the core box. When working with the "CorientR" tool or the "Reflex Act III RD" system, the half containing the reference blue line is selected to be archived for future reference, the other half is put into the sample bag. Broken core (fault-gouge, fault-breccia) is sampled by scooping the right half into a sample bag and by leaving the remaining half in the core box. The paired sample tags are then torn with one tag stapled to the core box at the start of its sample interval and the other tag placed into the sample bag with the core sample.
- Sample bags are also labeled with the sample number written with black permanent marker and the open tops sealed with plastic zip tie (one direction).
- For blank samples, the core cutter(s) are required to scoop approximately 1 to 2 kg of gold-barren limestone gravel (assays <0.005 ppm gold) into a plastic sample bag as per the procedure outlined in the previous step.
- Certified gold reference materials are assigned by the core-logging geologist and the identification code verified by the core-cutter(s). One or two pouches of standard material is placed into plastic sample bag. The name of the standard written on the pouch is erased by the core-cutter(s) before putting it into the bag.
- Numerical sequences of five samples, starting with the first sample, are packed into rice bags and the open tops sealed with plastic zip ties (one direction). The sample number range and incremental bag number are written on the rice bag and this information is recorded on a rice-bag sample sheet. This operation is completed by the core cutting staff.
- All samples from a given drill hole are packaged in batches of 100 samples. Batches are generated for each drill hole and submitted to the ALS in Val-d'Or to avoid confusion given the volume of samples.



- A copy of the Sample Submittal Form and associated rice bag sample sheet are sent by email to the lab. When a total of 100 samples (20 rice bags) are ready, they are packed and sent to the lab. The samples are then transported by an Osisko Mining exclusive transporter and delivered directly to the ALS laboratory facility in Val-d'Or or BV shipment receipt in Timmins. Transportation occurs daily.

11.1.4 Litho-geochemical Samples Procedure

In addition to routine samples selected for gold analysis, an ancillary batch of representative samples were tested to better characterize the lithologies based on whole-rock geochemistry.

Whole-rock samples consisted of roughly 15-cm pieces of quarter core. The sample was selected to be the most representative piece of the rock unit being sampled (no veins, preferably weakly to non-mineralized material). A sample was taken at approximately every 30 m of core and samples were also taken to provide some insight about the composition of unknown unit lithologies.

11.1.5 Analytical Methods (ALS and Bureau Veritas)

Historical analytical quality control measures were set in place by Fury in 2003 and 2004, and Noront in 2007. Details of these measures are outlined in previous technical reports produced for the property (SRK, 2011, 2012, 2013 and M. McLaughlin et al., 2015). The next sections describe the analytical methods during Osisko period.

11.1.5.1 Samples for Gold Analysis

At the ALS laboratory, samples underwent conventional sample preparation procedures (ALS code PREP-31). Samples were crushed to a fineness of 70% passing below ten mesh, or 2 mm. A 250-g split of the crushed material was further comminuted to a sample pulp by pulverizing to 90% passing below 200 mesh, or 70 μ m. The pulveriser assembly (steel barrel, rings and puck) was cleaned with silica sand between samples. Most samples were submitted to the primary laboratory, i.e. ALS, in batches of 20 (rush analysis) and 100 (regular analysis) samples.

Due to the high volume of sampling, approximately 10% of non-rush samples are sent to BV in batches of 100 samples. At BV, samples underwent conventional sample preparation procedures (BV code PRP90-250). Samples were crushed when 90% of material passed a 2 mm sieve. A 250-g split of crushed material was pulverized to 85% passing a 75 μ m sieve.



Table 11-1 outlines the analysis methods used at both ALS and BV laboratories. Routine samples are analyzed with fire assay. If visible gold is identified by core-logging geologists, samples were automatically run through metallic screen analysis. Prepared pulp samples were assayed for gold using a fire assay procedure with atomic absorption finish at ALS and BV on a 30- or 50-g pulp charges.

At the request of Osisko, all samples exceeding 10 g/t Au with the Au-AA26 method, or any samples containing high grade or visible gold were rerun with the screen method (Au-SCR24 method). A 1,000 g split of the final prepared pulp (PUL-32) is passed through a 75 µm stainless steel screen to separate the oversize fractions. Any +75 µm material remaining on the screen is retained and analyzed in its entirety by fire assay with gravimetric finish using pycnometer (OA-GRA08B method) and reported as the Au(+) fraction result. The -75 µm fraction is homogenized and two 50 g sub-samples are analyzed by fire assay with AA finish. The average of the two AA results is taken and reported as the Au(-) fraction result. All three values are used in calculating the combined gold content of the plus and minus fractions.

$$Au \text{ Total (ppm)} = \frac{((Au(-) \text{ av ppm}) \times Wt. \text{ Min(g)}) + (Au(+) \text{ ppm} \times Wt. \text{ Plus (g)})}{(Wt. \text{ Min(g)} + Wt. \text{ Plus (g)})}$$

Table 11-1: Analytical methods used by Osisko Mining Inc.

Laboratory	Method	Method code	Sample weight (g)	Lower limit (ppm)	Upper limit (ppm)	Default over-limit method
ALS Minerals	Fire Assay with Atomic Absorption Finish	Au-AA23	30	0.005	10.0	Au-GRA21
		Au-AA24	50	0.005	10.0	Au-GRA22
		Au-AA25	30	0.01	100	Au-GRA21
		Au-AA26	50	0.01	100	Au-GRA22
	Fire Assay with Gravimetric Finish	Au-GRA21	30	0.05	10,000	--
		Au-GRA21	50	0.05	10,000	--
	Metallic Screen	Au-SCR21	1,000	0.05	10,000	--
		Au-SCR24	1,000	0.05	10,000	--
Bureau Veritas	Fire Assay with Atomic Absorption Finish	FA430	30	0.005	10.0	Gravimetric Method
		FA450	50	0.005	10.0	
	Fire Assay with Gravimetric Finish	FA530	30	0.9	--	--
		FA550	50	0.9	--	--
	Metallic Screen	FS652	50 – 500	0.005	--	--



11.1.5.2 Multi-elements Analysis

For the multi-elements (Ag, Al, As, Ba, Be, Bi, Ca, Cd, Co, Cr, Cu, Fe, Ga, Hg, K, La, Mg, Mn, Mo, Na, Ni, P, Pb, S, Sb, Sc, Sr, Th, Ti, Tl, U, V, W, Zn), the samples were assayed by atomic emission spectrometry procedure, ME-ICP41, at ALS. A prepared sample is digested with aqua regia in a graphite heating block. After cooling, the resulting solution is diluted to 12.5 ml with deionized water, mixed and analyzed by inductively coupled plasma-atomic emission spectrometry. The analytical results are corrected for inter-element spectral interferences.

11.1.5.3 Litho-geochemical Samples

For litho-geochemical samples, the sample preparation method was the same as for routine samples. Whole-rock analysis was performed using a package that included major oxides (Al_2O_3 , BaO, CaO, Cr_2O_3 , Fe_2O_3 , K_2O , MgO, Na_2O , P_2O_5 , SiO_2 , SrO_2 , TiO_2) LOI's, total oxides, plus Zr, Y, and Nb. The analytical method was performed using a lithium borate fusion followed with an XRF finish (ALS codes ME-XRF06, Zr-XRF05, Y-XRF05, and Nb-XRF05). A calcined or ignited sample (0.9 g) is added to 9.0 g of Lithium Borate Flux (50% - 50% $\text{Li}_2\text{B}_4\text{O}_7$ - LiBO_2), well mixed and fused in an auto fluxer between 1050°C – 1100°C . A flat molten glass disc is prepared from the resulting melt. This disc is then analyzed by XRF.

11.1.6 Quality Assurance and Quality Control (QA/QC) Programs

The exploration work conducted by Osisko Mining was carried out using a quality assurance and quality control (QA/QC) program following the industry's recognized best practices. InnovExplo was not involved in the collecting and recording of the data, which was performed by Osisko employees. InnovExplo only synthesized sample batches for which the assay certificates were received after the database close-out date of March 5, 2018.

QA/QC for the 2015-2018 drilling program consisted of a drill hole database audit, inserting quality control samples within all sample batches submitted for assaying, intra-laboratory as well as inter-laboratory check assays. A re-sampling program of core drilled by previous operators was conducted in 2016.

11.1.6.1 Field Assay Standards (Certified Reference Materials and Blanks)

Contamination is monitored by the routine insertion of blank material. The control procedure also included certified reference materials ("CRMs") or gold assay standards to determine if there were assay problems with specific sample batches and possible long-term biases in the overall dataset. Blanks and CRMs go through the same sample preparation and analytical procedures as the core samples. They were assigned sample IDs at a frequency of at least one of each control type per range of 15 sample tag IDs. Each control type represents approximately 6% of the total batch depending on the total range of samples tags used (Table 11-2).



The results of the quality control samples were assessed by the *Batch Authorization* module of the Fusion software in DH Logger (Table 11-3).

Table 11-2: Samples submitted to ALS for analysis along with routine drill core samples (July 2014 to March 2018)

Type of sample	Quantity	%
Primary drill core samples	396,512	88.58
Field blanks	27,008	6.03
Certified reference material	24,121	5.38
Total	447,641	100

Table 11-3: Current sample QA/QC statuses in DH Logger

ID	Description
Passed	Sample has passed QA/QC review – controlled by passed control samples.
Passed NSA	Non-significant assay – assays below defined background value of 0.2 ppm.
QP Accepted	Flagged by DHL, accepted for a variety of reasons: <ul style="list-style-type: none"> ▪ Suite of samples affected includes no anomalies; ▪ Suite of samples affected includes minor and/or isolated sub- low-grade anomaly; ▪ Blank contamination with no impact on other samples; ▪ Marginal fail low/high.
Failed	Surpassed maximum/minimum defined standard control values (± 3 SD); re-assays pending.
Historical	Assays from historical Owners' drill programs: <ul style="list-style-type: none"> ▪ Kerr Addison (1997); ▪ Alto Minerals (1998-1999); ▪ Fury (1996/2003/2004); ▪ Mugor (2004-2006); ▪ Noront (2004-2007).



11.1.6.1.1 Blanks

The blank is a coarse crush blank material (limestone gravel) sourced from a regional hardware store. The blank material has not changed since 2014. The blank is submitted with samples for crushing and pulverizing to determine if there has been contamination or sample cross-contamination during the preparation. Elevated values for blanks may also indicate sources of contamination in the fire assay procedure (contaminated reagents or crucibles) or sample solution carry-over during instrumental finish.

From April 28, 2014 to March 5, 2018, there were a total of 27,008 blanks submitted to ALS and BV with the samples (Table 11-4). Blank materials were considered failed when the returned gold value exceeded 10x the lower detection limit of the analytical method (Table 11-1). A general guideline for success on a contamination quality control program is a success rate of 90% of blanks showing no contamination exceeding the acceptance limits. Table 11-4 and Figure 11-1 to Figure 11-4 summarize the performance of the blanks. Depending on the method used during the analyses, more than 91% of the blanks analyzed passed the process (Table 11-4); overall is 98.53%.

**Table 11-4: Blanks submitted for analysis along with routine drill core samples
(July 2014 to March 2018)**

Method	Lab	Expected Au value	Qty inserted	Osisko mean grade (ppm)	Min (ppm)	Max (ppm)	Failed	% Passing
AU_PPM_AA24	ALS	0	7,479	0	0	0.05	11	99.85%
AU_PPM_AA26	ALS	0	14,402	0.03	0	0.1	202	98.60%
AU_PPM_AA26D	ALS	0	1,505	0.13	0	0.1	138	90.83%
AU_PPM_FA450	BV	0	2,116	0	0	0.05	3	99.86%
AUCHECK_PPM_AA26	ALS	0	1	31.4	0	0.1	1	0.00%
AUTOTAL_GPT_FS652	ALS	0	5	0.03	0	1	0	100.00%
AUTOTAL_PPM_SCR24	ALS	0	1,500	0.17	0	0.5	41	97.27%
TOTAL			27,008				396	98.53%

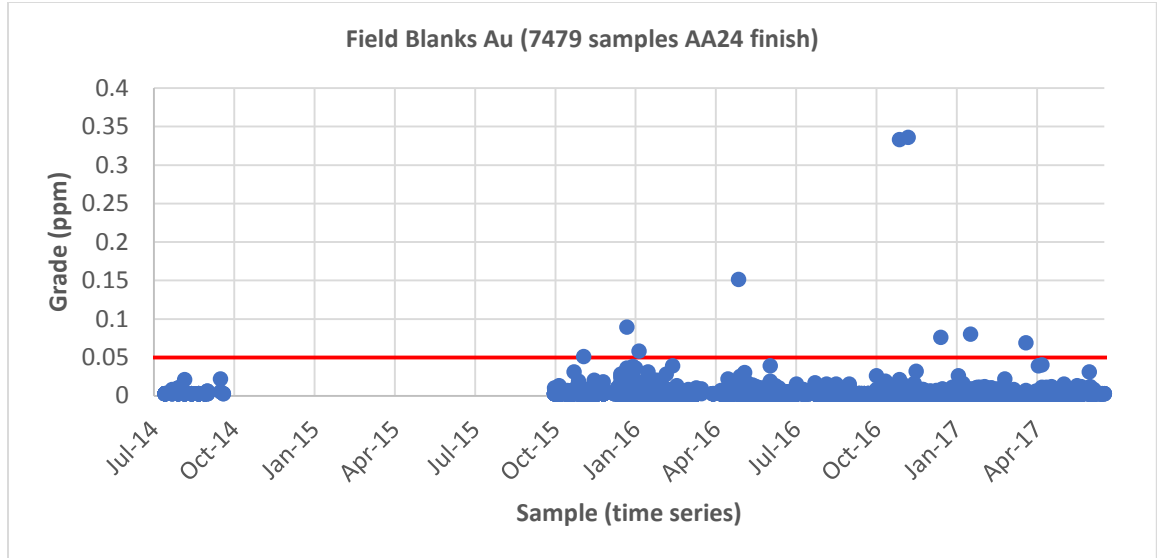


Figure 11-1: Time series plot for blank samples assayed by ALS (AA24 method).
Detection limits set at 0.05 g/t Au (10x detection limit).

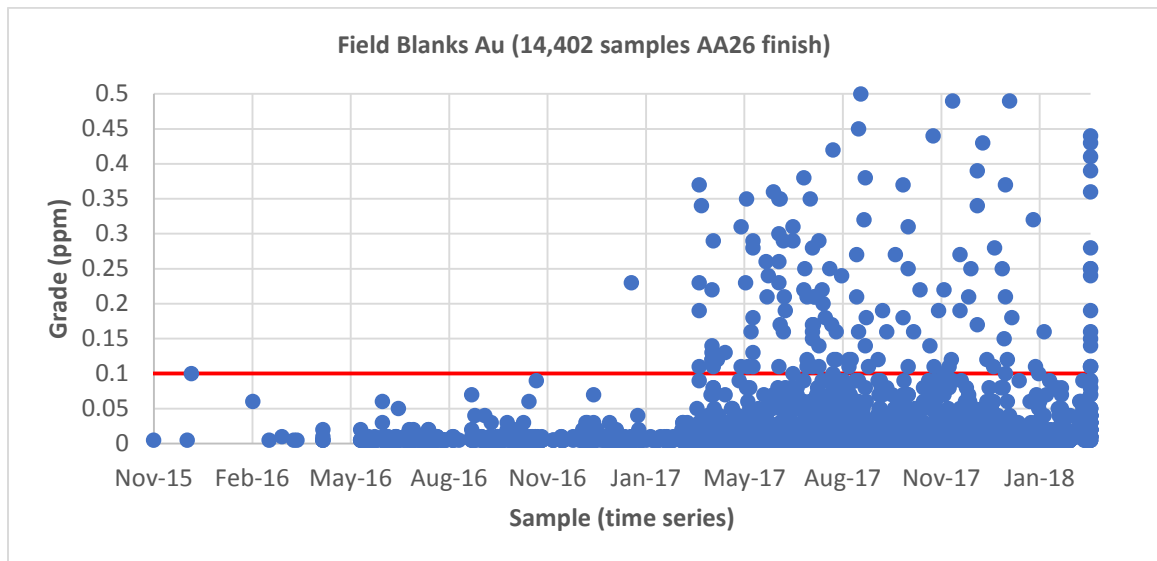


Figure 11-2: Time series plot for blank samples assayed by ALS (AA26 method).
Detection limits set at 0.1 g/t Au (10x detection limit).

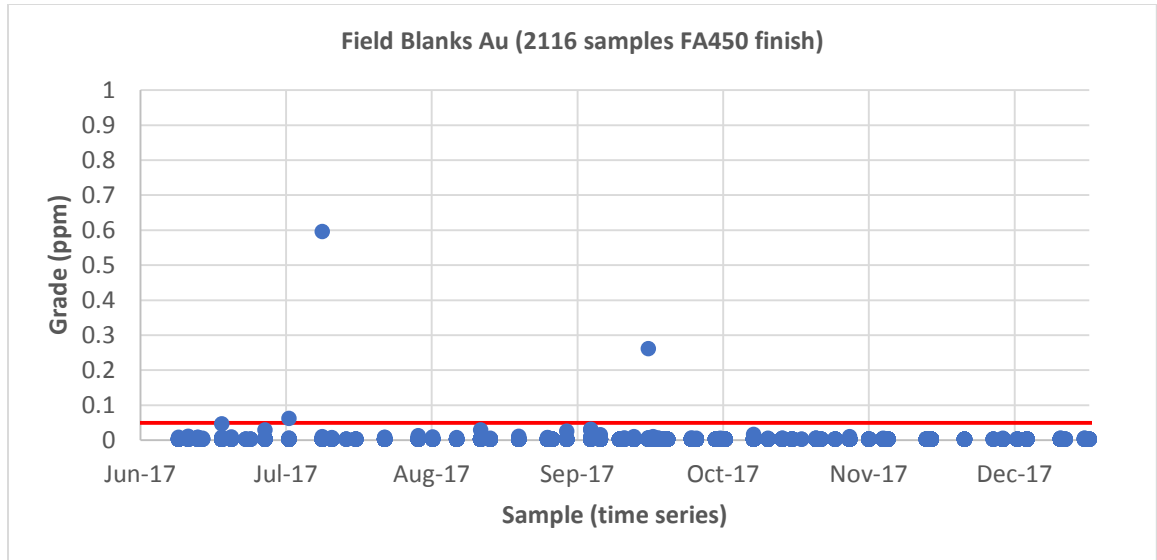


Figure 11-3: Time series plot for blank samples assayed by BV (FA450 method). Detection limits set at 0.05 g/t Au (10x detection limit).

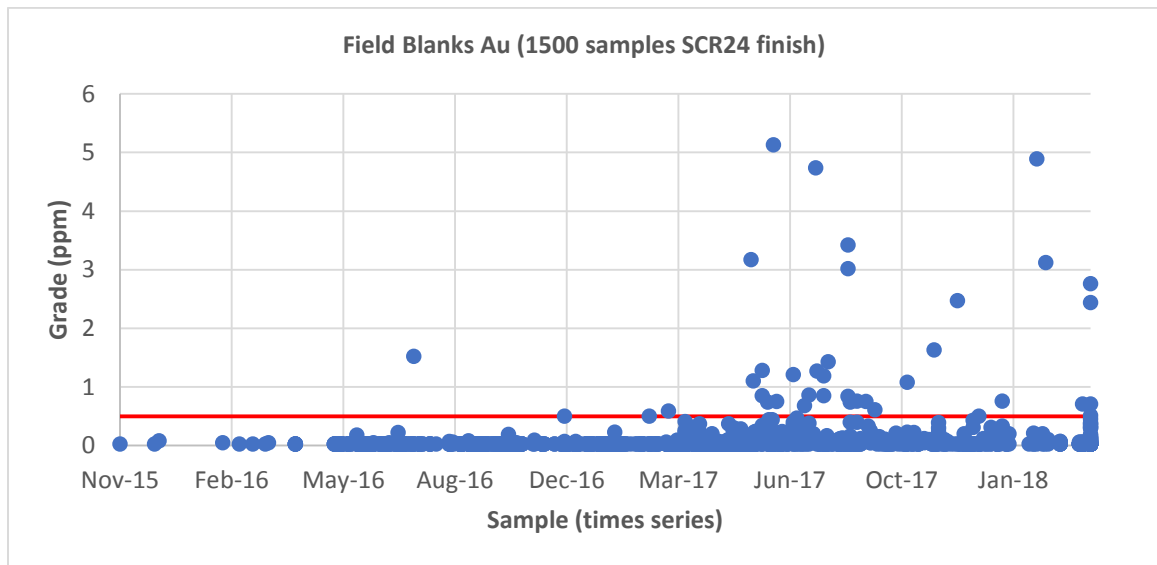


Figure 11-4: Time series plot for blank samples assayed by ALS (SCR24 method). Detection limits set at 0.5 g/t Au (10x detection limit).

All failed samples were investigated and appropriate action taken to rectify the abnormal conditions.



11.1.6.1.2 Comments for Monitoring Contamination

Given the high gold values and the amount of visible gold at Windfall Lake, blanks are systematically inserted after each potential sample to be contaminated. When the potential for contamination is high, Osisko asks the lab for additional cleaning processes of the crusher and sprayer before even passing the blank. Despite these precautions, there are still cases of contamination.

There is a concern for blanks analyzed with method AA26 from March 2017 to March 2018 (Figure 11-2), and, in a lesser extent, for those analyzed with method SCR24 from May 2017 to March 2018 (Figure 11-4). During this period, 1.45% of the blanks analyzed with method AA26 (201 out of 13,825) failed the warning limit of 0.1 g/t gold compared to 0.17% for the period before using the same method (AA26). A possible cause for the increase of failures is the sharp rise in the drilling rate during March 2017 (from 12 to 24 drills). The massive influx of core managed and logged by Osisko personnel and the samples treated by ALS for this period could explain the QC performance.

The issuer is aware of this problem and has taken actions accordingly. In all cases, each rejected blank value is tracked by Osisko to validate and rectify the problem. Most exceedances are due to cross-contamination between two samples. Inversion of a blank by a CRM and an erroneous entry in the database are also possible errors. In cases where a blank fail was caused by a high-grade sample and a clear contamination trail was identified, succeeding affected samples, along with the failed blank control would be resampled using ¼ split method and analyzed. In the case where the contamination source and/or contamination trail is not identifiable, all affected samples preceding and succeeding the failed blank would be ¼ split and analyzed. The process is applied until an uncontaminated blank or a value below 10x the detection limit is obtained. Figure 11-5 to Figure 11-7 provide examples of resampling sequences for failed blanks analyzed by the AA26 method. At the end of the procedure, none of the blanks failed the process.

InnovExplo is of the opinion that Osisko's quality control results for monitoring contamination using blanks are reliable and valid. Nevertheless, InnovExplo recommends investigating the lab procedure and protocols for the period from March 2017 to March 2018.

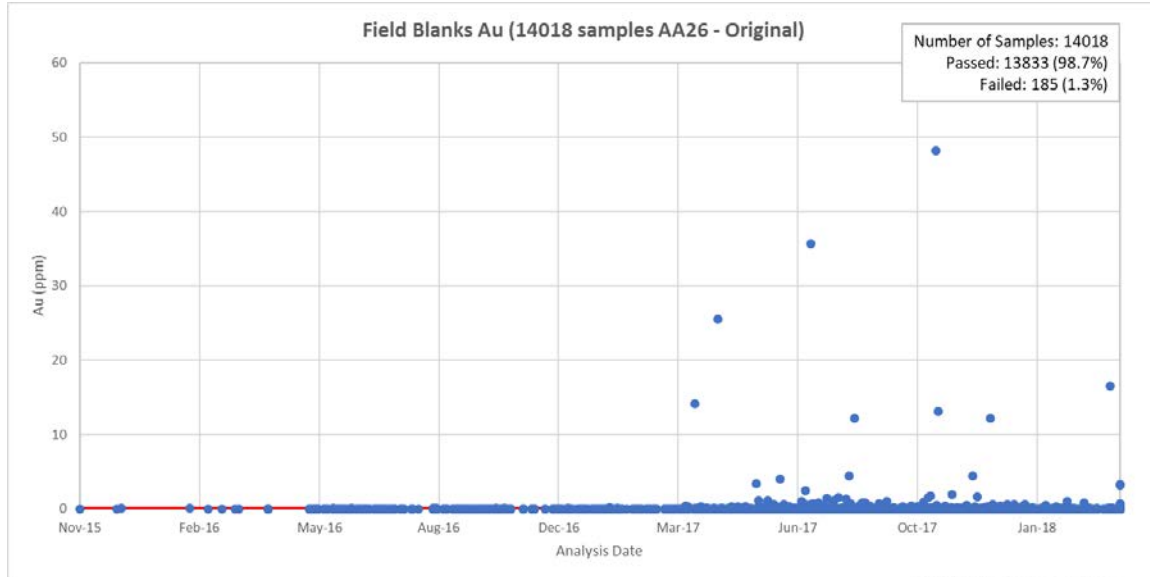


Figure 11-5: Original blank results for AA26 method with statistics.
 Detection limits set at 0.1 g/t Au (10x detection limit).

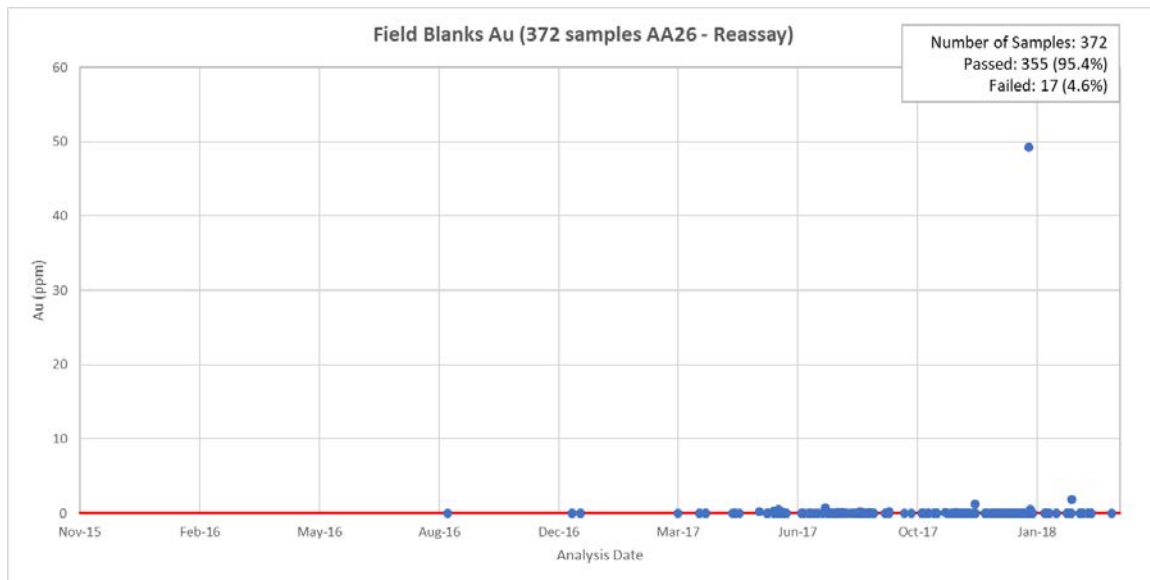
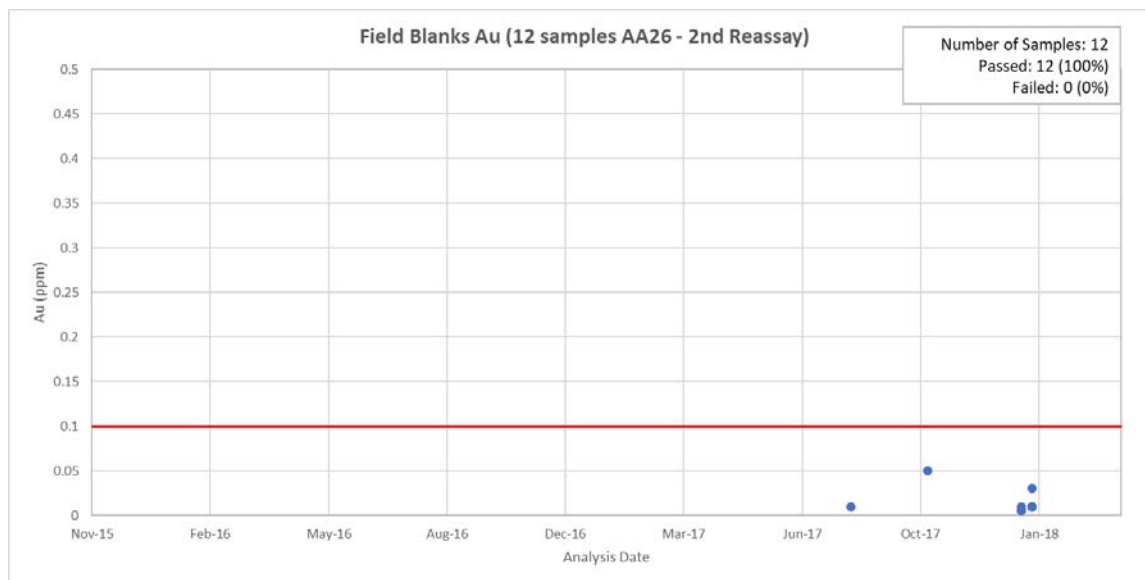


Figure 11-6: Blank first pass re-assay results for AA26 method with statistics.
 Detection limits set at 0.1 g/t Au (10x detection limit).



**Figure 11-7: Blank second pass re-assay results for AA26 method with statistics.
Detection limits set at 0.1 g/t Au (10x detection limit).**

11.1.6.1.3 Certified Reference Materials

Accuracy and precision were monitored by the insertion of CRMs at the rate of once every 16 samples, on average. A total of 29 different CRMs were submitted 24,121 times from July 28, 2014 to March 5, 2018 (Table 11-2 and Table 11-5). CRMs cover a range of gold grades from 0.248 g/t to 17.05 g/t. Standards are obtained from Analytical Solutions Ltd. in Toronto, Ontario and prepared by Ore Research & Exploration Pty Ltd (“ORE”).

Most CRMs have enough values to be represented on a control chart. Assay results returning “NSA” (not sufficient assay) are not taken into account on the diagrams. Control charts showing analytical concentration values against warning limits (horizontal lines) have been prepared for each standard. Figure 11-8 is an example of such charts and shows the results for standard OREAS 201 using AA24 method.

Standard materials were considered failed when a gold result exceeded three standard deviations (“SD”) (± 3 SD) beyond the expected value (Table 11-5). A total of 639 events were recorded and commented upon when the analytical values of the CRM fell between the warning limits and the ± 3 SD control limits (Table 11-6). Failed CRMs are flagged to the lab with instructions to re-assay pulps preceding and succeeding the failed CRMs to the next passed CRM. If the analytical value fell between ± 2 SD and ± 3 SD, no re-assaying was performed. If the analytical value exceeded the ± 3 SD control limits, systematic re-assaying was not always requested, particularly if the value was on the threshold of the limits. However, for mineralized zones, a resampling was systematically performed. In cases where the analytical value clearly exceeded the ± 3 SD control limit, re-assaying was requested.



Table 11-5: Certified standards values, 95% confidence and tolerance limits for gold reference material (ppm) with fire assay (July 2014 to March 2018)

Constituent (CRM)	Supplier	Certified Au value (ppm)	SD	95% Confidence limits	
				Low	High
GOLD ORE MA-1b	Canmet	17.05	0.41	16.79	17.31
OREAS 12a	OREAS	11.79	0.24	11.68	11.89
OREAS 15d	OREAS	1.559	0.04	1.54	1.579
OREAS 19a	OREAS	5.49	0.1	5.45	5.54
OREAS 200	OREAS	0.34	0.01	0.336	0.345
OREAS 201	OREAS	0.514	0.02	0.507	0.521
OREAS 202	OREAS	0.752	0.03	0.742	0.763
OREAS 203	OREAS	0.871	0.03	0.859	0.884
OREAS 205	OREAS	1.244	0.05	1.221	1.267
OREAS 208	OREAS	9.248	0.44	9.05	9.44
OREAS 209	OREAS	1.58	0.04	1.56	1.59
OREAS 210	OREAS	5.49	0.15	5.42	5.55
OREAS 215	OREAS	3.54	0.1	3.51	3.57
OREAS 217	OREAS	0.338	0.01	0.334	0.341
OREAS 218	OREAS	0.531	0.02	0.526	0.536
OREAS 220	OREAS	0.866	0.02	0.86	0.873
OREAS 222	OREAS	1.22	0.03	1.21	1.23
OREAS 223	OREAS	1.78	0.05	1.76	1.79
OREAS 228	OREAS	8.73	0.28	8.63	8.83
OREAS 229	OREAS	12.11	0.21	12.05	12.18
OREAS 501b	OREAS	0.248	0.01	0.244	0.251
OREAS 502b	OREAS	0.494	0.02	0.489	0.501
OREAS 504b	OREAS	1.61	0.04	1.59	1.62
OREAS 60c	OREAS	2.47	0.08	2.439	2.496
OREAS 61d	OREAS	4.76	0.14	4.69	4.83
OREAS 61e	OREAS	4.43	0.15	4.38	4.48
OREAS 62c	OREAS	8.79	0.21	8.69	8.88
OREAS 62e	OREAS	9.13	0.41	8.97	9.3
OREAS H3	OREAS	2	0.08	1.97	2.04



Table 11-6: Summary of CRMs used from July 2014 to March 2018 and their attributes

Standard (CRM)	Method	LAB	Total qty inserted	Qty excl. Outliers	No. of Outliers	Certified Au value (ppm)	Lower process limit (ppm)	Upper process limit (ppm)	Osisko mean grade (ppm)	STD Dev	Failed	% Passing QC	Accuracy (% Error)	Precision (CV%)
GOLD ORE MA-1b	AU_PPM_AA26	ALS	1	0	1	17.05	15.82	18.28	N/A	N/A	0	N/A	N/A	N/A
OREAS 12a	AU_PPM_AA24	ALS	23	23	0	10	10	10	10.000	0.000	0	100%	0.00%	0.00%
OREAS 12a	AU_PPM_AA26	ALS	162	141	21	11.79	11.07	12.51	11.726	0.309	5	96%	0.54%	2.63%
OREAS 12a	AU_PPM_GRA22	ALS	19	19	0	11.79	11.07	12.51	11.724	0.289	1	95%	0.56%	2.46%
OREAS 15d	AU_PPM_AA24	ALS	84	81	3	1.559	1.433	1.685	1.549	0.061	5	94%	0.62%	3.91%
OREAS 15d	AU_PPM_AA26	ALS	6	0	6	1.559	1.433	1.685	N/A	N/A	0	N/A	N/A	N/A
OREAS 19a	AU_PPM_AA24	ALS	482	473	9	5.49	5.19	5.79	5.577	0.132	32	93%	1.58%	2.37%
OREAS 19a	AU_PPM_AA26	ALS	33	31	2	5.49	5.19	5.79	5.533	0.130	0	100%	0.78%	2.35%
OREAS 19a	AU_PPM_AA26D	ALS	27	27	0	5.49	5.19	5.79	5.512	0.109	0	100%	0.40%	1.99%
OREAS 200	AU_PPM_AA24	ALS	385	377	8	0.34	0.304	0.376	0.344	0.008	0	100%	1.14%	2.38%
OREAS 200	AU_PPM_AA26	ALS	174	168	6	0.34	0.304	0.376	0.338	0.013	4	98%	0.70%	3.99%
OREAS 201	AU_PPM_AA24	ALS	1,135	1,126	9	0.514	0.463	0.565	0.521	0.017	21	98%	1.30%	3.33%
OREAS 201	AU_PPM_AA26	ALS	18	17	1	0.514	0.463	0.565	0.523	0.011	0	100%	1.74%	2.15%
OREAS 201	AU_PPM_AA26D	ALS	11	11	0	0.514	0.463	0.565	0.528	0.017	0	100%	2.76%	3.31%
OREAS 202	AU_PPM_AA24	ALS	803	802	1	0.752	0.674	0.83	0.757	0.022	5	99%	0.63%	2.94%
OREAS 202	AU_PPM_AA26	ALS	928	910	18	0.752	0.674	0.83	0.753	0.024	12	99%	0.18%	3.20%
OREAS 202	AU_PPM_AA26D	ALS	9	9	0	0.752	0.674	0.83	0.760	0.018	0	100%	1.06%	2.32%
OREAS 203	AU_PPM_AA24	ALS	436	432	4	0.871	0.781	0.961	0.875	0.025	2	100%	0.48%	2.82%
OREAS 203	AU_PPM_AA26	ALS	92	90	2	0.871	0.781	0.961	0.862	0.026	2	98%	1.01%	3.06%
OREAS 203	AU_PPM_AA26D	ALS	6	6	0	0.871	0.781	0.961	0.870	0.021	0	100%	0.11%	2.39%
OREAS 205	AU_PPM_AA24	ALS	651	648	3	1.244	1.085	1.403	1.241	0.036	3	100%	0.21%	2.89%
OREAS 205	AU_PPM_AA26	ALS	159	153	6	1.244	1.085	1.403	1.234	0.037	1	99%	0.77%	3.01%
OREAS 205	AU_PPM_AA26D	ALS	13	13	0	1.244	1.085	1.403	1.232	0.027	0	100%	0.94%	2.21%
OREAS 208	AU_PPM_AA24	ALS	183	182	1	9.248	7.934	10.562	9.448	0.247	0	100%	2.16%	2.61%
OREAS 208	AU_PPM_AA26	ALS	120	113	7	9.248	7.934	10.562	9.334	0.263	0	100%	0.93%	2.82%
OREAS 208	AU_PPM_AA26D	ALS	44	44	0	9.248	7.934	10.562	9.388	0.235	0	100%	1.51%	2.51%



Standard (CRM)	Method	LAB	Total qty inserted	Qty excl. Outliers	No. of Outliers	Certified Au value (ppm)	Lower process limit (ppm)	Upper process limit (ppm)	Osisko mean grade (ppm)	STD Dev	Failed	% Passing QC	Accuracy (% Error)	Precision (CV%)
OREAS 208	AU_PPM_GRA22	ALS	5	5	0	9.248	7.934	10.562	9.756	0.507	1	80%	5.49%	5.20%
OREAS 209	AU_PPM_AA24	ALS	585	572	13	1.58	1.448	1.712	1.579	0.048	8	99%	0.07%	3.02%
OREAS 209	AU_PPM_AA26	ALS	1,389	1,358	31	1.58	1.448	1.712	1.549	0.044	40	97%	1.95%	2.87%
OREAS 209	AU_PPM_AA26D	ALS	10	9	1	1.58	1.448	1.712	1.567	0.033	0	100%	0.84%	2.13%
OREAS 209	AUTOT_PPM_SCR24	ALS	1	0	1	1.58	1.448	1.712	N/A	N/A	0	N/A	N/A	N/A
OREAS 210	AU_PPM_AA26	ALS	48	39	9	5.49	5.034	5.946	5.372	0.168	2	95%	2.14%	3.13%
OREAS 215	AU_PPM_AA26	ALS	815	790	25	3.54	3.249	3.831	3.478	0.093	16	98%	1.75%	2.67%
OREAS 217	AU_PPM_AA26	ALS	685	673	12	0.338	0.308	0.368	0.334	0.012	26	96%	1.10%	3.55%
OREAS 218	AU_PPM_AA24	ALS	222	221	1	0.531	0.48	0.582	0.534	0.015	4	98%	0.52%	2.86%
OREAS 218	AU_PPM_AA26	ALS	2,087	2,058	29	0.531	0.48	0.582	0.527	0.017	27	99%	0.76%	3.23%
OREAS 220	AU_PPM_AA26	ALS	1,430	1,376	54	0.866	0.806	0.926	0.853	0.024	63	95%	1.49%	2.87%
OREAS 222	AU_PPM_AA24	ALS	160	159	1	1.22	1.121	1.319	1.221	0.033	4	97%	0.10%	2.69%
OREAS 222	AU_PPM_AA26	ALS	259	241	18	1.22	1.121	1.319	1.212	0.033	2	99%	0.65%	2.69%
OREAS 223	AU_PPM_AA26	ALS	777	745	32	1.78	1.645	1.915	1.752	0.051	32	96%	1.55%	2.90%
OREAS 228	AU_PPM_AA26	ALS	506	482	24	8.73	7.893	9.567	8.513	0.274	17	96%	2.48%	3.22%
OREAS 228	AU_PPM_AA26D	ALS	3	3	0	8.73	7.893	9.567	8.823	0.182	0	100%	1.07%	2.06%
OREAS 228	AUTOT_PPM_SCR24	ALS	2	2	0	8.73	7.893	9.567	8.315	0.045	0	100%	4.75%	0.54%
OREAS 229	AU_PPM_AA24	ALS	34	34	0	10	10	10	10.000	0.000	0	100%	0.00%	0.00%
OREAS 229	AU_PPM_AA26	ALS	609	553	56	12.11	11.492	12.728	11.840	0.275	46	92%	2.23%	2.32%
OREAS 229	AU_PPM_AA26D	ALS	10	8	2	12.11	11.492	12.728	11.969	0.152	0	100%	1.17%	1.27%
OREAS 229	AU_PPM_GRA22	ALS	30	30	0	12.11	11.492	12.728	12.027	0.206	0	100%	0.69%	1.71%
OREAS 229	AUTOT_PPM_SCR24	ALS	6	4	2	12.11	11.492	12.728	11.763	0.216	1	75%	2.87%	1.84%
OREAS 501b	AU_PPM_AA26	ALS	240	239	1	0.248	0.218	0.278	0.242	0.011	6	97%	2.55%	4.55%
OREAS 502b	AU_PPM_AA26	ALS	125	122	3	0.494	0.449	0.539	0.489	0.017	4	97%	1.01%	3.43%
OREAS 504b	AU_PPM_AA26	ALS	262	257	5	1.61	1.49	1.73	1.575	0.042	9	96%	2.14%	2.68%
OREAS 60c	AU_PPM_AA24	ALS	1,075	1,063	12	2.47	2.23	2.71	2.496	0.083	22	98%	1.03%	3.32%
OREAS 60c	AU_PPM_AA26	ALS	263	253	10	2.47	2.23	2.71	2.461	0.077	3	99%	0.36%	3.15%
OREAS 60c	AU_PPM_AA26D	ALS	44	43	1	2.47	2.23	2.71	2.501	0.071	0	100%	1.27%	2.86%



Standard (CRM)	Method	LAB	Total qty inserted	Qty excl. Outliers	No. of Outliers	Certified Au value (ppm)	Lower process limit (ppm)	Upper process limit (ppm)	Osisko mean grade (ppm)	STD Dev	Failed	% Passing QC	Accuracy (% Error)	Precision (CV%)
OREAS 60c	AUTOT_PPM_SCR24	ALS	1	0	1	2.47	2.23	2.71	N/A	N/A	0	N/A	N/A	N/A
OREAS 61d	AU_PPM_AA26	ALS	2	2	0	4.76	4.34	5.18	4.470	0.010	0	100%	6.09%	0.22%
OREAS 61e	AU_PPM_AA24	ALS	336	331	5	4.43	3.98	4.88	4.506	0.119	2	99%	1.72%	2.64%
OREAS 61e	AU_PPM_AA26	ALS	1,937	1,850	87	4.43	3.98	4.88	4.418	0.149	28	98%	0.26%	3.37%
OREAS 61e	AU_PPM_AA26D	ALS	29	27	2	4.43	3.98	4.88	4.500	0.114	0	100%	1.59%	2.54%
OREAS 61e	AUTOT_PPM_SCR24	ALS	1	0	1	4.43	3.98	4.88	N/A	N/A	0	N/A	N/A	N/A
OREAS 62c	AU_PPM_AA24	ALS	313	302	11	8.79	8.16	9.42	8.876	0.293	16	95%	0.98%	3.30%
OREAS 62c	AU_PPM_AA26	ALS	34	33	1	8.79	8.16	9.42	8.842	0.286	0	100%	0.60%	3.23%
OREAS 62c	AU_PPM_AA26D	ALS	23	23	0	8.79	8.16	9.42	8.844	0.290	1	96%	0.61%	3.28%
OREAS 62e	AU_PPM_AA24	ALS	589	586	3	9.13	7.9	10.36	9.363	0.269	2	100%	2.56%	2.87%
OREAS 62E	AU_PPM_AA26	ALS	890	876	14	9.13	7.9	10.36	9.127	0.319	9	99%	0.03%	3.49%
OREAS 62E	AU_PPM_AA26D	ALS	122	120	2	9.13	7.9	10.36	9.314	0.202	0	100%	2.01%	2.17%
OREAS 62e	AU_PPM_GRA22	ALS	7	7	0	9.13	7.9	10.36	9.293	0.326	0	100%	1.78%	3.50%
OREAS 62e	AUTOT_PPM_SCR24	ALS	3	2	1	9.13	7.9	10.36	8.945	0.125	0	100%	2.03%	1.40%
OREAS H3	AU_PPM_AA26	ALS	1	0	1	2	1.76	2.24	N/A	N/A	0	N/A	N/A	N/A
OREAS 12a	AU_PPM_FA450	BV	2	2	0	10	10	10	10.000	0.000	2	0%	0.00%	0.00%
OREAS 200	AU_PPM_FA450	BV	46	41	5	0.34	0.304	0.376	0.330	0.013	1	98%	2.91%	4.07%
OREAS 201	AU_PPM_FA450	BV	2	0	2	0.514	0.463	0.565	N/A	N/A	0	N/A	N/A	N/A
OREAS 202	AU_PPM_FA450	BV	112	108	4	0.752	0.674	0.83	0.746	0.035	6	94%	0.85%	4.68%
OREAS 203	AU_PPM_FA450	BV	24	20	4	0.871	0.781	0.961	0.861	0.035	1	95%	1.15%	4.12%
OREAS 205	AU_PPM_FA450	BV	16	13	3	1.244	1.085	1.403	1.203	0.046	0	100%	3.28%	3.84%
OREAS 208	AU_PPM_FA450	BV	12	9	3	9.248	7.934	10.562	8.578	0.801	2	78%	7.24%	9.34%
OREAS 209	AU_PPM_FA450	BV	320	315	5	1.58	1.448	1.712	1.556	0.043	3	99%	1.49%	2.76%
OREAS 210	AU_PPM_FA450	BV	5	2	3	5.49	5.034	5.946	5.278	0.021	0	100%	3.87%	0.39%
OREAS 215	AU_PPM_FA450	BV	81	77	4	3.54	3.249	3.831	3.406	0.116	6	92%	3.79%	3.42%
OREAS 217	AU_PPM_FA450	BV	42	41	1	0.338	0.308	0.368	0.331	0.009	0	100%	2.09%	2.63%
OREAS 218	AU_PPM_FA450	BV	285	283	2	0.531	0.48	0.582	0.524	0.023	9	97%	1.31%	4.39%
OREAS 220	AU_PPM_FA450	BV	277	223	54	0.866	0.806	0.926	0.849	0.042	49	78%	1.98%	4.94%



Standard (CRM)	Method	LAB	Total qty inserted	Qty excl. Outliers	No. of Outliers	Certified Au value (ppm)	Lower process limit (ppm)	Upper process limit (ppm)	Osisko mean grade (ppm)	STD Dev	Failed	% Passing QC	Accuracy (% Error)	Precision (CV%)
OREAS 222	AU_PPM_FA450	BV	22	17	5	1.22	1.121	1.319	1.199	0.066	3	82%	1.73%	5.49%
OREAS 223	AU_PPM_FA450	BV	227	203	24	1.78	1.645	1.915	1.694	0.072	54	73%	4.80%	4.26%
OREAS 228	AU_PPM_FA450	BV	7	7	0	8.73	7.893	9.567	8.302	0.382	1	86%	4.90%	4.60%
OREAS 229	AU_PPM_FA450	BV	11	0	11	12.11	11.492	12.728	N/A	N/A	0	N/A	N/A	N/A
OREAS 501b	AU_PPM_FA450	BV	121	119	2	0.248	0.218	0.278	0.241	0.011	3	97%	2.84%	4.75%
OREAS 502b	AU_PPM_FA450	BV	87	85	2	0.494	0.449	0.539	0.490	0.018	0	100%	0.74%	3.62%
OREAS 504b	AU_PPM_FA450	BV	156	150	6	1.61	1.49	1.73	1.559	0.045	1	99%	3.14%	2.88%
OREAS 60c	AU_PPM_FA450	BV	22	17	5	2.47	2.23	2.71	2.374	0.140	3	82%	3.90%	5.89%
OREAS 61e	AU_PPM_FA450	BV	248	234	14	4.43	3.98	4.88	4.279	0.179	10	96%	3.42%	4.19%
OREAS 62e	AU_PPM_FA450	BV	22	21	1	9.13	7.9	10.36	8.909	0.551	1	95%	2.42%	6.19%
TOTAL			2,4121	2,3381	740						639			



Summary Statistics

Expected Values	
Mean	0.514
Standard Deviation	0.017
Coefficient of Variation (CV)	3.31%

Observed Values	
Number of Samples	1126
Mean	0.521
Standard Deviation	0.017
Coefficient of Variation (CV)	3.33%
Failed	21
Failure %	2%
% Within 3 SD of Certified Mean	5%
% Within 2 SD of Certified Mean	21%
% Within 1 SD of Certified Mean	72%

Gross Outliers	
Less than 0.429 ppm and greater than 0.599 ppm	
Number of Samples	9

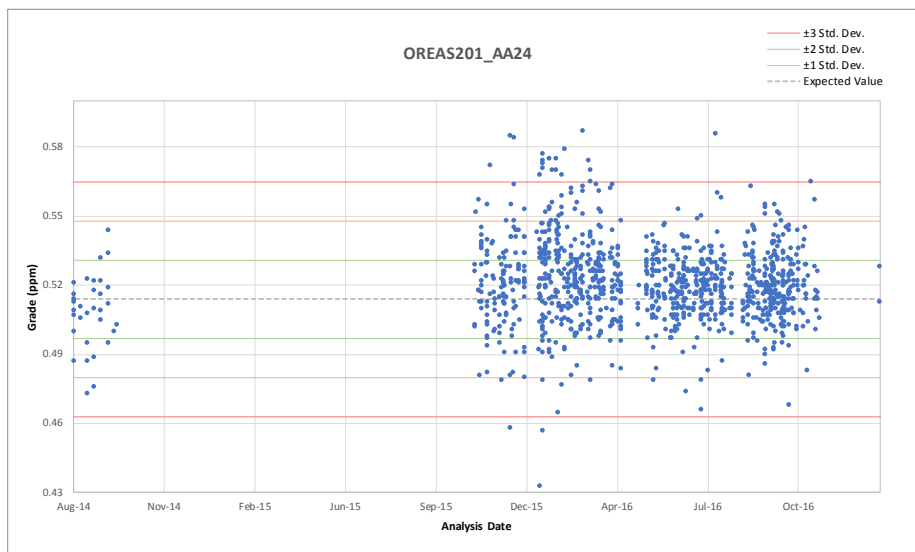


Figure 11-8: Results of standard OREAS 201 using AA24 finish.

11.1.6.1.4 Comments for Monitoring Accuracy and Precision

The accuracy of the result (as a percentage of error) is measured as the difference between the average of the standard's samples and the value assigned for the standard; gross outliers are excluded from this operation. For a laboratory, a good accuracy constitutes the ability to give results as near as possible to the expected value.

The author examined the analytical value of CRM issues from July 28, 2014 to March 5, 2018, as supplied by the Client. The CRMs generally report within $\pm 10\%$ of the expected value and within three standard deviations (Table 11-6). Most used reference material (i.e. over 100 insertions) exhibit a slight positive bias in terms of accuracy from 0.03% to 4.38%, for a mean of 1.39% (Table 11-6). Most results for the standards range from precise (<3%) to typical, according to standard industry precision criteria (3% to 5%). Accuracy over 5% concerns only three CRMs with a non-significant number of samples.

The precision of the result (as a percentage) is represented by the dispersion of the standard's samples versus their average. Good precision for a laboratory constitutes the ability to repeat results with the smallest standard deviation possible.

The precision varies from 0% to 9.34%; however, CRMs exceeding over 100 insertions vary from 2.17% to 4.94% for a mean of 3.22% (Table 11-6). These results are considered precise according to the standard industry precision criteria (3% to 5%).

InnovExplo is of the opinion that the quality control in accuracy monitoring for the database submitted by Osisko follows standard procedures and that the data is reliable and valid.



11.1.6.1.5 Duplicate

A component of the QA/QC program included the determination of the analytical precision (repeatability) of the original gold assay data from the lab. ALS pulps were submitted to BV for inter-laboratory check assays (Figure 11-9). The assays for pulp duplicates provide an estimate of the reproducibility related to the uncertainties inherent in the analytical method and the homogeneity of the pulps. The precision or relative percent difference calculated for the pulp duplicates indicates whether pulverizing specifications should be changed and/or whether alternative methods, such as screened metallics for gold, should be considered.

Prior to statistical analysis and plotting of the duplicates, outliers were removed from the dataset. Outliers are extreme values that can have a disproportionate influence on precision estimates based on duplicate data. In this case, only gross outliers ($\pm 300\%$ difference) were manually removed as they could have been the results human error. In addition, in order to prevent unwanted bias due to reproducibility issues on samples with very low grades or grades close to the detection limits, the lower limit value of 0.05 ppm was used.

The original ALS 1542 pulp duplicates and BV duplicate assays are plotted in Figure 11-9. Duplicate sets are presented as log-scaled plots to provide details at lower concentrations. The scatter plot of pulps yielded a linear regression slope of 0.96 and a determination coefficient of 95.6%, which means that the average grade is close to the average original grade, and there is a very good reproducibility.

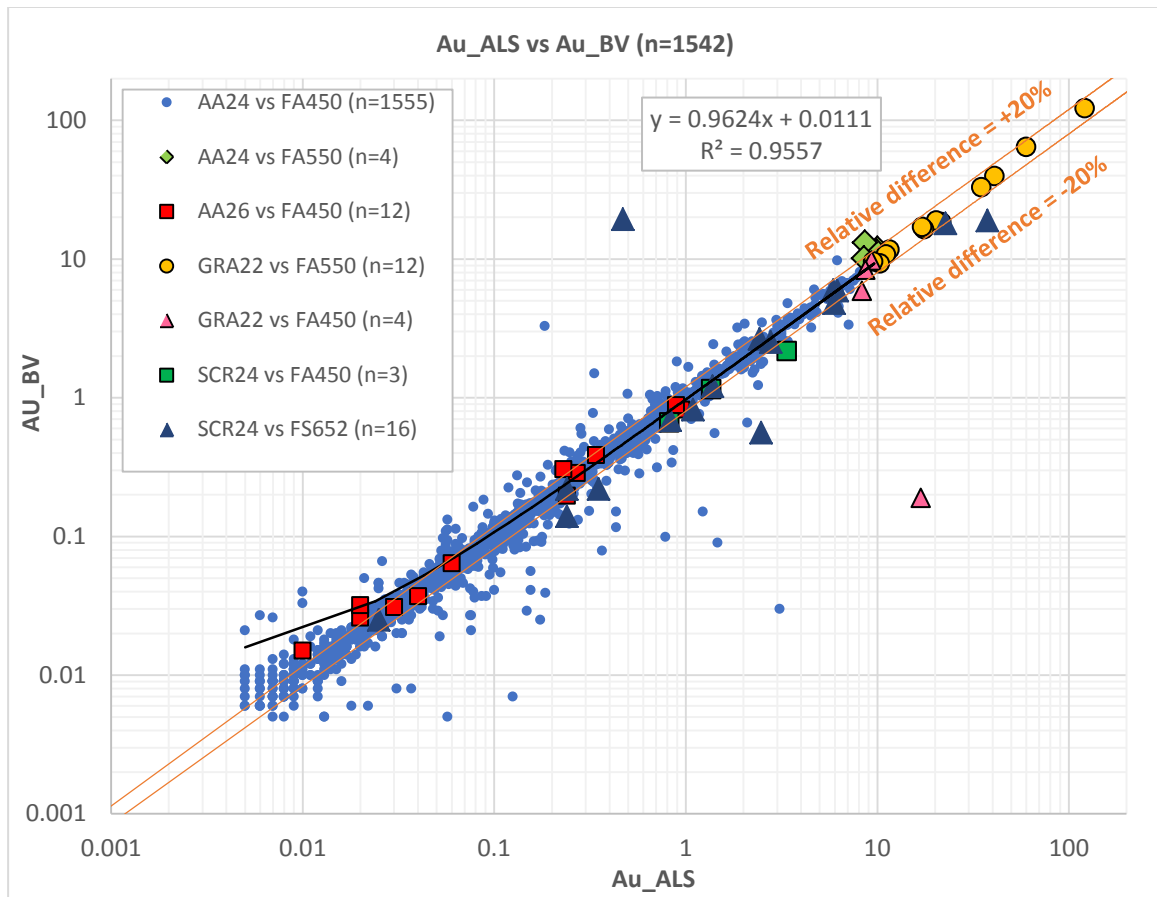


Figure 11-9: Post 2014 MRE laboratory pulp duplicates for gold (g/t). Values < 0.05 ppm and outliers are removed from trend analysis.

11.1.6.1.6 Comments on Duplicates

The pulp duplicate results are good according to standard industry precision. A perfect precision would be 100% at five times detection limit. InnovExplo identifies any accuracy or precision issues and concludes that the analytical data reviewed are acceptable to support mineral resource estimation.

11.1.6.1.7 Specific Gravity

Specific gravity ("SG") was measured by pycnometry by ALS Minerals in Val-d'Or (ALS code OA-GRA08b) and BV in Timmins (Bureau Veritas code SPG04).



In 2013, Eagle Hill conducted an internal test that compared specific gravity measurements using a water displacement method (GRA08 ALS method) and those obtained from pycnometry (pulverized material). The test results showed some variability when comparing the SG values of approximately 15 cm-long sample pieces. However, when the results from a number of these smaller pieces taken from one sample interval were averaged, the resulting SG data compared favourably to those data obtained from the ALS pycnometry.

In 2018, Osisko Mining began an internal bulk density measurement program by electronic densimeter method (ELEDEN method described in Section 10.9.4 of this report). The program has been completed on the Lynx zone and is ongoing in the Main Zone and other sub-zones. Within the database, there are 1,173 internal bulk density measurements from Eagle Hill and Osisko along with lab SG comparable. Table 11-7 shows basic statistics between methods, with gross outliers removed. Figure 11-10 shows the correlation between lab and internal bulk density measurements.

Table 11-7: Summary statistics between specific gravity GRA08b and electronic densimeter methods (n=1173)

	GRA08b (gr/cm³)	Densimeter (gr/cm³)
Min	2.47	2.02
Max	4.38	4.28
Mean	2.85	2.85
Median	2.82	2.81
StdDev	0.15	0.15

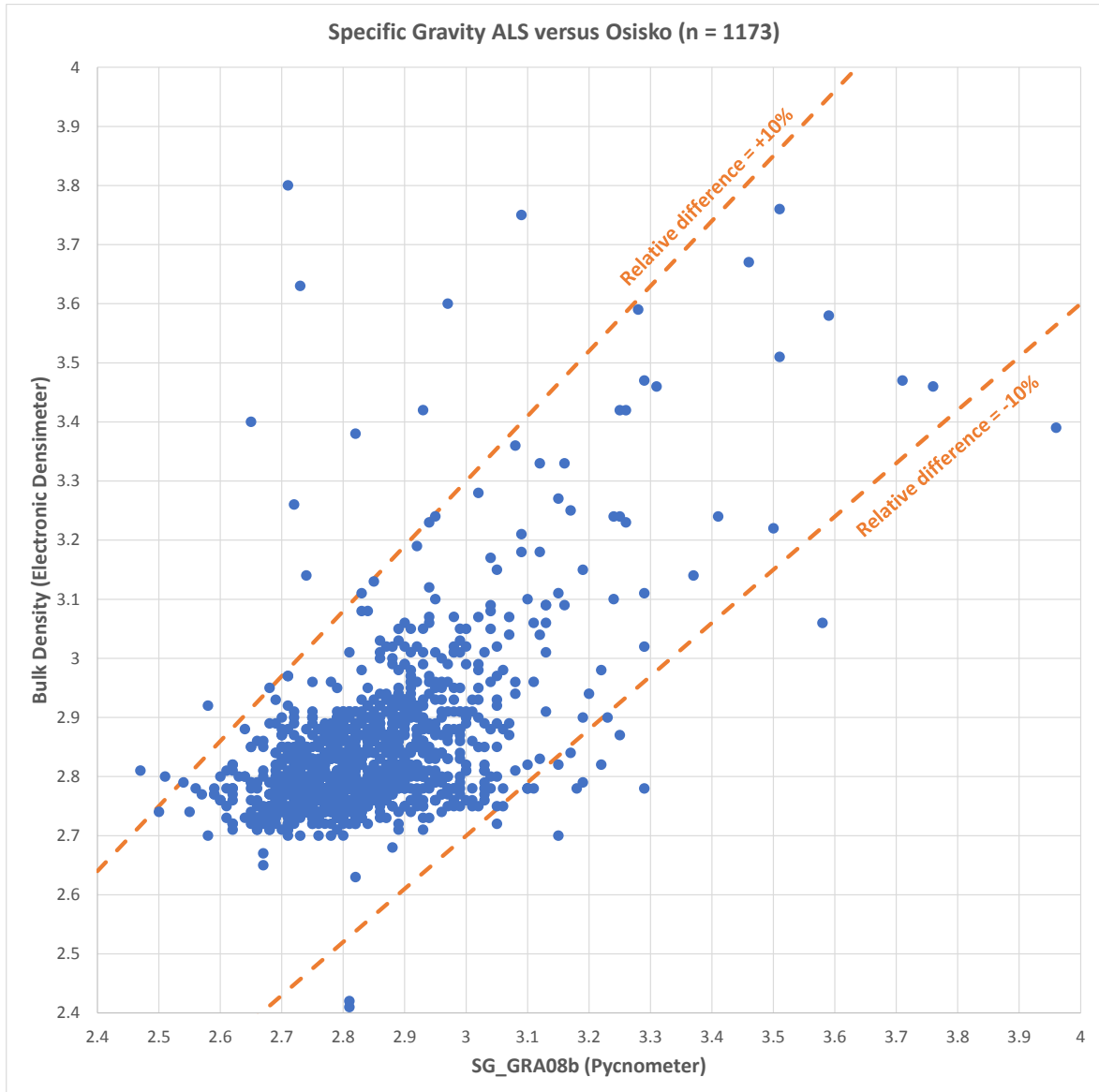


Figure 11-10: Lab (SG_GRA08b) and internal bulk density measurement correlation (Eagle Hill and Osisko).
Specific gravity measurements are in gr/cm^3 .

11.1.6.1.8 Comments on density

The mean density between the two methods is identical at 2.85 (Table 11-7). The trend on the SG diagram indicates that lab measurements below 3.0 tend to be lower compared to internal measurements (Figure 11-10).



The slight difference in result between the two methods is not surprising. With the pycnometer method, the material is a homogenized pulp from the entire interval assayed. Electronic densimeter method uses a 10 cm to 15 cm long core sample and takes into consideration the porosity that is destroyed when grinding with the pycnometer method.

InnovExplo considers the results on density good and adequate.

11.1.6.2 Laboratory Quality Assurance and Quality Control (QA/QC)

11.1.6.2.1 ALS Minerals

ALS follows an in-house QA/QC program. To ensure quality control at the sample preparation stage, ALS monitors the fineness of crushing and pulverizing according to the method specifications and inserts one sample preparation duplicates per batch of 50, taken from coarse crushed material. At the analytical stage, ALS runs its own blanks, reference materials, and pulp duplicates. The frequency of analytical quality control can be seen in Table 11-8. Pulp duplicate data from the most frequented assay method, Au-AA26, taken from the ALS Webtrieve™ system, is plotted in Figure 11-11.

Table 11-8: ALS analytical quality control – Reference materials, blanks, and duplicates

Rack size	Methods	Quality control sample allocation
20	Specialty methods including specific gravity, bulk density, and acid insolubility	2 standards, 1 duplicate, 1 blank
28	Specialty fire assay, assay-grade, umpire and concentrate methods	1 standard, 1 duplicate, 1 blank
39	XRF methods 2 standards, 1 duplicate, 1 blank	1 standard, 1 duplicate, 1 blank
40	Regular AAS, ICP-AES and ICP-MS methods	2 standards, 1 duplicate, 1 blank
84	Regular fire assay methods	2 standards, 3 duplicates, 1 blank

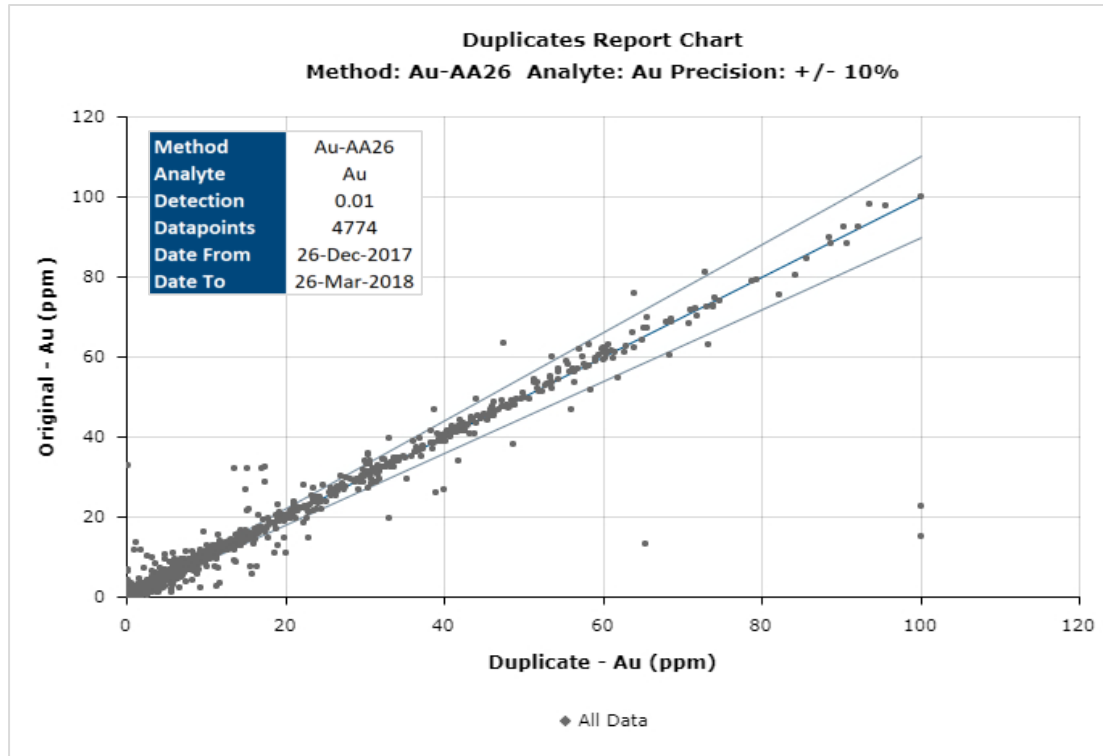


Figure 11-11: ALS pulp duplicates.

11.1.6.2.2 Bureau Veritas

BV conducts its own internal laboratory quality control program. Laboratory analytical batches typically consist of 40 or 84 samples, with 10-15% laboratory inserted control materials. At sample preparation stage, rock and drill core submitted, granite or quartz sample-prep blanks are carried through all stages of preparation and analysis to confirm the cleaning protocols suffice. Reject duplicates (“DUP”) of -10 mesh are created during the preparation stage and analyzed along with samples. Internal analytical controls include pulp replicates (“REP”) to monitor analytical precision, reagent blanks (“BLK”) to measure background, and CRMs (STD) (9). Pulp duplicates of FA450 data from December 26 to March 26 from the BV WebAccess system is shown in Table 11-9 and Figure 11-12.



Table 11-9: Bureau Veritas analytical quality control – Reference materials, blanks, and duplicates

Internal quality control	Analytical lab batch of 40	Fire assay lab batch of 84
Analytical blank	1	2
Pulp replicate	1	2
Preparation duplicate	1	2
Reference material	2	3

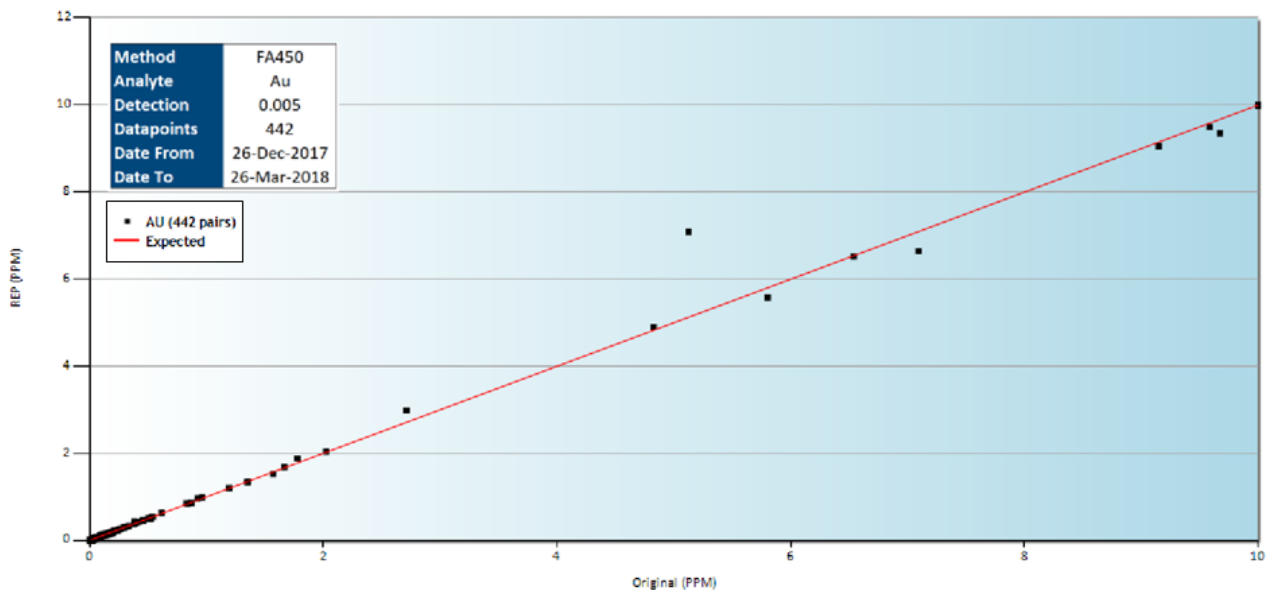


Figure 11-12: Bureau Veritas pulp duplicates (Method FA450).

11.1.6.3 Final Gold Value

In cases where multiple methods of analyses were used to analyze gold content, a priority sequence was used to identify the final gold value. The ranking priority is listed in Table 11-10 below. In addition, the formula will choose the highest priority rank that has passed QA/QC; i.e., should “AuTotal_ppm_SCR24” fail QA/QC, but the lower ranked “Au_ppm_AA24” passed QA/QC, the final gold value would be sourced from the Au_ppm_AA24 method.



Table 11-10: Gold method priority ranking

Ranking	Laboratory	Method code	Technique
1	ALS Minerals	AuTotal_ppm_SCR24	Fire Assay Fusion, Metallic Screen
2	ALS Minerals	AuTotal_ppm_SCR21	Fire Assay Fusion, Metallic Screen
3	ALS Minerals	Au_ppm_GRA22	Precious Metals Gravimetric Analysis
4	ALS Minerals	Au_ppm_GRA21	Precious Metals Gravimetric Analysis
5	ALS Minerals	Au_ppm_AA26	Fire Assay Fusion, AAS Finish
6	ALS Minerals	Au_ppm_AA25	Fire Assay Fusion, AAS Finish
7	ALS Minerals	Au_ppm_AA24	Fire Assay Fusion, AAS Finish
8	ALS Minerals	Au_ppm_AA23	Fire Assay Fusion, AAS Finish
9	Bourlemaque	Au_ppm_PyroSAA	Fire Assay Fusion, AAS Finish
10	Bureau Veritas	AuTotal_gpt_FS652	Fire Assay Fusion, Metallic Screen
11	Bureau Veritas	Au_gpt_FA550	Fire Assay Fusion, AAS Finish
12	Bureau Veritas	Au_ppm_FA450	Fire Assay Fusion, AAS Finish

11.1.7 InnovExplo's Comments and Recommendations

InnovExplo reviewed the field procedures and analytical quality control measures used by Osisko. The data sets examined by InnovExplo do not present evidence of obvious analytical bias and follow generally accepted industry standards.

The level of contamination appears to be low as 98.53% of the blank samples returned values below or equal to the acceptance limit of 10x the detection limit. The statistics on the CRMs (standards) are considered reliable and within acceptable limits of accuracy in the industry. However, InnovExplo recommends investigating the lab procedure and protocols for the period from March 2017 to March 2018 and suggests an independent audit at ALS Val-d'Or.

Pulp duplicates show excellent correspondence between ALS and BV Au assays. InnovExplo identified any accuracy or precision issues.

The results presented and discussed above demonstrate that sample preparation, analysis, QA/QC and security protocols used for the assays obtained after the November 13, 2014 MRE (Tetra Tech, 2015), and before the Osisko database close-out date of March 5, 2018, are appropriate for the 2018 mineral resource estimation.



11.2 Osborne-Bell Deposit, Quévillon Property

This section presents the sample preparation methods and QA/QC measures for the Maudore period (former Comtois property, Sections 11.2.1 to 11.2.2) and the Osisko period (current Quévillon property, Section 11.2.3) on the Osborne-Bell deposit.

11.2.1 Sampling Method and Approach (Maudore Period)

After the Comtois property drilling program ended on November 2, 2012, InnovExplo employees logged and sampled roughly 11 km of the remaining drill core according to the existing sampling protocol previously established by InnovExplo for Maudore. InnovExplo employees were present on the property during the sampling process and concluded that the procedure was followed properly and meets industry standards.

The sampling protocol established by InnovExplo is described below.

The drill core was boxed, covered and sealed at the drill rig then moved by drilling staff to the InnovExplo logging and sample preparation facilities in Lebel-sur-Quévillon (Figure 11-13). Core was immediately checked by geologists to validate drilling progress and lithologies. Drill core measurements were validated by InnovExplo employees and any significant offsets in the measurements between the wooden blocks placed every 3 m along the core were corrected if necessary. The employees also calculated core recovery and drew reference lines along the core through the marks made by drillers using a core-orienter.



Figure 11-13: Logging facility in Lebel-sur-Quévillon where the core was received, logged and sampled by geologists in 2012.



Logging and detailed descriptions of the drill core were made including:

- Lithologies with rock colour, texture and contacts;
- Alteration style and intensity;
- Mineralization generally determined by sulphide type and sulphide concentration in total core volume;
- Vein type, density and orientation;
- Structural parameters, such as fractures, fault angles, hydrothermal breccias, folds, kink bands, etc. After March 2012, measurements from the core-orienter were added to the list: alpha and beta angles for each pertinent structure, contacts and mineralization (minimum of two measurements per 4.5 m of drill core);
- Rock quality designation (RQD) using a reference spacing of 3 m and discounting core pieces less than 10 cm long. Core recovery was very good with results above 99%.

After being examined and described (logged), the core was sampled according to a protocol established by InnovExplo, consisting of half-split core 0.5 m to 1.5 m long.

The drill core was tagged by inserting two sample tags at the end of each interval, one for the laboratory and the second securely attached in the core box for future reference. Blanks and standards were generally placed immediately after sulphide-rich sequences and whenever possible, field duplicates were taken inside a sulphide-rich sequence.

Each samples were individually bagged, and placed into a rice bag along with the laboratory work order for 25-samples batch. The rice bags were closed hermetically by tape or tie-wrap and delivered weekly to the assay laboratory. The laboratory would alert the project geologist about any potentially tampered or damaged rice bag, and the project geologist would decide whether to continue with the preparation or send the laboratory a quarter-split of the core in question.

All drill core since 2003 is stored and categorized for future reference at Lebel-sur-Quévillon. The core is kept in good condition in roofed outdoor core racks at the Osisko storage facilities (Figure 11-14 and Figure 11-15). All core boxes are labeled and properly stored.

During the Maudore period, there was no indication of anything in the drilling, core handling and sampling procedures or in the sampling methods and approach that could have had a negative impact on the reliability of the reported assay results. From 2008 to 2013, InnovExplo supervised this aspect of the Project.



Figure 11-14: Core storage facility at Lebel-sur-Quévillon where all historical drill core since 2003 are stored (January 14, 2018).



Figure 11-15: Closer view of the racks where the core is stored after being logged and sampled by Maudore and Osisko (January 14, 2018).



11.2.2 Conclusions about QA/QC (Maudore Period)

See previous reports concerning details of the QA/QC analysis of prior operators.

Overall, the available QA/QC data for the Maudore period shows acceptable results even though there are some discrepancies for individual re-assays.

The level of contamination appears to be very low as all the blank samples returned values below the acceptance limit of 0.1 g/t Au.

The statistics on the CRMs (standards) is considered reliable and within acceptable limits of accuracy in the industry. Note that for the majority of samples, the ALS results show a slight negative bias when compared to the expected values provided by RockLabs. The charts are also useful for revealing other trends or drift indicating problems with instrument calibration or, if the accepted value is repeatedly returned, that the standard has been identified and its value is being faked; neither scenario was suggested by the results. The CRM results show that all assay populations passed InnovExplo's protocol. InnovExplo considers this accuracy to be adequate.

In the case of duplicates, the presence of bias or discrepancy trends can be identified by linear regression lines deviating from unity or by outliers plotting far from the regression lines. All types of duplicates for the Maudore program (pulp, coarse and field) were plotted on binary graphs. Pulp and coarse duplicates returned linear regression slopes deviating only slightly from unity. The correlation coefficients for pulp and coarse duplicates are greater than 96%. The cumulative frequencies of the pair populations for pulp and coarse duplicates followed the same pattern, with 85% and 73% of pairs better than 20% precision. These results demonstrate the ability of the laboratory to reproduce the overall average despite discrepancies among individual assays. Field duplicates returned a linear regression slope of 1.00. The correlation coefficient for field duplicates is 99.5%. The cumulative frequencies of pair populations for field duplicates yielded 50% better than 20% precision. Field duplicates are generally less precise than pulp and coarse duplicates.

The comparison between the AA and gravimetric finishes is reliable, as demonstrated by correlation coefficients up to 99.6%. The final gold grades for any samples in the database were determined using AA and gravimetric finishes (see Chapter 12).

The results discussed above demonstrate that sample preparation, QA/QC protocols and QA/QC results for assays received after the 2012 MRE database close-out date of August 13, 2012 are appropriate for the 2018 mineral resource estimation. Please see previous report for a more comprehensive review of data for this period.



11.2.3 QA/QC Results (Osisko)

Osisko's quality control-quality assurance procedures include routine insertion of standards and field blanks. A minimum of two CRMs and one blank are added systematically to each batch of 20 core samples. The standards are OREAS 202 and 210. The blank consists of an uncertified material made of calcite to monitor potential contamination at the crushing and pulverization stage. No duplicate was taken during Osisko drilling program for the period considered herein. QA/QC management is done by Osisko geologists using DH Logger software.

ALS, as part of their standard internal quality control, also runs duplicate check samples and CRMs. No secondary laboratory was involved in the QA/QC program.

The authors were not involved in the collecting and recording of the data, which was performed by Osisko employees. InnovExplo only synthesized sample batches for which the assay certificates were received after the database close-out date of January 31, 2018. A total 2,174 samples were assayed in the 4 DDH used in the present mineral resource estimate (Table 11-11).

Table 11-11: Osisko samples submitted to ALS for analysis along with routine drill core samples

Hole ID	Length (m)	Nb assays	Nb standard ⁽¹⁾	Nb blank	Assays Length
OSK-OB-17-001	535	528	63	31	510.3
OSK-OB-17-002	358	357	42	21	335.3
OSK-OB-17-003	622	572	66	34	590.6
OSK-OB-17-004	377.7	390	47	23	373.5
Total	1,892.7	1,847	218	109	1,809.7

⁽¹⁾ Including seven NSS samples (Not Sufficient Sample)

11.2.3.1 Blanks

The field blank used for Osisko's drilling program is from a gold-barren sample of calcareous rock. Normally, one sample of a blank was inserted into every batch of 20 samples at the 15th sample. The position of the field blank changes places after potential high-grade samples (visible gold) to detect contamination during the preparation process.

A total of 109 blanks were submitted to ALS with the samples. All the blank values recorded a grade lower than or equal to the threshold of 0.05 g/t Au, the value corresponding to 5x the detection limit (Figure 11-16).



11.2.3.1.1 Conclusions About Blanks

None of the blanks failed the 0.05 g/t Au limit (Figure 11-16). The batch of blanks appears to be reliable according to InnovExplo's quality control with no contamination issues. Osisko's quality control results are reliable and valid.

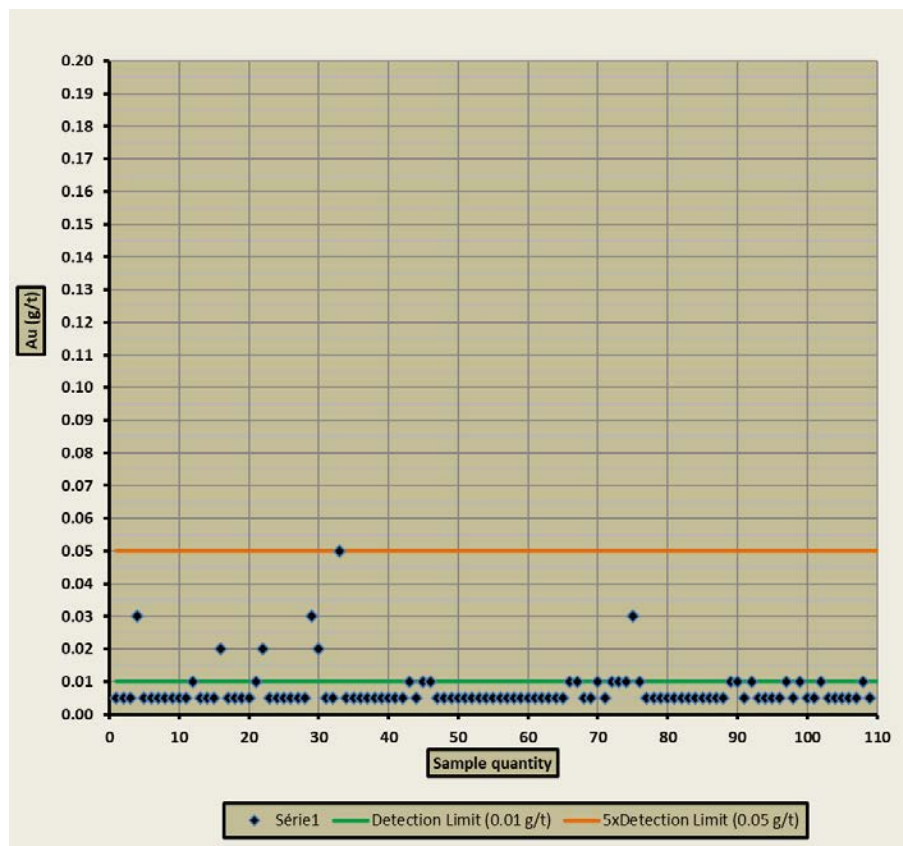


Figure 11-16: Results for Osisko's blanks. All blanks returning values of “-0.01 g/t” (below the detection limit) were plotted at half the detection limit (0.005 g/t).

11.2.3.2 Certified Reference Materials (Standards)

Two CRM samples are inserted into every batch of 20 samples at the 5th and 10th sample.

The following CRMs were supplied by Ore Research and Exploration (Australia). They were used in sample batches for which the assay certificates were received before the Osisko database close-out date of January 31, 2018:

- OREAS 202 with a theoretical value of 0.752 g/t Au;
- OREAS 210 with a theoretical value of 5.49 g/t Au.



Standards OREAS 202 and 210 were analyzed by AA. A total of 218 samples were submitted to ALS (Table 11-12): 108 samples of OREAS 202, 104 of OREAS 210, and six samples for which assay results returning NSS.

Table 11-12: Summary of results for Standards used by Osisko

Standard ID	Finish	Amount	Certified value (ppm)	Mean observed	1StdDev observed	Accuracy (%)	Precision (%)	% Passing	Gross outlier removed
202	AAS	108	0.752	0.746	0.024	-0.76	3.28	99.07	1
210	AAS	104	5.490	5.439	0.139	-0.93	2.55	99.03	0

11.2.3.2.1 Conclusions about Standards

There are enough results for standards to be represented on RockLabs charts (Figure 11-17 and Figure 11-18). Overall, the results exhibit a slight positive bias in terms of accuracy (0.76% and 0.93%). The average results for the CRMs are within $\pm 3\%$ of the expected values and range from precise to typical based on standard industry precision criteria (3%-5%).

Results for standard OREAS 202 show that only one outlier and one gross outlier fell outside the process limits (Figure 11-17). Results for standard OREAS 210 are shown on Figure 11-18. Only one blank returned a value of 5.91, just over the 3 SD threshold of 5.90.

Table 11-12 shows that more than 99% of the assays passed the ± 3 SD criterion. The observed standard deviation for OREAS results is similar to the expected standard deviation from the supplier. InnovExplo considers this accuracy to be good. The only gross outlier value is excluded from Table 11-12 as these calculations are designed to document the overall accuracy of the laboratory's analytical methods, and not random human errors.

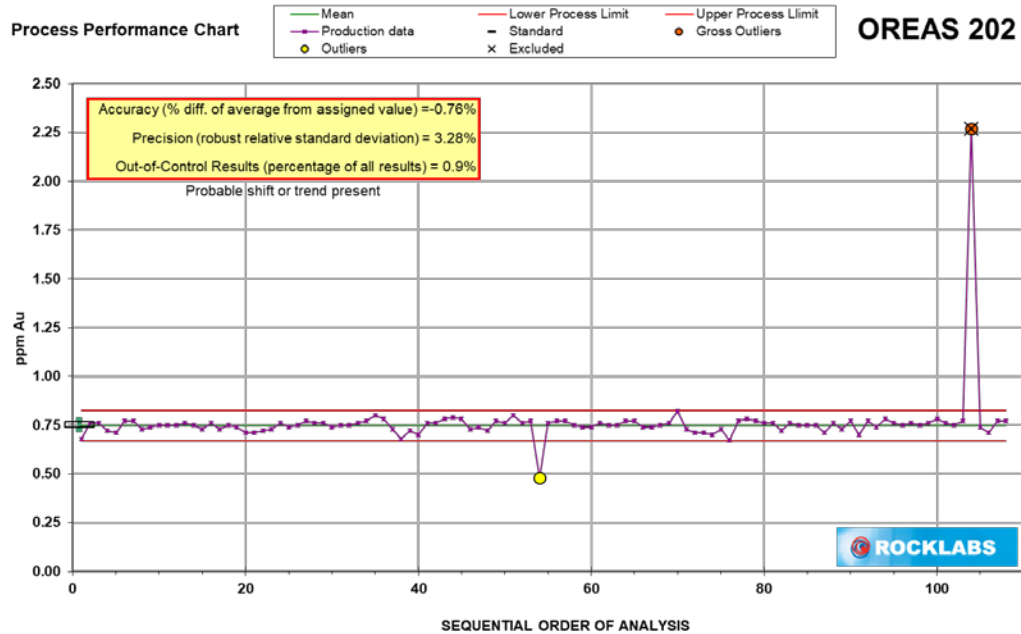


Figure 11-17: Results of standard OREAS 202 using AA finish. The green line indicates the measured average grade for OREAS 202 and the two red lines indicate ± 3 SD.

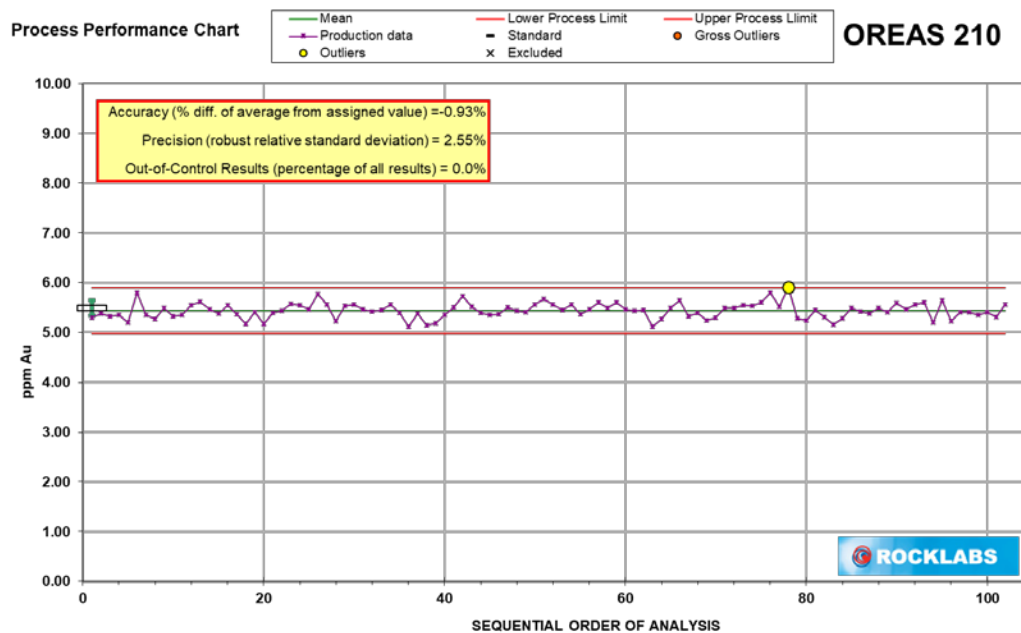


Figure 11-18: Results of standard OREAS 210 using AA finish. The green line indicates the measured average grade for OREAS 210 and the two red lines indicate ± 3 SD.



11.2.3.3 Conclusions about QA/QC (Osisko Period)

The available Osisko QA/QC data for the property shows acceptable results.

The level of contamination appears to be very low as all the blank samples returned values below or equal to the acceptance limit of 0.05 g/t Au (5x the detection limit). The statistics on the CRMs (standards) is considered reliable and within acceptable limits of accuracy in the industry.

The results discussed above demonstrate that sample preparation, QA/QC protocols and QA/QC results for the assays obtained before the Osisko database close-out date of January 31, 2018 are appropriate for the 2018 mineral resource estimation.



12. DATA VERIFICATION

12.1 Introduction

This chapter is divided into two sections in order to cover the two properties that are discussed in this Report.

Data verification for the Windfall Lake Project located on the Urban-Barry property is presented in Section 12.2, where the Osborne-Bell Project located on the Quévillon property is presented in Section 12.3.

The qualified person for Section 12.2 is Judith St-Laurent, P.Geo., for InnovExplo whereas the qualified person for Section 12.3 is Pierre-Luc Richard, P.Geo., previously for InnovExplo and now with BBA.

12.2 Windfall Lake Project, Urban-Barry Property

The diamond drill hole (“DDH”) database used for the mineral resource estimate (the “2018 MRE”) was provided by Osisko. The drilling program in the Windfall Lake resource area is still ongoing, and the database close-out date was set at March 5, 2018.

12.2.1 Site Visit

InnovExplo’s data verification included a few site visits to the Windfall Lake Project. Stéphane Faure visited the core logging facilities on March 20 to 22, 2017 and examined the lithologies, mineralization and structural features on selected core intervals. On July 12 and 13, 2017, Judith St-Laurent visited the core logging and storage facilities, and on July 14, 2017 and examined selected drill collars in the field. The July site visit also included a review and independent resampling of selected core intervals as well as a review of assays, the QA/QC program, downhole survey methodologies, and the descriptions of lithologies, alteration and structures.

Most of the database verification took place at the InnovExplo office in Val-d’Or after the site visits.

12.2.2 Drilling and Sampling Procedure

Osisko procedures are described in Chapters 10 and 11 of the current report.

InnovExplo reviewed several sections of mineralized core while visiting the onsite core logging and core storage facilities. All core boxes were labelled and properly stored outside. Sample tags were still present in the boxes and it was possible to validate sample numbers and confirm the presence of mineralization in witness half-core samples from the mineralized zones (Figure 12-1 and Figure 12-2).

Drilling was underway during InnovExplo's site visit, which provided an opportunity for Osisko personnel to explain the entire path of the drill core, from the drill rig to the logging and sampling facility and finally to the laboratory.

InnovExplo is of the opinion that the protocols in place are adequate.



Figure 12-1: A), B) Photographs of the interior of the core logging facility; C) Photograph of the roofed core racks at the core storage facility.



Figure 12-2: A) Photograph of boxes containing pulps; B) Boxes containing standards used during the drilling programs; C) Commercial crushed stones used as blank material during the drilling programs.

12.2.3 Drill Hole Database

The database provided by Osisko (the “Osisko database”) contains 1,869 drill holes from surface including 1,718 drill holes in the resource area. From this, 1,055 new drill holes were completed by Osisko and included in the present mineral resource since the database close-out date released in the previous NI 43-101 report (Tetra Tech, 2015).

Drill holes were rejected from the resource database when not yet sampled, or when assays located inside the mineralization zones were pending. A total of 265 drill holes (15%) were rejected and 1,453 were included in the resource database.

12.2.3.1 Historical Work

The historical information used in this report was taken mainly from reports produced before the implementation of NI 43-101. In some cases, little information is available about sample preparation, analytical or security procedures. However, InnovExplo assumes that exploration activities conducted by previous companies were in accordance with prevailing industry standards at the time.

Basic cross-check routines between original logs and drill hole database were performed for approximately 5% of the database.

12.2.3.2 Drill Hole Locations

Most of the drill hole collars in the resource database on the Windfall Lake Project were professionally surveyed. The drill holes collars were mostly surveyed by Corriveau J.L. & Assoc. Inc. (Val-d'Or) using a high-precision Leica GPS (precision of ± 0.05 m). An in-house high-precision GPS system was also occasionally used by Osisko's geotechnicians for surveying completed drill holes. The Project coordinate system is NAD83 UTM Zone 18.

Approximately 5% of the drill holes locations recorded in the database were compared to the data on the original certificates provided by the surveyor company.

Some collar coordinates were originally imported in the database using coordinates measured at the top of the casing. These coordinates were corrected in the resource database and replaced by the coordinates measured at ground level. Detailed drilling procedures were written to avoid the confusion at the time of the collar coordinate measurements.

Seven casings were reviewed by the author during the site visit using a GPSMAP 60CSx (Figure 12-3). The differences between the InnovExplo measurements and those recorded in the Osisko database are within the order of precision of the instrument.

The author concluded that the collar locations are adequate and reliable.

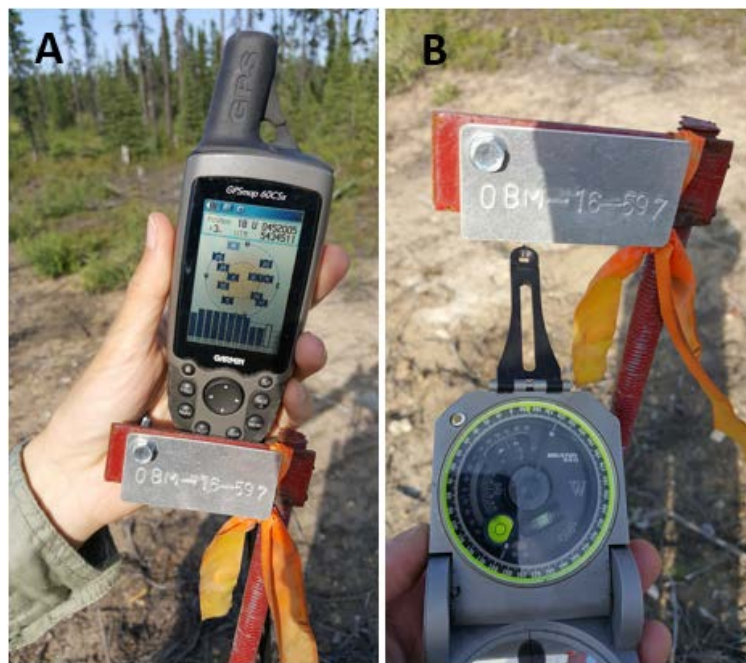


Figure 12-3: A) Photograph showing the GPSMAP 60CSx used to verify the location of a drill collar during the site visit – Hole OBM-16-597; B) Photograph showing one of the metal identification labels used for most drill hole collars on the Windfall Lake Project – Hole OBM-16-597.



12.2.3.3 Down Hole Survey

Down hole surveying has been performed routinely by Osisko on every drill hole. Only eight historical drill holes measuring more than 100 m were not surveyed.

The survey data were verified for approximately 5% of the drill hole database.

InnovExplo identified a few minor issues that were corrected by Osisko. The survey data are considered valid and reliable.

12.2.3.4 Assays

InnovExplo was granted access to the original assay certificates for all holes drilled from 2009 to 2018 in the Windfall Lake Project. Assays of Au and SG were verified for 5% of the database. The assays recorded in the database were compared to the original certificates from the different laboratories: ALS Global, Bourlamaque and Veritas laboratories. Assay results are automatically imported by Osisko into the database, which prevent the typing errors. Values below the detection limits are correctly entered into the database as the half of the detection limit.

A total of 5,188 assays located in 604 drill holes that did not pass the current QA/QC workflow were pending at the time of the close-out date of the resource database. InnovExplo included these drill holes into the resource database, but excluded the pending assays during the composite calculation.

Out-of-range lengths in some assays were detected by InnovExplo and immediately corrected by Osisko. No errors were found concerning the assay values. The final database is considered to be of good overall quality.

12.2.4 Mined-out Voids

The exploration ramp currently in development and surveyed as of March 2018 was provided by Osisko. InnovExplo validated the robustness of the 3D shape.

InnovExplo considers the level of detail in the void triangulation to be of good quality and reliable.

12.2.5 Independent Resampling

InnovExplo resampled a series of intervals from the 2010-2016 drilling programs. Core intervals were selected by InnovExplo personnel and quarter-splits were sawed by Osisko personnel. Authors selected samples representing different mineralized zones and a range of gold grades to be re-analyzed at the ALS laboratory in Val-d'Or (Figure 12-4). Samples were put into individual plastic bags, grouped in batches, and then placed inside rice bags closed hermetically with tie wraps. Rice bags were taken to the laboratory by InnovExplo personnel with a work order indicating the sample preparation and assay procedures to be followed by the laboratory.

Twenty-eight samples taken from an equal number of drill hole intervals were assayed for gold using fire assay with AA finish (AA-AA24). Samples assaying more than 10 g/t Au with AA were rerun with gravimetric finish (GRA22). One CRM and one field blank were added to the shipment. The field blank for the resampling program is from a gold-barren sample of calcareous rock tested by different laboratories.

Table 12-1 shows the resampling results for the 28 samples. Figure 12-5 is a plot of the 28 original-check pairs showing a linear regression slope of 0.63 and a correlation coefficient of 57.69%. The results indicate reasonable reproducibility of the original samples and show acceptable results despite some discrepancies for individual re-assays. InnovExplo believes the field duplicate results from the independent resampling program are reliable and valid for a gold project with a certain nugget effect.



Figure 12-4: Photographs of core resampled
A) InnovExplo sample tag – 057002; B) Original core: drill hole EAG-10-23.



Table 12-1: Gold results from the core resampling program, Windfall Lake Project

Drill hole information			Original samples		InnovExplo field duplicates		
Hole ID	From	To	Sample	Au	Sample	Au - AA24	Au - GRA22
FUR-03-05	288.05	289.00	66006	2.27	57001	2.02	
EAG-10-235	74.00	75.00	188007	13.80	57002	9.18	
EAG-10-246	216.00	217.55	190416	6.65	57003	6.53	
EAG-11-251	234.00	235.00	J400401	7.99	57004	8.10	
EAG-11-256	192.00	193.00	398839	1.43	57005	0.97	
EAG-11-257	61.00	62.00	J399137	2.17	57006	2.94	
EAG-11-305	47.00	48.00	M066174	43.10	57007	>10.0	24.4
EAG-11-269	198.00	199.00	K342167	1.90	57008	2.55	
EAG-11-266	34.00	35.00	J401433	5.47	57009	3.77	
EAG-11-262	134.00	135.00	J397034	24.80	57010	>10.0	29.70
EAG-11-284	80.80	82.00	L234788	67.30	57011	>10.0	57.40
EAG-12-333	227.00	228.00	N084758	2.39	57012	2.85	
EAG-12-344	392.00	393.00	N085843	17.85	57013	7.75	
EAG-12-401	260.90	262.00	P282520	25.50	57015	0.98	
EAG-12-427	714.10	715.00	P271977	13.25	57016	>10.0	12.45
EAG-12-446	122.30	122.80	P275408	2.50	57017	3.38	
EAG-12-444	123.00	124.00	P275163	5.34	57018	4.36	
EAG-13-508	407.40	407.80	P080951	27.50	57019	>10.0	39.60
NOT-07-150	37.14	41.10	115676	10.00	57020	>10.0	27.50
NOT-05-42	108.00	108.60	76377	24.53	57022	>10.0	<0.05
NOT-07-138	72.00	73.00	115380N	8.58	57023	7.72	
OBM-16-625	155.50	156.00	S404225	3.38	57024	3.57	
OBM-16-626	62.60	63.30	S405697	40.30	57025	>10.0	24.00
OBM-16-642	513.00	514.00	S415473	3.14	57026	2.15	
OBM-16-647	101.60	102.10	S438792	11.15	57027	>10.0	13.65
EAG-10-205	244.55	245.10	184000	7.22	57028	>10.0	17.85
OBM-16-696	350.80	351.50	S762748	5.72	57029	2.78	
EAG-13-320-W1	580.00	580.60	R011131	42.50	57030	7.75	

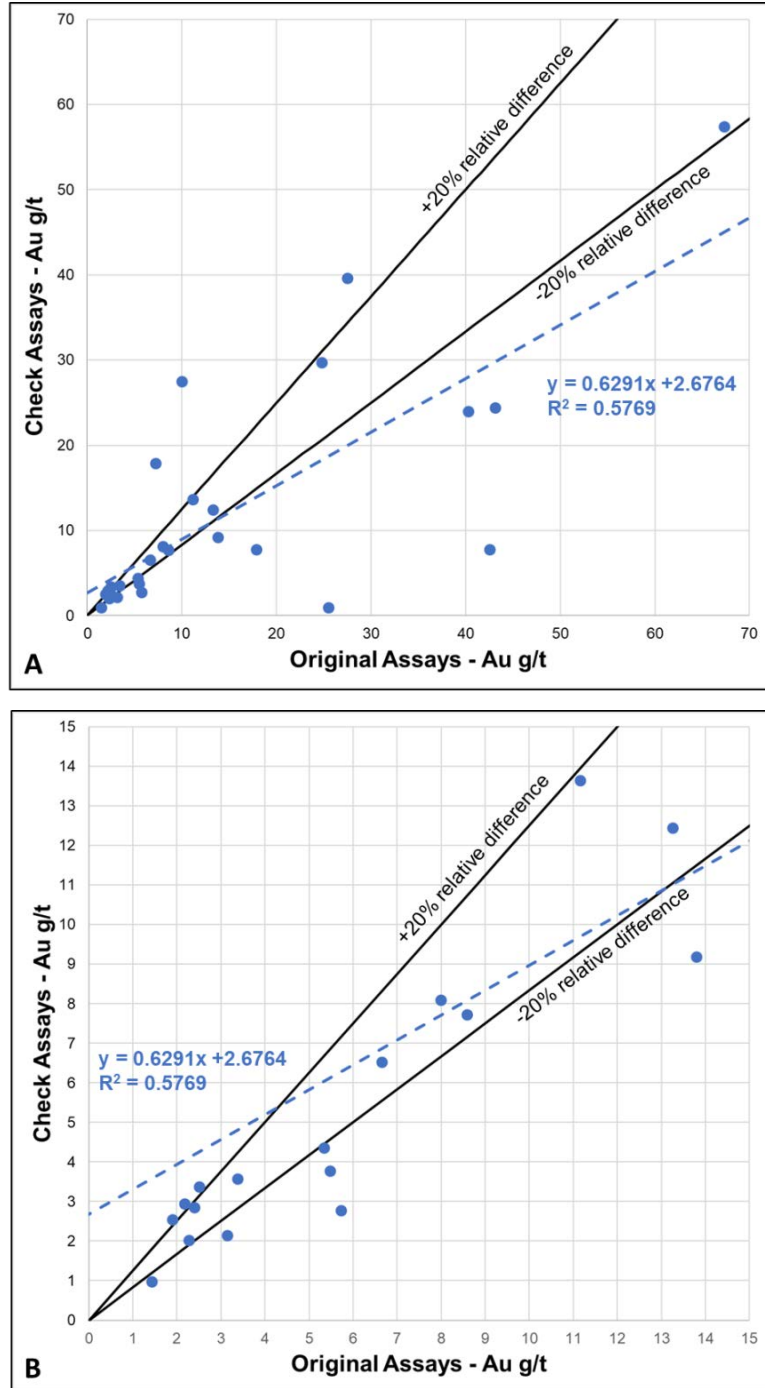


Figure 12-5: A) Linear graph comparing original to check assays (28 samples) from the resampling program; B) Close-up showing assays under 15 g/t Au.



12.2.6 Conclusion

The databases for the Windfall Lake Project are of good overall quality. Minor variations have been noted during the validation process but have no material impact on the 2018 MRE. The database is of sufficient quality to be used for a resource estimate.

12.3 Osborne-Bell Deposit, Quévillon Property

Author Pierre-Luc Richard, P.Geo. who was then an employee of InnovExplo, has visited the Quévillon property, the core shack and the core storage facilities on several occasions between 2006 and 2013. Alain Carrier, P.Geo., was responsible for overseeing the exploration and drilling programs from 2006 to 2013 and has been involved in all InnovExplo work relating to the property, including technical reports, since 2006.

Data verification in this Technical Report concerns the DDH database used to prepare the 2018 MRE. The database contains the 877 DDH used for the 2012 MRE (Carrier et al., 2012) supplemented by 54 additional holes, for a total of 931. The 54 new holes were rigorously validated.

In 2016, Alain Carrier visited the property and core shack facilities several times with Guilhem Servelle, P.Geo., also of InnovExplo. They were given access to the long-term core storage facility of MD Entrepotage in Lebel-sur-Quévillon, as well as the Osborne-Bell deposit area and some drill hole collars.

12.3.1 Drilling and Sampling Procedure

Of the 54 additional drill holes, 50 were drilled under the supervision of InnovExplo. The following data acquisition, assaying, QA/QC and database management protocols were the same as those described in the 2012 technical report.

In addition to assay results, database integration included geological descriptions, down hole survey data (Reflex®) and surveyed collar locations. Drafting of the cross-sections, plan views, and follow-up longitudinal views were drafted in Geotic Graph® and GEMS®. Once the assay results were received, they were also incorporated into the logs.

In 2018, InnovExplo reviewed the entire database using cross-check routines between the Geotic log database and the GEMS database used for the Project. After reviewing the entire database, InnovExplo decided to withdraw 9 DDH from the resource database. Drill holes B-1 to B-6 were rejected due to uncertainty about their locations.

The authors are of the opinion that the overall acquisition and database management of the 2018 MRE data is adequate and reliable for the purpose of this Technical Report.



12.3.2 Drill Hole Database

12.3.2.1 Historical Work

The historical work discussed in this report consists of validated DDH, channel and grab sample data obtained before the 2012 MRE's effective database close-out date of August 13, 2012. The verification and validation work for the current study focused on the 54 DDH added to the 2018 MRE database. Basic cross-check routines were performed between the original GeoticLog database and the GEMS database.

12.3.2.2 Drill Hole Location

Most drill hole casings on the Project were professionally surveyed by Descarreaux Dubé et Associés Arpenteurs-Géomètres. Several other holes are wedges for which the pilot hole set-ups were professionally surveyed for the 2012 MRE. The authors concluded that the collar locations for the 54 additional drill holes are adequate and reliable.

12.3.2.3 Down Hole Survey

Each of the 54 additional drill holes on the Osborne-Bell deposit was subjected to a multi-shot down hole survey. The information for all drill holes in the database was mathematically reviewed to identify anomalies, and visual checks were performed on all down hole surveys. No issues were identified and the survey data are considered valid and reliable.

12.3.2.4 Assays

InnovExplo had access to all assay certificates for holes drilled after the previous official database close-out date of August 13, 2012.

The original database was updated with the new additional data and validated. Minor errors of the type normally encountered in a project database were identified and corrected. The author considers the database to be valid, reliable and of good overall quality.

12.3.2.5 QA/QC

In 2018, InnovExplo conducted a QA/QC review for the additional drilling data on the property and did not uncover any specific issues.

The overall QA/QC review is described in Chapter 11. The author is of the opinion that the final drill hole database used for the 2018 MRE is adequate and reliable for the purpose of this Technical Report.



12.3.3 Site Visit

In January 14, 2018, Stéphane Faure, P.Geo., of InnovExplo, visited the Quévillon property and the core shack facilities. During this site visit, he was given access to the long-term core storage facility of Osisko in Lebel-sur-Quévillon, the core shack and splitting room, the Osborne-Bell deposit area, drill pads and some drill hole collars. Drilling was underway during this site visit, which provided an opportunity for Osisko personnel to explain the entire path of the drill core, from the drill rig to the logging and sampling facility and finally to the laboratory.

12.3.4 Conclusion

The author is of the opinion that the data acquisition and database management for the 54 supplemental drill holes are of sufficient quality to be used for a resource estimate. None of the 54 holes were rejected from the database.

Moreover, the author is of the opinion that data verification, from site visits to subsequent validation, demonstrates the validity of the Osborne-Bell deposit database.



13. MINERAL PROCESSING AND METALLURGICAL TESTING

The following chapter presents metallurgical testwork results for work conducted on the Windfall Lake deposit as part of the current PEA as well as for the Osborne-Bell deposit, previously published in the report entitled “NI 43-101 Technical Report and Mineral Resource Estimate – Osborne-Bell Deposit, Quévillon Property” (InnovExplo, 2018).

13.1 Windfall Lake Testwork

The metallurgical test program for the Windfall Lake Project PEA started in June 2017 under the supervision of BBA in collaboration with Osisko. The metallurgical test plan included composite samples from three zones: 27, Caribou and Lynx. The test plan aimed to determine an optimal flowsheet and generate engineering data for average mineralized material feed grades.

Table 13-1 indicates the type of tests that were performed. As indicated in the table, SGS’s lab in Québec City was selected to provide the majority of the metallurgical services required, including:

- Sample and composite preparation and characterization;
- Comminution testing:
 - SAG Mill Comminution (SMC);
 - Bond ball mill work index (BWi);
 - Abrasion index (Ai);
 - Regrind signature plot;
- Gravity testwork;
- Flotation testwork;
- Leaching testwork (whole rock leach (“WRL”) with and without carbon, leaching of reground flotation concentrate, leaching of flotation tails);
- Thickening testwork.

Additional thickening, rheology and filtration tests were performed by Pocock Industrial in Utah, USA.



Table 13-1: Windfall Lake PEA test plan

Test		Supplier	Composites	
Grinding	DWT	SGS	#9 (waste)	
	Abrasion Index			
	SAG Mill Comminution (SMC)	SGS	P3-B (Caribou) P3-G (Zone 27) P3-I (Lynx) #9 (waste) P1-CA-V2-D P1-CA-I1P-D P1-CA-I2P-D P1-CA-V1-U P1-CA-V2-U	P1-CA-I1P-U P1-27-V2-D P1-27-I1P-D P1-27-I2P-D P1-27-V1-U P1-27-V2-U P1-27-I1P-U P1-27-I2P-U
	Bond Ball Work Index (BWi)	SGS	P3-B (Caribou) P3-G (Zone 2) P3-I (Lynx) #9 (waste)	
Regrinding	Isamill Signature plot	SGS	Blended composite (Zone 27 + Caribou + Lynx)	
Gravity	Gravity	SGS	Zone 27 composite Caribou composite Lynx composite	
Flotation	Rougher kinetics	SGS	Zone 27 comp Caribou comp Lynx comp PEA Lynx blend P1-CA-V2-D-L P1-CA-V2-D-M P1-CA-V2-D-H P1-CA-I1P-D-L P1-CA-I1P-D-M P1-CA-I1P-D-H P1-CA-I2P-D-L P1-CA-I2P-D-M P1-CA-I2P-D-H P1-CA-V1-U-L P1-CA-V1-U-M P1-CA-V1-U-H P1-CA-V2-U-L P1-CA-I1P-U-L P1-CA-I1P-U-M P1-CA-I1P-U-H P1-CA-I2P-U-H P1-27-V1-D-L	P1-27-V2-D-L P1-27-V2-D-M P1-27-V2-D-H P1-27-I1P-D-L P1-27-I1P-D-M P1-27-I1P-D-H P1-27-I2P-D-L P1-27-I2P-D-M P1-27-I2P-D-H P1-27-V1-U-L P1-27-V1-U-M P1-27-V1-U-H P1-27-V2-U-L P1-27-V2-U-M P1-27-V2-U-H P1-27-I1P-U-M P1-27-I1P-U-H P1-27-I2P-U-L P1-27-I2P-U-M P1-27-I2P-U-H
Leaching	Leaching test	SGS		



Test	Supplier	Composites
Thickening	Settling rate – flotation conc.	Blended composite (Zone 27 + Caribou + Lynx)
	Settling rate – flotation tails	
	Settling rate – combined flotation conc. + tails leach residue	
Thickening, Rheology and Filtration	Pocock	Blended composite (Zone 27 + Caribou)

13.1.1 PEA Sample Selection and Compositing

Comminution Testwork Composites

Three new composite samples (P3-B, P3-G and P3-I) were prepared from HQ drill hole intervals located within the mineral resource envelope for comminution testing. Composites P3-B and P3-G represent Caribou and Zone 27 material respectively, while the P3-I composite is within the Lynx Zone. An additional low grade sample (#9) located within the mineralized zone was also tested in order to be able to represent dilution material that will inevitably report to the plant feed. A total of 37 intervals totalling 119 m of core from 34 different drill holes were selected to prepare four composites, each having a sufficient quantity of material to complete the proposed comminution testwork for each zone. The composites were submitted to SMC, BWi and Ai testing, the results of which are used for preliminary grinding circuit sizing and estimation of media and liner wear rates.

The hole locations are illustrated in Figure 13-1 and Figure 13-2.

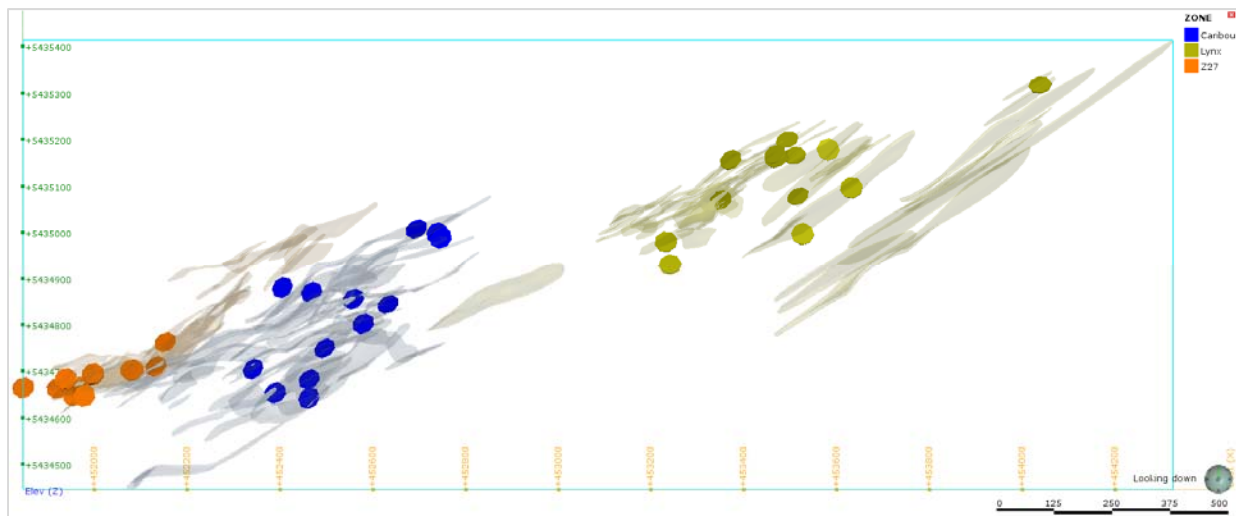


Figure 13-1: Plan view of PEA comminution sample hole locations.

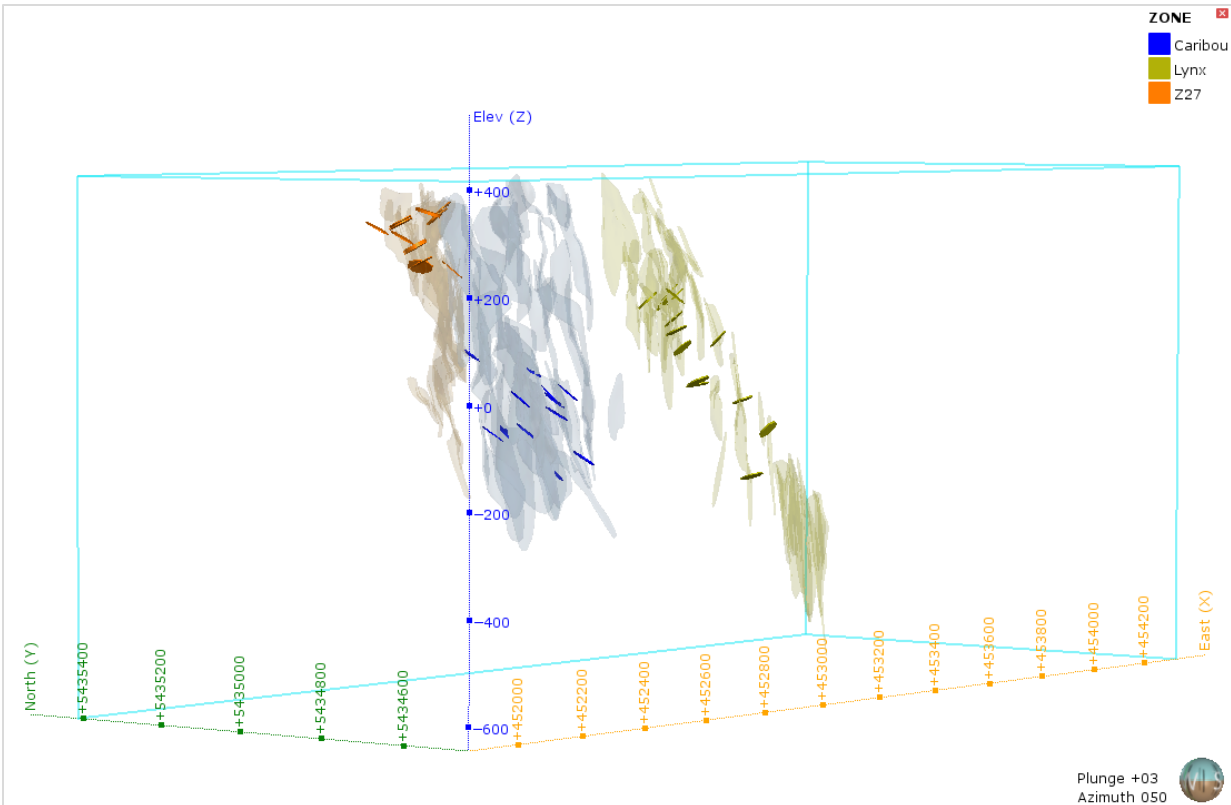


Figure 13-2: Looking N050 view of PEA comminution sample hole locations.

Furthermore, 318 intervals deemed relevant for establishing the mineralized material hardness variability were submitted to SMC tests.

Recovery Testwork Composites with Gravity

Intervals from recent NQ drill holes located within the mineralized envelope were used to prepare three composite samples, namely Zone 27, Lynx and Caribou, for recovery testwork. Each of the composites was prepared to reflect the life of mine head grade within the resource envelope. A total of 94 m of material was collected from 58 drill holes intersecting the three main zones.

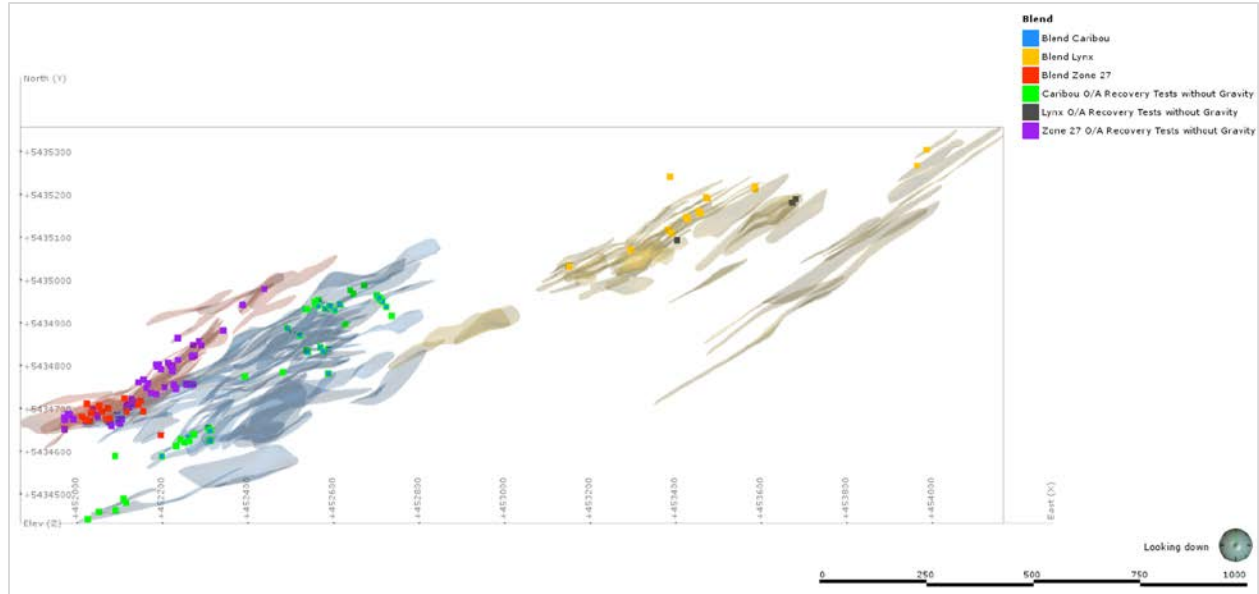


Figure 13-3: Plan view of PEA recovery sample hole locations.

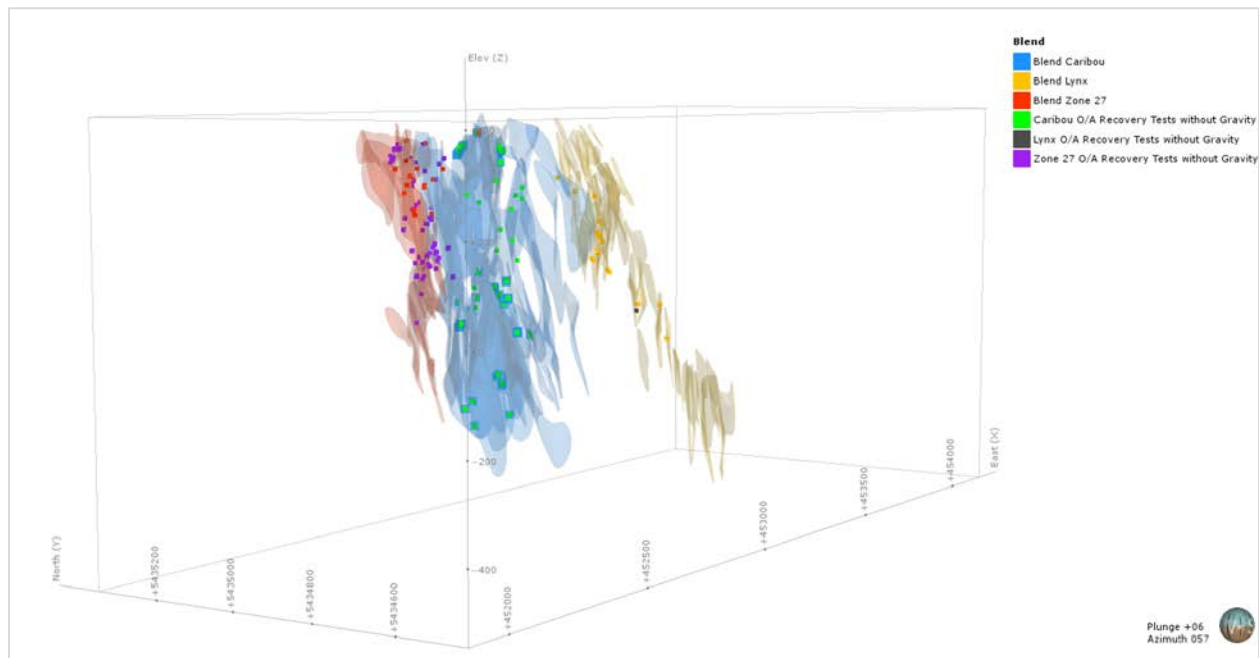


Figure 13-4: Looking N050 view of PEA recovery sample hole locations.



During the recovery testing program, some material was set aside to generate a composite of the three zones in order to perform thickening tests, and to generate a signature plot for fine grinding. The composite was prepared containing equal proportions of material from each of the Caribou, Lynx and 27 zones.

The selected drill hole locations are illustrated in Figure 13-3 and Figure 13-4. The aforementioned samples are labelled “Blend”.

In order to test the effect of head grade on recovery, 36 intervals were collected to prepare three composite samples (one for each Zone 27, Caribou and Lynx).

Recovery Testwork Variability Composites without Gravity

In addition to the recovery work previously described, additional composite samples were prepared to assess gold recovery without gravity pre-treatment. A total of 21 composites were prepared for Zone 27, 17 for Caribou and one for Lynx; 197 intervals were collected from 81 different drill holes. Table 13-2 shows the different variability parameters taken into consideration: Au grade, depth and rock type.

The selected drill hole locations are illustrated in Figure 13-3 and Figure 13-4 and the sample label indicates “Tests without Gravity”.

The samples were submitted to flotation and leaching testwork. Due to sample availability, variability was tested to a greater extent on samples from the 27 and Caribou zones. Also, the composite tested at Pocock for thickening, rheology and filtration was composed of products of these Zone 27 and Caribou recovery tests.



Table 13-2: Sample variability (Au grade, location, rock type, mineralized material zone)

Rock Type	Caribou						Zone 27					
	Shallow			Deep			Shallow			Deep		
	Low Grade	Med Grade	High Grade	Low Grade	Med Grade	High Grade	Low Grade	Med Grade	High Grade	Low Grade	Med Grade	High Grade
V1	P1-CA-V1-U-L	P1-CA-V1-U-M	P1-CA-V1-U-H	-	-	-	P1-27-V1-U-L	P1-27-V1-U-M	P1-27-V1-U-H	P1-27-V1-D-L	-	-
V2	-	P1-CA-V2-U-L	-	P1-CA-V2-D-L	P1-CA-V2-D-M	P1-CA-V2-D-H	P1-27-V2-U-L	P1-27-V2-U-M	P1-27-V2-U-H	P1-27-V2-D-L	P1-27-V2-D-M	P1-27-V2-D-H
I1P	P1-CA-I1P-U-L	P1-CA-I1P-U-M	P1-CA-I1P-U-H	P1-CA-I1P-D-L	P1-CA-I1P-D-M	P1-CA-I1P-D-H	-	P1-27-I1P-U-M	P1-27-I1P-U-H	P1-27-I1P-D-L	P1-27-I1P-D-M	P1-27-I1P-D-H
I2P	-	P1-CA-I2P-U-H	-	P1-CA-I2P-D-L	P1-CA-I2P-D-M	P1-CA-I2P-D-H	P1-27-I2P-U-L	P1-27-I2P-U-M	P1-27-I2P-U-H	P1-27-I2P-D-L	P1-27-I2P-D-M	P1-27-I2P-D-H



13.1.2 Composite Characterization

Head Assays

Composites for the metallurgical testwork program were submitted to head assays in order to evaluate chemical composition and specific gravity. Gold and silver assays resulted from the analysis of screened metallic products, sulphur content was measured by LECO, copper by XRF, and the concentrations of the remaining elements were measured using ICP. A summary of the analysis results are presented in Table 13-3.

Table 13-3: Metallurgical testwork composite head assays

Composite	Assays					
	Au (g/t)	Ag (g/t)	Cu (%)	Zn (g/t)	S (%)	Fe (g/t)
Zone 27	6.00	5.0	<0.01	1,290	5.84	57,600
Caribou	5.79	13.6	0.063	7,030	9.83	101,000
Lynx	5.45	6.9	0.031	119	3.23	45,100
PEA Lynx Blend	~21	~21	-	-	3.87	-
P1-CA-V2-D-L	2.73	<5	0.018	178	2.56	57,600
P1-CA-V2-D-M	8.25	6.94	0.033	223	6.83	71,900
P1-CA-V2-D-H	4.12	< 5	0.041	427	9.07	101,000
P1-CA-I1P-D-L	3.96	6.08	0.023	355	6.48	63,300
P1-CA-I1P-D-L	5.17	19.0	0.048	301	3.12	33,100
P1-CA-I1P-D-L	8.24	6.68	0.035	72	4.54	42,600
P1-CA-I2P-D-L	3.41	6.07	0.020	324	5.30	63,700
P1-CA-I2P-D-L	5.36	10.1	0.028	433	4.26	41,600
P1-CA-I2P-D-L	12.3	< 5	0.023	5400	6.75	61,300
P1-CA-V1-U-L	1.16	< 5	< 0.01	263	2.73	29,800
P1-CA-V1-U-M	6.84	10.9	0.042	5000	17.3	155,000
P1-CA-V1-U-H	3.51	10.3	0.031	1460	6.63	63,900
P1-CA-V2-U-L	12.8	19.4	0.058	2640	5.89	68,100
P1-CA-I1P-U-L	3.30	23.9	0.034	4460	5.29	49,100
P1-CA-I1P-U-M	6.08	21.1	0.073	2470	8.53	80,300
P1-CA-I1P-U-H	9.05	35.3	0.065	3680	5.76	57,000
P1-CA-I2P-U-H	4.09	12.9	0.042	2420	7.01	75,200
P1-27-V1-D-L	2.93	< 5	0.020	90	6.41	60,200
P1-27-V2-D-L	5.41	< 5	0.034	152	6.33	90,000



Composite	Assays					
	Au (g/t)	Ag (g/t)	Cu (%)	Zn (g/t)	S (%)	Fe (g/t)
P1-27-V2-D-M	6.86	5.52	0.023	153	6.02	65,300
P1-27-V2-D-H	13.0	15.9	0.030	76	6.05	67,300
P1-27-I1P-D-L	5.04	5.49	0.030	39	9.52	85,300
P1-27-I1P-D-M	10.4	8.67	0.025	206	8.49	81,700
P1-27-I1P-D-H	11.4	25.3	0.034	73	7.01	70,400
P1-27-I2P-D-L	4.14	< 5	0.017	43	5.60	56,300
P1-27-I2P-D-M	7.45	5.80	0.038	187	7.04	70,100
P1-27-I2P-D-H	9.97 ⁽¹⁾	<10 ⁽¹⁾	0.058	143	10.1	89,900
P1-27-V1-U-L	2.59	7.50	0.021	134	7.82	71,500
P1-27-V1-U-M	14.8	9.88	0.037	192	18.9	166,000
P1-27-V1-U-H	10.9	8.90	0.021	105	8.16	78,500
P1-27-V2-U-L	3.51	< 5	0.017	176	6.61	76,200
P1-27-V2-U-M	7.61	5.99	0.037	288	7.12	78,000
P1-27-V2-U-H	5.58	< 5	0.017	147	5.07	66,300
P1-27-I1P-U-M	5.57	< 5	0.015	416	5.07	51,500
P1-27-I1P-U-H	9.44	10.4	0.025	709	7.19	66,800
P1-27-I2P-U-L	3.93	5.59	0.019	1992	7.12	64,800
P1-27-I2P-U-M	8.51	5.08	0.016	545	5.88	54,200
P1-27-I2P-U-H	12.4	5.99	0.011	555	12.9	112,000

⁽¹⁾ Au and Ag assays reported were measured by fire assay.

The assays indicate that several variability samples contain high proportions of silver.

13.1.3 Comminution Testwork

Composites representing Zone 27, Caribou, Lynx and waste material, as well as blends of Zone 27 and Caribou were submitted to comminution testing that included SMC, RWi, BWi and Ai. The results of the comminution testwork are presented in Table 13-4.



Table 13-4: Summary of average SMC and Bond comminution test results per zone

Composite by zone	No. samples tested	Specific gravity	SMC		RWi (kWh/t)	BWi (kWh/t)	Ai (g)
			Axb	t _a			
Zone 27	8	2.98	32.8	0.3	-	10.7	-
Caribou	7	2.98	32.3	0.3	-	12.5	-
Lynx	1	2.77	22.4	0.2	-	13.5	
#9 (waste)	1	2.82	19.8	0.3	18.9	15.3	0.068

The SMC tests were conducted using particles in the -22.4/+19.0 mm particle size range. All of the composites submitted to SMC testing had Axb values between 22 and 43, and were therefore categorized from “medium hard” to “very hard” according to the JKTech hardness classification scale. The SMC results were calibrated using available DWT results for Windfall Lake material.

The BWi tests were conducted using a closing screen size of 80 mesh targeting a product P₈₀ of 130 µm. The results of the individual composites tested from the mineralized zones ranged from 10.7 kWh/t to 13.5 kWh/t, which is considered medium hardness, while the #9 waste sample is considered to be on the lower end of the hard range, which is 14-20 kWh/t.

A single Ai value of 0.068 g was measured for the #9 waste sample. This sample is considered non-abrasive as it falls below in the 10th percentile of the SGS database.

Fine Regrind

In order to evaluate the fine grinding energy requirements for the flotation/leaching flowsheet option, a bulk pyrite flotation concentrate sample was submitted to a laboratory scale IsaMill test. The sample underwent 11 passes through the mill to reduce the particle size from a feed P₈₀ of 150 µm to a produce P₈₀ of 11.9 µm. The resulting signature plot is presented in Figure 13-5.

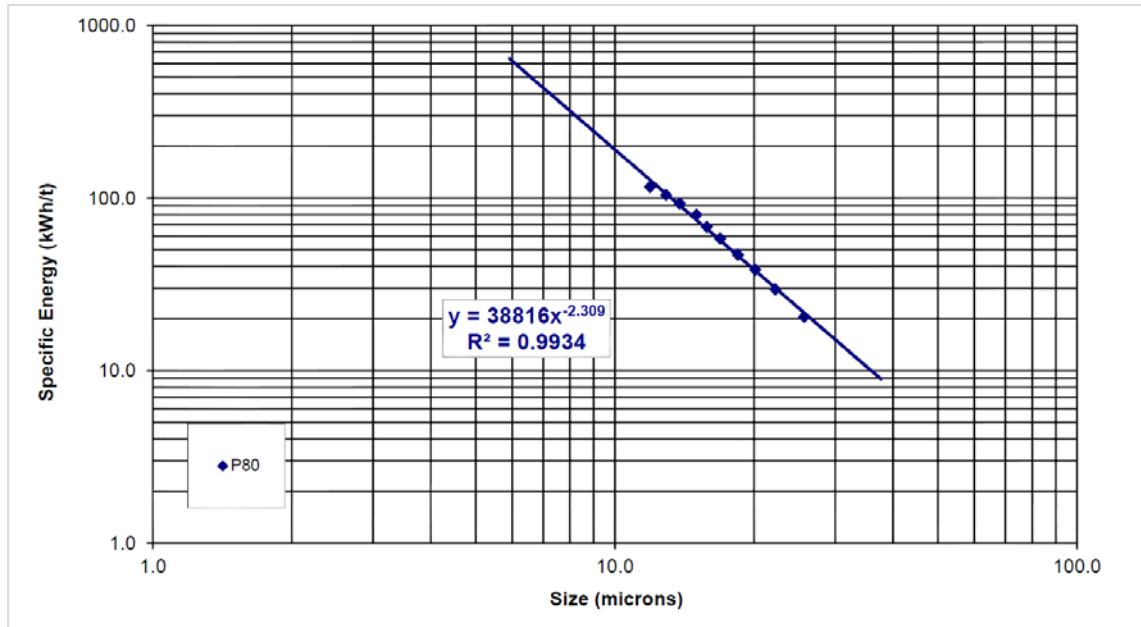


Figure 13-5: Flotation concentrate signature plot.

Based on the signature plot generated, it was determined that the energy requirement to regrind the pyrite flotation concentrate to 12 µm prior to leaching would be 125 kWh/t.

13.1.4 Gravity Recovery

Extended Gravity Recoverable Gold Test (e-GRG)

The Zone 27, Lynx and Caribou composites were submitted to e-GRG testing at SGS Lakefield. The results indicated that while the amount of gravity recoverable gold was not significant (low GRG), it was medium to coarse in size with Caribou and Zone 27 grains falling between 120 µm and 200 µm, and between 200 µm and 350 µm for Lynx. Should further investigation prove that gold is not fully associated with sulphides, there is a potential to lose coarse free gold to the flotation tailings if a flowsheet including flotation was selected. Because the flotation tailings are not reground, there is a risk of insufficient residence time and leaching conditions to complete leaching of these coarse gold particles.

The e-GRG test results were used by FLS to simulate potential gold recovery if gravity units were to be installed on either the cyclone feed (ball mill discharge) or on the cyclone underflow (“U/F”). The results of these simulations are presented in Table 13-5.



Table 13-5: Gravity test results

Composite	Flow treated	Units installed	Circulating load treated (%)	Gravity recovery (% Au)	Concentrate grade (Au, g/t)
Zone 27	Cyclone feed	1	10	16	5,687
	Cyclone feed	1	21	21	3,599
	Cyclone feed	2	21	21	3,699
	Cyclone feed	2	41	26	2,203
	Cyclone U/F	1	13	18	6,198
	Cyclone U/F	1	27	22	3,807
	Cyclone U/F	2	27	22	3,913
	Cyclone U/F	2	53	27	2,207
Caribou	Cyclone feed	1	10	7	2,140
	Cyclone feed	1	21	11	1,485
	Cyclone feed	2	21	11	1,619
	Cyclone feed	2	41	14	988
	Cyclone U/F	1	13	8	2,348
	Cyclone U/F	1	27	11	1,575
	Cyclone U/F	2	27	11	1,619
	Cyclone U/F	2	53	15	1,014
Lynx	Cyclone feed	1	10	11	3,019
	Cyclone feed	1	21	15	2,083
	Cyclone feed	2	21	15	2,141
	Cyclone feed	2	41	20	1,384
	Cyclone U/F	1	13	12	3,305
	Cyclone U/F	1	27	16	2,207
	Cyclone U/F	2	27	16	2,268
	Cyclone U/F	2	53	21	1,420

These simulations indicated that it was possible to generate acceptable concentrate grades via gravity processing. However, given that the average gravity gold recovery did not reach the 25% level, generally considered a minimum requirement for implementation of the technology, and due to the high percentage of the ball mill circuit circulating load that would need to be processed, the economic benefit of implementation of gravity in the Windfall Lake flowsheet is not clear. The benefits of a gravity circuit will be studied further in the next stage of the Project.

The flotation and leaching test results presented in this report were conducted on material with and without gravity pre-treatment.



13.1.5 Recovery Options with Gravity

Bulk Gravity Sample Preparation

Prior to the evaluation of the gold recovery in the flotation and leaching circuits, the Zone 27, Caribou and Lynx composites underwent a gravity pre-treatment. Only the gravity tailings were submitted to flotation testing. The bulk gravity results are presented in Table 13-6.

Table 13-6: Bulk gravity results

Composite	Grind size K ₈₀ (µm)	Product	Weight (%)	Au grade (g/t)	Au distribution (%)
Zone 27	110	Head	100.0	5.46	100.0
		Concentrate	1.06	100	19.8
		Tailings	98.9	4.45	80.2
Caribou	97	Head	100.0	5.63	100.0
		Concentrate	0.82	65	9.6
		Tailings	99.2	5.14	90.4
Lynx	121	Head	100.0	6.01	100.0
		Concentrate	0.72	186	22.4
		Tailings	99.3	4.70	77.6

Flotation Testwork (with Gravity)

Kinetic rougher pyrite flotation tests were conducted on the Zone 27, Caribou and Lynx composites following a gravity pre-treatment. Each test was conducted over 10 min, with intermittent sampling at 1, 2, 4 and 10 minutes. Both the PAX collector and the MIBC frother were dosed at various points during the test.

Table 13-7: Flotation test results

Composite	Grind, K ₈₀ (µm)	Product	Weight (%)	Assay			Distribution		
				Au (g/t)	Ag (g/t)	S (g/t)	Au (%)	Ag (%)	S (%)
Zone 27	97	Head	100.0	4.2	4.6	6.1	100.0	100.0	100.0
		Flotation Concentrate	23.2	17.5	18.0	26.0	95.9	91.6	98.7
		Flotation Tails	76.8	0.2	0.5	0.1	4.1	8.4	1.3



Composite	Grind, K ₈₀ (µm)	Product	Weight (%)	Assay			Distribution		
				Au (g/t)	Ag (g/t)	S (g/t)	Au (%)	Ag (%)	S (%)
Caribou	121	Head	100.0	4.9	12.3	9.5	100.0	100.0	100.0
		Flotation Concentrate	28.7	15.5	37.9	32.2	91.6	88.8	97.4
		Flotation Tails	71.3	0.6	1.9	0.3	8.4	11.2	2.6
Lynx	110	Head	100.0	4.7	6.1	2.8	100.0	100.0	100.0
		Flotation Concentrate	15.1	28.2	34.7	18.2	91.0	86.3	97.3
		Flotation Tails	84.9	0.5	1.0	0.1	9.0	13.7	2.7

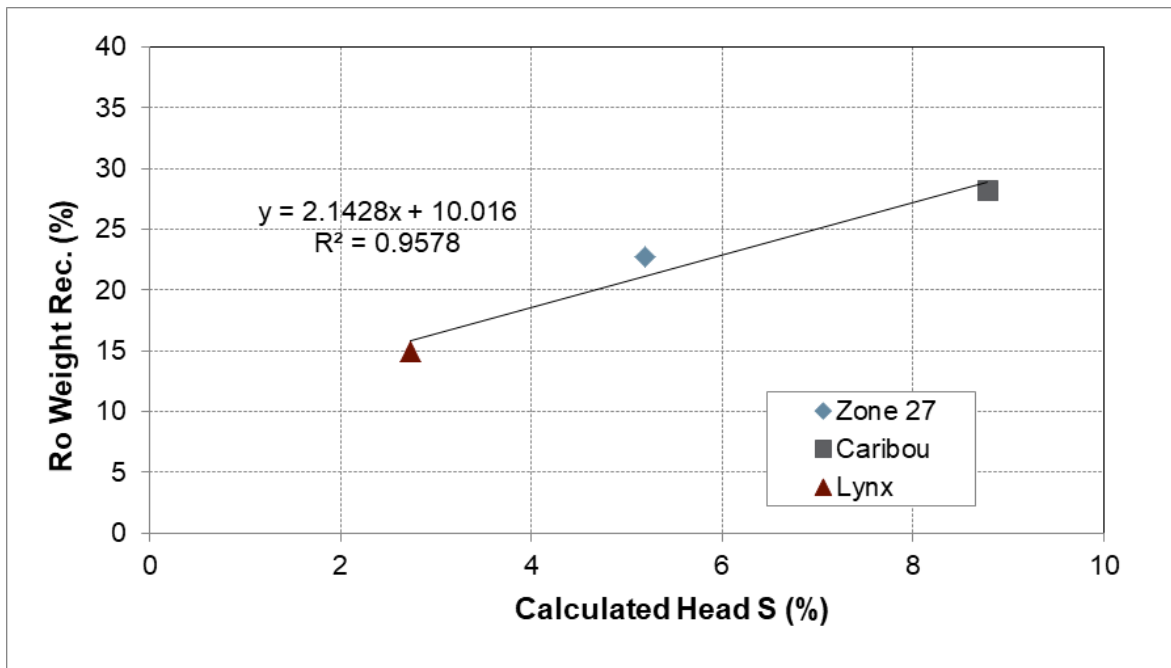


Figure 13-6: Rougher weight recovery vs. %S in feed.

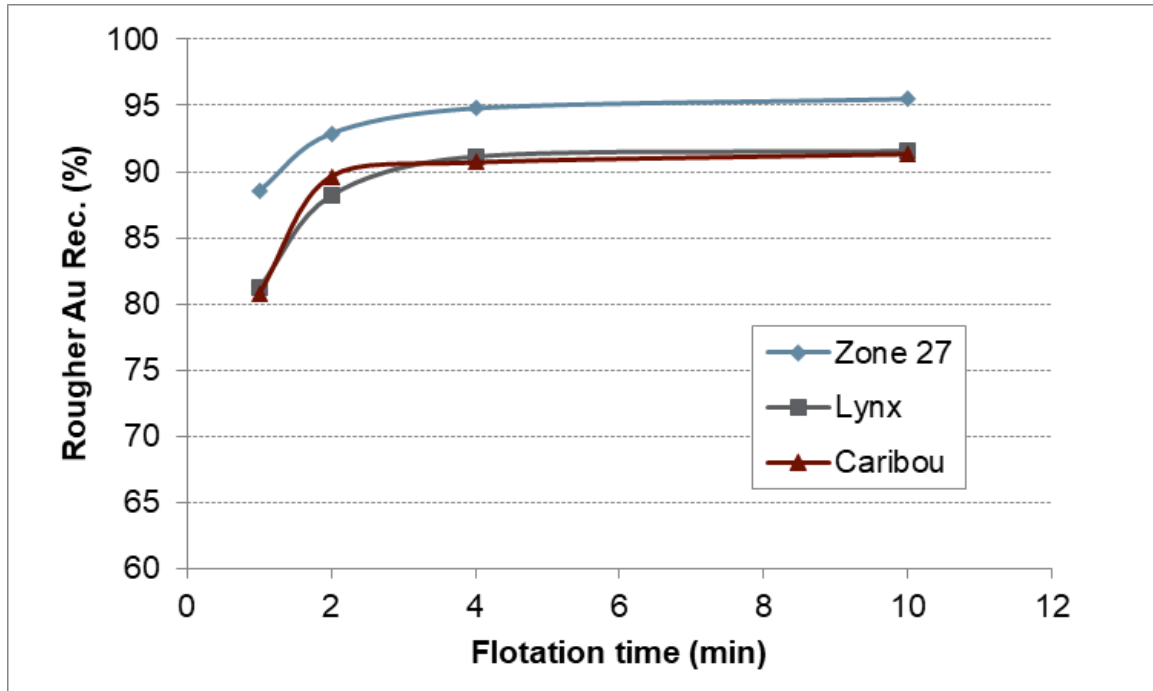


Figure 13-7: Rougher flotation kinetics.

The results of the flotation tests indicated that weight recovery to the rougher concentrate is very well correlated to the sulphur grade in the flotation feed. The kinetics tests showed that flotation was nearly complete after 4 minutes with a slight improvement in gold recovery at 10 min. For all three zones, gold recovery to the concentrate was 96%, 92% and 91% for the Zone 27, Caribou and Lynx composites respectively. The concentrate represented between 15% and 29% of the initial flotation feed mass for the three composites.

Leaching Testwork (with Gravity)

Two series of leaching tests were conducted on the Windfall Lake composites. The first consisted of whole rock leach of the gravity tailings, while the second involved leaching of both the concentrate and tailings products resulting from flotation of the gravity tails, in turn. The condition for each series of leach tests is presented in Table 13-8.



Table 13-8: Leaching test conditions

Test	Feed K ₈₀ (µm)	Pulp density (% w/w)	Pre- treatment	Leaching parameters				
				Time (h)	Temp. (°C)	NaCN, Initial/maintained (g/L)	DO (ppm)	pH
Whole rock leach	110	40	n/a	72	19	1.2 / 1.6	5-8	10.5
Flotation concentrate	~12	35	n/a	18	32	1.0 / 0.5	3-5	10.5
Flotation tails	104	50	n/a	24	19	0.5 / 0.5	5-8	10.5

Whole Rock Leaching

A single WRL test was performed using the Lynx material gravity tails. The results of this test is presented in Table 13-9.

Table 13-9: Whole rock leach test results

Test	Composite	Reagent consumption (kg/t)		Cyanide compounds (mg/L)		Recovery (%)	
		NaCN	CaO	SCN	WAD	Au	Ag
CN3	Lynx	0.45	2.13	34	537	85.2	75.8

Leaching of Pyrite Flotation Concentrate

A series of bottle roll leaching tests was conducted on the Zone 27, Lynx and Caribou pyrite concentrates resulting from the flotation of the gravity tails of each material. Prior to leaching, the pyrite concentrates were reground to and P₈₀ of approximately 12 µm in a laboratory scale ball mill. The reground concentrates were then re-pulped to 35% (w/w) solids to be leached for 18 hours with intermittent sample collection. No pre-treatment was applied.

Table 13-10: Flotation concentrate leach test results

Test	Composite	Reagent consumption (kg/t)		Cyanide compounds (mg/L)		Recovery (%)	
		NaCN	CaO	SCN	WAD	Au	Ag
CN9	Zone 27	1.33	2.76	280	208	83.5	65.1
CN10	Caribou	2.62	3.67	680	400	90.6	58.5
CN8	Lynx	2.03	3.96	290	272	86.7	73.6



Leaching of Pyrite Flotation Tailings

Gold recovery from the flotation tailings was assessed in a series of bottle roll tests conducted on all three composites, Zone 27, Lynx and Caribou. The tailings did not undergo regrinding or pre-treatment prior to cyanidation. The flotation tailings were re-pulped to 50% (w/w) solids and leached for 24 hours with intermittent sample collection. The results, presented as an average per zone are presented in Table 13-11.

Table 13-11: Flotation tailings leach test results

Composite	No. tests	Reagent consumption (kg/t)		Cyanide compounds (mg/L)		Recovery (%)	
		NaCN	CaO	SCN	WAD	Au	Ag
Zone 27	2	0.05	0.50	5.1	192	78.8	32.3
Caribou	2	0.06	0.71	13.0	181	74.4	65.6
Lynx	2	0.04	0.59	3.6	202	62.1	56.8

13.1.6 Gold Recovery without Gravity

Flotation Testwork (without Gravity)

Kinetic rougher pyrite flotation tests were conducted on the 26 samples from Zone 27, 20 samples from Caribou and two tests on Lynx composites with no gravity pre-treatment. Each test was conducted over 10 min, with intermittent sampling at 1, 2, 4 and 10 min. Both the PAX collector and the MIBC frother were dosed at various points during the test.

The Lynx sample was not considered representative due to very high head grade ~21 g/t. Table 13-13 presents the average flotation results for the three types of material.

Table 13-12: Average flotation test results

Composite	Grind, K ₈₀ (µm)	Product	Weight (%)	Assay			Distribution		
				Au (g/t)	Ag (g/t)	S (g/t)	Au (%)	Ag (%)	S (%)
Zone 27 (26 tests)	129	Head	100.0	8.05	6.92	8.48	100.0	100.0	100.0
		Flotation Concentrate	25.6	28.88	22.61	31.34	92.0	83.8	94.7
		Flotation Tails	74.4	0.50	1.49	0.20	8.0	16.2	5.3



Composite	Grind, K ₈₀ (µm)	Product	Weight (%)	Assay			Distribution		
				Au (g/t)	Ag (g/t)	S (g/t)	Au (%)	Ag (%)	S (%)
Caribou (20 tests)	136	Head	100.0	6.01	11.07	6.77	100.0	100.0	100.0
		Flotation Concentrate	21.6	26.03	45.77	28.79	93.4	89.1	91.7
		Flotation Tails	78.4	0.53	1.84	0.25	6.6	10.9	8.3
PEA Lynx Blend (2 tests)	143	Head	100.0	21.16	-	3.9	100.0	-	100.0
		Flotation Concentrate	20.8	85.78	-	18.36	84.5	-	99.0
		Flotation Tails	79.2	4.08	-	0.06	15.5	-	1.0

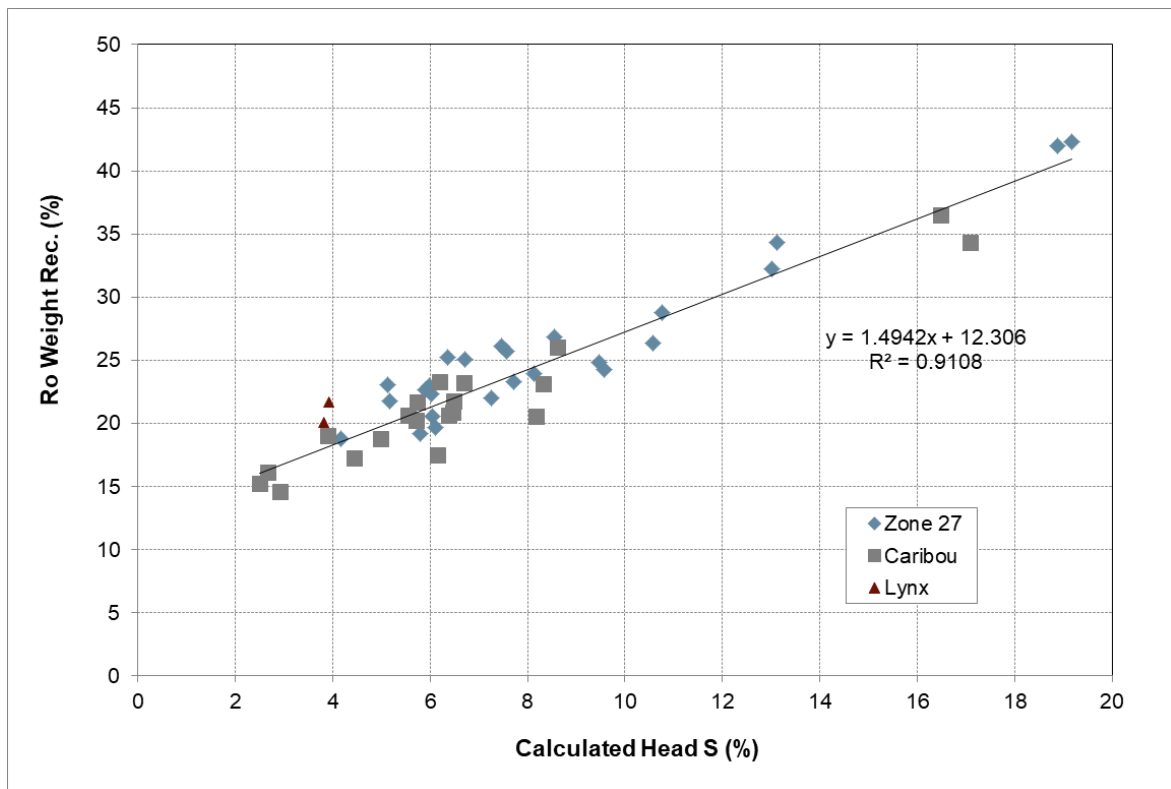


Figure 13-8: Rougher weight recovery vs. %S in feed.

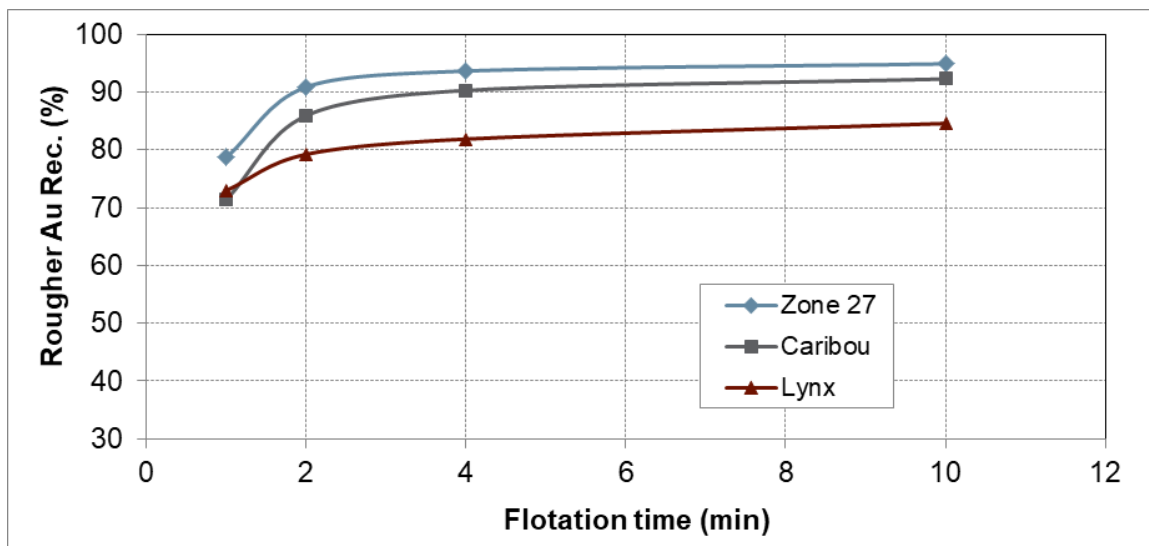


Figure 13-9: Average kinetic Au recovery for Zone 27 and Caribou variability flotation tests.

For all three zones, the flotation response showed a very strong correlation between sulphur head grade and weight recovery to the concentrate as illustrated in Figure 13-8. The kinetics, as shown in Figure 13-9, were relatively fast with the majority of potential gold recovery reached after 4 minutes, however, some improvement was seen in the final 10 minutes samples for all three materials.

Gold and silver recoveries to the flotation concentrate were 92.0% and 83.8% respectively for Zone 27 and 93.4% and 89.1% for Caribou. Gold recovery to the Lynx concentrate was lower at 84.5%, however, as previously mentioned, the feed was not considered representative of the zone with a head grade of ~21 g/t. Both the flotation concentrate and tailings products had disproportionately high gold grades of ~86 g/t and 4 g/t respectively.

Leaching (without Gravity)

Three types of leaching tests were conducted on samples with no previous gravity pre-treatment: WRL with and without carbon, leaching of reground pyrite flotation concentrates and leaching of pyrite flotation tailings. In each series, optimization tests were conducted to determine the ideal conditions for variability testing. Some of the parameters evaluated include the effect of grind size, pulp density, leach time and NaCN dosage as well as leaching with and without carbon. All leaching tests, unless otherwise noted, were conducted as bottle rolls.

The optimized test conditions selected for each type of test are presented in Table 13-13.



Table 13-13: Leaching test conditions

Test	Feed K ₈₀ (µm)	Pulp density (% w/w)	Leaching parameters					
			Time (h)	Carbon (g/L)	Pb(NO ₃) ₂ (g/t)	NaCN (g/L)	DO (ppm)	pH
Whole rock leach (CIL)	47	40	72	10	500	1.2	8-9	10.5
Whole rock leach (no carbon)	76	40	72	n/a	n/a	1.2-1.5	6-10	10.5
Flotation concentrate - optimization	11-32	35	18-72	n/a	n/a	0.7-1.50	4-7	10.5
Flotation concentrate - variability	~12	35	18	n/a	n/a	1.5	3.4-4.5	10.5
Flotation tails - optimization	92-170	45-50	24-48	n/a	n/a	0.50	8-11.3	10.5
Flotation tails - variability	156	50	24	n/a	n/a	0.5	5-8	10.5

Whole Rock Leaching (without Gravity)

The average results of the WRL tests conducted on Zone 27 and Caribou composites, both with and without carbon, are presented in Table 13-14 and Figure 13-10. The leach kinetics for Zone 27 and Caribou tests are shown in Figure 13-11.

Table 13-14: Whole rock leach test results

Composite	No. tests	Reagent consumption (kg/t)		Cyanide compounds (mg/L)		Recovery (%)	
		NaCN	CaO	SCN	WAD	Au	Ag
Zone 27 – CIL	2	1.67	0.45	78	-	90.9	-
Caribou – CIL	2	1.95	0.64	110	-	91.1	-
Zone 27	6	1.19	0.36	69	-	85.7	-
Caribou	2	0.86	0.27	103	-	86.1	-

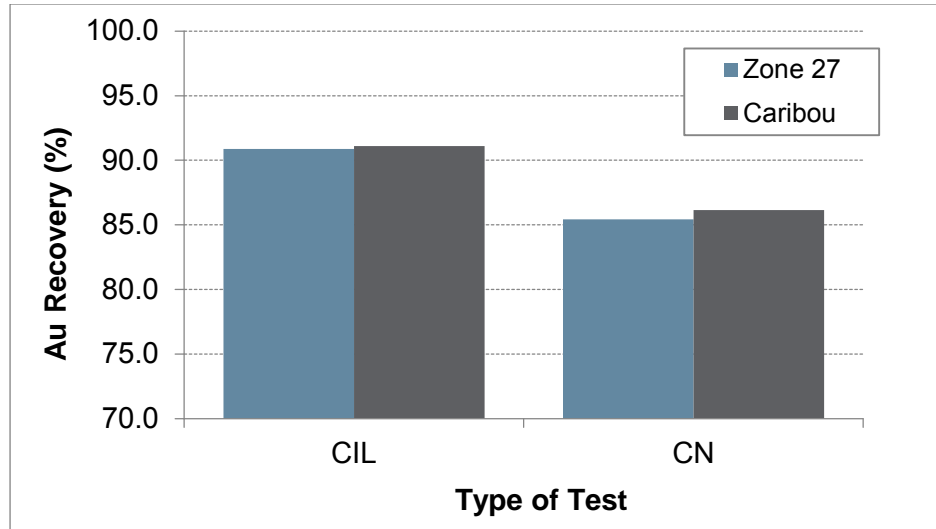


Figure 13-10: Gold recovery from CIL vs. cyanidation without carbon (at 72 hours).

Gold recoveries of 86% to 91% were observed for the 12 WRL tests conducted. A marked improvement of approximately 5% in recovery was observed for the tests conducted with carbon (CIL) when compared to those without carbon. For both the Zone 27 and Caribou materials, the improvement in recovery was accompanied by increases in both NaCN and lime consumption. It should also be noted that lead nitrate was added to the CIL series of tests, and a finer feed size, P₈₀ of 47 micron, was used.

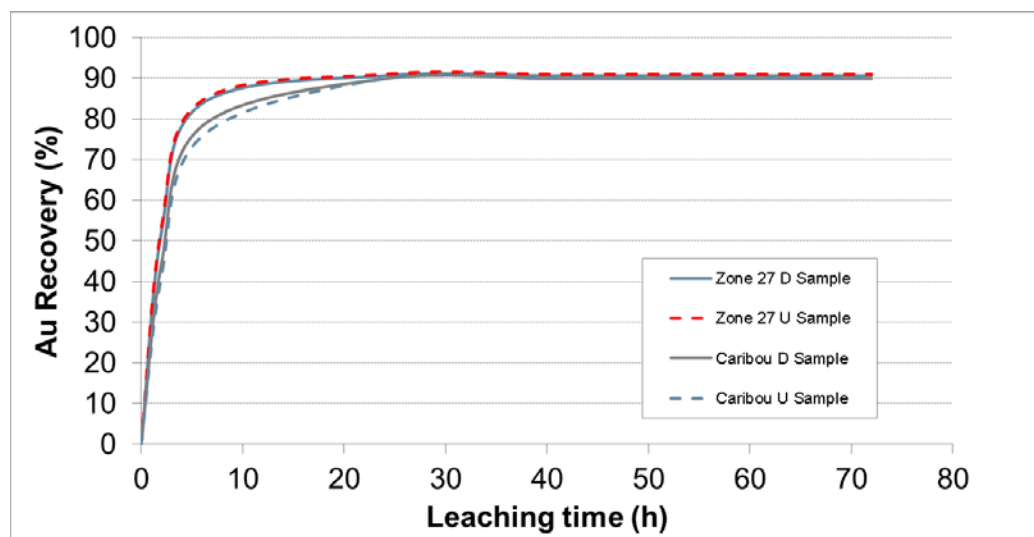


Figure 13-11: Leach kinetics for Zone 27 and Caribou CIL.



Leaching of Pyrite Concentrate (without Gravity)

The products of flotation tests with no gravity pre-treatment were reground and submitted to cyanidation. The average results of the pyrite flotation concentrate leach tests per zone are presented in Table 13-15. For all materials tested, gold recoveries ranging from 84% to 98% were observed. Silver recovery values were more variable with a minimum and maximum of 47% and 87% respectively.

Table 13-15: Flotation concentrate leach test results

Composite	No. tests	Reagent consumption (kg/t)		Cyanide compounds (mg/L)		Recovery (%)	
		NaCN	CaO	SCN	WAD	Au	Ag
Zone 27	3 (optimization)	6.59	2.26	537	-	93.0	-
Zone 27 + Caribou	3 (optimization)	2.41	2.57	713	-	92.8	75.3
Zone 27	21 (variability)	2.00	7.02	479	472	92.0	77.3
Caribou	17 (variability)	2.70	8.20	566	475	92.8	72.6
Lynx Blend	1	1.58	4.90	270	382	96.9	89.6

Leaching of Pyrite Flotation Tailings (without Gravity)

Table 13-16 presents results of optimization tests and subsequent average of variability bottle roll leach tests. The variability tests for Caribou include the results of two stirred reactor tests.

Table 13-16: Flotation tailings leach test results (without gravity)

Composite	No. tests	Reagent consumption (kg/t)		Cyanide compounds (mg/L)		Recovery (%)	
		NaCN	CaO	SCN	WAD	Au	Ag
Zone 27	6 (optimization)	0.06	0.31	13	-	78.0	56.4
Caribou	2 (optimization)	0.12	0.30	25	-	76.8	
Zone 27	24 (variability)	0.06	0.71	13	269	65.7	46.8
Caribou	19 (variability)	0.08	0.53	16	236	62.1	51.7
Lynx Blend	1	0.07	0.81	4.8	203	84.2	79.8

While the results presented are averages per zone, the observed gold recoveries from leaching of the flotation tailings in individual tests from the Zone 27 and Lynx zones ranged from 31.3% to 88.8%, while silver recoveries varied between a minimum value of 7.3% and a maximum value of 74.5%.

The recovery for the Lynx blend flotation tails was 84.2% for gold and 79.8% for silver.



13.1.7 Overall Recovery – Windfall Lake

The overall gold recoveries for the testwork for a flowsheet including gravity and CIL is presented in Table 13-17 for all three zones.

Table 13-17: Overall gold recovery with gravity and CIL

Composite	Gravity		Gravity tails leach		Overall Au recovery (%)
	Au distribution (%)	ILR Au recovery (%)	Au distribution (%)	Au recovery (%)	
Zone 27	19.8	99.0	80.2	90.9	92.5
Caribou	9.6	99.0	90.4	90.0	90.9
Lynx	22.4	99.0	77.6	92.3	93.8

The gold distribution between the gravity concentrate and tailings was based on the results obtained at SGS as presented in Table 13-6. The gold leach recoveries for each zone were determined by modelling the existing kinetic CIL testwork data to predict the recovery at the 40-hour retention time used for the process design criteria.

Limited silver assays were available in the Windfall Lake testwork program results. A weighted average of selected gravity and leaching testwork results (flotation tails leach results for Zone 27 and Caribou samples and whole rock leach of Lynx material) from the Windfall Lake testwork program were used to estimate a silver recovery of 69.2%.

13.1.8 Thickening

Static settling tests were conducted on blended samples of flotation concentrates, flotation tailings and on the PEA sample leach residue. Initial scoping tests at SGS included flocculant screening, which showed that each sample flocculated and settled well using the Magnafloc 10 flocculant. Subsequently, two stages of static settling were conducted to optimize solids feed density and flocculant dosage. The tests at Pocock on combined leach residues were conducted using SNF AF910AH. The overall results obtained are summarized in . The results of dynamic settling tests conducted at Pocock are presented in .



Table 13-18: Static thickening results

Composite	D ₈₀ ⁽¹⁾ (µm)	Pulp pH	Flocculant dosage (g/t)	Feed solids density (%w/w)	U/F solids density (%w/w)	O/F TSS (mg/L)	Unit area ⁽²⁾ (m ² /t/d)
Flotation conc.	46	7.6	20	15	65	32	0.11
Flotation tails	103	7.4	12	10	66	27	0.11
PEA leach residue	56	11.0	6	10	68	25	0.13
Combined leach residues	104	8.0	15	20	62	-	0.20-0.31
Combined leach residues	104	8.0	20	20	62	-	0.20-0.22
Combined leach residues	104	8.0	25	20	61	-	0.20-0.22
Combined leach residues	104	8.0	20	25	63	-	0.27-0.31
Combined leach residues	104	8.0	20	30	64	-	0.34-0.40

⁽¹⁾ The PSD of the flotation conc. and the leach residue were measured by laser, while flotation tails by sieving. The flotation concentrate at 46 µm appears to be too fine (recombined conc + tails is much finer than flotation feed for any of the three composites).

⁽²⁾ The presented unit areas for testwork conducted at Pocock were calculated using U/F solids densities of 65-69% and include a 1.25 safety factor.

The results indicate that each of the three materials was readily thickened to dense underflow solids content ranging from 61% to 68% with reasonable flocculant dosages. The clarity of the overflow was also relatively clean with very low total suspended solids concentrations ranging from 25 mg/L to 32 mg/L.

Table 13-19: Dynamic thickening results

Composite	D ₈₀ ⁽¹⁾ (µm)	Pulp pH	Flocculant dosage (g/t)	Feed solids density (%w/w)	U/F solids density (%w/w)	O/F TSS (mg/L)
Combined reground pyrite conc. and pyrite flotation tailings residues	104	8.0	21 - 47	19.3	58.8 – 73.6	51 - 350

Based on the results of the dynamic thickening results, the recommended design parameters for various thickener types based on the tested conditions are presented in .



Table 13-20: Recommended thickener design parameters

Thickener type	Design basis net feed loading (m ³ /m ² /h) ⁽¹⁾	Predicted U/F Density (%w/w)	Flocculant Dosage (g/t)	O/F TSS (mg/L)
High rate thickener	3.19	69.0	24 - 28	< 250
High density thickener	2.46	71.0		
Paste thickener	3.75	73.0		

(1) The net feed loadings presented were qualified as “moderate”, “conservative” and “aggressive” for the high-rate, high-density and paste thickeners respectively.

13.1.9 Rheology

The slurry rheology was assessed using Fann and Haake (for paste-range) viscometers to establish the link between spindle speed (shear rate) and slurry density to apparent viscosity. The relationship between shear stress and shear rate also enables to get the yield value over the range of solids content of interest. The results for the combined reground pyrite concentrate and flotation tailings are illustrated in .

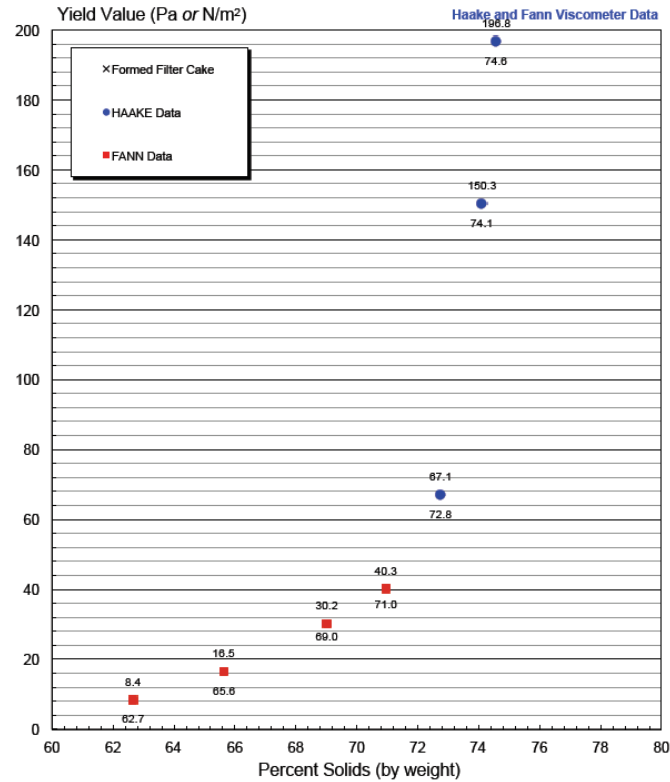


Figure 13-12: Yield stress vs. slurry density for combined reground pyrite concentrate and flotation tailings.



The rheological testwork is used for estimating torque requirement for thickener rake mechanisms, for determining agitator torque and motor power requirements, as well as for pump sizing.

13.1.10 Filtration

Testing was performed on the thickened blend of flotation concentrate and tailings leach residues. The sample was tested to predict the filtration behaviour of the combined tailings in the event that a dry-stack type of tailings plant was an elected option for the Project.

Based on the filtration results obtained by Pocock, pressure filtration under a variety of conditions yielded cake moistures ranging from 6% to 14%. Several operating conditions were identified under which a dry, stackable cake was produced with good filtrate clarity.

13.2 Osborne-Bell Testwork

The Osborne-Bell testwork program conducted in 2011-2012 at SGS Lakefield included:

- Sample and composite preparation and characterization (head assay and mineralogy);
- Comminution testing:
 - SAG Mill Comminution (“SMC”);
 - Bond rod mill and ball mill work indices (“RWi” and “BW”);
 - Abrasion index (“Ai”);
- Gravity testwork;
- Leaching of gravity tailings.

The test plan aimed to determine an optimal flowsheet and generate engineering data for average mineralized material feed grades.

The following sections related to the Osborne-Bell testwork were taken directly from the “NI 43-101 Technical Report and Mineral Resource Estimate – Osborne-Bell deposit, Quévillon Property” published in April, 2018 (InnovExplo, 2018).

13.2.1 Comminution Testwork

A summary of the comminution testwork conducted for the Osborne-Bell is presented in .



Table 13-21: Summary of Osborne-Bell comminution test results

Sample ID	Specific gravity	SMC		RWi (kWh/t)	BW _i (kWh/t)		A _i (g)
		A _x b	t _a		100M	200M	
High Grade Comp	2.84	23.0	0.21	17.4	14.4	-	0.292
Low Grade Comp	2.82	23.9	0.22	17.9	13.8	-	0.330
Camten Zn Comp2	2.77	32.0	0.30	18.8	-	18.3	0.312
Osbell Mafic North	2.88	26.6	0.24	21.7	-	18.6	0.297

The BW_i considered an average hardness of 13.8 kWh/t for the Osborne-Bell Low Grade composite and 14.4 kWh/t for the Osborne-Bell High Grade composite. The RW_i was considered high at 17.9 kWh/t for the Low Grade composite and 17.4 kWh/t for the High Grade composite. The fact that RW_i is higher than BW_i is an indication that a pebble crusher would most likely be required in the grinding circuit if SAG milling is selected. This is also supported by the SMC test results, which yielded low values for A_xb (23.0 to 32.0), an indication that the same samples are considered very hard in terms of resistance to impact.

13.2.2 Mineralogical Study

A gold deportment study was conducted on Osborne-Bell Low Grade and High Grade composites. The majority of gold present in both the High Grade and Low Grade composites occurred as native gold. Several electrum grains were also present in the High Grade sample. The Low Grade sample contained a few petzite grains. A total of 476 gold grains were found by gold scanning in the High Grade sample, ranging in size from 0.6 µm to 179.1 µm with an average of 5.3 µm, including:

- 118 liberated grains with sizes ranging from 0.6 µm to 179.1 µm, and an average size of 12.5 µm;
- 28 attached grains with sizes ranging from 0.6 µm to 24.5 µm, and an average size of 6.2 µm;
- 330 locked grains with sizes ranging from 0.6 µm to 35.6 µm, and an average size of 2.6 µm.

The overall distribution of liberated, attached and locked gold in the High Grade sample accounted for 19.0%, 4.5% and 76.5% of the total gold, respectively.

A total of 243 gold grains were found by gold scanning in the Low Grade sample, ranging in size from 0.6 µm to 60.3 µm with an average of 4.3 µm, including:

- 31 liberated grains with sizes ranging from 0.8 µm to 44.2 µm, and an average size of 9.2 µm;



- 37 attached grains with sizes ranging from 0.6 μm to 60.3 μm , and an average size of 6.6 μm ;
- 175 locked grains with sizes ranging from 0.6 μm to 30.7 μm , and an average size of 3.0 μm .

The overall distribution of liberated, attached and locked gold in the Low Grade sample accounted for 16.6%, 15.2% and 68.2% of the total gold, respectively. Most gold grains identified (by occurrence) in both the High Grade and Low Grade samples were associated with pyrite and non-opaque minerals.

13.2.3 Gravity and Cyanidation Testwork

Gravity

Gravity recoverable gold (“GRG”) determinations were conducted on Bell Felsic (57.1%), Camten Au (53.9%) and Midway Mafic (24.3%) samples. These results indicate that gravity separation offers great potential and needs to be included in the grinding circuit. Gravity separation testwork with a Mozley table also confirmed the potential for gravity separation: the initial gravity separation results allowed recovering 28.6% of the gold in 0.128% mass pull for the Osborne-Bell Low Grade composite sample and 33.3% in 0.130% mass pull for the Osborne-Bell High Grade composite sample. Similarly, 39.7% of the gold was recovered with a mass pull of 0.121% with the Bell Felsic composite sample, 23.6% of the gold was recovered with a mass pull of 0.087% from the Camten Au composite sample, 26.2% of the gold was recovered with a mass pull of 0.147% for the Midway Mafic South composite sample, and 18.9% of the gold was recovered with a mass pull of 0.045% from the Osbell Mafic North composite sample. The initial flotation testwork gave interesting results demonstrating that when combined with gravity concentration it is possible to recover approximately 92% of the gold prior to cyanidation. No cyanidation test on the flotation concentrate was performed at that time.

Cyanidation

A series of cyanidation tests at various grind size were conducted on gravity tails for the various mineralized material types. For most mineralized material types, the optimal Au recovery was achieved under normal leaching conditions within 48 hours. The leaching efficiency is directly dependent on the grind size. For most mineralized material types, the highest recoveries were obtained at P_{80} varying from 45 μm to 68 μm . At these grind sizes, the combined highest gold gravity and leaching extractions reached 91.0% to 97.0%. More laboratory testing is required to optimize the results, but it appears that for now a global recovery (gravity + leaching) of 93.0% is a realistic value for an average grind size between $P_{80} = 50 \mu\text{m}$ and 60 μm .



13.2.4 Overall Recovery – Osborne-Bell

The composite samples tested and characterized by SGS indicated non-optimized recoveries (gravity + cyanidation) ranging from 86.2% to 97.0% depending on the mineralized material type, grind size and test conditions. Overall, it is estimated that an average gold recovery of 93% (for an average grind size between $P_{80} = 50 \mu\text{m}$ and $60 \mu\text{m}$) can be achieved depending on the relative proportions of the various mineralized material types that will feed the process plant. This section summarizes the metallurgical results obtained by SGS.

Table 13-22: Summary of overall recovery for Osborne-Bell composites

Sample ID	Composite ID						
	Osbell Low Grade	Osbell High Grade	Bell Felsic	Camten Au	Midway Mafic South	Midway Mafic South B	Osbell Mafic North
Feed Grade (Au, g/t)	2.25	7.41	1.57	9.64	22.0	22.0	2.01
Feed Grade (Ag, g/t)	2.60	5.10	-	-	-	-	-
Feed size (μm)	56 – 94	57 – 75	113 – 46	89 – 49	112 – 38	43 – 45	55 – 63
Gravity Recovery (%)	26.4	29.2 – 33.3	39.7	23.6	26.2	26.2	18.9
Leach Extraction (%) ⁽¹⁾	87.6 – 95.8	86.0 – 88.8	88.5 – 93.5	86.0 – 94.7	81.3 – 86.4	90.9	87.7 – 88.5
Overall Au Recovery (%)	90.9 – 97.0	90.7 – 91.1	93.1 – 96.1	89.3 – 95.9	86.2 – 91.4	93.3	90.0 – 90.7

⁽¹⁾ The leach recoveries are reported for 48 hours. The Midway Mafic South B and Osbell Mafic North tests were conducted with oxygen addition during leaching.

No information regarding silver recovery for Osborne-Bell was found during the review of the historical testwork results.

13.3 Overall Gold Recovery – Combined Windfall Lake and Osborne-Bell

The Project LOM overall gold recovery calculated for a gravity/CIL flowsheet treating both Windfall Lake and Osborne-Bell materials is presented in Table 13-23.

Table 13-23: Overall gold recovery with gravity and CIL

Plant feed	Gravity		Gravity tails leach		Overall Au recovery (%)
	Au distribution (%)	ILR Au recovery (%)	Au distribution (%)	Au recovery (%)	
Windfall Lake + Osborne-Bell	19.8	99.0	80.2	91.2	92.7



No information was found pertaining to silver recovery from the historical Osborne-Bell testwork results, and assaying for silver was not consistently performed during the Windfall Lake program. To estimate silver recovery for the Project, BBA used a weighted average of selected gravity and leaching testwork results from the Windfall Lake testwork program. The leaching tests consisted of flotation tails leach results for Zone 27 and Caribou samples as well as whole rock leach of Lynx material. The estimated silver recovery was 69.2%.



14. MINERAL RESOURCE ESTIMATES

14.1 Windfall Lake Deposit, Urban-Barry Property

The mineral resource estimate herein (the “2018 MRE”) was prepared by Judith St Laurent, P Geo. (OGQ #1023), using all available information.

The main objective of the mandate assigned by Osisko Mining Inc. (“Osisko”) was to prepare a NI 43 101 compliant mineral resource estimate for the Windfall Lake gold deposit, including the Zone 27, Caribou, Lynx, Underdog, Mallard and F Zones mineralization corridors.

The 2018 resource area measures 3.0 km on strike and 1.5 km wide, and is 1.4 km deep.

The mineral resources herein are not mineral reserves as they do not have demonstrated economic viability. The 2018 MRE includes Indicated and Inferred resources and is based on the assumption that the deposit will be potentially developed and mined using underground methods. The effective date of the estimate is May 14, 2018.

14.1.1 Methodology

The 2018 MRE detailed in this report was prepared using Leapfrog GEO v.4.1 (“Leapfrog”) and GEOVIA GEMS v.6.8 (“GEMS”) software. Leapfrog was used for modelling purposes, including the construction of 124 mineralized corridors in Zone 27, Caribou, Underdog, Lynx, Mallard and F Zones areas. GEMS was used for the grade estimation and block modelling. Statistical studies were done using Snowden Supervisor v.8.8 and Microsoft Excel software.

The main steps in the methodology were as follows:

- Database compilation and validation for the diamond drill holes used in the mineral resource estimate;
- Modelling of mineralized zones based on metal content, lithological and alteration information;
- Generation of drill hole intercepts for each mineralized zone;
- Grade compositing;
- Capping study on composite data;
- Spatial statistics;
- Grade interpolations;
- Validation of grade interpolations.



Four block models were created including the mineralization corridors of: 1) Main (group of Zone 27, Caribou and Mallard); 2) Lynx; 3) Underdog; and 4) F Zones. These four block models were established in four GEMS projects.

14.1.2 Drill Hole Database

The diamond drill hole (“DDH”) database contains 1,718 surface drill holes in the resource area including 490,397 assays, which corresponds to the holes completed on the resource area of the Windfall Lake Project as of March 5, 2018. The GEMS databases do not retain every hole drilled on the property because many holes are too far from the deposit to be of use for the estimation (see Chapters 6 and 10). Figure 14-1 shows the selection of 1,453 drill holes (in blue, magenta and green) that were used for the resource estimate, including 812 drill holes (in magenta) drilled by Osisko since the database close-out date of the 2015 PEA. A total of 265 drill holes were excluded from the 2018 MRE (shown in Figure 14-1 in black) because they were cancelled, not assayed or included pending assays.

The drill holes cover the strike length of the resource area at a drill spacing ranging from 15 m to 100 m and were drilled at variable orientations. The 1,453 resource drill holes contain a total of 470,258 sampled intervals representing 469,042 m of drill core.

As part of the current mandate, the database was validated before starting the estimation.

In addition to the basic tables of raw data, the GEMS databases contain tables of grade intercepts and the calculated grade composites required for statistical analysis and grade block modelling.

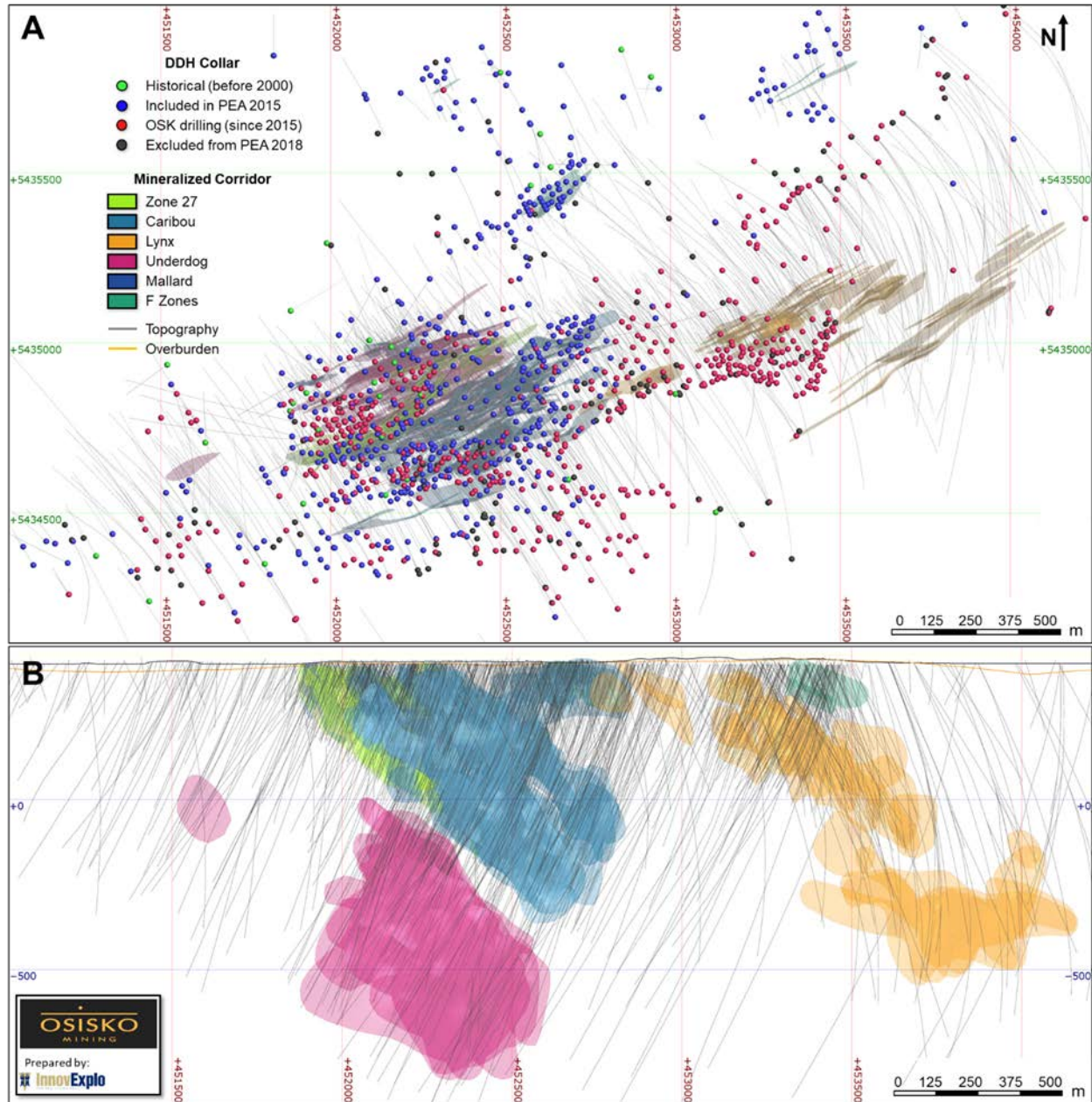


Figure 14-1: DDH in the Windfall Lake database used for the resource estimate.
A) Plan view; and B) Longitudinal view looking north.



14.1.3 Geological Model

The geological model was developed by the Windfall Lake geologists. The main lithological units of the deposit presented in the model include a series of felsic to mafic dikes cross-cutting volcanic rocks. The geological model, dated March 2018, constitutes the basis for the mineralization interpretation and was included in the GEMS block models to help document densities to the blocks. The Red Dog ("I2F") and the I13 post-mineralization dikes (Figure 14-3) were also included in the GEMS block models and were treated as barren units during the grade interpolation.

14.1.4 Interpretation of Mineralized Zones

In order to conduct accurate resource modelling of the deposit, InnovExplo and Osisko based the mineralization wireframe model on the drill hole information and the geological model developed at Windfall. InnovExplo and Windfall Lake geologists created 124 distinct mineralized solids including 18 in Zone 27, 39 in Caribou, 36 in Lynx, 20 in Underdog, four in Mallard, and seven in the F Zones corridor (F3, F17 and F51).

The mineralization modelling was based on lithologies, mineralized shears and the observation that most mineralized domains (>2.0 g/t Au) occur at the contact of productive porphyry dikes and/or silica alteration and volcanic host rocks. Interpretation was initially made from cross-sections at 50 m intervals, and then completed in Leapfrog software where selections of mineralization intervals on cross-sections and plan views were combined to generate 3D wireframes. The wireframes are snapped to drill holes intercepts. A minimum true thickness of 2.0 m was used for the creation of the domains to produce valid solids. The wireframes are approximately 5.0 m apart from each other when parallel to subparallel.

Domains are subvertical, striking NE-SW and plunging approximately 30 degrees towards the northeast.

The mineralized zones were defined afterwards in longitudinal view to delineate a high-grade core based on composite grades greater than 2.0 g/t Au. The lateral extensions of the high-grade domains were limited by the shortest distance between 50 m from the last composite or half distance of the surrounding drill hole. A wireframe must be based on at least three drill holes.

The high-grade mineralized domains were clipped onto the overburden surface.

Some isolated gold intercepts exist outside the interpreted mineralized envelopes. Those isolated values are not attributed to any zone given the lack of continuity.

Figure 14-2 and Figure 14-3 show the 124 mineralized domains distributed between the six mineralization corridors and the impact of the post-mineralization dikes (barren units).

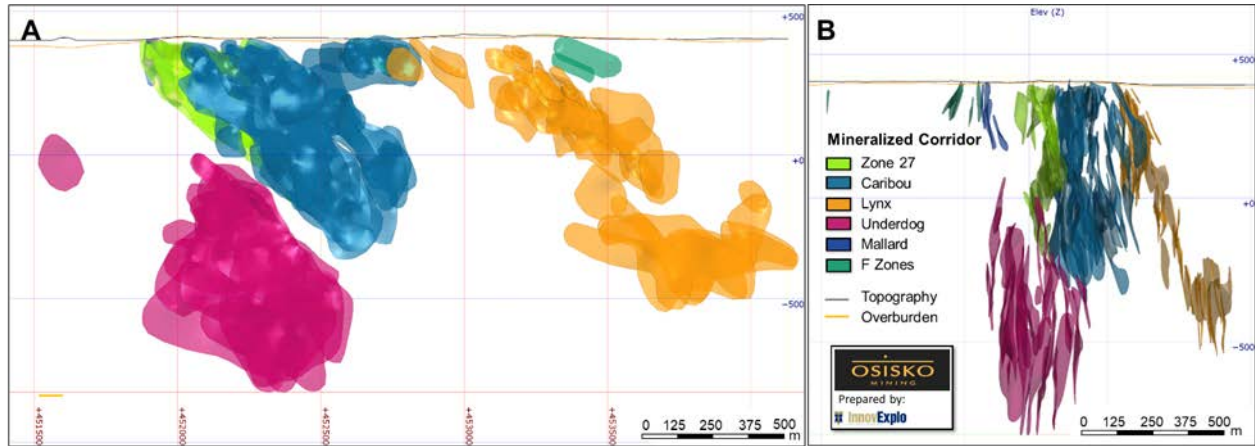


Figure 14-2: Mineralized domains.
 A) Longitudinal view looking north; and B) Cross-section looking northeast.

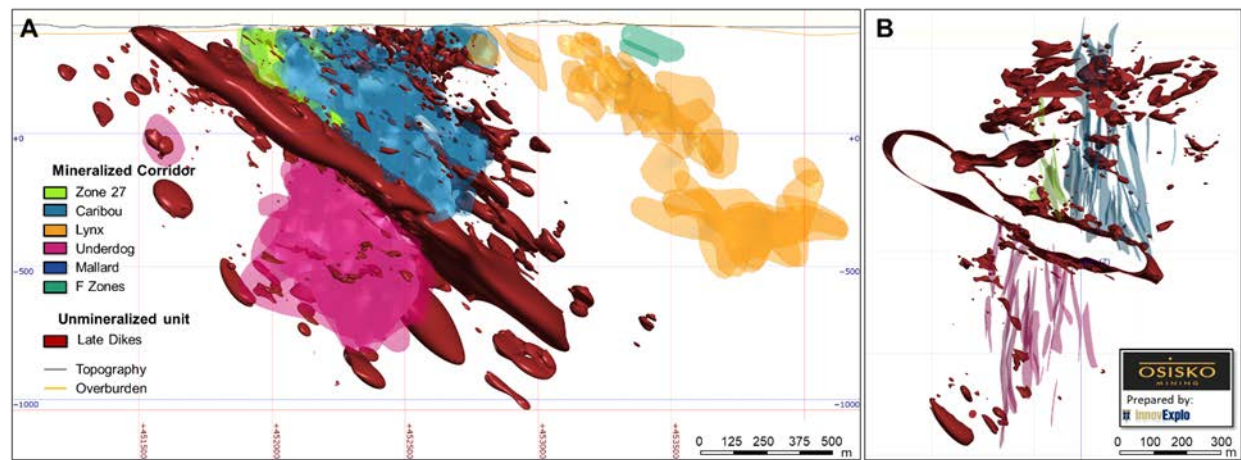


Figure 14-3: Unmineralized late dikes.
 A) Longitudinal view looking north; and B) Cross-section looking northeast.

14.1.5 Voids Model

The 3D wireframe of the exploration ramp was provided by Osisko as of March 2018 intersects three mineralized zones in the Caribou area: CA_218, CA_232 and CA_237 and four mineralized zones in the F Zones area: ZF_601, ZF_602, ZF_603 and ZF_605 (Figure 14-4). The mined-out volume from the ramp was included in the Main and F Zones GEMS block models as voids.

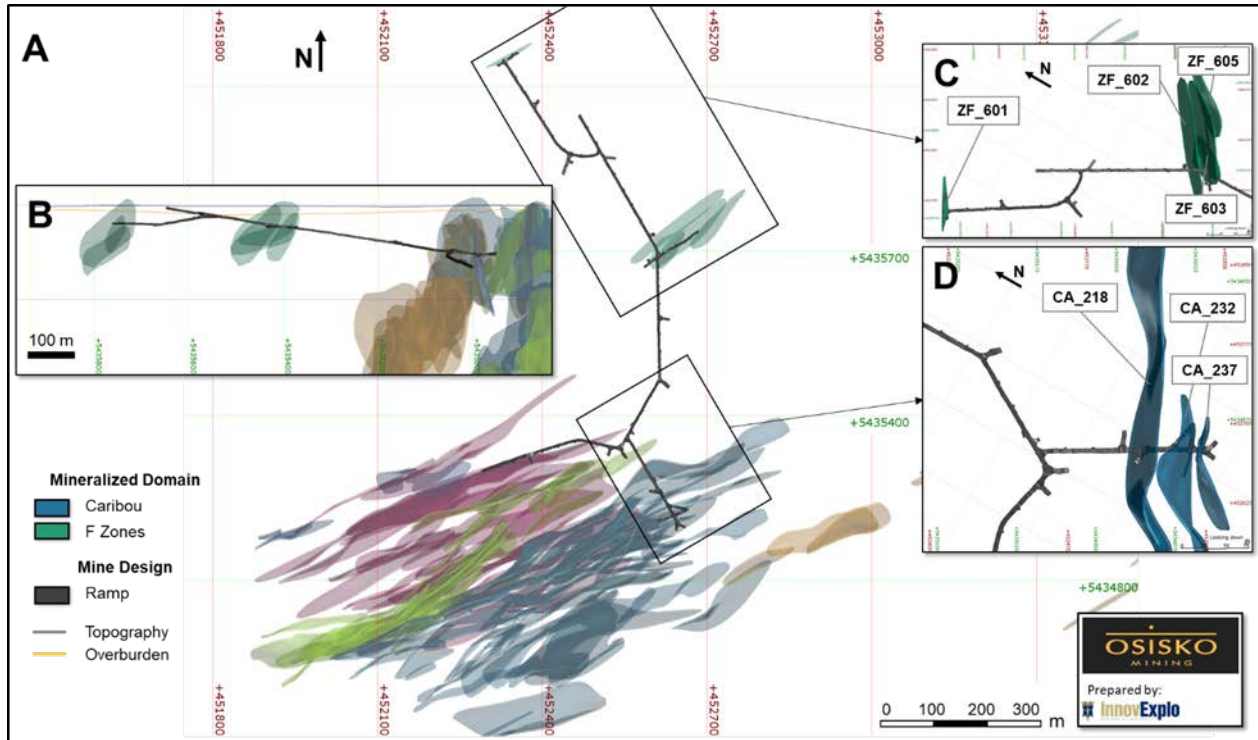


Figure 14-4: Exploration ramp intersecting F Zones and Caribou mineralization.
 A) Plan view; B) Cross-section looking east of the ramp; C) 3D close-up views on intersections with F Zones; and D) Caribou corridor.

14.1.6 Compositing and High-grade Capping

The following steps were conducted on each mineralization corridors (Main, Lynx, Underdog, F Zones) separately.

For drill hole assay intervals intersecting mineralized domains, rock codes were automatically attributed based on the name of the 3D solids, and these coded intercepts were used to generate basic statistics on sample lengths, gold grades of raw assays and composites.

Basic univariate statistics, probability plots and histograms on composites datasets for each mineralized domain were generated and reviewed. The results are presented in Table 14-1 to Table 14-6.



Table 14-1: Statistics on raw assays presented by zones – Zone 27 (Main area)

Mineralized domain code	Number of raw assay	Min	Max	Uncut mean
		(g/t Au)	(g/t Au)	(g/t Au)
101	1,019	0.00	6,070.00	10.26
102	336	0.01	4,180.00	18.15
103	173	0.00	140.73	3.69
104	124	0.00	298.00	5.08
105	203	0.01	1,260.00	8.81
106	149	0.01	100.00	2.16
107	54	0.01	107.50	5.42
108	358	0.00	139.00	2.94
109	10	0.05	56.37	7.32
110	71	0.00	48.70	3.99
111	25	0.01	2,080.00	84.75
112	80	0.02	120.50	4.52
113	97	0.00	393.00	6.25
114	602	0.01	174.50	6.29
115	1,016	0.01	1,640.00	7.41
116	43	0.03	70.80	6.12
117	90	0.00	65.40	2.08
118	30	0.05	8.95	1.77

Table 14-2: Statistics on raw assays presented by zones – Caribou (Main area)

Mineralized domain code	Number of raw assay	Min	Max	Uncut mean
		(g/t Au)	(g/t Au)	(g/t Au)
201	1,199	0.00	101.00	1.96
202	260	0.00	883.00	6.93
203	313	0.00	53.00	1.58
204	109	0.01	63.90	2.83
205	378	0.00	100.00	2.97
206	311	0.00	16.75	1.35
207	775	0.00	379.00	2.16
208	211	0.00	71.90	1.49
209	47	0.00	49.40	2.34



Mineralized domain code	Number of raw assay	Min	Max	Uncut mean
		(g/t Au)	(g/t Au)	(g/t Au)
210	729	0.00	486.00	4.62
211	185	0.00	75.50	3.15
212	111	0.01	35.20	2.38
213	190	0.00	4,070.00	23.96
214	166	0.01	59.60	2.28
215	93	0.01	222.00	8.29
216	158	0.01	4,620.00	36.96
217	94	0.00	93.80	2.21
218	323	0.00	162.68	2.96
219	252	0.00	123.00	3.77
220	99	0.00	75.90	3.07
221	59	0.00	27.60	2.14
222	46	0.03	100.00	6.20
223	32	0.06	43.30	4.96
224	181	0.01	346.00	5.16
225	121	0.00	63.50	1.95
226	107	0.00	42.30	2.30
227	222	0.01	31.50	1.54
228	213	0.00	618.00	6.70
229	43	0.03	1,979.37	78.11
230	225	0.01	41.30	2.25
231	500	0.00	211.00	2.82
232	313	0.01	4,911.24	23.46
233	189	0.01	172.00	3.78
235	50	0.00	37.40	1.98
236	134	0.00	212.00	4.81
237	87	0.02	52.47	2.45
238	147	0.01	29.40	1.53
239	44	0.01	176.00	4.83
240	62	0.00	110.50	3.65



Table 14-3: Statistics on raw assays presented by zones – Mallard (Main area)

Mineralized domain code	Number of raw assay	Min	Max	Uncut mean
		(g/t Au)	(g/t Au)	(g/t Au)
501	88	0.03	727.00	12.89
502	55	0.01	30.90	2.35
503	34	0.03	57.37	2.81
504	46	0.01	382.36	12.66

Table 14-4: Statistics on raw assays presented by zones – Lynx

Mineralized domain code	Number of raw assay	Min	Max	Uncut mean
		(g/t Au)	(g/t Au)	(g/t Au)
301	182	0.00	145.50	3.05
302	66	0.00	100.00	6.07
303	55	0.01	38.10	3.53
304	367	0.00	591.00	6.01
305	452	0.00	194.00	5.45
306	70	0.01	51.50	3.92
307	176	0.00	170.50	5.27
308	309	0.01	1,260.00	9.22
309	157	0.01	236.00	8.46
310	569	0.00	3,740.00	12.98
311	220	0.01	375.00	9.06
312	111	0.01	362.00	7.16
313	125	0.01	253.00	11.38
314	42	0.01	16.15	1.94
315	55	0.01	704.00	18.72
316	68	0.01	97.70	5.85
317	92	0.01	1,230.00	31.13
318	74	0.01	1,060.00	18.77
319	123	0.01	109.50	4.46
320	82	0.01	176.00	8.26
321	82	0.01	25.90	2.42
322	88	0.00	231.00	6.87
323	76	0.01	105.00	3.73



Mineralized domain code	Number of raw assay	Min	Max	Uncut mean
		(g/t Au)	(g/t Au)	(g/t Au)
324	55	0.01	213.00	9.93
325	48	0.00	85.10	3.91
326	16	0.01	49.30	6.71
327	40	0.01	126.50	5.25
328	25	0.03	67.10	4.07
329	110	0.01	34.00	1.14
330	50	0.00	60.90	6.53
331	15	0.03	9.86	3.03
332	60	0.01	35.40	2.68
333	58	0.01	8.17	1.15
334	44	0.01	151.00	6.70
335	61	0.01	327.00	6.21
336	41	0.01	41.30	2.59

Table 14-5: Statistics on raw assays presented by zones – Underdog

Mineralized domain code	Number of raw assay	Min	Max	Uncut mean
		(g/t Au)	(g/t Au)	(g/t Au)
401	44	0.03	228.00	12.79
402	545	0.00	266.00	6.23
403	160	0.01	167.00	6.08
404	28	0.02	13.60	2.53
405	167	0.00	166.50	8.59
406	80	0.02	34.00	3.06
407	132	0.01	97.70	4.49
408	214	0.01	410.00	8.69
409	34	0.05	28.70	2.41
410	41	0.04	155.00	9.67
411	177	0.01	50.00	1.50
412	142	0.01	123.00	9.12
413	97	0.01	127.00	5.20
414	28	0.03	2,590.00	94.49
415	359	0.00	580.00	11.35



Mineralized domain code	Number of raw assay	Min	Max	Uncut mean
		(g/t Au)	(g/t Au)	(g/t Au)
416	110	0.01	65.80	3.36
417	263	0.01	501.00	3.53
419	105	0.02	289.00	6.61
420	282	0.04	1,110.00	10.89
421	152	0.03	75.90	3.91

Table 14-6: Statistics on raw assays presented by zones – F Zones

Mineralized domain code	Number of raw assay	Min	Max	Uncut mean
		(g/t Au)	(g/t Au)	(g/t Au)
601	44	0.00	41.20	2.74
602	36	0.00	28.53	4.10
603	148	0.00	97.80	4.88
604	53	0.00	430.75	13.25
605	37	0.00	47.50	2.47
606	51	0.00	11.70	1.30
607	34	0.02	87.60	6.29

14.1.6.1 Compositing

In order to minimize any bias introduced by the varying sample lengths, the gold assays of the drill hole data were composited within each mineralized zone. The thickness of the mineralized domains, the proposed block size, and the original sample length were taken into consideration for the selected composite length.

Composites of 2.0 m (down hole) with distributed tails were generated for all mineralized zones of the Windfall Lake gold deposit. If the last interval was shorter than 2.0 m (tails), composites lengths were adjusted to keep all intervals equal. All intervals within the mineralized zones that are pending or not assayed were given a value of zero during the compositing.

A total of 6,856 composites were generated for Main, 2,012 composites for Lynx, 1,448 composites for Underdog and 223 composites for F Zones in the mineralized zones.



14.1.6.2 High-grade Capping

High grade capping values for gold were applied on composites data using a four-step capping strategy where capping values decreased as interpolation distances increased. The multiple capping strategies limit the influence of high grade composites during the interpolation at long ranges by using lower capping values.

High grade capping values were established on a per zone basis or on a grouping of zones. Mineralized zones containing less than 300 composites (the “minor zones”) have usually been grouped by geographic locations or by grades to facilitate the statistical studies, but have also been examined individually. In some cases, the capping grades determined from grouped zones containing more than 300 composites (the “major zones”) were applied to groups of minor zones.

The four capping values were defined by abnormal breaks on probability plot of grade distribution or scattered points outside the main distribution curve (see examples in Figure 14-5 to Figure 14-8). The capping value is often identical in the last two interpolation steps.

The following criteria were also checked to validate the chosen capping value or to adjust it if needed:

- No more than 10% of the overall contained metal must be contained within the first 1% of the highest grade samples;
- The log normal distribution of grades must not show any erratic grade bins or distanced values from the main population;
- The coefficient of variation must be approximately 2.00.

Table 14-7 to Table 14-12 present a summary of the statistical analysis of the composites for each mineralized zone. Note that the “metal loss” values appearing in these tables represents an estimation based on ratio of the sum of assays before and after capping. This estimation is not perfectly representative given the uneven drill spacing and inherent over representation of extreme assay values in this type of metal loss estimation.

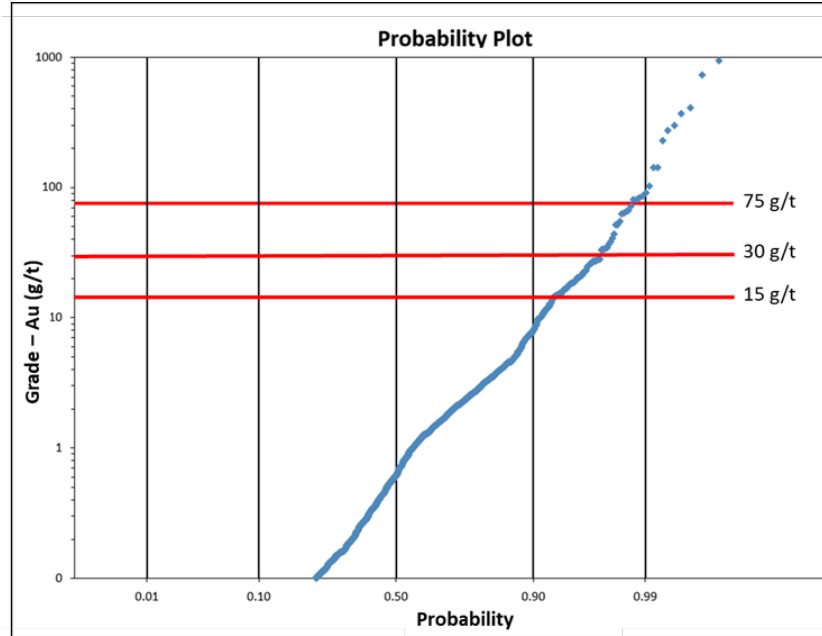


Figure 14-5: Example of four-step gold grade capping on composites from the major zones in Zone 27 area using a probability plot of grade distribution.

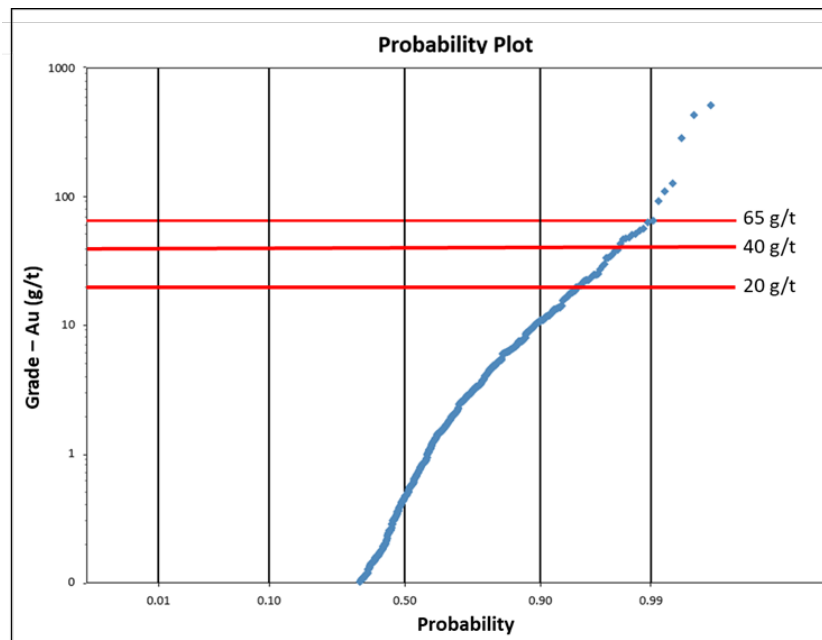


Figure 14-6: Example of four-step gold grade capping on composites from major zones for Lynx area using a probability plot of grade distribution.

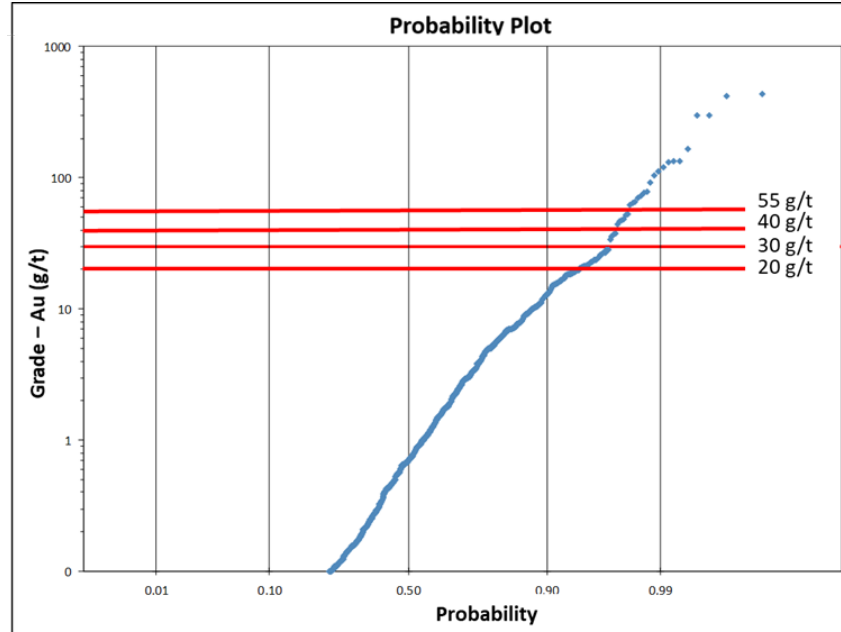


Figure 14-7: Example of four-step gold grade capping on composites (group of zones including high grades) for Underdog area using a probability plot of grade distribution.

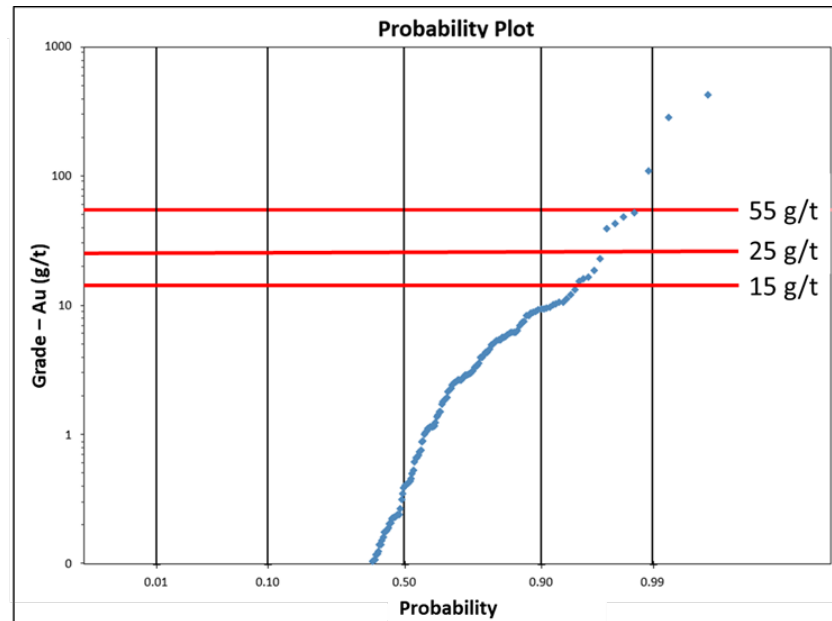


Figure 14-8: Example of four-step gold grade capping on composites from all zones for F Zones area using a probability plot of grade distribution.



Table 14-7: Summary statistics for the capping on composites by zone – Zone 27 (Main area)

Mineralized domain code	Composite information			Uncapped composites			Four-step gold grade capping								
	Number	Min (g/t)	Max (g/t)	Mean (g/t)	Standard deviation	CV	Capping Pass 1 (g/t)	Number capped	Metal loss (%)	Mean (g/t)	Standard deviation	CV	Capping Pass 2 (g/t)	Capping Pass 3 (g/t)	Capping Pass 4 (g/t)
101	517	0.003	1,362.58	6.20	62.93	10.15	75	5	54.01	2.98	8.93	3.00	30	15	15
102	158	0.005	938.07	14.98	93.69	6.25	75	2	65.84	5.39	11.11	2.06	30	15	15
103	79	0.007	59.51	2.97	9.17	3.08	50	1	4.16	2.85	8.46	2.97	30	15	15
104	54	0.010	130.87	4.49	17.67	3.93	50	1	34.70	3.00	7.26	2.42	30	15	15
105	97	0.005	257.93	4.64	26.26	5.66	50	1	46.79	2.49	6.68	2.68	30	15	15
106	71	0.015	20.37	1.54	3.64	2.37	50	0	0.00	1.54	3.64	2.37	30	15	15
107	25	0.007	46.46	4.53	9.41	2.08	50	0	0.00	4.53	9.41	2.08	30	15	15
108	171	0.004	92.68	2.78	9.00	3.24	75	1	3.02	2.68	8.02	2.99	30	15	15
109	33	0.019	162.63	8.67	29.22	3.37	50	2	42.72	4.90	11.83	2.41	30	15	15
110	34	0.013	48.20	4.36	9.23	2.12	50	0	0.00	4.36	9.23	2.12	30	15	15
111	12	0.003	402.74	34.71	110.98	3.20	50	1	83.70	5.31	13.62	2.56	30	15	15
112	41	0.021	31.88	3.56	6.45	1.82	50	0	0.00	3.56	6.45	1.82	30	15	15
113	53	0.004	261.04	6.40	35.48	5.54	50	1	62.96	2.42	7.46	3.08	30	15	15
114	294	0.009	174.50	6.86	19.35	2.82	75	4	14.65	5.88	12.53	2.13	30	15	15
115	495	0.002	367.29	6.58	29.51	4.48	75	9	31.48	4.51	12.80	2.84	30	15	15
116	20	0.074	35.77	6.49	8.28	1.28	50	0	0.00	6.49	8.28	1.28	30	15	15
117	37	0.007	27.00	1.98	4.78	2.41	50	0	0.00	1.98	4.78	2.41	30	15	15
118	75	0.016	21.44	2.11	3.93	1.86	50	0	0.00	2.11	3.93	1.86	30	15	15



Table 14-8: Summary statistics for the capping on composites by zone – Caribou (Main area)

Mineralized domain code	Composite information			Uncapped composites			Four-step gold grade capping								
	Number	Min (g/t)	Max (g/t)	Mean (g/t)	Standard deviation	CV	Capping Pass 1 (g/t)	Number capped	Metal loss (%)	Mean (g/t)	Standard deviation	CV	Capping Pass 2 (g/t)	Capping Pass 3 (g/t)	Capping Pass 4 (g/t)
201	582	0.005	59.69	1.73	4.62	2.66	65	0	0.00	1.73	4.62	2.66	30	15	15
202	123	0.005	205.73	4.55	18.93	4.16	65	1	23.68	3.41	7.59	2.23	30	15	15
203	168	0.003	13.32	1.20	2.23	1.86	40	0	0.00	1.20	2.23	1.86	20	15	15
204	47	0.008	26.16	2.46	5.06	2.06	65	0	0.00	2.46	5.06	2.06	30	15	15
205	189	0.001	28.42	2.34	4.62	1.98	65	0	0.00	2.34	4.62	1.98	30	15	15
206	142	0.005	13.85	1.16	1.85	1.59	40	0	0.00	1.16	1.85	1.59	20	15	15
207	407	0.001	80.81	1.45	5.75	3.96	65	2	3.44	1.40	5.09	3.63	30	15	15
208	122	0.002	39.34	1.20	3.95	3.30	40	0	0.00	1.20	3.95	3.30	20	15	15
209	27	0.003	17.35	1.81	3.90	2.15	40	0	0.00	1.81	3.90	2.15	20	15	15
210	365	0.002	245.02	3.95	16.77	4.25	65	4	19.61	3.21	9.51	2.96	30	15	15
211	99	0.003	32.36	2.11	4.33	2.05	65	0	0.00	2.11	4.33	2.05	30	15	15
212	55	0.005	15.42	2.00	3.21	1.60	65	0	0.00	2.00	3.21	1.60	30	15	15
213	92	0.004	621.21	8.63	64.36	7.46	65	1	69.45	2.58	7.82	3.03	30	15	15
214	89	0.005	14.32	1.80	2.76	1.54	65	0	0.00	1.80	2.76	1.54	30	15	15
215	44	0.037	55.30	6.99	12.12	1.73	65	0	0.00	6.99	12.12	1.73	30	15	15
216	73	0.005	1,217.97	20.66	141.80	6.86	65	2	79.05	4.15	11.05	2.67	30	15	15
217	58	0.002	15.52	0.99	2.27	2.29	40	0	0.00	0.99	2.27	2.29	20	15	15
218	175	0.005	64.56	2.27	7.26	3.19	50	2	5.41	2.15	6.30	2.93	30	15	15
219	123	0.005	55.16	3.27	7.88	2.41	65	0	0.00	3.27	7.88	2.41	30	15	15
220	78	0.004	27.50	1.51	4.16	2.75	40	0	0.00	1.51	4.16	2.75	20	15	15
221	27	0.012	13.36	1.71	3.00	1.75	65	0	0.00	1.71	3.00	1.75	30	15	15



Mineralized domain code	Composite information			Uncapped composites			Four-step gold grade capping								
	Number	Min (g/t)	Max (g/t)	Mean (g/t)	Standard deviation	CV	Capping Pass 1 (g/t)	Number capped	Metal loss (%)	Mean (g/t)	Standard deviation	CV	Capping Pass 2 (g/t)	Capping Pass 3 (g/t)	Capping Pass 4 (g/t)
222	21	0.005	38.44	5.58	10.85	1.94	40	0	0.00	5.58	10.85	1.94	20	15	15
223	15	0.190	27.83	4.51	6.95	1.54	65	0	0.00	4.51	6.95	1.54	30	15	15
224	92	0.005	70.56	2.83	8.85	3.13	50	1	7.94	2.61	7.26	2.78	30	15	15
225	65	0.005	13.53	1.56	2.62	1.68	65	0	0.00	1.56	2.62	1.68	30	15	15
226	72	0.005	28.08	1.35	3.85	2.86	65	0	0.00	1.35	3.85	2.86	30	15	15
227	97	0.020	14.73	1.46	2.63	1.80	40	0	0.00	1.46	2.63	1.80	20	15	15
228	113	0.003	131.23	4.34	13.75	3.17	65	1	11.89	3.76	8.88	2.36	30	15	15
229	39	0.005	376.24	11.91	60.11	5.05	40	2	78.07	2.53	8.75	3.46	20	15	15
230	116	0.005	22.66	1.92	3.47	1.81	65	0	0.00	1.92	3.47	1.81	30	15	15
231	239	0.003	158.28	2.43	11.71	4.83	65	2	17.00	2.02	7.02	3.48	30	15	15
232	153	0.005	2,867.80	22.24	231.95	10.43	50	3	90.28	2.21	7.88	3.57	30	15	15
233	111	0.005	65.32	2.38	7.47	3.13	65	1	0.12	2.38	7.45	3.13	30	15	15
235	25	0.011	22.51	2.01	4.53	2.25	40	0	0.00	2.01	4.53	2.25	20	15	15
236	58	0.005	41.55	3.80	7.17	1.89	65	0	0.00	3.80	7.17	1.89	30	15	15
237	54	0.005	13.08	1.40	2.68	1.92	50	0	0.00	1.40	2.68	1.92	30	15	15
238	82	0.003	15.11	0.95	2.47	2.59	40	0	0.00	0.95	2.47	2.59	20	15	15
239	24	0.005	36.49	2.15	7.26	3.38	40	0	0.00	2.15	7.26	3.38	20	15	15
240	31	0.003	42.50	3.21	9.30	2.90	40	1	2.57	3.13	8.97	2.86	20	15	15



Table 14-9: Summary statistics for the capping on composites by zone – Lynx

Mineralized domain code	Composite information			Uncapped composites			Four-step gold grade capping								
	Number	Min (g/t)	Max (g/t)	Mean (g/t)	Standard deviation	CV	Capping Pass 1 (g/t)	Number capped	Metal loss (%)	Mean (g/t)	Standard deviation	CV	Capping Pass 2 (g/t)	Capping Pass 3 (g/t)	Capping Pass 4 (g/t)
301	86	0.007	48.24	1.86	6.17	3.32	65	0	0.00	1.86	6.17	3.32	40	20	20
302	34	0.005	50.10	4.85	10.56	2.18	65	0	0.00	4.85	10.56	2.18	40	20	20
303	24	0.016	8.80	2.68	2.65	0.99	65	0	0.00	2.68	2.65	0.99	40	20	20
304	172	0.002	287.63	5.09	24.19	4.75	65	2	31.81	3.43	8.51	2.48	40	20	20
305	205	0.002	62.95	3.97	8.85	2.23	65	0	0.00	3.97	8.85	2.23	40	20	20
306	31	0.007	51.50	3.74	9.18	2.46	65	0	0.00	3.74	9.18	2.46	40	20	20
307	85	0.004	43.36	4.06	8.76	2.16	65	0	0.00	4.06	8.76	2.16	40	20	20
308	141	0.006	428.57	6.57	36.72	5.59	65	2	36.94	3.99	10.12	2.54	40	20	20
309	87	0.005	132.93	7.98	21.83	2.74	65	4	19.24	6.55	15.38	2.35	40	20	20
310	272	0.002	3,740.00	20.05	228.38	11.39	65	4	76.63	4.61	10.91	2.37	40	20	20
311	110	0.007	132.73	6.52	18.21	2.79	65	3	15.04	5.56	13.03	2.34	40	20	20
312	53	0.010	59.63	4.23	9.48	2.24	65	0	0.00	4.23	9.48	2.24	40	20	20
313	62	0.005	185.82	10.43	28.61	2.74	65	4	23.30	7.97	17.41	2.18	40	20	20
314	19	0.005	12.53	1.90	3.36	1.77	65	0	0.00	1.90	3.36	1.77	40	20	20
315	26	0.015	211.76	15.46	46.61	3.02	65	2	51.59	7.42	18.28	2.46	40	20	20
316	34	0.012	39.18	4.74	8.50	1.79	65	0	0.00	4.74	8.50	1.79	40	20	20
317	38	0.005	474.96	33.98	105.46	3.10	65	4	64.68	11.75	20.83	1.77	40	20	20
318	33	0.006	186.65	9.95	32.28	3.24	65	1	39.40	6.26	13.20	2.11	40	20	20
319	61	0.010	109.50	4.43	14.76	3.33	65	1	15.37	3.70	9.82	2.65	40	20	20
320	34	0.013	34.69	6.32	8.79	1.39	65	0	0.00	6.32	8.79	1.39	40	20	20
321	34	0.020	10.16	1.74	2.30	1.32	65	0	0.00	1.74	2.30	1.32	40	20	20



Mineralized domain code	Composite information			Uncapped composites			Four-step gold grade capping								
	Number	Min (g/t)	Max (g/t)	Mean (g/t)	Standard deviation	CV	Capping Pass 1 (g/t)	Number capped	Metal loss (%)	Mean (g/t)	Standard deviation	CV	Capping Pass 2 (g/t)	Capping Pass 3 (g/t)	Capping Pass 4 (g/t)
322	41	0.002	63.64	3.76	11.58	3.08	65	0	0.00	3.76	11.58	3.08	40	20	20
323	34	0.013	25.00	2.36	4.64	1.96	65	0	0.00	2.36	4.64	1.96	40	20	20
324	24	0.005	45.52	5.91	10.73	1.81	65	0	0.00	5.91	10.73	1.81	40	20	20
325	21	0.022	12.86	2.07	3.60	1.74	65	0	0.00	2.07	3.60	1.74	40	20	20
326	8	0.070	23.96	6.24	9.11	1.46	65	0	0.00	6.24	9.11	1.46	40	20	20
327	18	0.068	18.35	2.96	4.85	1.64	65	0	0.00	2.96	4.85	1.64	40	20	20
328	11	0.062	32.83	4.11	9.16	2.23	65	0	0.00	4.11	9.16	2.23	40	20	20
329	57	0.006	23.93	1.10	3.57	3.24	65	0	0.00	1.10	3.57	3.24	40	20	20
330	20	0.002	40.99	4.54	9.19	2.02	65	0	0.00	4.54	9.19	2.02	40	20	20
331	7	0.076	6.05	2.27	2.48	1.09	65	0	0.00	2.27	2.48	1.09	40	20	20
332	29	0.012	20.04	1.92	4.40	2.29	65	0	0.00	1.92	4.40	2.29	40	20	20
333	25	0.005	5.65	1.13	1.41	1.24	65	0	0.00	1.13	1.41	1.24	40	20	20
334	20	0.019	113.36	7.83	24.76	3.16	65	1	32.21	5.41	14.61	2.70	40	20	20
335	36	0.008	70.74	2.69	11.62	4.32	65	1	5.83	2.53	10.69	4.22	40	20	20
336	20	0.010	10.26	1.83	2.93	1.60	65	0	0.00	1.83	2.93	1.60	40	20	20



Table 14-10: Summary statistics for the capping on composites by zone – Underdog

Mineralized domain code	Composite information			Uncapped composites			Four-step gold grade capping								
	Number	Min (g/t)	Max (g/t)	Mean (g/t)	Standard deviation	CV	Capping Pass 1 (g/t)	Number capped	Metal loss (%)	Mean (g/t)	Standard deviation	CV	Capping Pass 2 (g/t)	Capping Pass 3 (g/t)	Capping Pass 4 (g/t)
401	18	0.062	38.23	8.38	11.13	1.33	40	0	0.00	8.38	11.13	1.33	20	15	15
402	243	0.008	72.82	4.66	9.97	2.14	55	3	3.00	4.52	9.13	2.02	40	30	20
403	73	0.025	91.50	4.87	12.19	2.50	55	1	9.75	4.37	8.94	2.04	40	30	20
404	14	0.075	6.90	2.47	2.41	0.98	40	0	0.00	2.47	2.41	0.98	20	15	15
405	78	0.004	56.11	6.76	10.19	1.51	40	1	2.78	6.55	9.32	1.42	20	15	15
406	43	0.005	15.76	2.35	3.37	1.43	40	0	0.00	2.35	3.37	1.43	20	15	15
407	60	0.009	20.80	3.66	5.18	1.41	40	0	0.00	3.66	5.18	1.41	20	15	15
408	95	0.015	134.12	6.50	18.14	2.79	55	3	19.95	5.20	11.16	2.15	40	30	20
409	16	0.076	6.00	1.91	2.08	1.09	40	0	0.00	1.91	2.08	1.09	20	15	15
410	20	0.160	104.56	9.62	22.69	2.36	55	1	23.62	7.14	12.68	1.78	40	30	20
411	81	0.023	11.18	1.08	2.32	2.16	40	0	0.00	1.08	2.32	2.16	20	15	15
412	63	0.027	56.10	6.15	10.00	1.63	40	1	4.36	5.90	8.86	1.50	20	15	15
413	50	0.005	41.02	3.71	7.31	1.97	40	1	0.54	3.69	7.21	1.96	20	15	15
414	12	0.054	432.16	37.80	118.92	3.15	55	1	83.72	6.37	14.83	2.33	40	30	20
415	154	0.005	299.12	9.14	29.08	3.18	55	5	26.93	6.61	13.01	1.97	40	30	20
416	52	0.010	36.77	3.30	7.18	2.18	40	0	0.00	3.30	7.18	2.18	20	15	15
417	128	0.001	300.65	3.47	26.51	7.65	55	1	52.51	1.55	5.48	3.54	40	30	20
419	49	0.016	134.85	5.88	19.14	3.25	55	1	27.29	4.25	8.58	2.02	40	30	20
420	137	0.005	417.03	8.72	39.46	4.53	55	3	45.32	4.71	9.07	1.92	40	30	20
421	67	0.038	16.32	3.03	3.68	1.21	40	0	0.00	3.03	3.68	1.21	20	15	15



Table 14-11: Summary statistics for the capping on composites by zone – Mallard (Main area)

Mineralized domain code	Composite information			Uncapped composites			Four-step gold grade capping								
	Number	Min (g/t)	Max (g/t)	Mean (g/t)	Standard deviation	CV	Capping Pass 1 (g/t)	Number capped	Metal Loss (%)	Mean (g/t)	Standard deviation	CV	Capping Pass 2 (g/t)	Capping Pass 3 (g/t)	Capping Pass 4 (g/t)
501	39	0.022	184.77	9.42	29.59	3.14	30	2	38.88	5.30	8.59	1.62	30	15	15
502	24	0.002	6.64	1.65	2.18	1.32	30	0	0.00	1.65	2.18	1.32	30	15	15
503	16	0.044	21.66	3.09	5.98	1.94	30	0	0.00	3.09	5.98	1.94	30	15	15
504	19	0.005	112.17	9.39	24.82	2.64	30	1	50.20	5.06	8.00	1.58	30	15	15

Table 14-12: Summary statistics for the capping on composites by zone – F Zones

Mineralized domain code	Composite information			Uncapped composites			Four-step gold grade capping								
	Number	Min (g/t)	Max (g/t)	Mean (g/t)	Standard deviation	CV	Capping Pass 1 (g/t)	Number capped	Metal loss (%)	Mean (g/t)	Standard deviation	CV	Capping Pass 2 (g/t)	Capping Pass 3 (g/t)	Capping Pass 4 (g/t)
601	16	0.024	10.77	3.01	3.31	1.10	55	0	0.00	3.01	3.31	1.10	25	15	15
602	20	0.005	16.36	3.52	4.39	1.24	55	0	0.00	3.52	4.39	1.24	25	15	15
603	91	0.002	49.26	3.79	8.63	2.28	55	0	0.00	3.79	8.63	2.28	25	15	15
604	36	0.005	430.75	25.15	84.80	3.37	55	3	73.81	6.68	15.11	2.26	25	15	15
605	17	0.000	6.28	1.47	1.92	1.30	55	0	0.00	1.47	1.92	1.30	25	15	15
606	24	0.005	8.51	1.52	2.47	1.62	55	0	0.00	1.52	2.47	1.62	25	15	15
607	19	0.003	52.86	5.03	11.79	2.34	55	0	0.00	5.03	11.79	2.34	25	15	15



14.1.7 Density

Densities are used to calculate tonnages for the estimated volumes derived from the resource-grade block model.

For the 2018 MRE, a total of 152,303 bulk density and measurements were provided by Osisko and integrated into the database. Most of the SG measurements were determined by the pycnometer method on pulps by ALS Minerals in Val-d'Or and Bureau Veritas in Timmins.

A fixed density value was applied to each lithological domain, corresponding to the median of the SG data for the matching lithology for each area. For the F Zones, due to insufficient data, each lithology present in the area (V1 and V2_LOW) was attributed an average density value of the same lithology observed in Main and Lynx areas (Table 14-16).

A density of 2.00 g/cm³ was assigned to the overburden and 0.00 g/cm³ to the exploration ramp.

Summary statistics of the SG data are presented by area in Table 14-13 to Table 14-16.

Table 14-13: Specific gravity compilation for lithologies used for the density model in Main area (Zone 27, Caribou, Mallard)

Lithology	Number of samples	Lithology code	Median density (g/cm ₃)
I13	1,043	801	2.70
I2F	6,716	802	2.74
Lynx_Up_Lynx	76	803	2.83
I1P_Unm	1,389	815	2.75
I27	2,230	821	2.79
I10	2,622	822	2.77
I25	70	823	2.80
I40	679	824	2.74
I70-I10	6,287	830	2.76
I50-I80	900	831	2.78
I30	5,851	832	2.77
I60-I65	437	833	2.80
I3A	3,971	840	2.78
Foliated Volcanics	9,617	850	2.84
V1	32,997	851	2.77
V2 Lower	8,049	852	2.84
V2 Upper	56,614	853	2.79
Host Rock	-	998	2.78



Table 14-14: Specific gravity compilation for lithologies used for the density model in Lynx area

Lithology	Number of samples	Lithology code	Density (g/cm ³)
I13	359	801	2.70
I2F	2,319	802	2.73
Lynx_Up_Lynx_Feb	76	803	2.83
I1P	713	810	2.77
I1P Unmineralized	1,324	815	2.75
I1FRG	1,455	816	2.78
I2P	781	820	2.73
I70-I10 (Caribou)	3,301	830	2.76
I3A	4,299	840	2.78
Foliated Volcanics	2,945	850	2.86
V1	7,382	851	2.76
V2 Upper	1,802	852	2.86
V2 Lower	12,859	853	2.81
Host Rock	n/a	999	2.80

Table 14-15: Specific gravity compilation for lithologies used for the density model in Underdog area

Lithology	Number of Samples	Lithology Code	Density (g/cm ³)
I13	9,729	801	2.73
I2F	591	802	2.74
I1P	6,972	810	2.74
I1PYB	3,076	817	2.73
I2P	6,779	820	2.76
FOL_VOLC	15,751	850	2.84
V1	48,780	851	2.77
V2_UP	39,785	852	2.84
V2_LOW	8,085	853	2.81
Host Rock	n/a	997	2.78

Table 14-16: Specific gravity compilation for lithologies used for the density model in F Zones area

Lithology	Lithology Code	Density (g/cm ³)
V1	851	2.76
V2_LOW	853	2.80



14.1.8 Block Model

Four block models were created for Main (group of Zone 27, Caribou and Mallard), Lynx, Underdog, and F Zones for the purpose of the current resource estimate.

The block models were rotated 25° counter-clockwise (Y-axis oriented along N335°). Individual block cells have dimensions of 5 m long (X-axis) by 2 m wide (Y) by 5 m vertical (Z). The block dimensions reflect the sizes of the mineralized zones and plausible underground mining methods. The block models are coded using the percent model method for rock code identification and contain multiple folders.

Table 14-17 to Table 14-20 present the properties of the four block models. Figure 14-9 shows the geographical distribution of the four block models in the Windfall Lake Project.

Table 14-17: Block Model Properties - Main (Zone 27, Caribou, Mallard)

Properties	X (Column)	Y (Row)	Z (Level)
Origin coordinates	451,979.985	5,434,294.120	415.000
Number of blocks	240	330	165
Block extent (m)	1,200	660	825
Block size (m)	5	2	5
Rotation	25°		

Table 14-18: Block Model Properties - Lynx

Properties	X (Column)	Y (Row)	Z (Level)
Origin coordinates	452,837.569	5,434,407.140	415.000
Number of blocks	337	255	196
Block extent (m)	1,685	510	980
Block size (m)	5	2	5
Rotation	25°		

Table 14-19: Block Model Properties - Underdog

Properties	X (Column)	Y (Row)	Z (Level)
Origin coordinates	451,559.822	5,434,307.840	105.000
Number of blocks	250	235	195
Block extent (m)	1,250	470	975
Block size (m)	5	2	5
Rotation	25°		

Table 14-20: Block Model Properties – F Zones

Properties	X (Column)	Y (Row)	Z (Level)
Origin coordinates	452,502.529	5,435,243.950	415.000
Number of blocks	250	285	35
Block extent (m)	1,250	570	175
Block size (m)	5	2	5
Rotation		25°	

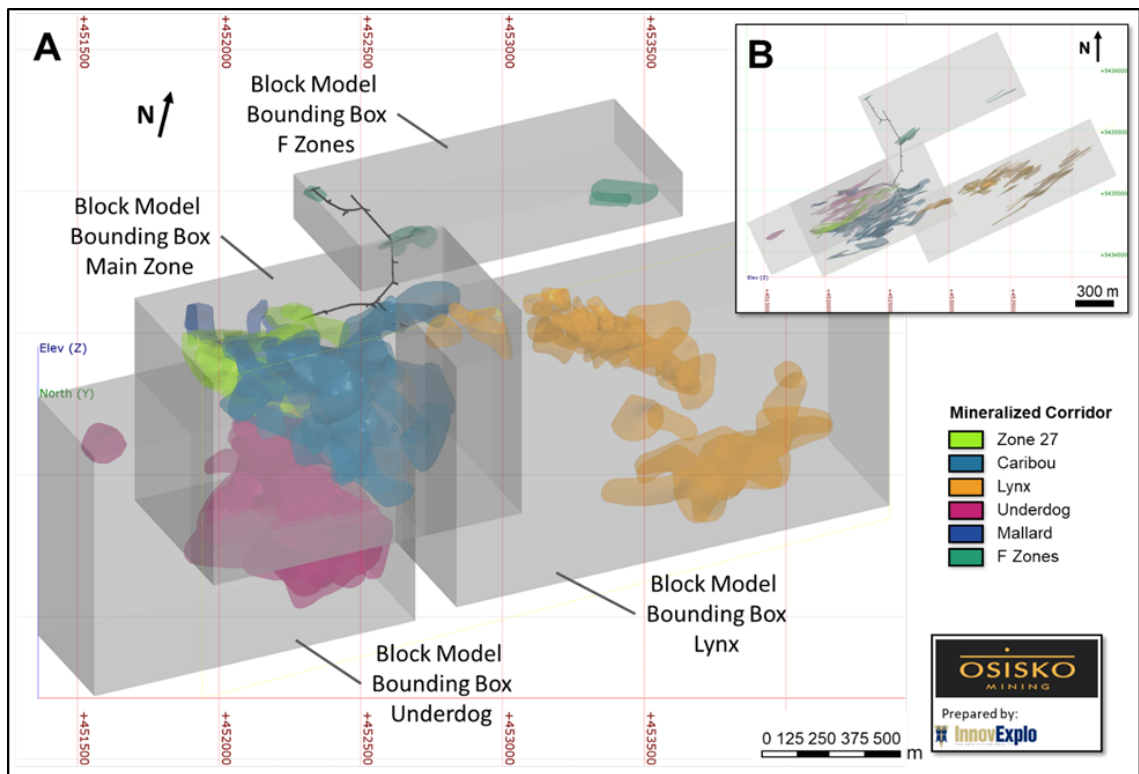


Figure 14-9: Bounding box of block models (Main, Lynx, Underdog and F Zones).
A) 3D view; B) Plan view.



14.1.9 Rock Coding

All blocks falling within a selected solid were assigned the corresponding solid block code in their respective folder. Percent block models were generated, reflecting the proportion of each block inside every solid (i.e., individual mineralized zones, individual lithology domains, overburden, and ramp for Main and F Zones).

Overlaps between solids were handled by the “precedence” system used by GEMS for coding the block model. The ramp and the post-mineralization dikes (when present) had priority over the mineralization zones and lithology wireframes.

14.1.10 Variography and Search Ellipsoids

14.1.10.1 Variography

Three dimensional (3D) directional variography was performed on the 2.0 m gold grade composites on major mineralized zones (containing more than 300 composites) and/or geographical groups of zones for each area. The studies were carried out in the software Supervisor. The overall approach to model the variography is described below:

- Examination of the strike and dip of the mineralized zones to help in the determination of the axes of better continuity;
- Estimation of the nugget effect (C_0) based on the down hole variogram;
- Modelling of the major, semi-major and minor axes of continuity.

Due to the variability of the grades within the mineralized zones, the moderately high nugget effect and the lack of information in some zones or groups of zones, it was decided to use the variography analysis based on the most representative group of zones of each area. Figure 14-10 shows the continuity models obtained for Lynx, Caribou, Zone 27 and Underdog. The chosen variogram model parameters are presented in Table 14-21.

The down hole variograms suggest a nugget effect of 40% for Zone 27, Lynx and Underdog and a nugget effect of 50% for Caribou.

The variography was not conclusive for F Zones and Mallard, and therefore, InnovExplo decided to use variogram results from Zone 27.



Table 14-21: Variogram model parameters for each area

Area	Variography components									
	Nugget	Model type	First structure				Second structure			
			Sill	Range X (m)	Range Y (m)	Range Z (m)	Sill	Range X (m)	Range Y (m)	Range Z (m)
Main (Zone 27)	0.40	Spherical	0.30	35	20	10	0.30	70	40	20
Main (Caribou)	0.50	Spherical	0.30	30	20	10	0.20	60	35	20
Main (Mallard)	0.40	Spherical	0.30	35	20	10	0.30	70	40	20
Lynx	0.40	Spherical	0.60	60	40	25	-	-	-	-
Underdog	0.40	Spherical	0.30	30	25	15	0.30	50	30	20
F Zone	0.40	Spherical	0.30	35	20	10	0.30	70	40	20

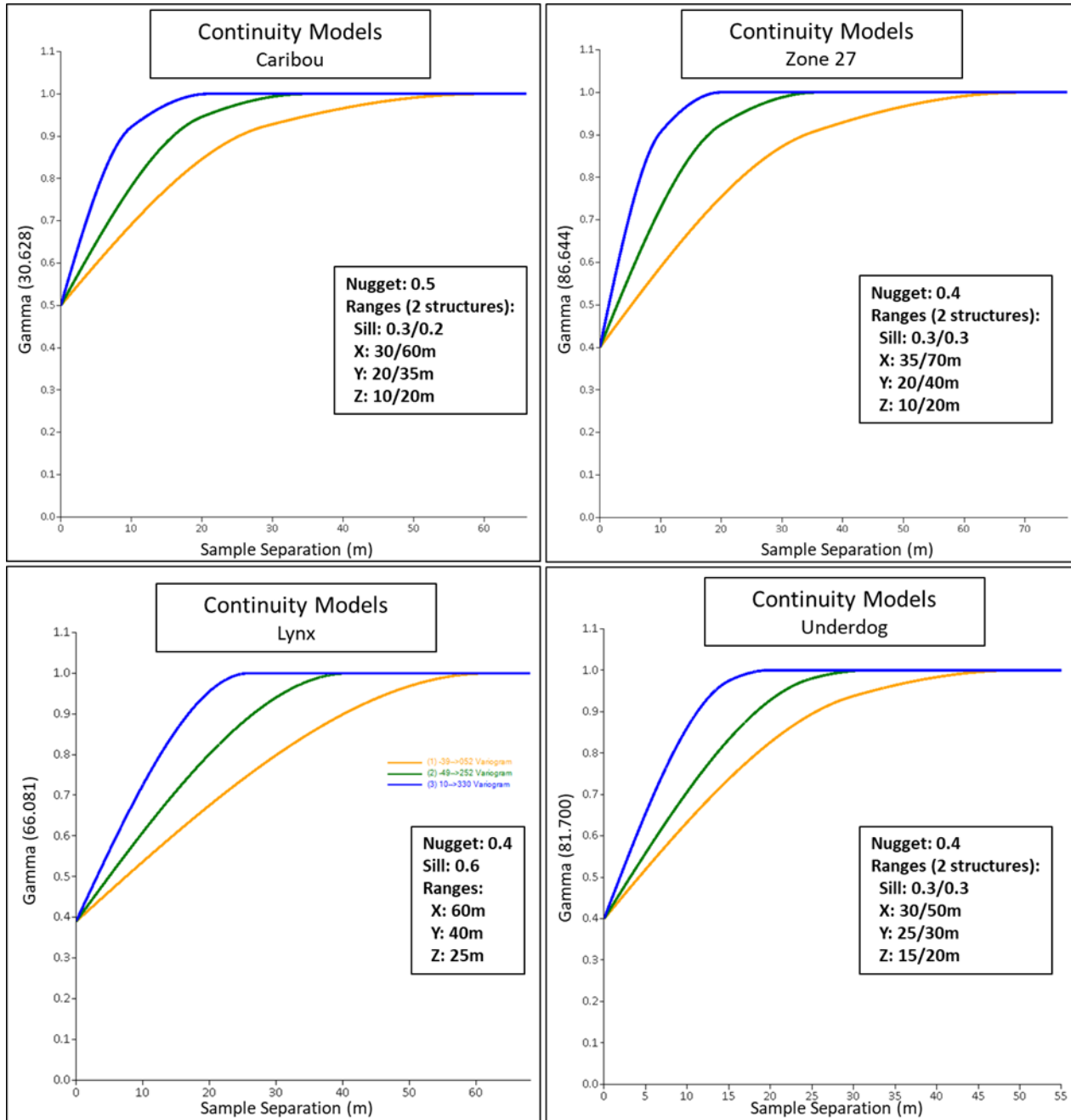


Figure 14-10: Continuity models for Caribou, Zone 27, Lynx and Underdog.

14.1.10.2 Search Ellipsoids

The 3D directional-specific investigations yielded the best-fit model along an orientation that corresponds to the strike, dip and plunge of the most representative group of zones.

The best-fit model of each area was adjusted to fit the orientation of each mineralized zone individually; the long axis was set parallel to the direction of discernible high-grade trend at the scale of the mineralized zone, which is approximately 30 degrees plunge to the northeast.

The ellipsoid ranges were based on the variography study. The ranges of the ellipsoids for the first interpolation pass correspond to 0.75x the variography range results (0.5x for Main), to 1x the variography results for the second pass, to 1.5x the variography results for the third pass, and to 3x the variography results (5x in Underdog) for the fourth and last passes. The search and grade interpolations are a four-pass process. Four sets of search ellipsoids were built using the ranges of the best fit variogram model for each mineralized zone.

Figure 14-11 illustrates example of shapes and ranges of the search ellipsoids for Pass 1.

Table 14-22 summarizes the parameters of the ellipsoids used for interpolation.

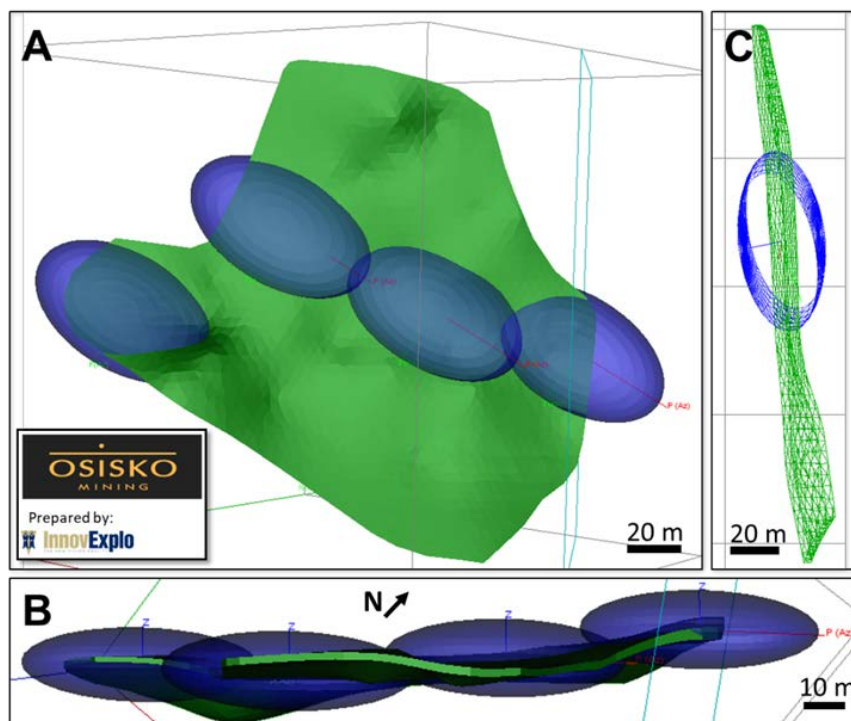


Figure 14-11: Search ellipsoid used for the first interpolation pass for the Zone 27 Corridor (mineralization zone 102).

A) Longitudinal view; B) Plan view; and C) Cross-section view.



Table 14-22: Search ellipsoid ranges by interpolation pass

Area	Pass 1			Pass 2			Pass 3			Pass 4		
	0.75x Variography (except for Main = 0.5x Variography)			1.0x Variography			1.5x Variography			3.0x Variography (except for Underdog = 5x Variography)		
	X	Y	Z	X	Y	Z	X	Y	Z	X	Y	Z
	(m)	(m)	(m)	(m)	(m)	(m)	(m)	(m)	(m)	(m)	(m)	(m)
Main (Zone 27)	35	20	10	70	40	20	105	60	30	210	120	60
Main (Caribou)	30	20	10	60	35	20	90	55	30	180	105	60
Main (Mallard)	35	20	10	70	40	20	105	60	30	210	120	60
Lynx	45	30	20	60	40	25	90	60	40	180	120	75
Underdog	40	25	15	50	30	20	75	45	30	250	150	100
F Zones	35	20	10	70	40	20	105	60	30	210	120	60

14.1.11 Grade Interpolation

The parameters for interpolating the grade models were derived from the variographic study on the capped composites. The interpolation was run on a set of points providing the locations X, Y, Z and gold data grades extracted from the 2.0 m capped composites.

The composite points were assigned block codes corresponding to the mineralized zone in which they occur. The interpolation profiles specify a single composite block code for each mineralized zone solid, thus establishing hard boundaries between the mineralized zones and preventing block grades from being estimated using composite points with different block codes than the block being estimated.

The interpolation profiles were customized to estimate grades separately for each folder in the block model. Two interpolation methods were investigated (ID² and OK). The Ordinary Kriging (“OK”) method was selected for the final resource estimate for all areas of the Windfall Lake gold deposit except for Underdog where an Inverse Distance Squared (“ID²”) interpolation was preferred due to the wider drill spacing of drill holes informing the mineralization wireframes.

A four-step capping on composites was used to limit unreasonable extrapolation of high grade samples: the first interpolation pass applied the highest capping value, subsequent passes are affected by increasingly conservative capping limits. For example, in Zone 101 from Zone 27 (Main), the first interpolation pass used composites capped at 75 g/t Au, the second interpolation pass used composites capped at 30 g/t Au and the two last passes used composites capped at 15 g/t Au (Table 14-7).

The interpolations were run in four passes characterized by increasing search ranges (Table 14-22). The first pass used a relatively small radius search ellipsoid to interpolate the mineralized blocks close to the drill holes. The second and third passes interpolated the blocks which were not interpolated during the previous pass. The fourth and last passes were defined to populate the remaining blocks within the mineralized zones.

The composite search specifications are presented in Table 14-23.

Figure 14-12 and Figure 14-13 illustrate examples of grade distribution on typical cross-section and longitudinal views.

Apart from gold grade interpolations, other grade interpolations were run using the silver (“Ag”), arsenic (“As”), iron (“Fe”) and sulphur (“S”) assays available in the drilling database. These interpolations are preliminary. Additional assay results and related QA/QC on the data are needed to support adequately the Ag, As, Fe and S grade estimations.

Table 14-23: Composite search specifications

Interpolation parameters	Passes 1 to 4
Minimum number of composites	3
Maximum number of composites per drill hole	2
Maximum number of composites	12
Minimum number of drill holes	2

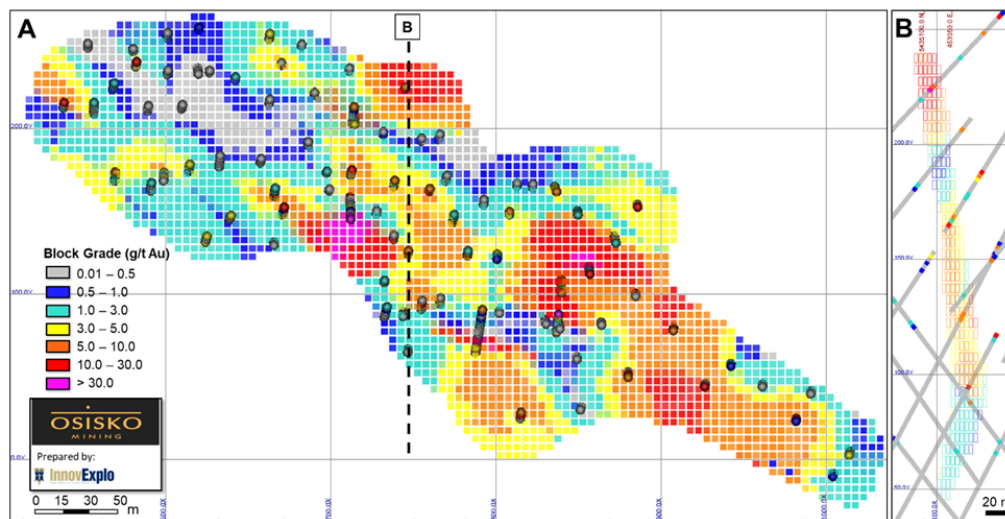


Figure 14-12: Gold grade distribution for the mineralized zone 310 in Lynx Corridor.
 A) Longitudinal view looking NNW - the dash line shows the location of the cross-section; and
 B) Cross-section looking NE - column 151 (± 10 m).

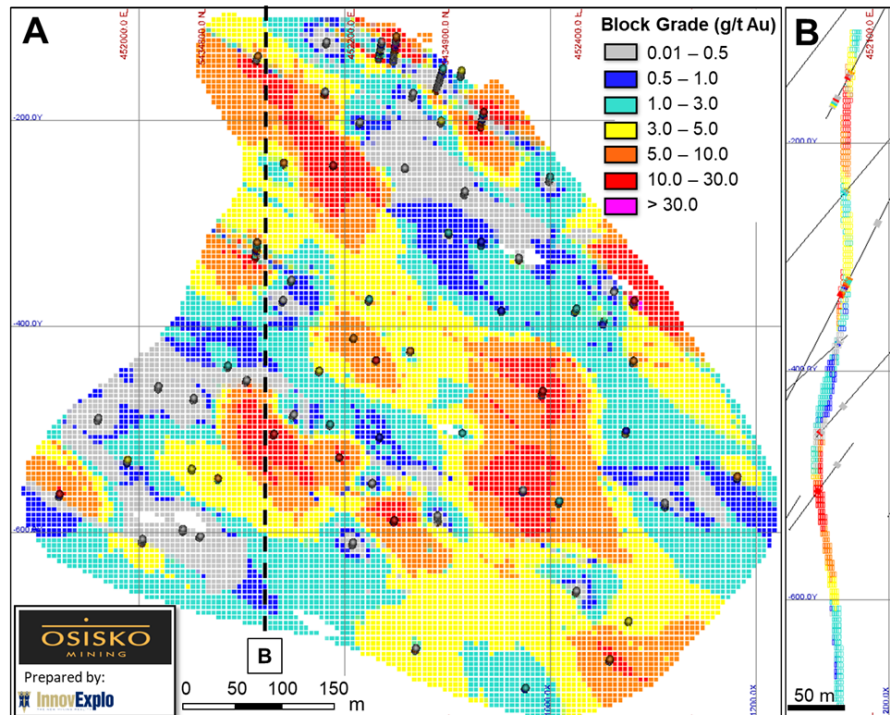


Figure 14-13: Gold grade distribution for the mineralized zone 402 in Underdog Corridor.
 A) Longitudinal view looking NNW - the dash line shows the location of the cross-section; and
 B) Cross-section looking NE (column 146 (± 20 m)).

14.1.12 Block Model Validation

14.1.12.1 Visual Validation

A visual comparison between block model grades, composite grades and gold assays was conducted on sections, plans and longitudinal views for both densely and sparsely drilled areas. No significant differences were observed during the comparison and it generally provided a good match in grade distribution without excessive smoothing in the block model.

Visual comparisons were also conducted between ID², OK and Nearest Neighbour (“NN”) interpolation scenarios. The scenarios used for the resource estimate (OK for all areas except for Underdog (ID²)) produced a block grade distribution representative of the mineralization style observed in the deposit.



14.1.12.2 Statistical Validation

Table 14-24 compares the global mean block for three interpolation scenarios (all classified blocks with >50% of their volume inside a mineralized zone) and the composite grades for each mineralized corridor at a zero cut-off. The comparison was done using the composite grades capped at the highest capping value.

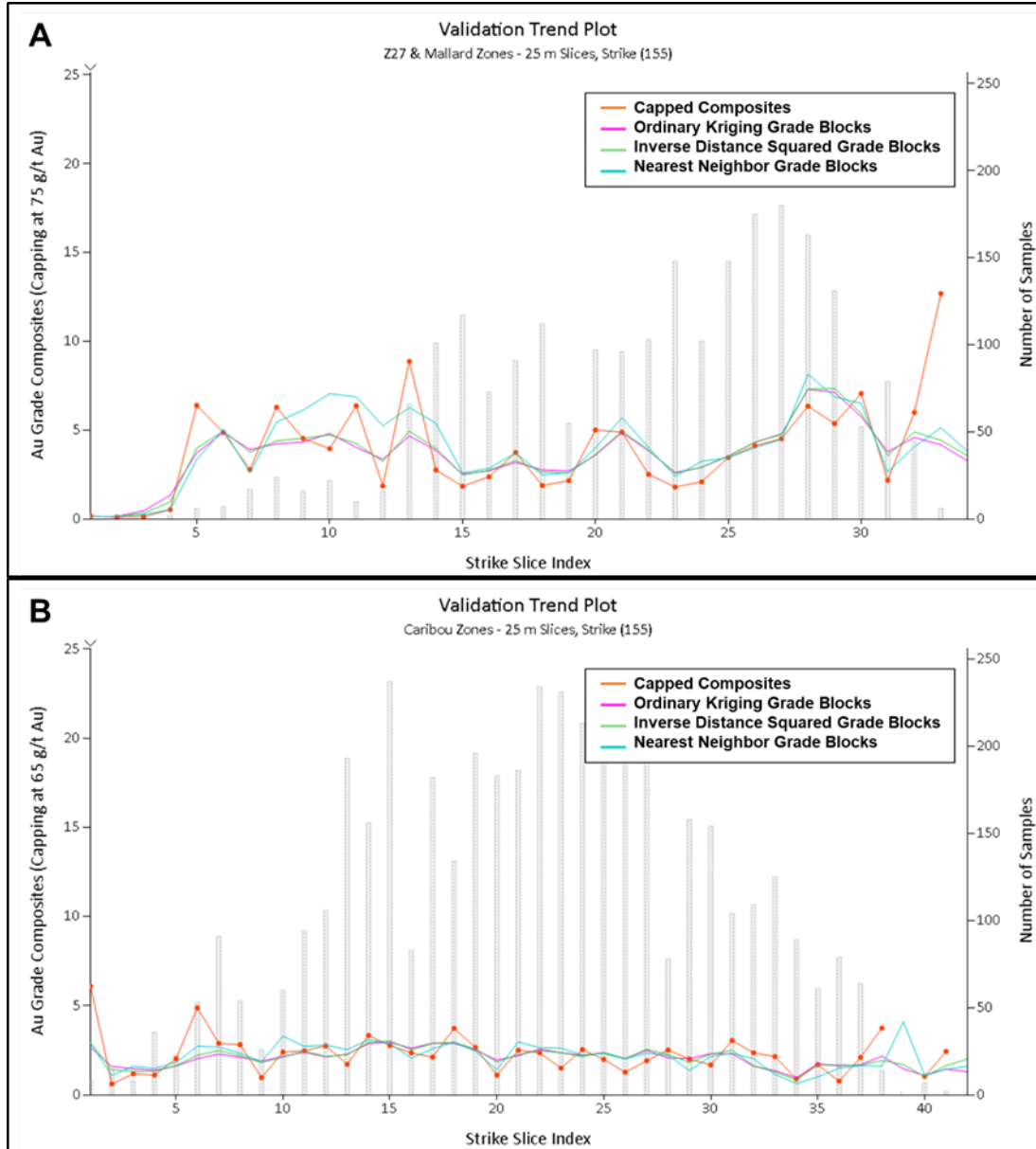
Cases in which the composite mean is higher than the block mean are often a consequence of clustered drilling patterns in high-grade areas. The differences in mean grades can also be explained by the use of a single composite set in the comparison study (i.e. composites with the highest capping value) while blocks were estimated using a total of four sets of composites and four decreasing levels of cappings.

Table 14-24: Comparison of the block and composite mean grades at a zero cut-off grade for blocks of all resource classes.

Area	Number of composites	Composite (g/t Au)	Number of blocks	OK Grade model (g/t Au)	ID ² Grade model (g/t Au)	NN Grade model (g/t Au)
Main	6,856	2.71	123,299	2.62	2.64	2.76
Lynx	2,012	4.26	55,240	4.08	4.12	4.54
Underdog	1,448	4.33	94,295	3.43	3.51	3.67
F Zones	223	3.86	4,272	3.26	3.31	3.23

The comparison between composite and block grade distributions did not identify significant issues. As expected, the block grades are generally lower than the composite grades.

Figure 14-14 illustrates the cross-section swath plots to compare the block model grades with the composite grades for each major mineralized corridor. In general, the model correctly reflects the trends shown by the composites with the expected smoothing effect.



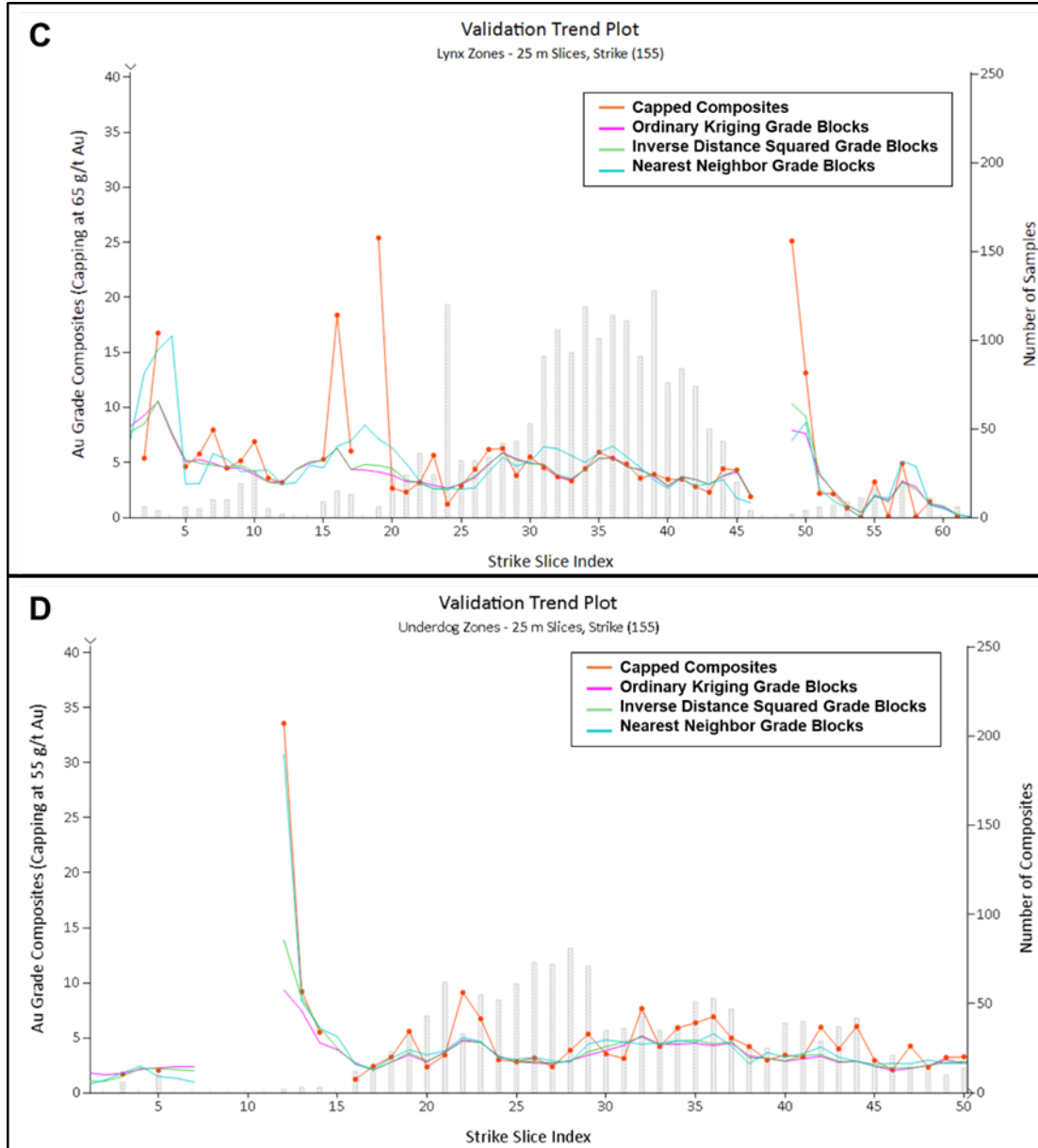


Figure 14-14: Cross-section (slicing at 155 deg) swath plots by mineralization corridor. A) Zone 27 and Mallard; B) Caribou; C) Lynx; and D) Underdog.



14.1.13 Cut-off Parameters

The selected cut-off grade of 3.0 g/t Au was used to determine the mineral potential of the deposit. The underground cut-off grade (“UCoG”) determination was based on the parameters presented in Table 14-25.

Table 14-25: Parameters used to estimate the UCoG for the 2018 MRE

Parameters	Unit	Value
Gold price	USD/oz	1,300
Exchange rate	USD/CAD	1.28
Mill recovery	%	90
Selling cost	\$/oz	5.00
Royalties	%	2.5
Mining cost	\$/t milled	70.00
G&A cost	\$/t milled	18.00
Processing cost	\$/t milled	30.00
Transportation	\$/t milled	18.00
Environment	\$/t milled	3.00
Calculated cut-off grade	g/t Au	3.00

14.1.14 Mineral Resource Classification

14.1.14.1 Mineral Resource Classification Definition

The resource classification definitions used for this report are those published by the Canadian Institute of Mining, Metallurgy and Petroleum in their document “CIM Definition Standards for Mineral Resources and Reserves”; refer to the definitions section.

14.1.14.2 Mineral Resource Classification for the Windfall Lake Gold Deposit

By default, all interpolated blocks were assigned to the Inferred category during the creation of the grade block model.



Several criteria were considered for the resource classification to inferred and indicated category:

- The interpolation pass;
- The distance to closest information;
- The number of holes informing a grade block;
- The variogram ranges;
- The level of confidence in the continuity of the dikes and in the geological understanding of the mineralized zones.

Table 14-26 presents the main criteria that were used to categorize the blocks in each resource class.

A series of outline rings (clipping boundaries) were created manually for each mineralized zone individually in longitudinal views using the criteria described above. The resource boundaries were drawn keeping in mind that a significant cluster of blocks is necessary to delineate a resource group. In some cases, blocks that did not meet the criteria of a category were upgraded to that category to homogenize and avoid isolated blocks of lower category within the classification group. InnovExplo is of the opinion that these blocks have a sufficient level of confidence to be upgraded because many of these blocks are aligned along the mineralization plunge.

Blocks were assigned to the chosen category based on the classification clipping boundaries.

In some areas, interpolated blocks remained unclassified due to the lack of confidence in grade and/or continuity. This mainly occurs where drill hole spacing is wide. Measured resources were not defined for the Project.

Figure 14-15 shows an example of a mineral resource classification in a mineralization domain in Zone 27 Corridor.

Table 14-26: Main criteria for resource classification

Resource category	Drill hole spacing (m)	Number of holes informing a block	Interpolation pass	Slope of regression	Geological continuity and confidence in geological model
Indicated	≤ 25	≥ 3	First	Mostly > 0.4	Good geological understanding
Inferred	≤ 100	≥ 2	Most from the first 3 passes	-	Need more drilling/work to upgrade geological understanding

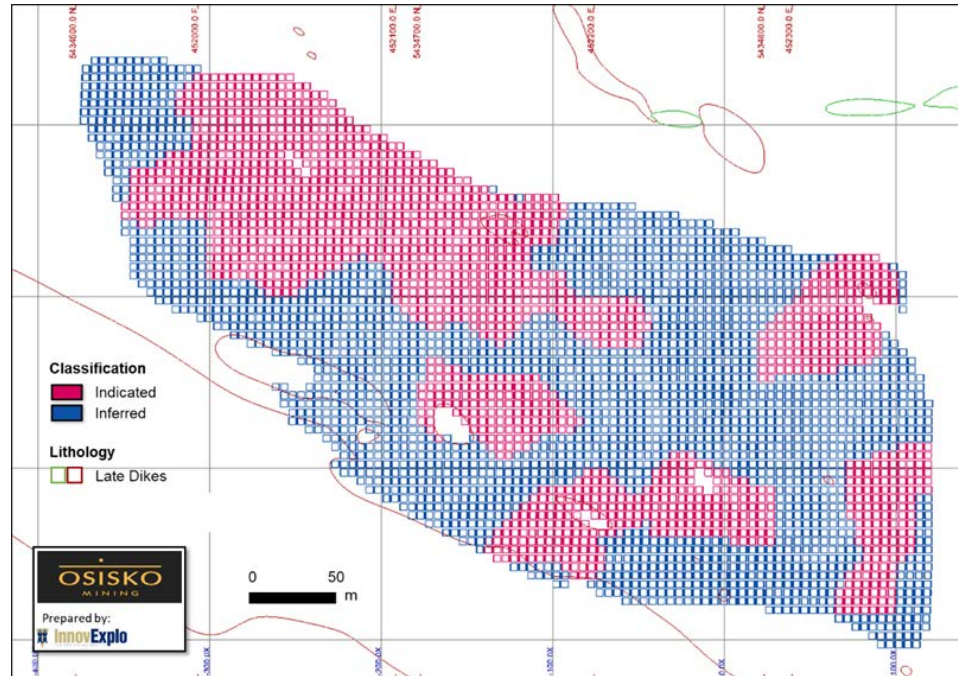


Figure 14-15: Example of resource classification for blocks in zone 101 in Zone 27 corridor.

14.1.15 Mineral Resource Estimate

Given the density of the processed data, the search ellipse criteria, the drilling density and the specific interpolation parameters, InnovExplo is of the opinion that the current mineral resource estimate can be classified as Indicated and Inferred resources. InnovExplo considers the 2018 MRE to be reliable and based on quality data, reasonable hypotheses and parameters that follow CIM Definition Standards.

Table 14-27 displays the results of the In Situ 2018 Mineral Resource Estimate for Windfall Lake gold deposit at the 3.0 g/t Au cut-off grade. Table 14-28 displays the in situ resource and sensitivity at other cut-off grade scenarios for all areas. The reader should be cautioned that the figures provided in Table 14-28 should not be interpreted as a mineral resource statement. The reported quantities and grade estimates at different cut-off grades are presented with the sole purpose of demonstrating the sensitivity of the resource model to the selection of a reporting cut-off grade.

Figure 14-16 to Figure 14-19 show the grade distribution of the four mineralized Corridors above the official cut-off grade (>3.0 g/t Au) for blocks classified as Indicated and Inferred resources.



**Table 14-27: Windfall Lake Gold deposit Indicated and Inferred Mineral Resources by Area
(3.0 g/t Au cut-off grade)**

Mineralization Corridor	Windfall Lake (cut-off grade 3.0 g/t Au)					
	Indicated Resources			Inferred Resources		
	Tonnes (000 t)	Grade (g/t Au)	Ounces Au (000 oz)	Tonnes (000 t)	Grade (g/t Au)	Ounces Au (000 oz)
Lynx	1,254	7.51	303	2,257	7.48	543
Zone 27	628	8.69	175	852	7.28	199
Caribou	318	7.12	73	2,767	5.80	516
Underdog	147	9.00	43	4,380	6.77	953
Mallard	-	-	-	145	7.13	33
F Zones	34	6.58	7	204	5.82	38
Total	2,382	7.85	601	10,605	6.70	2,284

Mineral Resource Estimate notes:

1. The independent QP of the 2018 MRE, as defined by NI 43 101, is Judith St-Laurent, P. Geo, of InnovExplo Inc. The effective date of the estimate is May 14, 2018.
2. The Windfall Lake mineral resource estimate is compliant with CIM standards and guidelines for reporting mineral resources and reserves.
3. Resources are presented undiluted and in situ and are considered to have reasonable prospects for eventual economic extraction.
4. The mineral resource estimate encompasses a total of 124 tabular, subvertical gold-bearing domains each defined by individual wireframes with a minimum true thickness of 2.0 m.
5. Samples were composited within the mineralization domains into 2.0 m length composites. A value of zero grade was applied in cases of core not assayed.
6. High grade capping was done on composite data, and established using a statistical analysis on a per-zone basis for gold. Capping varied from 15 g/t Au to 75 g/t Au and was applied using a four-step capping strategy where capping values decreased as interpolation distances increased.
7. Density values were applied on the following lithological basis (t/m^3): mafic volcanic host rocks varied from 2.78 to 2.86; felsic volcanic host rocks varied from 2.76 to 2.77; porphyries varied from 2.70 to 2.83.
8. Ordinary Kriging (OK) based interpolation was used for the estimation of all zones of the Windfall Lake gold deposit except for the Underdog zone where an Inverse Distance Squared (ID^2) interpolation was preferred due to the larger drill spacing and smaller density of drill holes informing the mineralization wireframes. All estimates are based on a block dimension of 5 m NE, 2 m NW and 5 m height and estimation parameters determined by variography.
9. Estimates use metric units (metres, tonnes and g/t). Metal contents are presented in troy ounces (metric tonne x grade / 31.10348).
10. InnovExplo is not aware of any known environmental, permitting, legal, title-related, taxation, socio-political or marketing issues, or any other relevant issue not reported in the technical report, that could materially affect the mineral resource estimate.
11. These mineral resources are not mineral reserves as they do not have demonstrated economic viability. The quantity and grade of reported Inferred resources in this mineral resource estimate are uncertain in nature and there has been insufficient exploration to define these Inferred resources as Indicated or Measured, and it is uncertain if further exploration will result in upgrading them to these categories.
12. The number of metric tonnes and ounces was rounded to the nearest unit. Any discrepancies in the totals are due to rounding effects; rounding followed the recommendations in Form 43 101F1.



Table 14-28: Windfall Lake Project Indicated and Inferred mineral resource sensitivity table

Cut-off Grade (g/t Au)	Indicated Resources			Inferred Resources		
	Tonnes (000 t)	Grade (g/t Au)	Ounces Au (000 oz)	Tonnes (000 t)	Grade (g/t Au)	Ounces Au (000 oz)
5.00	1,476	10.28	487	5,764	9.06	1,679
4.00	1,858	9.08	543	7,749	7.88	1,964
3.50	2,093	8.48	571	9,091	7.27	2,126
3.00	2,382	7.85	601	10,605	6.70	2,284
2.50	2,741	7.18	633	12,434	6.12	2,445

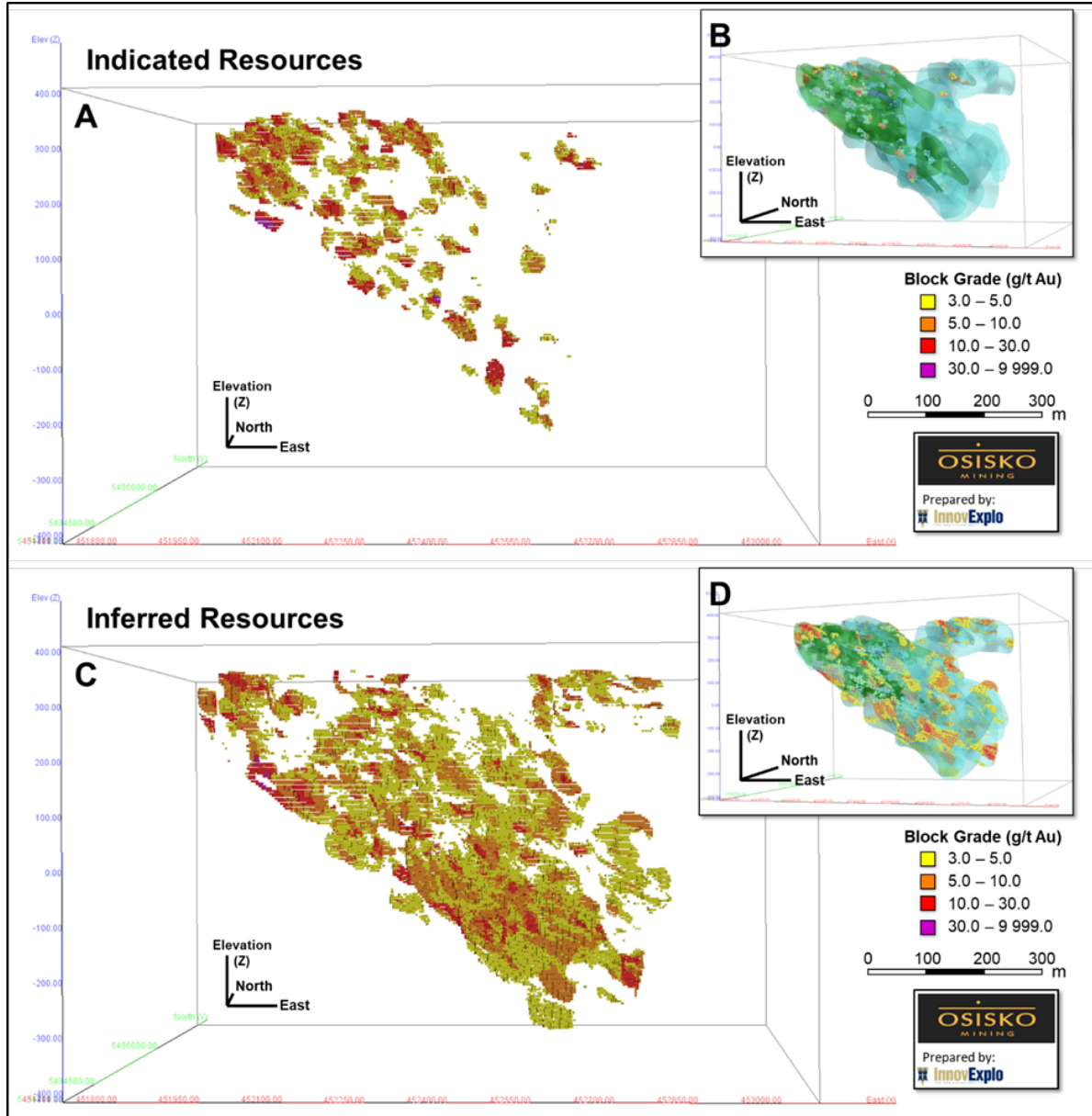


Figure 14-16: Indicated and Inferred resources at the official UCoG in the Main Zone corridor.
 A) 3D views looking north and B) 3D view looking northwest showing Indicated resources;
 C) 3D views looking north and D) 3D view looking northwest showing Inferred resources.

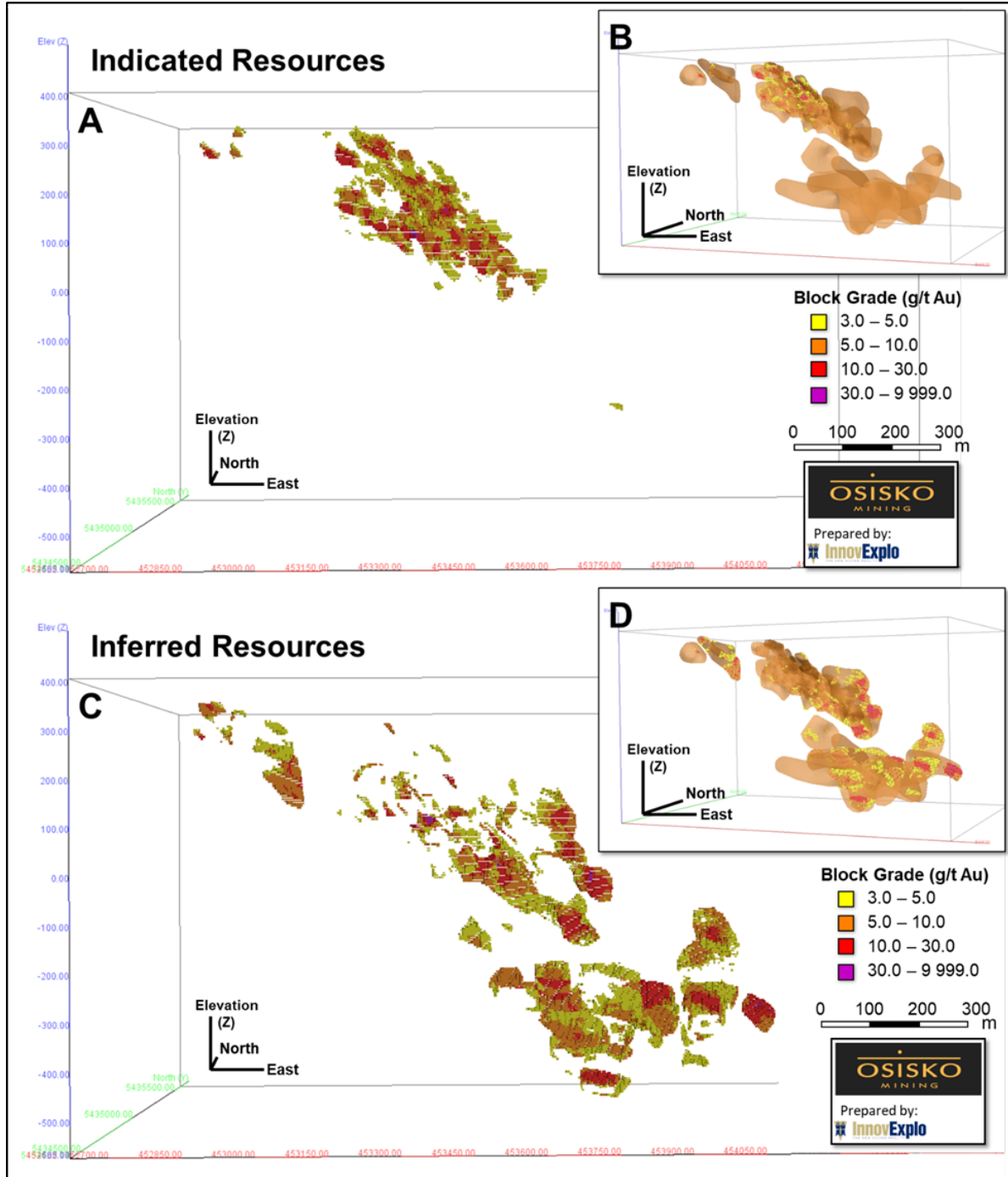


Figure 14-17: Indicated and Inferred resources at the official UCoG in the Lynx corridor.
 A) 3D views looking north and B) 3D view looking northwest showing the Indicated resources;
 C) 3D views looking north and D) 3D view looking northwest showing Inferred resources.

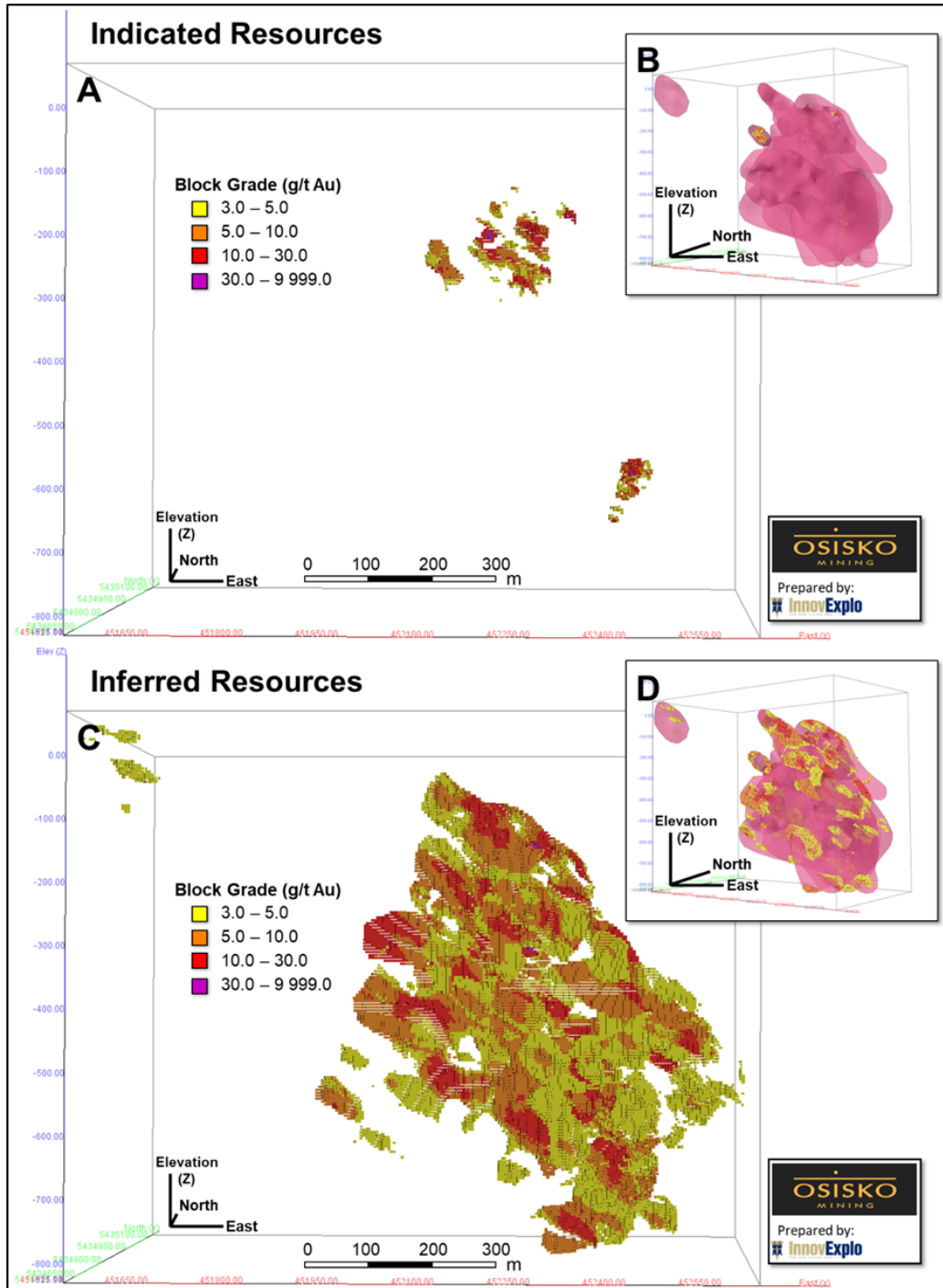


Figure 14-18: Indicated and Inferred resources at the official UCoG in the Underdog corridor. A) 3D views looking north and B) 3D view looking northwest showing the Indicated resources; C) 3D views looking north and D) 3D view looking northwest showing Inferred resources.

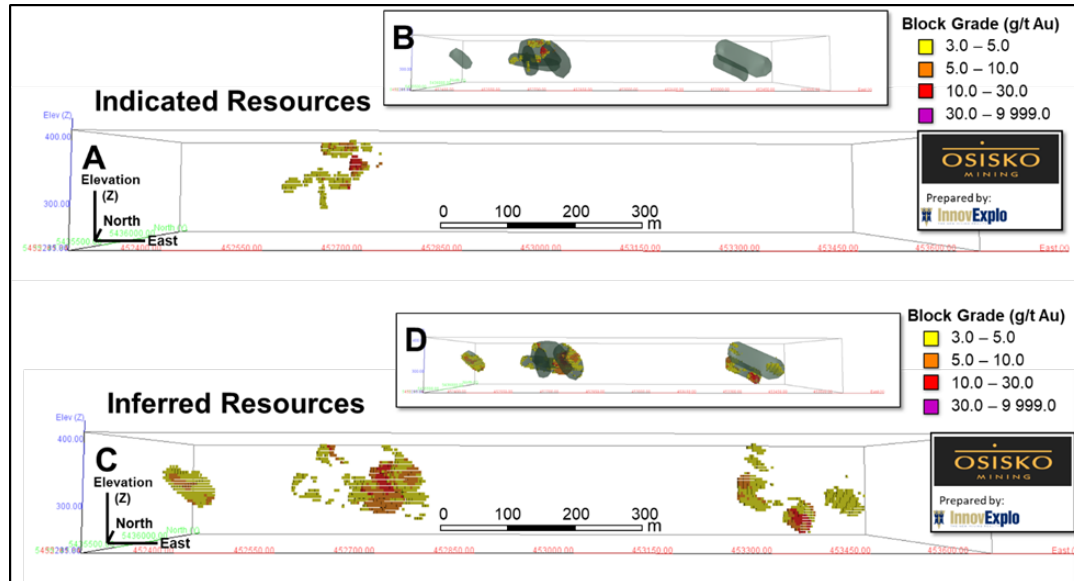


Figure 14-19: Indicated and Inferred resources at the official UCoG in the F Zones corridor.
 A) 3D views looking north and B) 3D view looking northwest showing the Indicated resources.
 C) 3D views looking north and D) 3D view looking northwest showing Inferred resources.

14.1.16 Comparison to Previous Mineral Resource Estimates

The previous mineral resource estimate published on the Windfall Lake Project was released on June 10, 2015 (see "Preliminary Economic Assessment of the Windfall Lake Gold property, Québec, Canada", effective date April 28, 2015) and is available on SEDAR (www.sedar.com) under Eagle Hill Exploration Corporation's issuer profile). The "Technical Report and Mineral Resource Estimate for the Windfall Lake Project, Windfall Lake and Urban-Barry Properties", effective date May 14, 2018, provides a detailed comparison with previous estimate.

14.2 Osborne-Bell Deposit, Quévillon Property

The 2018 Osborne-Bell deposit Mineral Resource Estimate (the "2018 MRE") was prepared by Pierre-Luc Richard, P.Geo.

The 2018 MRE presented herein was first published in April 2018. The main objective in April 2018 was to update the previous 43-101 mineral resource estimate for the Osborne-Bell deposit prepared by InnovExplo and published in a report titled "43-101 Technical Report and Mineral Resources Estimate – Osborne-Bell deposit, Comtois property", dated November 30, 2012 (Carrier et al., 2012) (the "2012 MRE").



The 2018 MRE uses additional diamond drilling data that was not available at the effective date of the 2012 MRE. The 2018 MRE drill hole database contains the 877 holes used for the 2012 MRE, supplemented by 54 additional holes, for a total of 931.

Many changes were made to the approaches and assumptions used in 2012, most notably to the mineralized domain interpretation, the capping assumptions, the grade interpolation strategies, and the approach to creating a late barren dike dilution model (“dike dilution model”). In addition, the gold price, project costs and exchange rate assumptions were revised to reflect 2018 market conditions.

The result of this study is a broad lower-grade gold-mineralized domain (“LG 610”) containing 17 higher-grade subzones (“HG” zones), and a single mineral resource estimate for the nine HG zones with sufficient geological confidence, tonnage and grade. The distribution of the following features guided the delineation: volcanic rocks (system centered on felsic volcanics), mineralization (disseminated sulphides and veinlets), gold values, metal associations (Cu and Zn), alteration (high VMS alteration index (IALT) and aluminosilicate alteration trend) and main local lineation trend. Overall, the grade model honours the attitude of the volcanic rocks and the spatial distribution of the mineralization and alteration. The dike model is based on the delineation of corridors containing >50% and >75% late barren dikes when compared to the total lithological volume, supplemented by an envelope containing narrow and erratic occurrences of such dikes.

The final grade resource model corresponds to the grade model (interpolated gold values in mineralized volcanic material) diluted by the late barren dike model (dilution at 0 g/t Au per the weighted percentage of late barren dike). This process allows better control of the two main geological features that affect grade distribution in the Osborne-Bell deposit.

The mineral resources in the 2018 MRE are not mineral reserves as they do not have demonstrated economic viability. The estimate is categorized as Inferred Resources for an underground scenario.

The effective date of this mineral resource estimate is March 2, 2018.



14.2.1 Grade Model Methodology

The 2018 MRE was prepared using GEOVIA GEMS software v. 6.8. GEMS was used for block model and grade estimation (OK interpolation method). Leapfrog software was used for modelling purposes. Sensitivities to different interpolation methods were also performed in GEMS. The variography study and the statistical validation for the grade block model were performed using Snowden Supervisor software v. 8.8.1.0 (“Supervisor”). Capping and several validations were done in Microsoft Access 2016. Basic and spatial statistics were established using a combination of GEMS, Supervisor, Microsoft Excel, and Access. The main steps in the methodology were as follows:

- Drill hole database compilation and validation for the 2012 MRE DDH and additional DDH;
- Modelling of mineralized zones based on metal content, lithological information and alteration footprint;
- Generation of drill hole intercepts for the grade model;
- Grade compositing;
- Capping study on composite data;
- Interpolation using new parameters.

14.2.1.1 Grade Model – Drill Hole Database

The 2018 MRE drill hole database contains the 877 DDH used in the 2012 MRE, supplemented by 54 additional DDH. Information for the latter was transferred into GEMS from the Geotic/MS Access database containing all drill holes from the property. The GEMS database does not retain every hole drilled on the property because many holes were too far from the deposit to be of use for the estimation (see Chapters 6 and 10).

The 931 drill holes extend over the 1.8-km strike-length of the mineralized system at a drill spacing ranging from 12.5 m to 200.0 m (Figure 14-20). Of the 54 additional holes, 10 DDH improve the level of knowledge for the deepest portion of the deposit, from 700 m to 1,350 m below surface, whereas another 24 DDH improve the level of knowledge for the intermediate portion, from 200 m to 700 m below surface, and four DDH were drilled on the uppermost portion of the deposit, from surface to 100 m below surface. Outside the deposit itself, nine DDH were drilled to test the potential of the Mafic North area 200 m to the north and seven DDH were drilled in the area previously known as the Western Extension.

In addition to the basic tables of raw data, the GEMS database contains tables of grade intercepts and the calculated grade composites required for statistical analysis and grade block modelling.

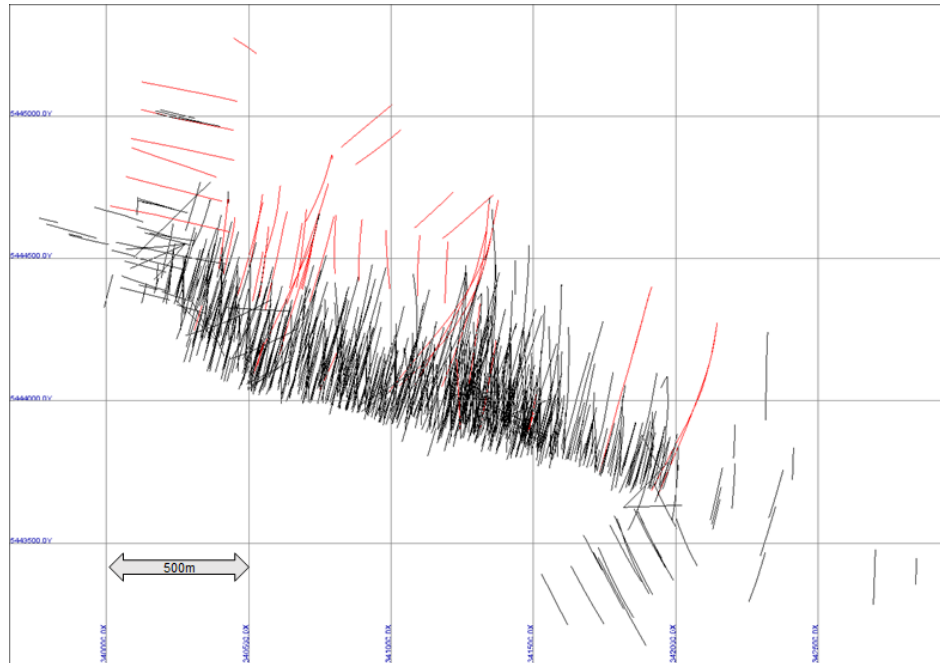


Figure 14-20: Plan view showing the 931 drill holes used for the 2018 MRE. Black traces represent DDH included in the 2012 MRE (n = 877); red traces represent the new DDH in the 2018 MRE (n=54).

The author was also provided with an additional database consisting of 52 new drill holes totalling 14,000.2 m (OSK-OB-18-005 to OSK-OB-18-019 and OSK-OB-18-021 to OSK-OB-18-057) that were drilled after the 2018 MRE cut-off date. This database contains 7,261 samples. The author imported these new holes in the GEMS project in order to assess if they would have a material impact on the resource if a MRE update including these holes were to be produced. A visual check was made in cross-sections and some basic intercept calculations were produced in order to provide a comprehensive opinion. This review allows the author to state that the 2018 MRE can be considered as current and that the 52 additional holes confirm the current model. Although new holes could improve resource classification, it is not believed that they would have a material impact on the amount of tonnes and ounces if they were to be included in a MRE update.



14.2.1.2 Grade Model – Interpretation of Mineralized Zones

In order to better constrain the resource estimation for the Osborne-Bell deposit, InnovExplo constructed wireframes based on geological criteria (volcanic rocks, alteration and gold mineralization). Martin Barette, Senior Technician for InnovExplo, was involved in the 3D geological interpretation of the mineralized zones (the lower-grade domain and higher-grade subzones) under the supervision of Pierre-Luc Richard and Alain Carrier.

The lower-grade mineralized volcanic rock envelope (LG 610 – Osborne-Bell) consists of a broad domain characterized by occurrences of disseminated sulphides and veinlets straddling strongly altered volcanic rocks. It was delineated using an approximate grade of 0.2 g/t Au (or lower). This broader domain can be traced over a strike length of 1,800 m, a width of 400 m and a depth of 1,400 m below surface. This domain is centred on the felsic volcanic rocks but extends into the surrounding mafic rocks on both sides. The interpretation of the mineralized envelope starts on its northern side with a significant increase in sulphide content (mostly finely disseminated pyrite) in the volcanic rocks, supplemented by strong VMS alteration (IALT) and/or aluminosilicate-rich alteration in the central portion. The southern limit is established by the contact of the Beehler Stock (a younger intrusion), which cuts across the mineralized system and post-dates it. InnovExplo generated a 3D geological model of the Beehler intrusion for the entire area covered by the block model and resource estimate. The mineralized envelope was interpreted along a steeply dipping, roughly WNW-ESE trend. The mineralized envelope interpreted in 2018 merges the two mineralized zones interpreted in 2012 (Osborne and Bell), supported by the additional drilling data.

The 17 HG zones interpreted within the LG 610 envelope include nine with sufficient geological confidence, tonnage and grade to be included in the 2018 MRE (Figure 14-21).

All 17 mineralized zones throughout the deposit include lower-grade material to maintain geological continuity. A minimum true width of 2 m was applied during interpretation. The mineralized zones were interpreted by ignoring occurrences of late barren dikes. The barren synvolcanic dike (the Zebra felsic unit; see Chapter 7), which cuts across the mineralized envelope and several HG zones, has been reinterpreted in light of the new drilling data. The volume of the Zebra felsic unit was removed from any gold interpolation during the resource estimation process.

The wireframe solid of the mineralized envelope was created by digitizing an interpretation onto plan views and sections spaced 25 m apart. The wireframe solids of the HG zones were created using Leapfrog software based on geological and grade criteria.

Some isolated gold intercepts exist outside the interpreted mineralized envelope. Those isolated values are not attributed to any zone given the lack of continuity.

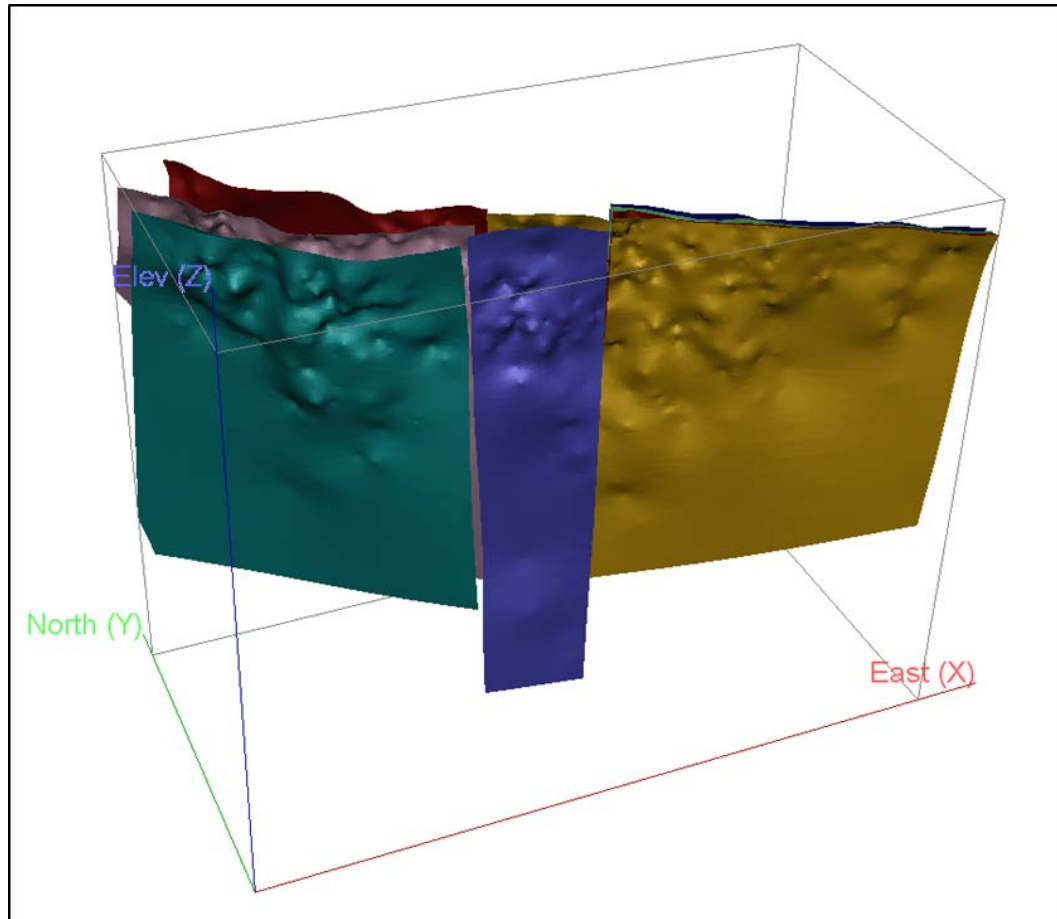


Figure 14-21: 3D view of the mineralized model for the Osborne-Bell deposit, looking northeast.

14.2.1.3 Grade Model – Compositing

Late barren dikes were not considered during the interpretation of the mineralized volcanic rock zones. Sample intervals that fall within late barren dikes were excluded from the composited gold values (see Sections 14.2.1 and 14.2.3).

Drill hole assays were composited to minimize any bias introduced by the variable sample lengths.

For geological and statistical reasons, a 1.5-m composite with an allowable spread of 0.75 m to 2.25 m was selected as the logical option for the Osborne-Bell deposit.

The total number of composites used in the DDH dataset is 130,862. A grade of 0.00 g/t Au was assigned to missing sample intervals. Table 14-29 shows the basic statistics by grouped zone.



Table 14-29: Summary statistics for composites before capping

Dataset	Block Code	Metal	# of Composites	Max (g/t)	Mean (g/t)	Standard Deviation	Coefficient of Variation
1550	1550	Au (g/t)	709	193.55	1.21	8.60	7.09
1651	1651	Au (g/t)	998	116.82	1.17	5.08	4.36
1653	1653	Au (g/t)	363	236.78	2.07	13.70	6.62
2650	2650	Au (g/t)	455	153.50	2.72	11.24	4.13
2652	2652	Au (g/t)	423	33.05	1.61	4.07	2.53
3551	3551	Au (g/t)	1,161	68.80	1.85	4.76	2.57
3552	3552	Au (g/t)	765	56.17	1.02	3.68	3.62
3652	3652	Au (g/t)	751	542.46	2.41	21.49	8.90
3653	3653	Au (g/t)	1,125	186.32	1.87	9.22	4.93
Dilution Envelope	610	Au (g/t)	61,440	47.83	0.13	0.45	3.45

14.2.1.4 Grade Model – High Grade Capping

In the 2018 MRE, the treatment of extreme high-grade values was based on the statistical features and distribution of composites. In the database, the composites were automatically coded by zone directly from the 3D mineralized zone solids and were then used to generate basic univariate statistics.

Basic univariate statistics, probability plots and histograms were generated on grade composite datasets grouped by zone using point area files containing raw gold assays. High grade capping was established on a per zone basis, and a total of 95 grade composites were capped (Table 14-30).



Table 14-30: Summary statistics for the capping by dataset

Dataset	Block code	Metal	# of samples	Max (g/t)	Uncut mean (g/t)	High grade capping (g/t)	Cut mean (g/t)	# of samples cut	% of samples cut	% Metal factor loss	Coefficient of variation
1550	1550	Au (g/t)	709	193.55	1.21	35.00	0.89	3	0.42%	25.56%	3.40
1651	1651	Au (g/t)	998	116.82	1.17	25.00	1.00	5	0.50%	14.19%	2.84
1653	1653	Au (g/t)	363	236.78	2.07	30.00	1.28	4	1.10%	34.09%	3.40
2650	2650	Au (g/t)	455	153.50	2.72	55.00	2.30	4	0.88%	16.01%	3.09
2652	2652	Au (g/t)	423	33.05	1.61	25.00	1.58	2	0.47%	1.89%	2.45
3551	3551	Au (g/t)	1,161	68.80	1.85	55.00	1.83	2	0.17%	0.84%	2.46
3552	3552	Au (g/t)	765	56.17	1.02	25.00	0.94	4	0.52%	8.65%	2.83
3652	3652	Au (g/t)	751	542.46	2.41	35.00	1.39	4	0.53%	43.73%	2.88
3653	3653	Au (g/t)	1,125	186.32	1.87	40.00	1.54	3	0.27%	18.91%	2.48
Dilution Envelope	610	Au (g/t)	61,440	47.83	0.13	3.00	0.13	64	0.10%	4.74%	1.87



The following criteria were used to decide whether or not capping of the composites was warranted, and to determine the threshold when warranted. The following criteria were also used to determine the gold grade capping:

- If the quantity of metal contained in the last decile is above 40%, capping is warranted; if below 40%, the uncapped dataset may be used;
- No more than 10% of the overall contained metal must be contained within the first 1% of the highest-grade samples;
- The probability plot of grade distribution must not show abnormal breaks or scattered points outside of the main distribution curve;
- The log normal distribution of grades must not show any erratic grade bins or distanced values from the main population.

Figure 14-22 shows an example of statistical plots for capping gold grade composites in the mineralized zones.

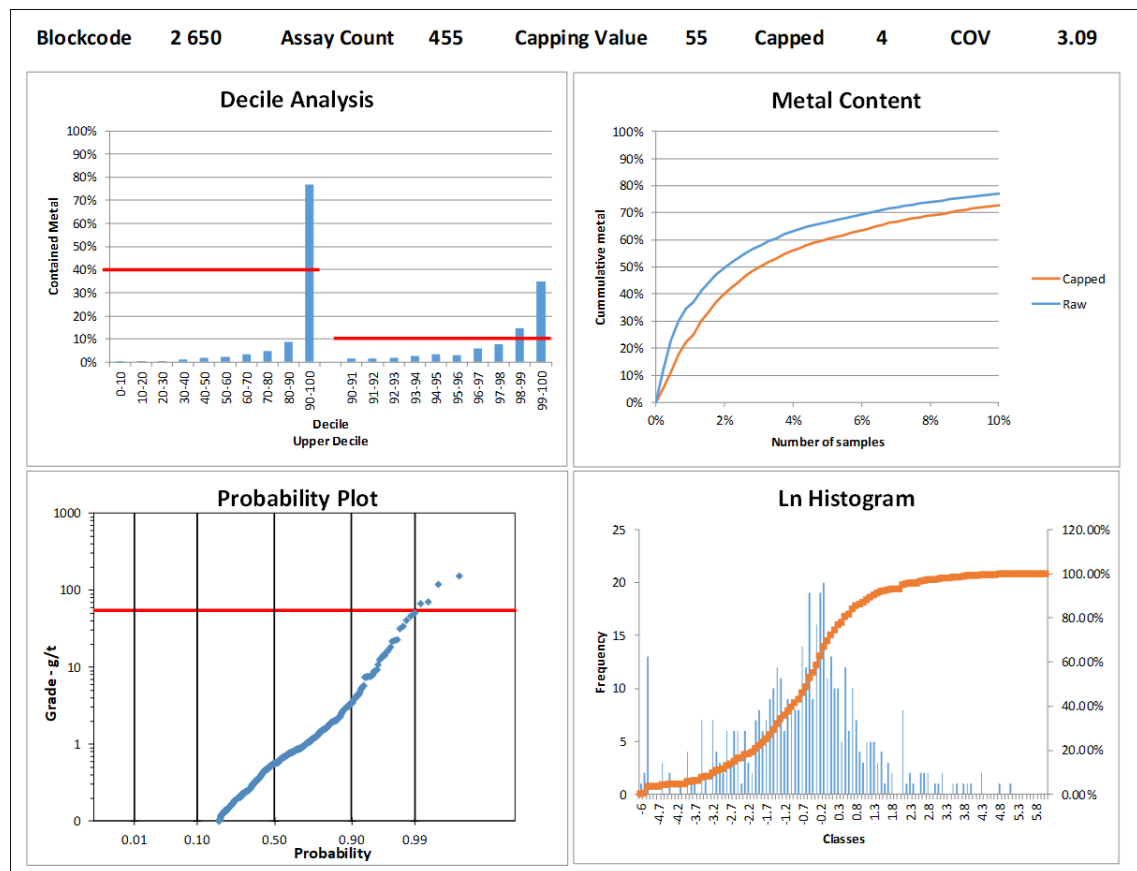


Figure 14-22: Summary statistical plots for capping gold in Zone 2650.



14.2.1.5 Grade Model - Variography, Search Ellipsoids and Boundaries

Variography

Grade composites within interpreted mineralized zones were used to generate variography and ultimately determine search ellipsoids.

A 3D directional-specific variographic analysis of the composites was completed for all mineralized zones. Variography analysis, realized in Supervisor, was conducted for all HG zones and the lower grade envelope.

Search Ellipsoid

The 3D directional-specific investigations yielded the best-fit model along an orientation that roughly corresponds to the strike and dip of the mineralized zones.

Table 14-31 summarizes the parameters of the final ellipsoids used for interpolation. Figure 14-23 illustrates the shapes and ranges of the search ellipsoids for Pass 1 applied to Zone 1653.



Table 14-31: Search ellipsoid parameters

Zone	Block code	Ellipsoid	Orientation (GEMS)			Ranges			General parameters		
			Azimuth	Dip	Azimuth	X	Y	Z	Min	Max	Minimum
						(m)	(m)	(m)	Composites	Composites	DDH
1550	1550	Pass 1	186.30	74.20	293.70	47	44	33	5	12	2
		Pass 2	186.30	74.20	293.70	71	66	50	4	12	2
1651	1651	Pass 1	242.20	67.70	308.40	73	50	20	5	12	2
		Pass 2	242.20	67.70	308.40	110	75	30	4	12	2
1653	1653	Pass 1	147.10	54.70	316.50	58	39	20	5	12	2
		Pass 2	147.10	54.70	316.50	87	59	30	4	12	2
2650	2650	Pass 1	126.30	78.80	279.12	52	44	20	5	12	2
		Pass 2	126.30	78.80	279.12	78	66	30	4	12	2
2652	2652	Pass 1	154.00	68.90	286.00	49	35	20	5	12	2
		Pass 2	154.00	68.90	286.00	74	53	30	4	12	2
3551	3551	Pass 1	128.60	59.60	297.10	71	40	20	5	12	2
		Pass 2	128.60	59.60	297.10	107	60	30	4	12	2
3552	3552	Pass 1	170.73	72.04	292.39	61	45	20	5	12	2
		Pass 2	170.73	72.04	292.39	92	68	30	4	12	2
3652	3652	Pass 1	120.00	60.00	300.00	63	64	20	5	12	2
		Pass 2	120.00	60.00	300.00	95	96	30	4	12	2
3653	3653	Pass 1	88.70	78.80	295.80	41	41	20	5	12	2
		Pass 2	88.70	78.80	295.80	62	62	30	4	12	2
610	610	Pass 1	78.70	78.80	285.80	43	43	21	5	12	2
		Pass 2	78.70	78.80	285.80	65	65	32	4	12	2

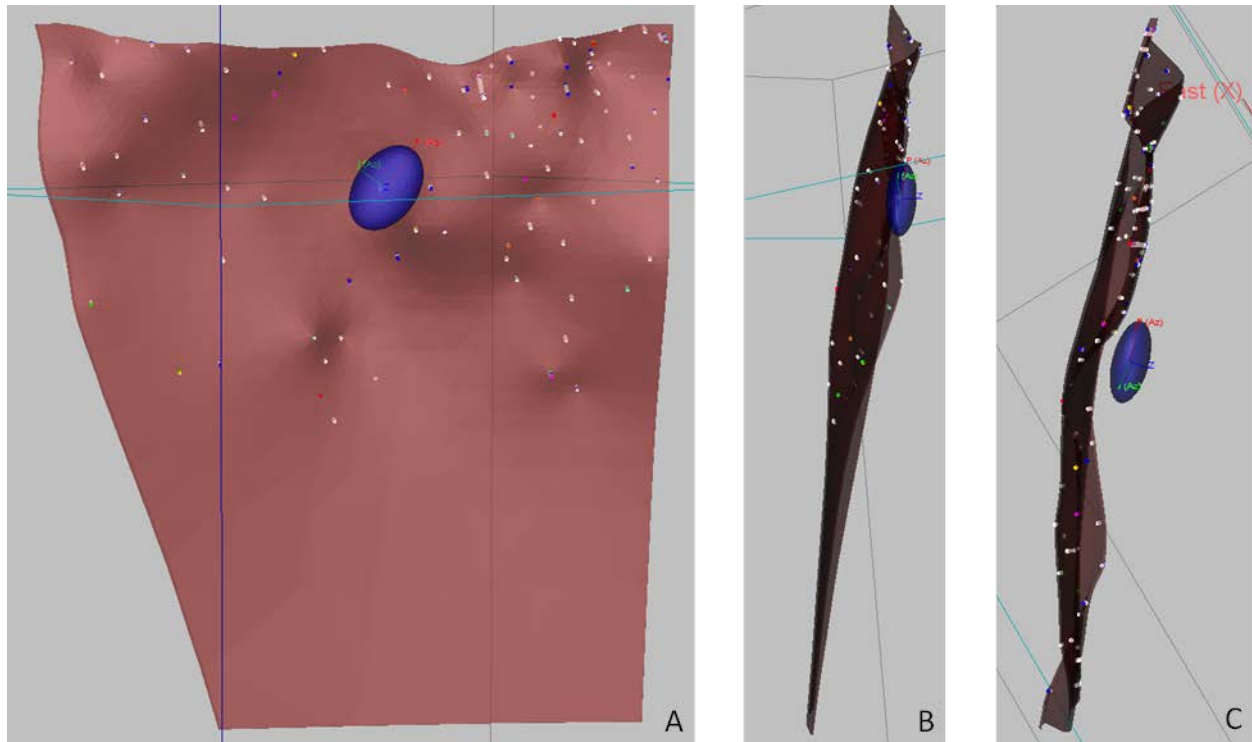


Figure 14-23: Different views of Zone 1653 showing the ellipsoid obtained from the variography study.
A) 3D longitudinal view; B) 3D section view; C) 3D plan view.

14.2.1.6 Grade Model – Bulk Density

Bulk density study is based on two datasets:

- In lithologies used for grade interpolation, 541 measurements of specific gravity on core samples from 20 drill holes (COM-08-167, COM-08-173A, COM-10-428 and COM-10-432A to COM-10-448). The analyses were performed by ALS Chemex at InnovExplo's request;
- In lithologies used for grade interpolation, 4,491 specific gravities calculated with NORMAT in 559 DDH.

Measured specific gravity values are confirmed by NORMAT calculations (Table 14-32). On a lithological basis, intermediate to mafic volcanic rocks (V2-V3Tu) present an average value of about 2.80 g/cm³. InnovExplo decided to use 2.80 g/cm³ for the felsic unit (V1C) instead of measured values (2.79 g/cm³) because it is the most sulphide-rich rock, even though the value of 2.80 g/cm³ was confirmed by additional drilling samples and metallurgical tests.



Table 14-32: Specific gravity compilation for lithologies used for the grade model

Lithology	Measured specific gravity					Calculated specific gravity					Value used for 2017 MRE
	N Sample	Mean	Median	Min	Max	N Sample	Mean	Median	Min	Max	
V1C	356	2.79	2.79	2.55	3.30	1317	2.79	2.79	2.64	3.15	2.80
V2-V3Tu	185	2.80	2.81	2.49	3.11	3,142	2.84	2.84	2.66	3.33	2.80
Total	541	-	-	2.49	3.30	4,459	-	-	2.64	3.33	-

For the 2018 MRE, a specific gravity value of 2.80 g/cm³ was applied to the tonnage calculation for all blocks interpolated for grade.

It should be noted that for the 2018 MRE, a specific gravity value of 2.72 g/cm³ was applied to the tonnage calculation for all blocks interpolated in the Zebra felsic unit based on 33 drill core measurements.

14.2.1.7 Grade Model – Block Model

A block model was established to cover the entire drilled area and an area sufficient to host any open-pit scenario. The model has been pushed down to a depth of 1,200 m below surface. The origins of the block model are shown in Table 14-33.

The grade block model was rotated -15° from a north grid azimuth. Individual block cells have dimensions of 2.5 m long (X-axis) by 2.5 m wide (Y) by 2.5 m vertical (Z). The grade block model is coded using the percent model method for rock code identification and contains three folders.

Table 14-33: Osborne-Bell deposit block model properties

Properties	X (Columns)	Y (Rows)	Z (Levels)
Origin coordinates (UTM NAD83)	339918.489	5443702.118	345.000
Block size	2.5	2.5	2.5
Number of blocks	894	468	580
Block model extent (m)	2,235	1,170	1,450
Rotation		345	

All blocks with more than 0.001% of their volume falling within a selected solid were assigned the corresponding solid block code in their respective folder. A percent block model was generated, reflecting the proportion of each block inside every solid (i.e., individual mineralized zones, individual lithological domains, the overburden and the country rock).



Table 14-34 provides details about the naming convention for the corresponding GEMS solids, as well as the rock codes and block codes assigned to each individual solid. The resulting multi-folder percent block model was used for the mineral resource estimation.

Table 14-34: Osborne-Bell deposit block model and associated solids

Workspace	Description	Rock code	GEMS triangulation name			Precedence
			NAME 1	NAME 2	NAME 3	
HG_A	Mineralised Zone	1550	1-650South	20180130	clipFinal	1550
	Mineralised Zone	1551 ⁽¹⁾	1-651North	20180130	clipFinal_POT	1551
	Mineralised Zone	2651 ⁽¹⁾	2-651	20180130	clipFinal_POT	2651
	Mineralised Zone	3650 ⁽¹⁾	3-650	20180130	clipFinal_POT	3650
	Mineralised Zone	3653	3-653South	20180130	clipFinal	3653
	Mineralised Zone	3654 ⁽¹⁾	3-654	20180130	clipFinal_POT	3654
HG_B	Mineralised Zone	1650 ⁽¹⁾	1-650	20180130	clipFinal_POT	1650
	Mineralised Zone	1653	1-653South	20180130	clipFinal	1653
	Mineralised Zone	2652	2-652	20180130	clipFinal	2652
	Mineralised Zone	3651 ⁽¹⁾	3-651	20180130	clipFinal_POT	3651
	Mineralised Zone	3551	3-653Center	20180130	clipFinal	3551
HG_C	Mineralised Zone	1651	1-651	20180130	clipFinal	1651
	Mineralised Zone	1652 ⁽¹⁾	1-652	20180130	clipFinal_POT	1652
	Mineralised Zone	2650	2-650	20180130	clipFinal	2650
	Mineralised Zone	2653 ⁽¹⁾	2-653South	20180130	clipFinal_POT	2653
	Mineralised Zone	3652	3-652	20180130	clipFinal	3652
	Mineralised Zone	3552	3-653North	20180130	clipFinal	3552
Waste	Beehler Stock	560	Beehler	20170111	Clip_Final	560
	Felsic Zebra	613	16_Zeb	20170202	Clip_Final	613
	WasteBM	999	Waste_All	20170112	Clip_Bed	999
LG	Envelope	610	ENV_610	20170202	Clip_Final	610
OVB	Overburden	6	Ovb	20161221	Final	5

⁽¹⁾ Only considered for mineral potential.



14.2.1.8 Grade Model – Grade Interpolation

The variography study provided the parameters to interpolate the grade model. The interpolation was run on a point area workspace extracted from the composite dataset.

The composite points were assigned block codes corresponding to the mineralized zone in which they occur. The interpolation profiles specify a single composite block code for each mineralized-zone solid, thus establishing hard boundaries between the mineralized zones and preventing block grades from being estimated using sample points with different block codes than the block being estimated.

The interpolation profiles were customized to estimate grades separately for each of the mineralized zones (n=18). The OK method was selected for the final resource estimation as it better honours the grade distribution in the Osborne Bell deposit.

Two passes were defined: Pass 1 ellipsoid radiuses were established using the variography results and Pass 2 ellipsoid radiuses were 1.5x the variography results. Pass 2 interpolated the blocks that were not interpolated during Pass 1.

Parameters used to interpolate gold during Pass 1:

- 1x the variography range results;
- Minimum 5 composites;
- Maximum 12 composites;
- Minimum 2 holes.

Parameters used to interpolate gold during Pass 2:

- 1.5x the variography range results;
- Minimum 4 composites;
- Maximum 12 composites;
- Minimum 2 holes.



14.2.2 Dike Dilution Model Methodology

The Dike table used for the 2018 MRE was constructed using a combination of GEMS, Microsoft Excel and Access. The modelling of dike corridors was carried out in both GEMS and ARANZ Leapfrog Geo software v. 4.0 ("Leapfrog"). Several validations were done in Microsoft Access 2013. The main steps in the methodology were as follows:

- Modelling of late dike corridors based on lithological compilation;
- Generation of drill hole intercepts for the dike model;
- Dike compositing;
- Interpolation using parameters established in 2018, establishment of search ellipsoid parameters and boundaries methodology;
- Block modelling (geometry and structure).

In order to better constrain the resource modelling of the Osborne-Bell deposit, InnovExplo constructed a wireframe model delimiting the geologically defined extent of the late barren dike swarms ("dike corridors") using a 2,300-metre strike-length area measuring 400 m wide and extending down to 1,400 m below surface.

The late barren feldspar-amphibole porphyry dikes (I2; pFpAm) and granitic dikes (I1B) used for the interpretation of dike corridors are related to the Beehler stock, which cuts across the Osborne-Bell deposit in the south. These two late barren dike families are similar in terms of composition and represent close to 80% of late dike occurrences in the Osborne-Bell deposit. Dike corridors, extending from the contact of the Beehler stock to the north, correlate well laterally. From south to north, dike corridors become thinner and farther apart (Figure 14-24). Globally oriented at N280° and dipping steeply at 85°, they cut across mineralized zones at a slightly discordant angle.

Eight wireframes were built according to the following visual criteria:

- Corridors 550 to 552 (Figure 14-25), where a late dike swarm represents more than 75% of total lithological material and displays consistent lateral and depth continuity in terms of dike distribution;
- Corridors 553 to 550 (Figure 14-25), where a late dike swarm represents more than 50% of total lithological material and displays consistent lateral and depth continuity in terms of dike distribution.

A broad dike envelope separated into four parts (510, 515, 520 and 570) was used to obtain the dike dilution model between modelled dike corridors, and thus takes into account narrow and isolated late barren dike intercepts.

The late Beehler stock (560) is considered to be homogeneous late barren material throughout its modelled volume (Figure 14-24).

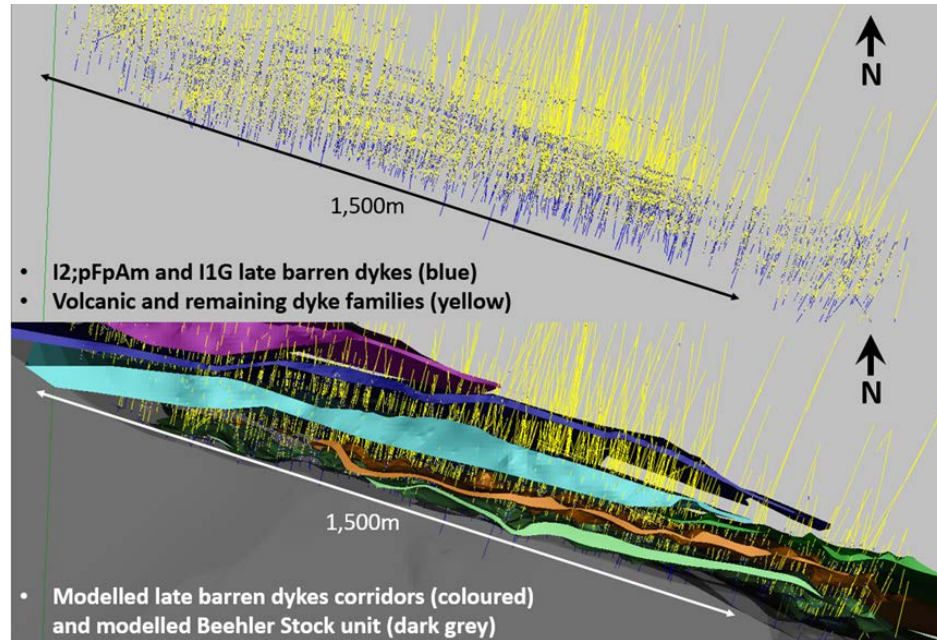


Figure 14-24: Dike composite plan views slightly tilted to the north illustrating the distribution of the two late barren dike families used for the dike model (top) and the subsequent delineation of corresponding corridors (bottom).

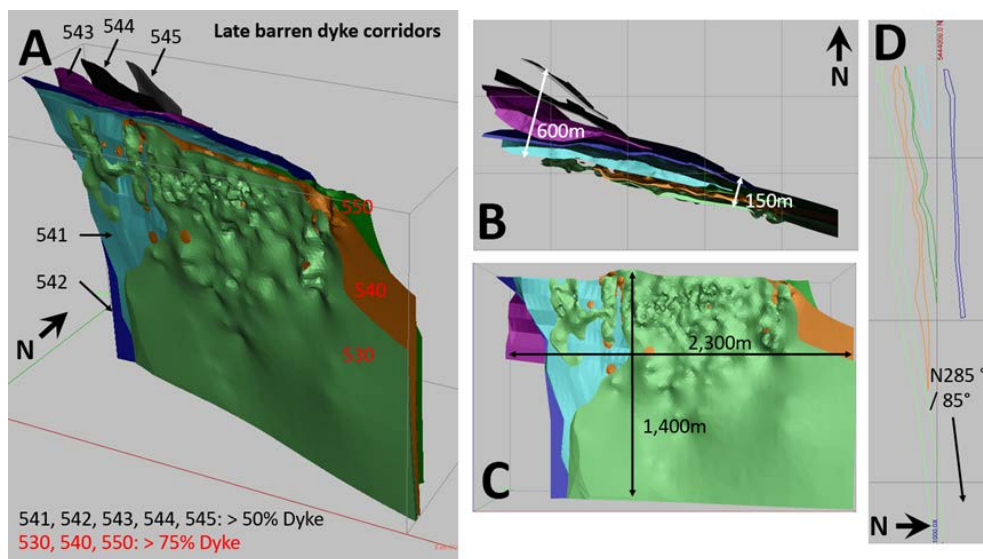


Figure 14-25: Illustration of the eight modelled late barren dike corridors (A). The composite plan view (B) illustrates the slight change in their direction towards the west. Late barren dike corridors show a relatively constant attitude, both laterally (C) and at depth (D).



The other late barren dike families, such as aplitic (I1F), pegmatitic (I1G), intermediate (I2) and lamprophyres (I3), were not used for the dike dilution model.

Dike percentages were composited to 1-metre equal lengths (“1 m dike composites”).

InnovExplo did not conduct a variography study on the dike composite population; instead, geological features were used to determine search ellipsoid parameters. Search ellipsoids were built for each dike corridor or dike envelope supporting the dike model. The shape of the search ellipsoid is a very thin disk reflecting geological continuity observed on field outcrops and in the drill hole database.

A visual comparison between the block model dike percentage, the composite percentage and hole-to-hole continuity was conducted on sections, on plans and in 3D. No significant smearing was observed during the comparison. The author is of the opinion that the interpolation results properly reflect the fact that late barren dikes sharply cross-cut volcanic lithologies as observed on field outcrops and in drill holes.

14.2.3 Final Consolidated Model

The final consolidated model (this section) is the last step of the 2018 MRE block modelling strategy. In this step, the grade model (Section 14.2.1) is diluted at 0 g/t Au by the percentage of late barren dike (Section 14.2.2). The reader is reminded that late barren dikes were not considered when interpreting the mineralized zones. Intervals falling inside late barren dikes were not considered while compositing gold values. In order to assess such dikes in the mineral resource process, they were composited in a dike-percentage block model and used to dilute the interpolated gold values.

The final grade resource estimation corresponds to interpolated gold values (see Section 14.2.1) diluted by the dike model percentage (see Section 14.2.2) and weighted by the proportions of volcanic rock and late barren dike for specific gravities.

14.2.3.1 Gold Grade

For each block, the Au Cut OK final (g/t Au) is calculated by the following formula:

$$\text{AU Cut OK Final (g/t Au)} = \frac{\text{Au Cut OK (g/t Au)} \times \text{Volcanic rock proportion (\%)} \times \text{Volcanic rock S.G. (g/cm}^3\text{)}}{\left(\text{Volcanic rock proportion (\%)} \times \text{Volcanic rock S.G. (g/cm}^3\text{)} \right) + \left(\text{Late dyke proportion (\%)} \times \text{Late dyke S.G. (g/cm}^3\text{)} \right)}$$

Figure 14-26 illustrates the effect of the application of dike dilution weighted by specific gravities on the cut gold grade values.



14.2.3.2 Specific Gravity

For each block, the final specific gravity value (g/cm^3) is calculated by the following formula:

$$\text{Final Specific Gravity (S.G.) value (g/cm}^3\text{)} = \left(\text{Volcanic rock proportion (\%)} \times \text{Volcanic rock S.G. (g/cm}^3\text{)} \right) + \left(\text{Late dyke proportion (\%)} \times \text{Late dyke S.G. (g/cm}^3\text{)} \right)$$

14.2.3.3 Impact of Dike Dilution

Application of dike dilution causes a gold content reduction of 30% at 0.0 g/t Au cut-off grade on the final cut gold grade. This effect is observed independently of the interpolation method used for the cut gold grade estimation. The author is of the opinion that this impact properly reflects the effect of the late barren dike on the volcanic rock volume.

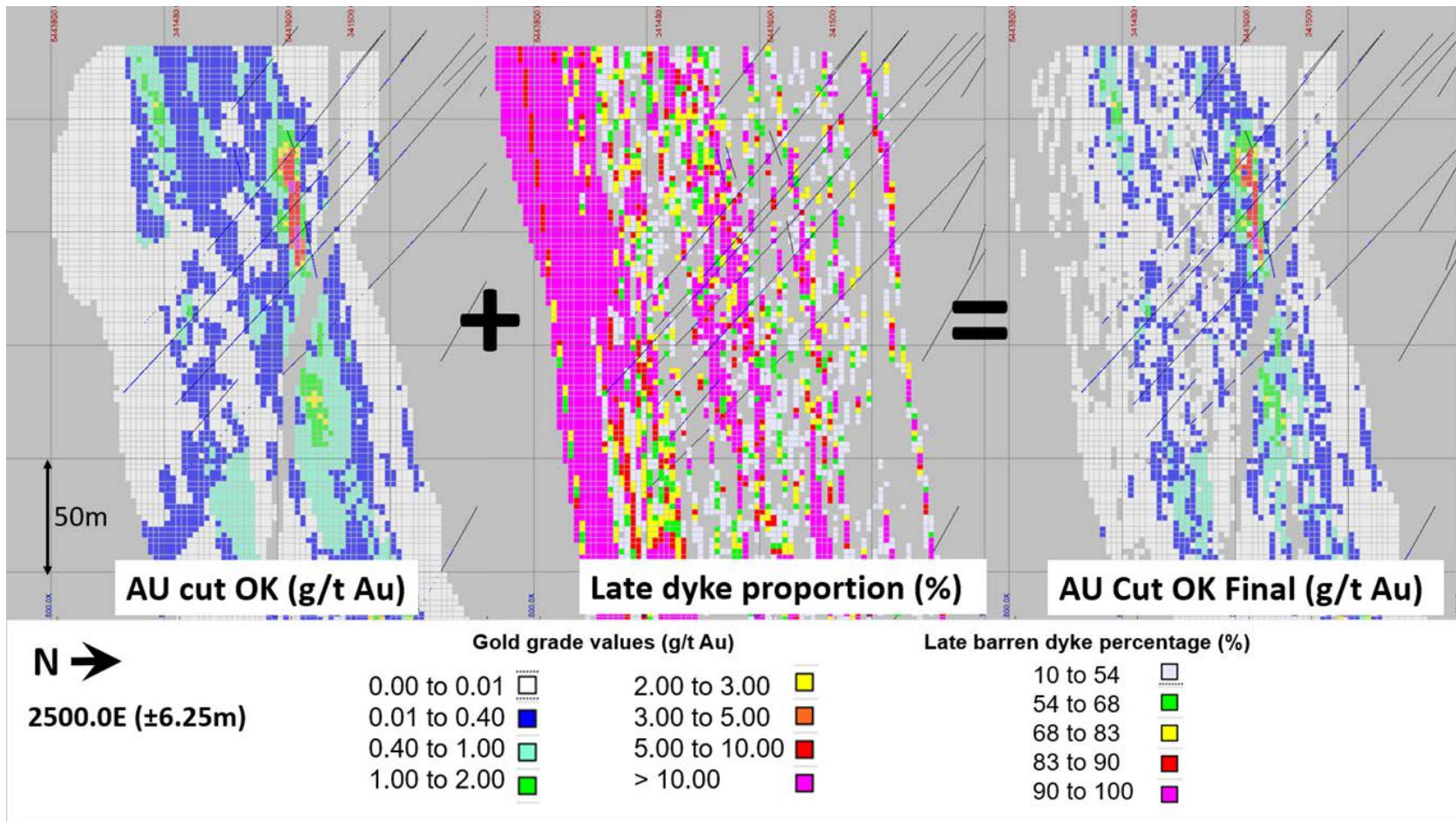


Figure 14-26: Vertical cross-section illustrating cut gold grade model (left) where dike dilution (middle) weighted by specific gravities is applied to obtain the final cut gold grade model (right).
Block sides are 2.5 m long.



14.2.4 Mineral Resource Definition and Classification

14.2.4.1 Definition

The resource classification definitions used for this report are those published by the Canadian Institute of Mining, Metallurgy and Petroleum in their document “CIM Definition Standards for Mineral Resources and Reserves”; refer to the definitions section.

14.2.4.2 Classification

By default, interpolated blocks were assigned to geological potential for all blocks concerned by grade interpolation.

The reclassification to the Inferred category was established for blocks meeting all the following conditions:

- Blocks showing geological and grade continuity;
- Blocks within area with drill spacing of 100 m or less;
- Blocks interpolated with a minimum of two drill holes.

Outline rings were created on longitudinal section views using the criteria described above to recode blocks accordingly.

In general, Inferred resources have a drill spacing of 50 m or less with local extrapolations up to 100 m.

14.2.5 Minimum Cut-off Grade

Mineral resources were compiled using a minimum cut-off grade of 3.00 g/t Au for an underground scenario.

Other cut-off grade results were also compiled for comparative purposes. The cut-off grade must be re-evaluated in light of future prevailing market conditions and other factors, such as gold price, exchange rate, mining method, related costs, etc.

The UCoG estimation used a gold price of USD1,300 and the parameters presented in Table 14-35.



Table 14-35: Underground cut-off grade input parameters

Parameters	Unit	Value
Exchange rate	\$	1.29
Selling cost	\$/oz	5.00
Mining cost	\$/t mined	80.00
G&A cost	\$/t milled	10.00
Metallurgic recovery	%	93
Processing cost	\$/t milled	40.00
Transport cost	\$/t milled	18.00
Calculated cut-off grade	Au g/t	2.96

1. The gold price and exchange rate represent the 1-year trading averages on February 12, 2018.
2. A selling cost of \$5.00/t was considered, based on similar projects.
3. The mining and G&A costs are based similar projects.
4. The metallurgic recovery from the MRE 2012 was used.
5. The processing cost reflects the average owner-operation cost at a third-party milling facility.
6. The transport cost reflects mineralized material transport to a third-party milling facility.

Using the parameters above, a UCoG of 2.96 g/t Au was calculated as follows:

$$UCoG = \frac{(\text{Mining cost} + \text{Processing cost} + \text{Transport cost} + \text{G\&A cost}) * 31.1035}{(\text{Gold price} - \text{selling cost}) * \text{Exchange rate} * \text{Mill recovery \%}}$$

The 2018 MRE uses a rounded value of 3.00 g/t Au for the UCoG.



14.2.6 Mineral Resource Estimate

Based on data density, search ellipse criteria, drill hole density and interpolation parameters, the 2018 Osborne-Bell deposit Mineral Resource Estimate is categorized as Inferred resources totalling 2,587,000 tonnes at an average grade of 6.13 g/t Au for 510,000 ounces of gold. The 2018 MRE follows CIM Definition Standards.

The 2018 MRE is presented undiluted and in situ for an underground scenario at a cut-off grade of 3.00 g/t Au.

Table 14-36 displays the results of the 2018 MRE at the official 3.00 g/t Au cut-off. Table 14-37 breaks down the estimate by zone. Table 14-38 displays the official in situ resource and sensitivity at other cut-off grades. The reader should be cautioned that the figures in Table 14-38 should not be misinterpreted as a mineral resource statement. Tonnage and grade estimates are reported at different cut-off grades only to demonstrate the sensitivity of the resource model to the selection of a reporting cut-off grade.

Figure 14-27 and Figure 14-28 show the grade distribution of the Osborne-Bell deposit above the selected 3.00 g/t Au cut-off in 3D and longitudinal views.



Table 14-36: 2018 Osborne-Bell deposit Inferred Resource Estimate

Cut-off Grade	Tonnage	Au g/t	Ounce
> 3.00 g/t	2,587,000	6.13	510,000

Osborne-Bell Mineral Resource Estimate notes:

1. The independent and qualified person for the mineral resource estimate, as defined by NI 43-101, is Pierre-Luc Richard, P.Geo. (BBA), and the effective date of the estimate is March 2, 2018.
2. These mineral resources are not mineral reserves as they do not have demonstrated economic viability. The quantity and grade of reported Inferred resources in this Mineral Resource Estimate are uncertain in nature and there has been insufficient exploration to define these Inferred resources as Indicated or Measured, and it is uncertain if further exploration will result in upgrading them to these categories.
3. Resources are presented undiluted and in situ for an underground scenario and are considered to have reasonable prospects for eventual economic extraction.
4. The estimate encompasses nine gold-bearing zones each defined by individual wireframes with a minimum true thickness of 2 m.
5. High-grade capping was done on composite data and established on a per zone basis for gold. It varies from 25 g/t to 55 g/t.
6. Density values were applied on the following lithological basis (g/cm³): volcanic rocks = 2.80; late barren dikes and Beehler stock = 2.78; Zebra felsic unit = 2.72.
7. Grade model resource estimation was evaluated from drill hole data using an Ordinary Kriging interpolation method on a block model using a block size of 2.5 m x 2.5 m x 2.5 m.
8. The estimate is reported at 3.00 g/t Au cut-off. The cut-off grade was calculated using the following parameters: mining cost = CAD80; processing cost = CAD40; G&A = CAD10; gold price = USD1,300/oz; CAD:USD exchange rate = 1.29 (1-year trailing average). The cut-off grade should be re-evaluated in light of future prevailing market conditions (metal prices, exchange rate, mining cost, etc.).
9. The mineral resource estimate presented herein is categorized as inferred mineral resource. The inferred mineral resource category is only defined within the areas where drill spacing is less than 100 m and shows reasonable geological and grade continuity.
10. The mineral resource estimate was prepared using GEOVIA GEMS 6.8. The estimate is based on 931 surface DDH. A minimum true thickness of 2.0 m was applied, using the grade of the adjacent material when assayed, or a value of zero when not assayed.
11. Calculations used metric units (metre, tonne, gram per tonne). Metal contents are presented in troy ounce (tonne x grade / 31.10348).
12. The number of metric tonnes was rounded to the nearest thousand. Any discrepancies in the totals are due to rounding errors.
13. CIM definitions and guidelines for mineral resources have been followed.
14. The author is not aware of any known environmental, permitting, legal, title-related, taxation, socio-political or marketing issues, or any other relevant issue not reported in this Technical Report, that could materially affect the mineral resource estimate.



Table 14-37: 2018 Osborne-Bell deposit mineral resource estimate by zone at 3.0 g/t cut-off grade

Zone	Tonnage	Au_Cut	Ounce
1550	176,000	5.26	30,000
1651	303,000	4.83	47,000
1653	268,000	8.00	69,000
2650	323,000	7.52	78,000
2652	359,000	5.18	60,000
3551	310,000	5.63	56,000
3552	159,000	5.95	30,000
3652	278,000	7.75	69,000
3653	411,000	5.30	70,000

Table 14-38: 2018 Osborne-Bell deposit mineral resource estimate cut-off sensitivity

Cut-off Grade	Tonnage	Au_Cut	Ounce
> 6.00 g/t	883,000	9.77	277,000
> 5.00 g/t	1,273,000	8.44	346,000
> 4.00 g/t	1,816,000	7.26	424,000
> 3.50 g/t	2,156,000	6.70	465,000
> 3.25 g/t	2,358,000	6.42	487,000
> 3.00 g/t	2,587,000	6.13	510,000
> 2.75 g/t	2,847,000	5.83	533,000
> 2.50 g/t	3,166,000	5.51	560,000

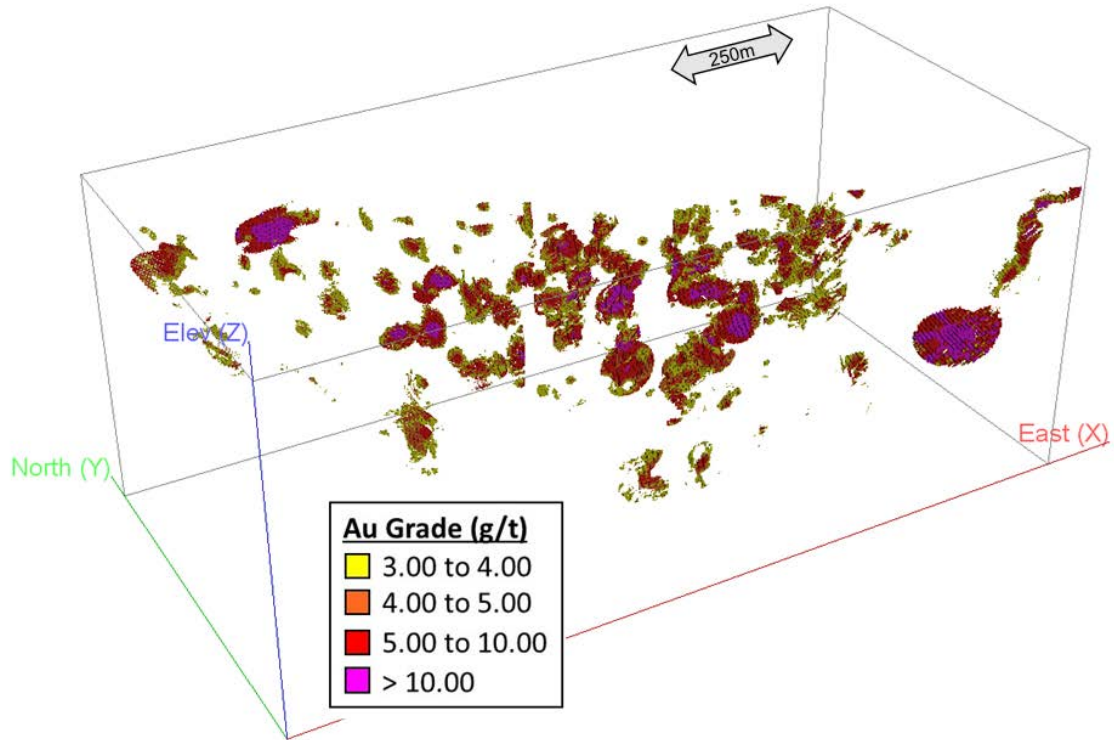


Figure 14-27: Longitudinal view showing grade distribution above the selected 3.00 g/t Au cut-off grade.

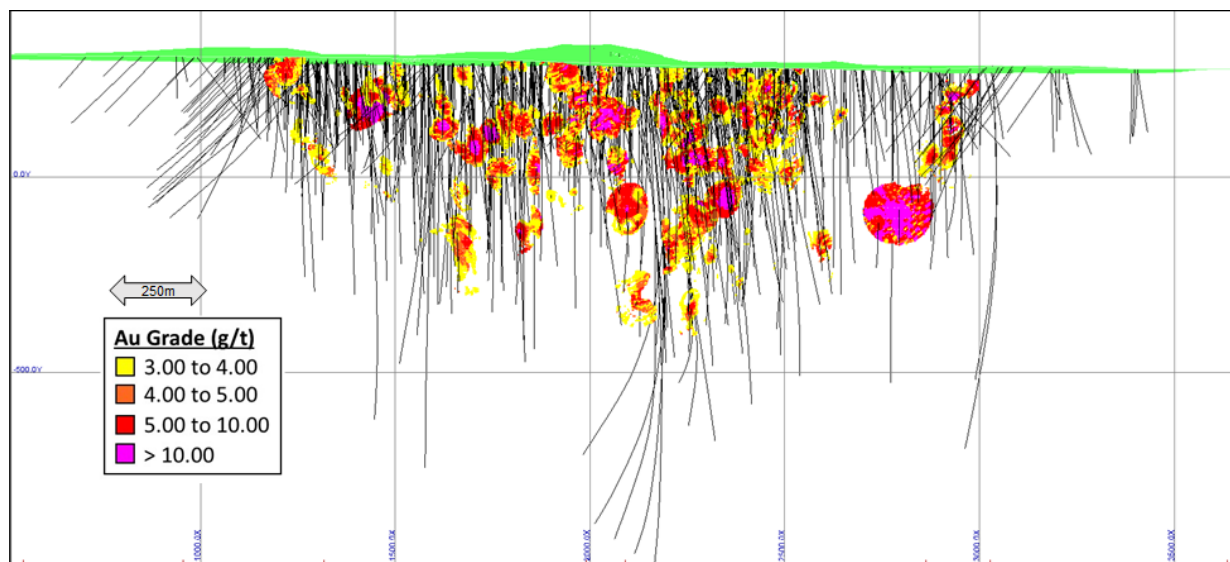


Figure 14-28: Longitudinal view showing grade distribution above the selected 3.00 g/t Au cut-off grade (with drill holes).



14.2.7 Comparison to Previous Mineral Resource Estimates

The 2018 MRE is the fourth mineral resource estimate on the Osborne-Bell deposit since the implementation of NI 43-101. The aim is to examine the resource evolution from 2002 to 2018. The parameters and method developed for the comparison relates to grade modelling, the late barren dike approach, and statistical and interpolation parameters. The “Technical Report and Mineral Resource Estimate for the Osborne-Bell Deposit, Quévillon Property”, effective date March 2, 2018, provides a detailed comparison with previous estimate.



15. MINERAL RESERVE ESTIMATES

This report is a Preliminary Economic Assessment (“PEA”), no Mineral Reserves have been estimated for the Windfall Lake Project as per NI 43-101 regulations. In-stope resources are described in Chapter 16 of this report.



16. MINING METHODS

16.1 Introduction

The Windfall Lake Project will consist of the simultaneous exploitation of two separate projects, Windfall Lake and Osborne-Bell. The overall strategy is to have production from Osborne-Bell complement the production from Windfall Lake to achieve a total production rate of 3,200 tpd. This PEA is based on mineral resources published on May 14, 2018 for Windfall Lake and March 2, 2018 for Osborne-Bell.

The Windfall Lake mine is located 115 km east of Lebel-sur-Quévillon, in the James Bay region of Québec. The mineral resources used in the mine plan are contained in three different zones (Lynx, Main and Underdog) over a length of 2,300 m and span from surface down to a depth of approximately 1,200 m. Each zone is characterized by multiple veins, which mainly trend ENE and plunge vertically to sub-vertically. Only underground mining has been evaluated. The mining method selected is long-hole with longitudinal retreat. Mineralized material will be extracted using a fleet of 14 t LHDs and 50 t haul trucks using a ramp at a rate of 2,600 tpd.

The Osborne-Bell mine is located 17 km northwest of Lebel-sur-Quévillon, in the James Bay region of Québec. The mineral resources used in the mine plan are contained in three zones (East, Center and West) over a length of 1,300 m and span from surface down to a depth of approximately 520 m. Each zone is characterized by multiple veins, which mainly trend 15-25 degrees east to south and plunge vertically to sub-vertically. Only underground mining has been evaluated. The main mining method selected is long-hole with longitudinal retreat. Mineralized material will be extracted using a fleet of 7 t LHDs and 45 t haul trucks using a ramp at a rate of 600 tpd.

16.2 Rock Engineering

16.2.1 Rock Mass Characterization

Deposit depths are from near surface below crown pillars to depths of 1,200 m below the surface and are considered to be in an intermediate in situ stress regime with Underdog being the deepest zone.

16.2.1.1 In Situ Stress

In situ stresses have not been measured and have been assumed based on a review of regional models (Golder, 2018a) available in literature:

- $\sigma_1(\text{MPa}) = 0.037z + 11.0$
- $\sigma_2(\text{MPa}) = 0.025z + 6.5$
- $\sigma_3(\text{MPa}) = 0.020z$



This assumption is sufficient at this stage of study and will need to be supported by stress measurements once the underground access is obtained and the Project has advanced to feasibility level.

16.2.1.2 Rock Mass Classification

Windfall Lake Deposit

The rock mass classification is based on geotechnical data collected from three exploration drill holes, RQD data from the exploration drill hole database, six in-hole televiewer surveys, and drill core laboratory strength testing. Two rock mass classification systems were calculated, i.e., RMR_{76} and Q' , to represent the geotechnical domain. A single geotechnical domain was used to represent the different lithologies in the four zones since there was no significant difference between the parameters collected. The rock mass of the Caribou, Underdog, Red Dog and Lynx zones varies from “Good” to “Very Good” (72 to 88) as defined in the RMR_{76} classification system (mean value). Mean Q' values calculated vary from “Good” to “Very Good” rock as well (18 to 67). No data was collected in Zone 27 to calculate the RMR_{76} or Q' , therefore, for this level of study, it should be considered the same as the Caribou, Underdog and Lynx zones. The general rock mass in the zones is considered a brittle style rock mass.

Osborne-Bell Deposit

No geotechnical data was collected in the Osborne-Bell area to perform a rock mass classification. However, review of exploration data and core photos indicates similar rock mass quality in Osborne-Bell as in Windfall Lake.

16.2.1.3 Major Structures

Windfall Lake Deposit

Several shear zones crosscut the Windfall Lake property, including the east-trending Urban Deformation Zone and the east-northeast-trending Milner and Masères shear zones. The latter is interpreted to crosscut the Windfall Lake deposit area and is locally known as the Bank Fault, located south of the deposit. Another major fault known as the Northern Fault is interpreted north of the deposit. Review of data on the deposit scale does not indicate any low rock mass quality issues near the major structures. Exploration data in the hanging wall of the Bank Fault (for the Lynx Zone) indicates lower RQD values (25% to 75%), but they are not of concern at this stage of the study.



Osborne-Bell Deposit

In the Osborne-Bell area, several late NE-SW brittle faults are observed cross-cutting all geological units, displaying centimetre to metre scale dextral displacement. (Dupré, 2010). Further review of major structures will need to continue as the Project advances.

16.2.1.4 Rock Mass Jointing

Windfall Lake Deposit

Four discontinuity sets have been identified and are assumed to be the same in the main zones (Caribou, Zone 27, Underdog, Red Dog and Lynx) from core logging and televiewer surveys. The main sets are:

- Set parallel to foliation of host volcanic rocks: Striking NNE, steeply to moderately dipping (mean dip = 56°/mean dip direction = 105°);
- Set parallel to Bank Fault: Striking ENE, steeply to moderately dipping (mean dip = 67°/mean dip direction = 149°);
- Set perpendicular to the NNE deformation corridor: Striking NW, moderately dipping (mean dip = 49°/mean dip direction = 56°);
- Red Dog veins: Striking SE, shallow to moderately dipping (mean dip = 29°/mean dip direction = 250°).

Osborne-Bell Deposit

No geotechnical data was collected in the Osborne-Bell area. However, measurements of the weak to moderate schistosity by Riopel and Waldie (2003) indicates a general dip direction of 9°, dipping at 85° in the Osborne area, and 312° dipping at 87° in the Bell area. Exploration data oriented structures confirm the general trend of the regional schistosity.

16.2.2 Anticipated Rock Mass Behaviour

Based on the information currently available and Golder's experience in other brittle hard rock mines, it is anticipated that the rock mass behaviour will be mainly controlled by the spacing of discontinuities, and potentially locally by fault and shear features. The occurrence, persistence, and characteristics of the major geological structures and rock mass fabric, as well as their intersections, will control the rock mass behaviour around the openings. For the main zones, the rock mass is brittle, very strong and massive to sparsely jointed, with average intact uniaxial compressive strength ("UCS") 50 values of 115 and 185 MPa. No laboratory testing was conducted in the Osborne-Bell area, but the rock mass behavior is anticipated to be the same as Caribou, Zone 27 and Lynx.



For the Caribou, Zone 27, Osborne-Bell and Lynx zones, based on assumed in situ stresses, minimum to no rock mass damage due to the induced stresses is expected to occur around typical stopes down to the depth currently considered for the Project (600 m). Considering an average intact UCS50 between 115 MPa and 125 MPa, the in situ stress over intact rock strength ratio would range between 0.1 and 0.25.

With depth and increased extraction in the Underdog Zone, mining induced stresses are expected to concentrate around the excavations and are anticipated to be generally observable as localized fracturing and light spalling. Considering an average intact UCS50 around 185 MPa, the in situ stress over intact rock strength ratio would range between 0.2 and 0.30.

Figure 16-1 shows a schematic of expected rock mass failure modes, for anticipated range of rock mass quality and stresses. The anticipated stress for the four zones is considered intermediate level where the in situ stress over intact rock strength ratio is between 0.15 and 0.4. When values are above 0.4, larger zones of brittle failure around excavations and in pillars occur. The yellow square highlights the range of anticipated failure modes for the Caribou, Zone 27, Osborne-Bell and Lynx zones, and the green square highlights the range of anticipated failure modes for the Underdog Zone.

	Massive ($GSI > 75$)	Moderately Fractured ($50 < GSI < 75$)	Highly Fractured ($GSI < 50$)	
Low In-Situ Stress ($\sigma_1 / \sigma_c < 0.15$)	<p>Linear elastic response.</p>	<p>Falling or sliding of blocks and wedges.</p>	<p>Unravelling of blocks from the excavation surface.</p>	Low Induced Stress $\sigma_{max} / \sigma_c < 0.4 \pm 0.1$
Intermediate In-Situ Stress ($0.15 < \sigma_1 / \sigma_c < 0.4$)	<p>Brittle failure adjacent to excavation boundary.</p>	<p>Localized brittle failure of intact rock and movement of blocks.</p>	<p>Localized brittle failure of intact rock and unravelling along discontinuities.</p>	Intermediate Induced Stress $0.4 \pm 0.1 > \sigma_{max} / \sigma_c < 1.15 \pm 0.1$
High In-Situ Stress ($\sigma_1 / \sigma_c > 0.4$)	<p>Failure Zone</p> <p>Brittle failure around the excavation.</p>	<p>Brittle failure of intact rock around the excavation and movement of blocks.</p>	<p>Squeezing and swelling rocks. Elastic/plastic continuum.</p>	High Induced Stress $\sigma_{max} / \sigma_c > 1.15 \pm 0.1$

Figure 16-1: Excavation behaviour matrix as a function of rock mass quality (expressed as geological strength index (“GSI”)) and stress (depth), showing expected rock mass failure modes. (Kaiser et al., 2000). The anticipated range of quality and stress for Caribou, Zone 27 and Lynx zones is schematized by the yellow box, and for the Underdog Zone by the green box.

However, stress concentration in pillars and at depth could generate spalling and rock bursting conditions. Depending on the mine sequence and layout, stress concentrations could occur in rib pillars, sill pillars, and retreat zones between converging mining fronts (if any). Spalling and local instabilities could occur at those locations, as well as slippage along geological discontinuities, if present. The impact of stress concentrations on stope stability will have to be assessed for the feasibility study.

The potential for zones and structures of high hydraulic conductivity and the potential effects of water inflows were not considered for the assessments presented here. Those items should be assessed during the feasibility stage.



16.2.3 Data Confidence

Geotechnical data collected for the PEA study comprised geotechnical core logging, televiewer surveys, and laboratory intact rock strength testing. The amount and quality of data is sufficient for this level of study. Currently, no geotechnical data has been collected for Zone 27 and Osborne-Bell and no data has been collected for any planned large underground permanent infrastructure.

16.2.4 Underground Design Recommendations

The underground mine design considered for the five zones was assessed using the empirical Mathew's stability method. The Mathews' stability method considers the stope size (span, strike, and height represented as hydraulic radius) with stress, orientation of joint fabric, and stope failure mode against the rock mass classification (Q') of the walls/roof of the stopes. This method does not take into account failure of discrete local wedges and locations/dimensions of sill and rib pillars in a design.

16.2.4.1 Stope Dimensions

Windfall Lake Deposit

Based on the stability assessment, the following design parameters were defined:

- Stope strike length (EW) to a maximum of 40 m for a fixed 20 m floor-to-floor height for the stopes and a span (NS) of less than 15 m;
- In the case of a span of more than 15 m, it is recommended that the strike length does not exceed 25 m.

Based on the overall mining plan, some stopes will be filled with cemented waste rock in order to mine adjacent stopes. Therefore, reliable/consistent placed cemented fill material in these areas will be critical to prevent stope configurations occurring larger than these parameters.

Osborne-Bell Deposit

Stopes in the Osborne-Bell area are considered stable at the recommended dimensions for Windfall Lake zones presented above based on the assumption that rock mass quality is similar between the two zones and that mining extends to a maximum depth of 680 m.



16.2.4.2 Unplanned Dilution

Windfall Lake Deposit

At this stage, the total hanging wall / foot wall (“HW/FW”) unplanned dilution estimate can be reasonably assumed to be 0.25 m on the HW and FW for a total of 0.5 m, based on the equivalent linear overbreak/slough (“ELOS”) (Clark, 1998) empirical method in the expected ground conditions.

Osborne-Bell Deposit

The same estimate is used for Windfall Lake and Osborne-Bell.

16.2.4.3 Crown Pillar Dimensions

Windfall Lake Deposit

The crown pillar for the zones was estimated using the empirical Scaled Span method (Carter, 2014) based on various stope spans (4 m to 20 m), stope strike length (40 m to 85 m), and single stope height (20 m). The rock mass quality of the crown pillar was based on the lower bound 30th percentile of Q’.

The assessment of crown pillar stability indicates that a minimum of 30 m thick (rock thickness below top of bedrock) crown is required. Stopes with a span larger than 10 m will require a thicker crown as well as crowns located below life-of-mine surface infrastructure. Detailed assessment of crowns near or below lakes will be required as the Project advances. For this assessment it is assumed that the stope under the crown pillar is open (no backfill).

Osborne-Bell Deposit

Crown pillar assessment in the Osborne-Bell area was performed in the same manner as for Windfall Lake zones. Crown pillars are forecasted to be long-term stable assuming similar rock mass properties in Osborne-Bell and Windfall Lake, with the current stope dimensions at a minimum of 30 m in thickness, without backfill.

16.2.4.4 Rib and Sill Pillar Dimensions

Windfall Lake Deposit

The rib and sill pillar design considerations have been based on general guidelines. Transverse rib pillars will need to be at least two times the span (NS dimension). Longitudinal rib pillars will need to be at least 5 m (EW dimension).



Sill pillars are constrained by the mining sequence. Osisko proposes to mine 4 m x 20 m high stopes, plus 1 m x 15 m high upper stope mined in sequence, leaving a 5-m high “skin” pillar with the above horizon. The upper stope would not be backfilled. Based on this mining sequence, the final sill pillar can be impacted mostly by in situ stresses. Depending on final sill dimensions, this approach may cause stress-related challenges (i.e., rock bursting) and will have to be further studied. Therefore, as the Project progresses, numerical modelling of the sill pillar design will be required.

Osborne-Bell Deposit

Rib and sill pillar dimension recommendations provided for Windfall Lake zones are assumed applicable to Osborne-Bell.

16.2.4.5 Proximity of Infrastructure Relative to Mineralized Bodies

The minimum recommended stand-off distance for the ramp is 25 m for Zone 27 and Osborne-Bell, in order to remain outside of the potential tension zone of the stopes. In Underdog, the ramp is located between the lenses and should be kept at a minimum distance of 50 m from the stopes to minimize stress relaxation effects. This distance will need to be assessed, as the Project advances, by employing simple numerical models and possibly mapping of underground excavations.

16.2.4.6 Ground Support

The following ground support is recommended for costing purposes, based on Golder’s experience. The ground support needs should be reassessed at the FS stage, once the development layout is finalized during detailed design, and when the rock mass conditions and behaviour are confirmed once underground.

The following ground support design is based on the assumption that no significant ground stress will occur between the surface and 800 m, as shown on Figure 16-1. Below 800 m, adding ground support to compensate for ground stress conditions should be considered. At the FS stage, ground stress conditions need to be better defined in order to determine if high stress is a concern. In addition, depending on the mining sequence and on stress conditions, sill pillars may require additional ground support. For example, the final lift may require a dynamic ground support in addition to the support recommended below.



Table 16-1: Large infrastructure recommended ground support

Infrastructure	Dimension	Back	Wall
Garage	30 m long x 10 m wide x 10 m high	2.4 m long fully resin grouted rebar on a 1.2 m x 1.2 m spacing, with spherical seats #6 gauge welded wire mesh ⁽¹⁾ , and with 4 m long fully grouted 25-tonne cable bolts on a 1.8 m spacing, installed between the rebar.	2.4 m long fully resin grouted rebar on a 1.2 m x 1.2 m spacing down to 0.3 m from the floor, with spherical seats and #6 gauge welded wire mesh ⁽¹⁾ , and with 4 m long fully grouted 25-tonne cable bolts on a 1.8 m spacing, installed between the rebar.
Pump stations	10 m long x 5 m wide x 5 m high	2.4 m long, Ø20 mm, fully resin grouted rebar on a 1.2 m x 1.2 m spacing, with spherical seats and #6 gauge welded wire mesh ⁽¹⁾ .	2.4 m long, Ø20 mm, fully resin grouted rebar on a 1.2 m x 1.2 m spacing down to 1.8 m from the floor, with #6 gauge welded wire mesh ⁽¹⁾ .
Cement storage room	30 m long x 7 m wide x 5 m high	3.0 m long, Ø20 mm, fully resin grouted rebar on a 1.5 m x 1.5 m spacing, with spherical seats and #6 gauge welded wire mesh ⁽¹⁾ .	3.0 m long, Ø20 mm, fully resin grouted rebar on a 1.5 m x 1.5 m spacing down to 1.8 m from the floor, with #6 gauge welded wire mesh ⁽¹⁾ .

⁽¹⁾ Spacing of bolts should be adjusted to fit mesh size so that there are 4 mesh squares overlapping.

Table 16-2: Standard recommended ground support

Infrastructure	Dimension	Back	Wall
Ramps and developments accesses	5.5 m wide x 5.4 m high	2.4 m long, Ø20 mm, fully resin grouted rebar on a 1.2 m x 1.2 m spacing, with spherical seats and #6 gauge welded wire mesh ⁽¹⁾ .	1.8 m long FS39 Split Sets on a 1.2 m x 1.2 m spacing down to 1.8 m from the floor, with #6 gauge welded wire mesh ⁽¹⁾ .
Intersections	-	<p>Primary support Install ground support as per development support outlined above.</p> <p>Secondary support 4 m long fully grouted 25 t cable bolts on a 1.8 m collar spacing. Secondary support is to be installed two rows into the drifts forming the intersection, prior to creating the intersection.</p> <p>Intersection should not be developed until the primary heading is a minimum of three rounds past the location where the intersection is created.</p>	
Haulage drifts	4.3 m wide x 4.0 m high	Install ground support as per development support outlined above.	



Infrastructure	Dimension	Back	Wall
Stope overcut and undercut drifts	4.0 m wide x 4.0 m high	Install ground support as per development support outlined above.	
	3.3-3.5 m wide x 3.8 m high at Lynx Zone		
Ventilation raises	4 m diameter	For raises used as escape ways: 50 mm fibre reinforced shotcrete followed by 2.4 m long, Ø20 mm, fully resin grouted rebar on a 1.2 m x 1.2 m spacing, with spherical seats and #8 gauge welded wire mesh ⁽¹⁾ . Otherwise no support is required.	

⁽¹⁾ Spacing of bolts should be adjusted to fit mesh size so that there are 4 mesh squares overlapping.

16.3 Mine Hydrogeology

16.3.1 Windfall Lake Deposit

The hydrogeological conditions in the vicinity of the Windfall Lake Mine site were defined based on the fieldwork conducted during the fall of 2017. The results of these investigations are summarized in Golder (2018b) and consist in the completion of packer tests (13 tests in two exploration boreholes) and the implementation of eight observation wells. These observation wells were installed in the overburden and shallow bedrock. Static water level measured during the 2017 field campaign in observation and exploration wells throughout the site ranges from 0.1 m to 14 m below ground surface.

The generally flat topography is marked by some creeks and lakes. Surface deposits consist of fluvio-glacial sediments (sand and gravel), glacial till resting on felsic to mafic rocks intruded by granitoids and subvertical dikes which are associated with the gold mineralization. Those geological formations are intersected by a complex network of brittle-ductile subvertical structures including Windfall Lake and Romeo faults, directed north-northeast, and Bank Fault related to the Maséres northeast shear zone.

Following the documentary review and hydrogeological characterization of the Windfall Lake Mine Site, a hydrogeological conceptual model has been developed by Golder. Four hydrostratigraphic units have been identified:

1. Fluvio-glacial deposits (esker): It consists of sand and gravel lying in the northern part of the site and which thickness varies from 1 m to 25 m. The hydraulic conductivity of this unit varies between 2×10^{-6} m/s and 7×10^{-4} m/s with a geometric mean of 7×10^{-5} m/s (based on 16 hydraulic tests results).



2. Till: It is heterogeneous glacial units encountered just above the bedrock contact. A hydraulic conductivity of 3×10^{-7} m/s was measured at one location. Considering the heterogeneous nature of this material, a hydraulic conductivity in the 10^{-5} m/s and 10^{-7} m/s range is expected for this unit.
3. Bedrock: It consists of basaltic flows and volcanoclastics. Hydraulic conductivity of bedrock varies between 2×10^{-9} m/s and 2×10^{-6} m/s based on packer test results. Geometric mean is 1×10^{-7} m/s. Based on the distribution of hydraulic conductivity with depths presented in Golder (2018b) report and on the groundwater flow model calibration, a hydraulic conductivity of 1.5×10^{-7} m/s was assigned to the upper bedrock (up to an elevation of 370 m), 1×10^{-8} m/s for the intermediate bedrock (between 370 m and 200 m of elevation) and 3×10^{-9} m/s for deep bedrock. A lower hydraulic conductivity was assigned to deep bedrock because according to Stober and Bucker (2006), bedrock hydraulic conductivity of Precambrian rock of the Canadian Shield tends to decrease with depth.
4. Structural elements (faults): Packer tests conducted in fractured areas have given maximum hydraulic conductivity values of 2×10^{-6} m/s along OSK-W-17-1149 borehole and 1×10^{-6} m/s along OSK-W-17-1270 borehole. Only two faults out of the 12 identified were tested. For an exhaustive representation of structural elements, the hydrogeological model considers 12 faults, each of which is assigned a hydraulic conductivity value of 1×10^{-7} m/s. This value was defined following the calibration of the model on the estimated dewatering rate of the ramp at the time ($240 \text{ m}^3/\text{d}$ based on information provided by Osisko). A hydraulic conductivity of 1×10^{-6} m/s was assigned to the faults for the sensitivity analysis.

To estimate the potential groundwater inflow into the underground workings (Caribou, Underdog, Red Dog and Lynx zones), the groundwater flow model was developed using the FEFLOW software (Version 7.1). The model was developed at a regional scale and includes the overburden, bedrock and the 12 faults identified in the structural assessment. Groundwater inflow into the mine was estimated at $2,500 \text{ m}^3/\text{d}$ based on the calibrated model. Groundwater inflow could reach up to $2,800 \text{ m}^3/\text{d}$ if the hydraulic conductivity of the faults was assumed to be more permeable (1×10^{-6} m/s).

Considering the presence of lakes and permeable overburden, there is a potential of significant groundwater inflow if a permeable fault intersects the mine workings. For this reason, it is recommended to conduct more hydraulic tests to assess the hydraulic conductivity of the other faults identified on site.



16.3.2 Osborne-Bell Deposit

The Osborne-Bell projected mine site is located 2 km east of the Bell river, on a local topological high and at the head of two small river catchment areas (i.e. less than 5 km²). Regionally, deep water clay deposits presenting thicknesses between 1 m and 50 m are encountered. Ice contact deposits typically composed of permeable sand and gravel and presenting thicknesses ranging between 5 m and 50 m are also present in the area.

Based on the geological database, the overburden thickness encountered in exploration drill holes is typically ranging around 10 m. In its present layout, a portion of the mine's underground developments is located under or at proximity of the footprint of the ice contact deposits. Based on the available RQD data, rock quality at Osborne-Bell is good. The orebodies to be mined are compartmented by a succession of numerous criss-crossing feldspar-amphibole porphyry dikes.

The ice-contact sediments unit is currently understood to be the zone of aquifer recharge due to its permeability. No major water-bearing structures were encountered in the rock mass during the exploration drilling campaigns. The in situ hydraulic conductivity of the main hydrogeological units identified has not yet been determined.

In order to assess on the groundwater inflows in the underground workings of the mine, the following assumptions were made:

- Based on the Project's geographic location, the water table is located 5 m below ground surface;
- The average hydraulic conductivity of the host rock is estimated to be 1×10^{-7} m/s, which is a typical value between fractured and unfractured igneous rock. The ice-contact sediments have also been attributed this permeability value;
- The average hydraulic conductivity of the clay deposits is estimated to be 1×10^{-9} m/s, which is a typical value for this type of deposit;
- Overburden thickness is rounded at 10 m;
- The hydrogeological units surrounding the mine workings are uniform, unconfined and isotropic, and therefore behave like a porous medium;
- The underground openings are modelled as being open and left empty. Due to the mine's complex geometry, five typical cross-sections extrapolated for the length they typically cover have been used to estimate the groundwater inflow.

The groundwater inflow into the projected underground mine was modelled using a finite element software (RS2©, Rocscience) numerical groundwater model. The 2D model was built on five cross-sections, which represent the proposed stopes at their actual depth according to the topography. The value of the unit inflow rate obtained is given per linear metre.



According to the 2D finite element model results and the assumptions made above, an underground water inflow of 1,750 m³/d would be observable in the underground developments of the Osborne-Bell site at the end of the operations. In absence of in situ hydraulic conductivity data, the potential spatial variability of the hydrogeological parameters is not represented in its full extent by the modelling work. Thus, it is possible that substantial deviations from the predicted results could be encountered during the mining development. To reduce these uncertainties, it is recommended to perform a hydrogeological investigation and update the model to obtain a more realistic ground water inflow estimation. The hydrogeological investigation should include hydraulic conductivity testing of overburden (especially in the ice-contact sediments) and bedrock and the implementation of an observation wells network.

16.4 Mine Design

16.4.1 Windfall Lake Deposit

The Windfall Lake Project is composed of three principal mining areas: Lynx, Main and Underdog. The Main Zone is the amalgamation of Caribou, Mallard and Zone 27 zones for planning purposes. The Lynx and Main zones are located between surface and depths of approximately 900 m and 600 m respectively, whereas the Underdog Zone is located below the Red Dog dike between depths of 500 m and 1,200 m. Each zone trends east-northeast and dips vertically between 85° to 90°. Underdog is situated below the Main Zone, whereas the Lynx Zone is located approximately 1,200 m to the east.

The zones are accessed by two ramps, with one exit dedicated to material haulage. The ramps are 5.2 m high by 5.5 m wide to allow the use of 50 t haulage trucks. Three bypasses between Lynx and the other zones are planned. These bypasses will allow one ramp to always be dedicated to haulage with autonomous trucks and the other to serve as a service ramp that can reach almost all locations at the same time. Two ventilation raises are also present, one over Lynx and the other one over the Main Zone. Figure 16-2 shows a longitudinal view of the Windfall Lake design with ramps, levels and ventilation network.

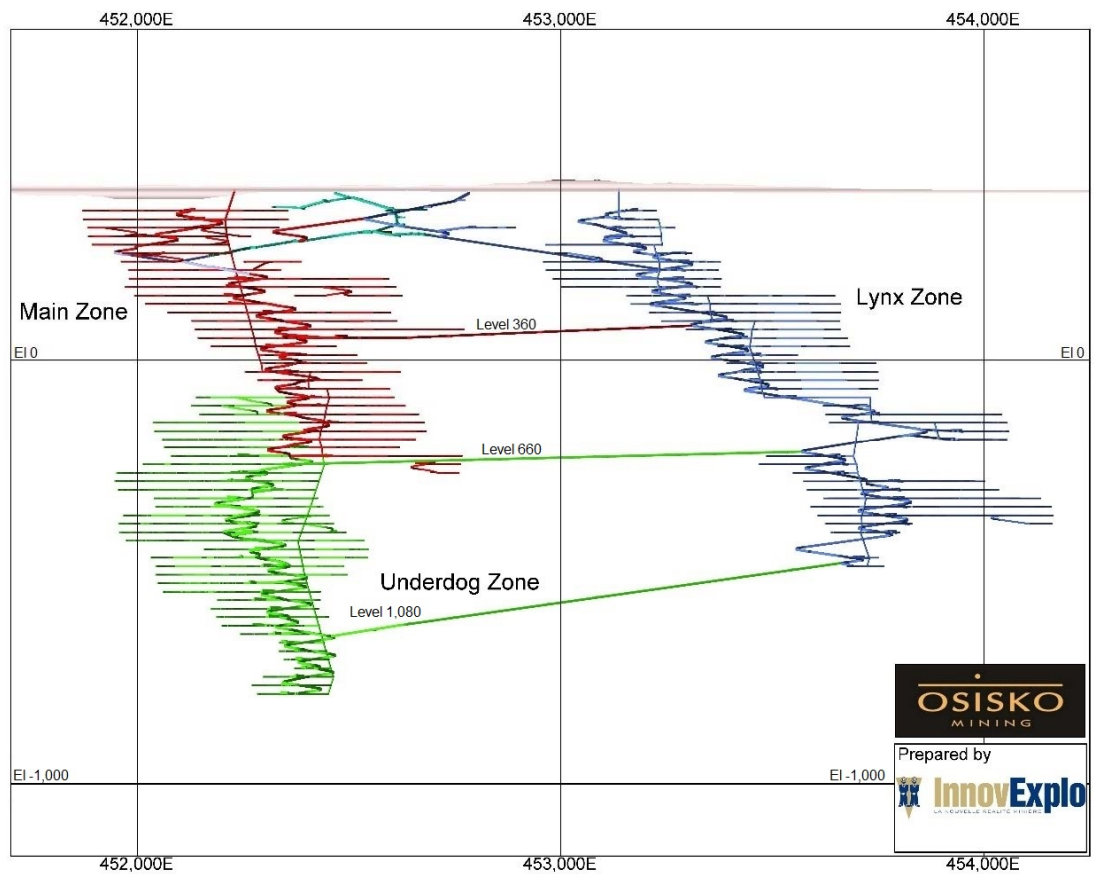


Figure 16-2: Longitudinal view of Windfall Lake design.

16.4.1.1 Lynx Zone

The Lynx Zone is located on the eastern side of the deposit. It extends from surface down to level 900 on 40 levels spaced 20 m apart. A longitudinal view with the ramp, levels and ventilation network can be seen in Figure 16-3. Geology is similar, but it has narrower veins than Main and Underdog zones. To limit internal dilution, development in mineralized material will be limited to 3.5 m wide. Access drifts will be 4.0 m wide for regulatory compliance. Areas where trucks are expected to run will have the same dimensions as the ramp. Ventilation is provided by a central raise and is distributed on the levels, as needed, using ventilation-on-demand. Due to the smaller drift size, a dedicated crew will be used for development in mineralized material in this zone. A fleet of 7 t payload LHDs will be used for production and backfilling. A total of 34,482 m of lateral development is scheduled in Lynx and production from stopes is expected to be 2,049,596 t.

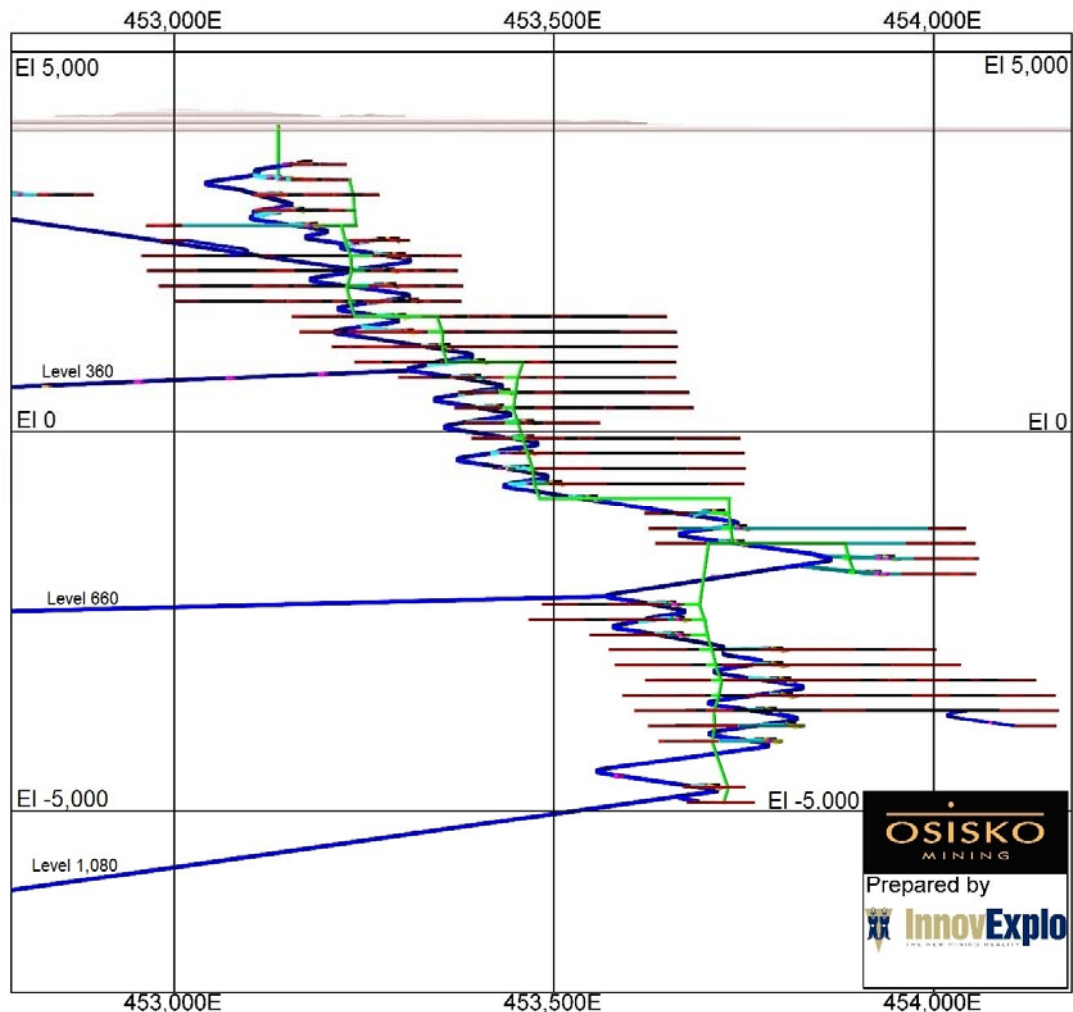


Figure 16-3: Longitudinal view of Lynx Zone design.

16.4.1.2 Main Zone

The Main Zone is the amalgamation of three adjacent zones: Caribou, Zone 27 and Mallard. It extends from surface down to level 680 on 32 levels. A longitudinal view with the ramp, levels and ventilation network can be seen in Figure 16-4. Drift dimensions in the Main Zone are set at 4.0 m wide where stopes are planned. Accesses are designed at 4.3 m wide. Areas where trucks are expected to run will have the same dimensions as the ramp. Ventilation is provided by a central raise and is distributed on the levels, as needed, using ventilation-on-demand. A fleet of 14 t payload LHDs will be used for production and backfilling. A total of 34,222 m of lateral development is scheduled in the Main Zone and production from stopes is expected to be 2,136,297 t.

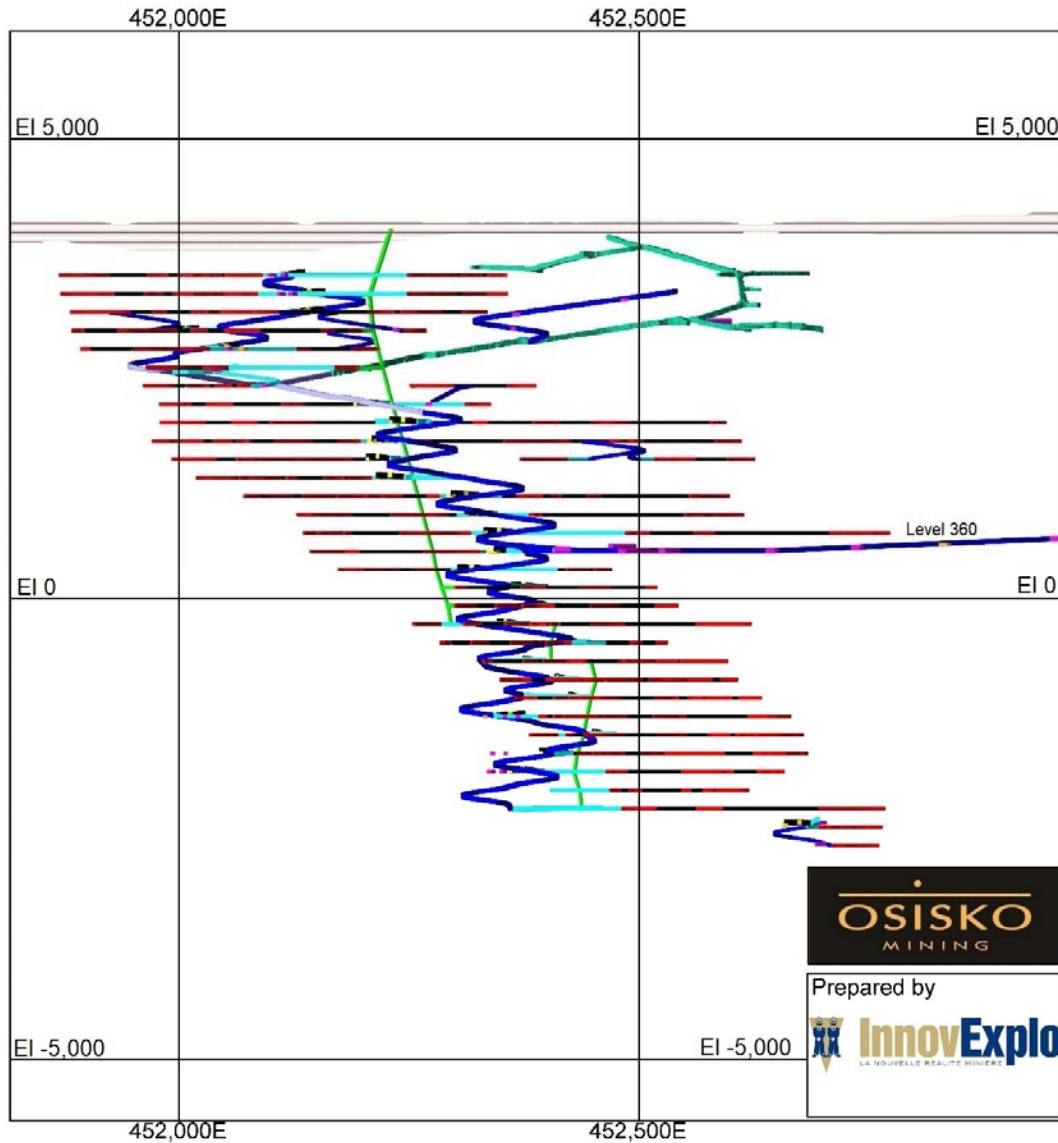


Figure 16-4: Longitudinal view of Main Zone design.

16.4.1.3 Underdog Zone

The same specifications as the Main Zone are used for the Underdog Zone. Mining starts at level 500 down to level 1200 on 36 levels. Since it lies deeper, it will be developed after the Main Zone using the same equipment. A total of 40,189 m of lateral development is scheduled in Underdog and production from stopes is expected to be 2,449,220 t.

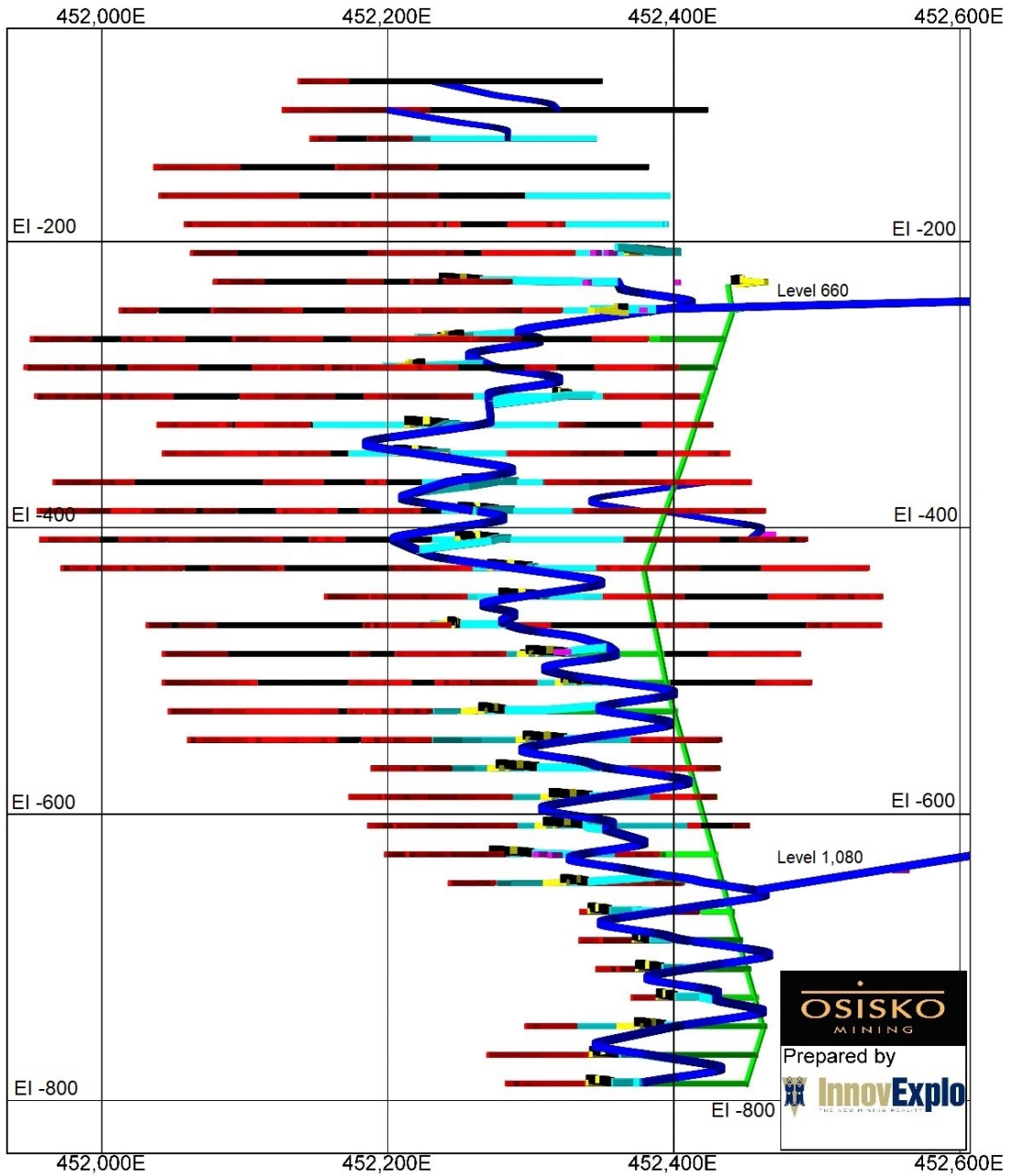


Figure 16-5: Longitudinal view of Underdog Zone design.

16.4.2 Osborne-Bell Deposit

The Osborne-Bell deposit has been separated into three main production areas: West, Centre and East. The West Zone is subdivided into nine levels (level 140 to level 300), the Centre Zone has 24 levels (level 060 to level 520), and the East Zone has seven levels (level 380 to level 500). Figure 16-6 shows a longitudinal view of the mine design.

Underground access will be developed by a central ramp from the surface portal to a depth of 520 m below surface (level 520). This central ramp provides access to the West Zone and the upper portion of the Centre Zone. A secondary ramp will access the lower parts of the Centre Zone with connections at levels 100 and 280. Both the West and East zones have internal ramps between the levels. A total of 18,109 m of lateral development is scheduled in Osborne-Bell and production from stopes is expected to be 845,496 t.

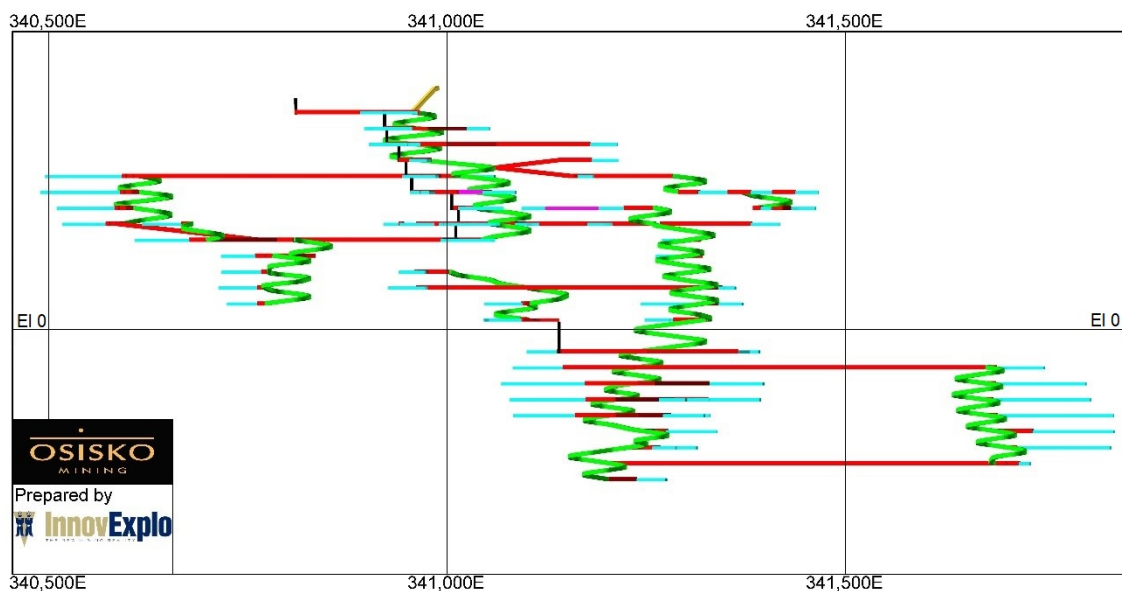


Figure 16-6: Longitudinal view of Osborne-Bell design

16.4.3 Main Infrastructure

16.4.3.1 Windfall Lake Deposit

The main infrastructure for the Windfall Lake Project includes two ramps, a garage and its components (such as shops, a warehouse and bays), a cement storage area, charging bays and pumping stations. All material will be hauled to surface using the ramps, consequently shaft, hoist and crusher are not needed.



The two ramps are located approximately 1,000 m apart and are connected using three bypasses and are joined close to surface. Autonomous trucks will be able to use different segments to haul material to surface without interfering with personnel. A system of fences on levels and intersections will prevent workers from accessing the ramp when autonomous trucks are in operation. Even if the path to the surface is different, the trucks will always use the same ramp exit so only one material transfer facility is needed on surface, thereby limiting surface haulage.

Figure 16-7 shows the garage located on level 360. It is accessible by both the Main ramp and the bypass to Lynx and includes warehouses, a welding bay, a greasing bay, a washing bay, a fuel bay, a tire bay, an electrical shop and parking.

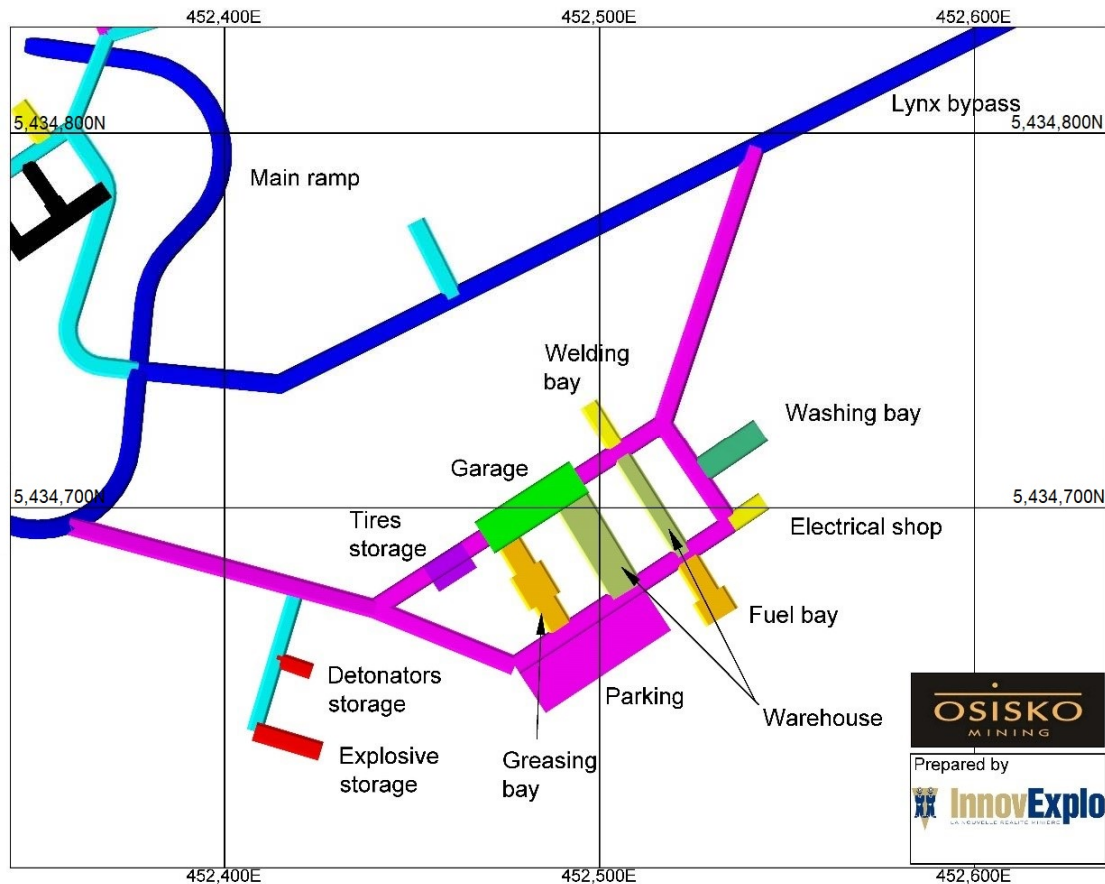


Figure 16-7: Garage on level 360 - Windfall Lake.



The main pumping stations are located on the Main Zone side, close to the bypasses with Lynx and spaced roughly 400 m apart in elevation. Each station is composed of two excavations placed close to each other with a couple of metres of difference in elevation. A Mudwizard™ unit treats the water to remove particles. The generated mud is pumped to the upper stage using a high-pressure diaphragm pump while clean water is stored in a 60 m³ tank in the excavation below. From there, it is pumped using two multistage pumps up to the next stage. A 5,440 m³ tank is already installed on level 30 to store clean water. This method allows recirculating water as much as possible and store muds on surface.

A dry cement storage silo for cemented backfill is located at the junction of the two ramps at level 120. This silo is fed from surface using a borehole. A transport truck with a 15-t capacity will bring the cement from the silo to the mobile cement plant unit close to the backfilled stope, negating the need for a complete cement mix distribution network.

16.4.3.2 Osborne-Bell

The only major facilities planned at Osborne-Bell are the pumping stations with the same design as Windfall Lake. Due of the ultimate depth of mining being around 500 m, the production being in the range of 600 tpd, and the minimal number of equipment required underground, it was decided to install the garage on the surface. This option saves costs and time as no underground excavation is required.

16.4.4 Production Level Infrastructure

16.4.4.1 Windfall Lake Deposit

Typical levels for all three zones are based on the same design as shown in Figure 16-8. The main goal is to limit the area where trucks need to travel, thus limiting drift dimensions as much as possible. The main access from the ramp is 5.2 m wide by 5.5 m high. A sump is located close to the ramp to collect water from the level and the ramp. An electrical station is also located in the main access. A loading bay where the LHD is slightly higher than the truck to increase loading efficiency is connected to the access and can be seen in Figure 16-9. The same setup also serves as a re-muck to store mineralized material in between trucks and waste for backfill. From the main access, the LHD can travel to the mining areas on the level in drifts 4.3 m wide by 4.0 m high in the Main and Underdog zones and 3.5 m wide by 3.8 m high in Lynx where smaller equipment is used. This arrangement is deemed the most efficient for using automation of both trucks and LHDs.

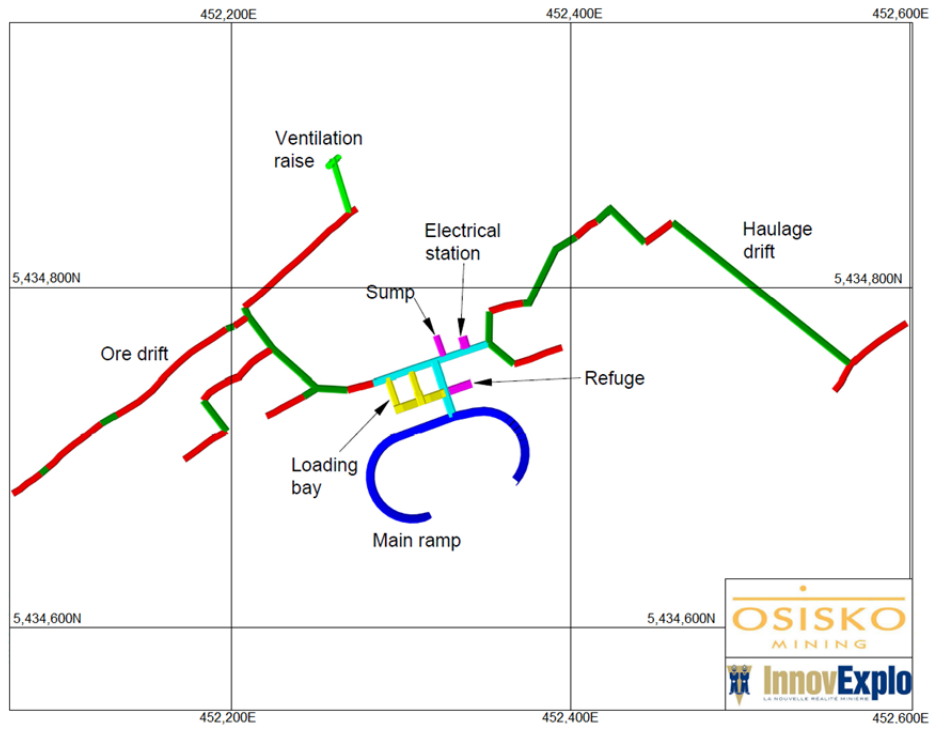


Figure 16-8: Typical level infrastructure arrangement.

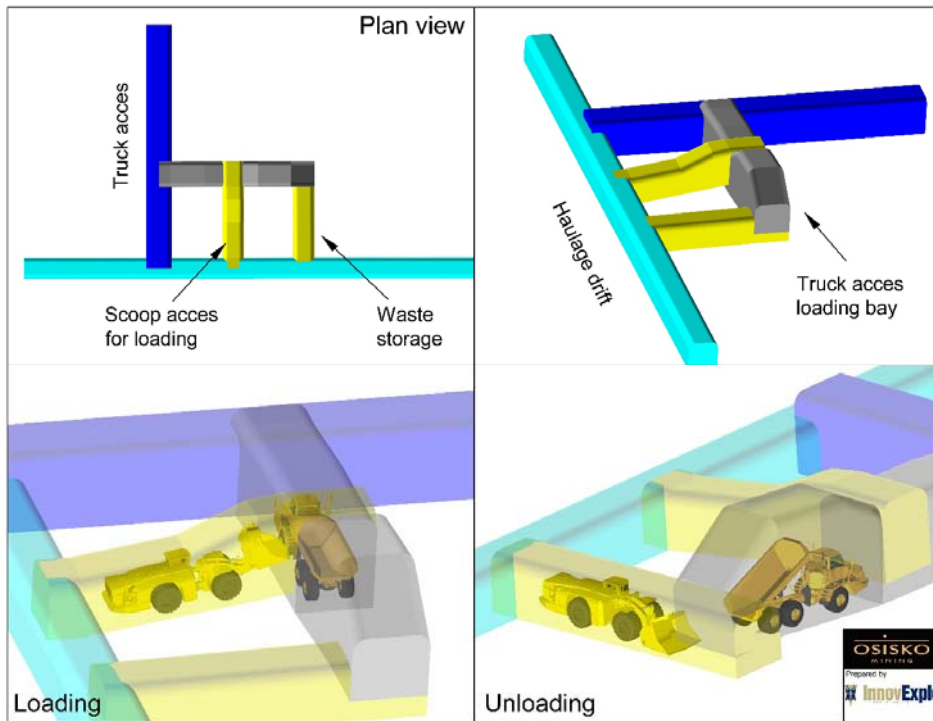


Figure 16-9: Typical level loading bay arrangement.

16.4.4.2 Osborne-Bell Deposit

Production level infrastructure for Osborne-Bell will be scaled back from the ones at Windfall Lake because of lower production and no automation used for mucking and hauling. The typical infrastructure will include a sump, an electrical substation, a re-muck and a charging bay. Figure 16-10 shows the typical level infrastructure for Osborne-Bell.

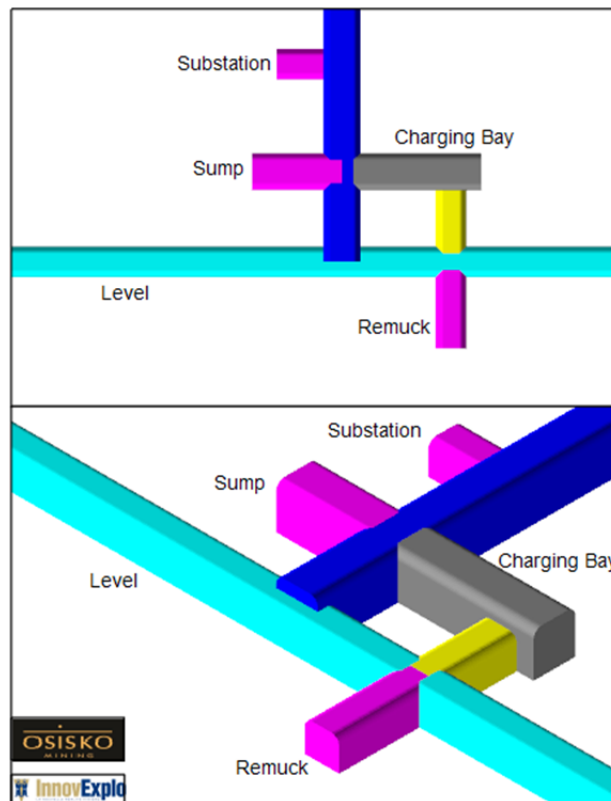


Figure 16-10: Typical level infrastructure - Osborne-Bell.

16.4.5 Development Schedule

16.4.5.1 Windfall Lake Deposit

The overall development schedule for Windfall Lake has been established using performances of 300 m of lateral development per month per crew when enough work places are available and 150 m per month per crew when only one face is available, such as for the main ramp development. It is assumed that crews from contractors will be used during pre-production with a changeover to mine crews in mid-2022. Up to four crews will be needed during the life of the Project, with one being dedicated to development in mineralized material in Lynx where smaller equipment will be used.



Table 16-3: Development schedule for Windfall Lake

Development type	Unit	Pre-production		Production									Total
		2021	2022	2022	2023	2024	2025	2026	2027	2028	2029	2030	
Lynx CAPEX	m	4,906	262	956	1,609	2,672	3,801	1,983	1,066	-	-	-	17,256
Lynx OPEX	m	100	1,963	1,973	3,754	2,643	1,554	3,403	1,818	-	-	-	17,226
Lynx Vertical	m	54	159	91	36	126	187	71	130	-	-	-	855
Main CAPEX	m	3,815	712	1,770	4,857	1,588	326	281	-	-	-	-	13,350
Main OPEX	m	2,360	1,945	2,640	3,953	7,548	2,233	191	-	-	-	-	20,872
Main Vertical	m	178	147	-	53	157	53	-	-	-	-	-	589
Underdog CAPEX	m	-	-	-	-	-	4,590	4,263	4,145	2,898	2,625	-	18,521
Underdog OPEX	m	-	-	-	-	-	1,779	4,029	7,730	5,691	2,437	-	21,668
Underdog Vertical	m	-	-	-	-	-	-	160	88	105	141	-	494
Total CAPEX	m	8,721	974	2,726	6,466	4,261	8,718	6,527	5,211	2,898	2,625	-	49,126
Total OPEX	m	2,460	3,918	4,623	7,707	10,191	5,566	7,623	9,548	5,691	2,437	-	59,766
Total Horizontal	m	11,181	4,892	7,348	14,173	14,451	14,284	14,151	14,760	8,589	5,062	-	108,892
Total Vertical	m	233	306	91	89	284	240	231	219	105	141	-	1,938
Crews	#	3	3	4	4	4	4	4	4	3	2	-	3



16.4.5.2 Osborne-Bell Deposit

At the Osborne-Bell site, contractors will be used for all pre-production development as well as during production. The design criteria in Table 16-4 was used to guide the Osborne-Bell development schedule. Table 16-5 presents the annual development metres for each type of development. The number of development crews required will change over time depending on the number of faces available but will never exceed two. The Osborne-Bell site design will require 50 months of development.

Table 16-4: Development design parameters

Type	1 Team (m/month)	2 Teams (m/month)
Single face	150	-
Double face	250	300
Multi-face (3+)	300	450
Vertical development	69	-

Table 16-5: Annual development metres per type per year

Development type	Unit	2021	2022	2023	2024	2025	Total
Ramp	m	994	839	1,768	1,461	733	5,794
Drift – CAPEX	m	217	660	489	964	78	2,408
Drift – OPEX	m	120	342	349	363	125	1,299
Haulage – CAPEX	m	547	1,942	940	911	463	4,803
Ventilation access	m	180	-	40	40	-	260
Mineralized material	m	-	975	905	945	720	3,545
Vertical (raise bore)	m	140	40	80	-	-	260



16.5 Mine Services

16.5.1 Windfall Lake Deposit

16.5.1.1 Electrical Services

Electrical Distribution

A distribution network of 13.8 V will be deployed from the existing surface network to meet the energy needs in the mine. A 13.8 kV supply is already present in the exploration ramp and will be mainly used for the Lynx Zone. A second 13.8 kV supply will be necessary, and it will come down by the ventilation raise for the Main Zone. An electric substation will be necessary for two new ventilation raises.

Due to the dimensions of the levels and the distance between them, a 13.8 kV station will feed one level out of two. Every other level will be fed from the same substation with 600 volts. By having a 600V substation to power every other level, the excavation can be reduced to 6.5 m long instead of 11 m for a 13.8 kV station.

The 13.8 kV station will also be divided into groups of three substations to isolate the principal network and allow a substation to be added without completely stopping the mining operations. A group of two switches will be set up for isolating sectors. It will therefore not be necessary to go to the surface to lockout the network and in the case of a failure, it will not shut down the whole network. Moreover, during the addition of new substations, sectors affected by a loss of supply, as the progress of the mine continues, can be targeted.

A redundancy must be organized by joining the Main and Lynx zones by the ramp at level 660. An interlock system (Kirk-Key) will ensure that the two energy supplies do not enter into conflict.

13.8 kV Installation

Dimensions of the ramp and the drift allow the electric stations to be prefabricated in the workshop. This method allows a faster deployment on site, a better protection of the electrical equipment and financial savings. The container has a length of 6 m and a capacity of 1.5 MVA. Each container will be equipped with the following items: switch circuit breaker, 600V-200A distribution panel, transformer and service panel of 120V/240V, room for three starters with variable speed and two PTOs. Each station will be designed according to the needs for that level and the lower level.



600V Installations

Based on the same principle as the 13.8 kV stations, there will be 3 m long container substations for every other levels, each with 800A/600V capacity. They will be enough to power equipment such as sump pumps (20 hp), fans (50 hp), refuges, mobile equipment and all other services.

16.5.1.2 Communication Network

Voice Communication System

Before the fibre optic cable is deployed, the leaky feeder cable will be extended. This is a common technology that is strong, reliable and simple to deploy. It is capable of voice transmission, as well as data with the DOCSIS protocol.

This medium, along with the DOCSIS protocol, will make it possible to quickly install camera systems, set up ventilation controls, remotely control the equipment, acquire data in real time, install Wi-Fi hotspots, etc.

The current onsite setup corresponds exactly to the Project's future needs and requires minimal additions.

A FEMCO communication system will be displayed in every refuge with a direct link to the surface, as well as a telephone system for the mine rescue.

Fibre Optics

A 48-fibre cable will be passed along the 13.8 kV power cable from the surface down into the mine. Both the Main and Lynx zones will be covered. Also, a redundancy will be possible by making the link bypass between levels 700 and 600 of the Main and Lynx areas as was planned for the 13.8 kV distribution.

The fibre optic network will be spread between each of the levels from the surface. This medium is robust and provides high-speed communication. Deployment will require specialized techniques. All the computerized systems, voice communications, cameras and other systems can travel by this medium. This network will be the main network for the Windfall Lake Mine.

Coaxial Network

On the levels and near working faces, coaxial is the best solution because it is easier, more adaptable and practical than optical fibre. With this network, it will be easy to connect the teleoperation system and track personnel and vehicle positions on the main network. Both optical and coaxial systems can easily share the same network structure. The deployment of this network is easy to set up. It will be easy to remove certain equipment, such as access points and Wi-Fi hotspots, and to relocate them on other levels.



Automation Network (PLC)

An automation network will be deployed to obtain real-time information on pumping, ventilation and any other information, for the operation of the mine. This network will also allow the remote control of certain equipment and the powering up of preprogrammed automatic sequences.

16.5.1.3 Teleoperation

To meet the requirements of the mobile fleet supplier, several Wi-Fi hotspots will be installed inside drifts and ramps. These anchors will be positioned to allow complete coverage of the levels and of the ramp up to the surface. The optical fibre and coaxial network will help reach this goal.

Access barriers must be installed for the teleoperation system to be as safe as possible.

16.5.1.4 Ventilation-on-demand

The network displayed by optical fibre and by coaxial cable can also be used for the teleoperation of the ventilation-on-demand system.

With a tag on each lamp and on each vehicle, the software will be able to locate all personnel and vehicles anywhere in the mine. Air supply is then adjusted according to their positions. To do this, the software communicates with the ventilation system equipment, sending information in real-time to adjust the fan speed and the degree of shuttering. If more precision is required, flow metres should be installed in strategic places to monitor the airflow.

16.5.1.5 Collision Warning System

The tag installed in the lamps and on the vehicles can also serve as a collision warning system with the installation of a module in the vehicle.

16.5.1.6 Mine automation and monitoring systems

The mucking and hauling systems will use automation and teleoperation technologies to ensure the most efficient production possible. The main accesses have been designed so that only one charging bay should be required per level. The LHD will be teleoperated while digging the mineralized material and once the bucket is full, it will automatically drive to the truck charging bay. The remote operator will regain control of the LHD to empty the bucket into the truck. Once the truck is loaded, it will automatically haul the material to the surface using one of the available ramps. The ramps have been designed to connect on three levels to allow automated trucks to travel where no personnel are present and still have access to most of the mining areas for servicing.



16.5.1.7 Fuel Distribution Network

Fuel for equipment will be brought underground via a pipe from the surface to the main fuel bay on level 360. Fuel will be sent underground in batches of 5,000 L, requiring the installation of three 5,000 L batch tanks, one on the surface and the other two near the underground fuel storage tanks. Batch production will be fully automated, controlling the pumps that produce the batches. The underground fuel storage tanks will have a capacity of 15,000 L each to meet the capacity of the fuel trucks and some of the other mobile equipment. These tanks will be connected to a fast-fueling distribution system and will be equipped with spill-prevention features. A fuel truck will also service equipment that cannot easily reach the fuel bay. The expected consumption for all mobile equipment at Windfall Lake is 5 million litres per year.

16.5.1.8 Permanent Mine Pumping Network

A water management system has been designed to handle 3,000 m³/day of water. This volume includes water infiltration and production levels.

It is planned to put a system in place that will treat and recirculate clear water directly from the underground operations, limiting the volume pumped to the surface.

The water management part of the Project is divided into two phases: development and operations.

Development Phase

The development phase is designed to manage a total of 3,000 m³/day. During development, the ramp and main level sumps are going to be mined first. In each sump, a submersible transfer pump designed to handle 25% solids is going to be installed. The selected pump is Tsurumi LH415, 20 hp, giving a performance of 102 m³/h @ 20 m head when pumping from level to level. This same pump is going to operate at 220 m³/h @ 6 m head when pumping at a lower level.

When the development is advanced at a vertical distance of 200 m, a mobile high-solid pumping system will be installed. This system consists of two TOYO model DBH100/75–100 hp pumps, pumping in series.

This system is installed on a skid, equipped with a 3 m³ water tank. This mobile unit will move every 100 m of development, until it reaches its final position on level 1200.

Production Phase

The mine is divided into two principal zones: Main and Lynx. According to the information provided, most of the mining activities will be in the Main Zone. It has been decided to retrieve all water generated by the mine operations from the Main Zone.



In the Lynx Zone, drains will be developed from levels. The water will drain from three main levels (320, 640 and 900). These three water collection levels are connected to the Main Zone by a ramp of about 1 km. Dirty water pumps are put in place at the collection points to transfer dirty mine water to the Main Zone.

In the Main Zone, water will be intercepted by level sumps and will drain or be pumped to the next lowest level and down to the closest pumping station below. These pumping stations are on levels 400, 800 and 1200. Clarification systems will be installed on these three levels to manage dirty water. Clarified water produced from the Mudwizard® systems will go back to production. The water management system is designed to optimize the recirculation of the underground water at maximum levels. Mud will be pumped to the surface using diaphragm pumps. Figure 16-11 shows the pumping network for Windfall Lake.

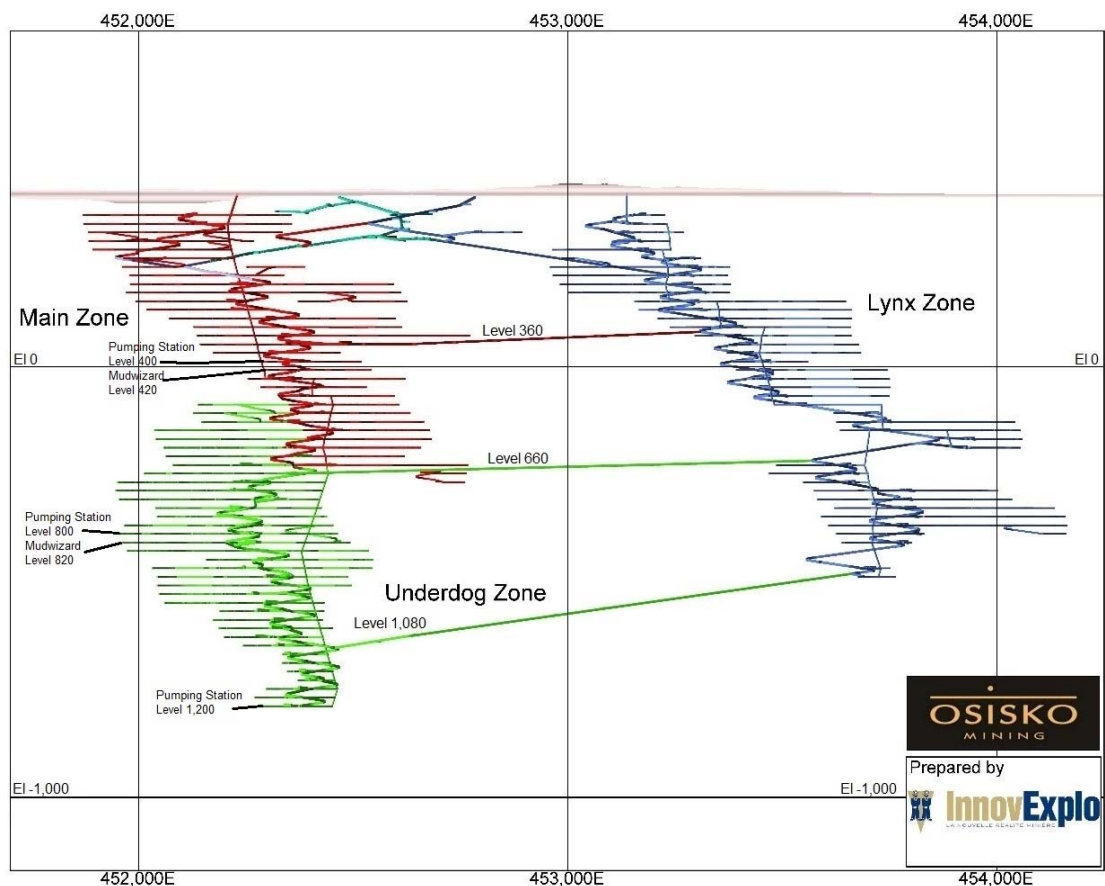


Figure 16-11: Pumping network



16.5.1.9 Ventilation Network

Fresh Air Demand

The fresh air demand has been determined so as to meet the Québec Regulation Respecting Occupational Health and Safety in Mines (“RROHS”).

The fresh air required to dilute emissions from each unit of mobile machinery listed in Table 16-6 is specified by its (CANMET) engine certificate. In estimating the aggregate rate of fresh air flow for the entire mine, a utilization rate has been applied to account for the time when machines may be mechanically unavailable, or simply not in use. The utilization rates are: 90% for production equipment, 60-75% for most service equipment, and 50% for machinery that functions primarily with electricity. Quantities only take into account equipment used and not spare ones.

A contingency of 15% has been applied on the total estimated fresh air requirements to allow for additional equipment that could be added during the life of mine. This includes an allowance for any potential leaks in the system.

Table 16-6: Mobile equipment list for Windfall Lake Mine

Equipment	Model		Engine	Power		Quantity	Utilization (%)	Air requirement (CFM)
				(hp)	(kW)			
LHD	Sandvik	LH514	Volvo TAD1171VE, Tier 4F	355	265	6	90	67,500
LHD	Sandvik	LH307	Volvo TAD572VE Tier4F	214	160	2	90	12,780
Truck	Sandvik	TH551i	Volvo TAD1662VE tier 4	690	515	6	90	123,660
Jumbo	Sandvik	DD311	Deutz TCD2012	125	93	4	50	13,800
Prod. drill	Sandvik	DL311	Deutz TCD2012	125	93	2	50	6,900
Bolter	Sandvik	DS411	MB OM904LA Stage IIIA	147	110	3	50	13,800
Bolter	Sandvik	DS311	Deutz TCD2012	125	93	1	50	3,450
Boom truck	Maclean	BT3	Mercedes 904	138	103	2	75	13,800
Anfo loader	Maclean	AC3	Deutz TCD2012	129	96	1	75	3,825
Scissor lift	Maclean	SL3	Mercedes 904	138	103	3	75	20,700
Personnel carrier	Maclean	PC3	Mercedes 904	138	103	1	75	6,900
Fuel lube	Maclean	FL3	Mercedes 904	138	103	1	75	6,900
Cement transporter	Maclean	WC3	Mercedes 904	138	103	1	75	6,900
Grader	CAT	140M	C7 ACERT	218	163	1	75	10,575



Equipment	Model		Engine	Power		Quantity	Utilization (%)	Air requirement (CFM)
				(hp)	(kW)			
Blockholer	Maclean	BH3	Mercedes 904	138	103	1	75	6,900
Jeep	Landcruiser	1HZ	1HZ PCNA	126	94	6	75	35,550
Tractor	Kubota	L5740	V2403-M-T, Tier 4i with EGR	57	43	4	75	9,300

According to the certified CANMET-MMSL approved diesel engines dilution rate and to the equipment list presented in Table 16-6, the maximum fresh air demand at Windfall Lake, including the 15% contingency, is estimated at 417 kcfm (197 m³/s).

Ventilation Infrastructure and Network

The Windfall Lake ventilation system consists of two independent air intakes for the two zones: Main and Lynx. Each zone is supplied with fresh air through a raise breaking through each of the active levels. Both zones share the same central return air ramp. Figure 16-12 shows a longitudinal view of the Windfall Lake Mine ventilation network.

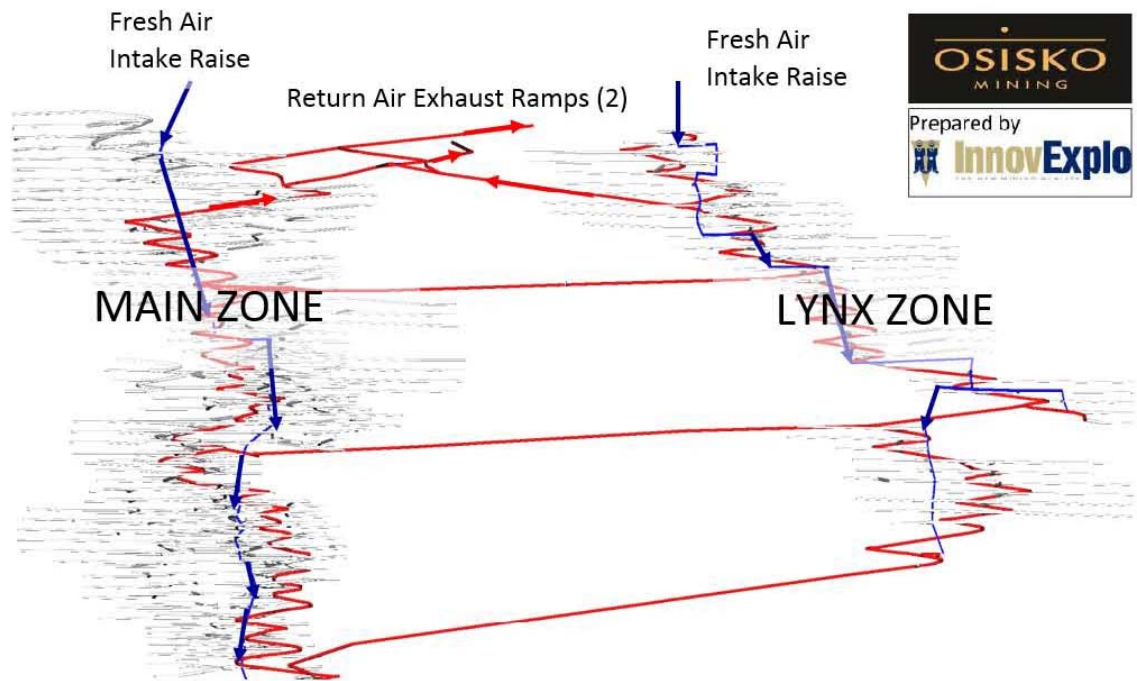


Figure 16-12: Ventilation network at Windfall Lake.



The network has been created to meet the total fresh air requirement at all times but above all, to accommodate 60% of the total requirements in the Lynx area and 90% of the total flow in the Main area. This measure ensures that the development and production peaks will be met by zone and provides a greater flexibility to the ventilation system. Surface fans will be equipped with variable speed drives.

Main Zone

The Main Zone will be supplied with fresh air by an independent air raise equipped with two fans in parallel (7650-AMF-5000 Howden – 500 hp or equivalent model) installed on the surface. The fresh air raise will break through all active levels, and airflow on levels will be controlled by automated regulators. Contaminated air will be evacuated by the ramp. Figure 16-13 shows the properties of the ventilation infrastructure of the Main ventilation network.

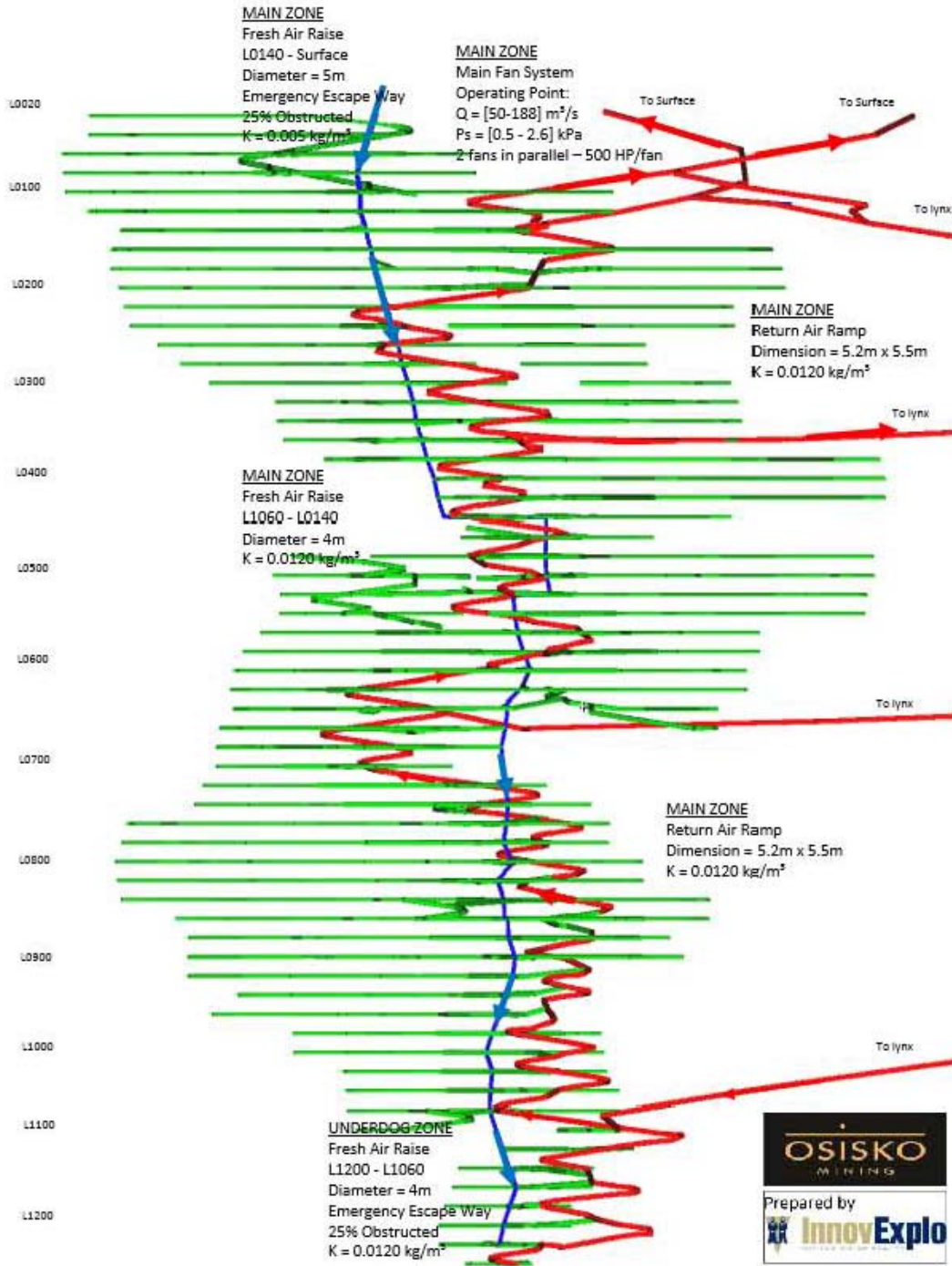


Figure 16-13: Properties of the ventilation network for Main and Underdog zones.

Lynx Zone

The ventilation network in the Lynx Zone will be supplied with fresh air by an independent air raise equipped with two fans in parallel (5400-VAX-2700-Howden – 300 hp or equivalent model) installed on the surface. The fresh air raise will break through all active levels and airflow on levels will be controlled by automated regulators. Contaminated air will be evacuated by the ramp. Figure 16-14 shows the properties of the ventilation infrastructure of the Lynx Zone ventilation network.

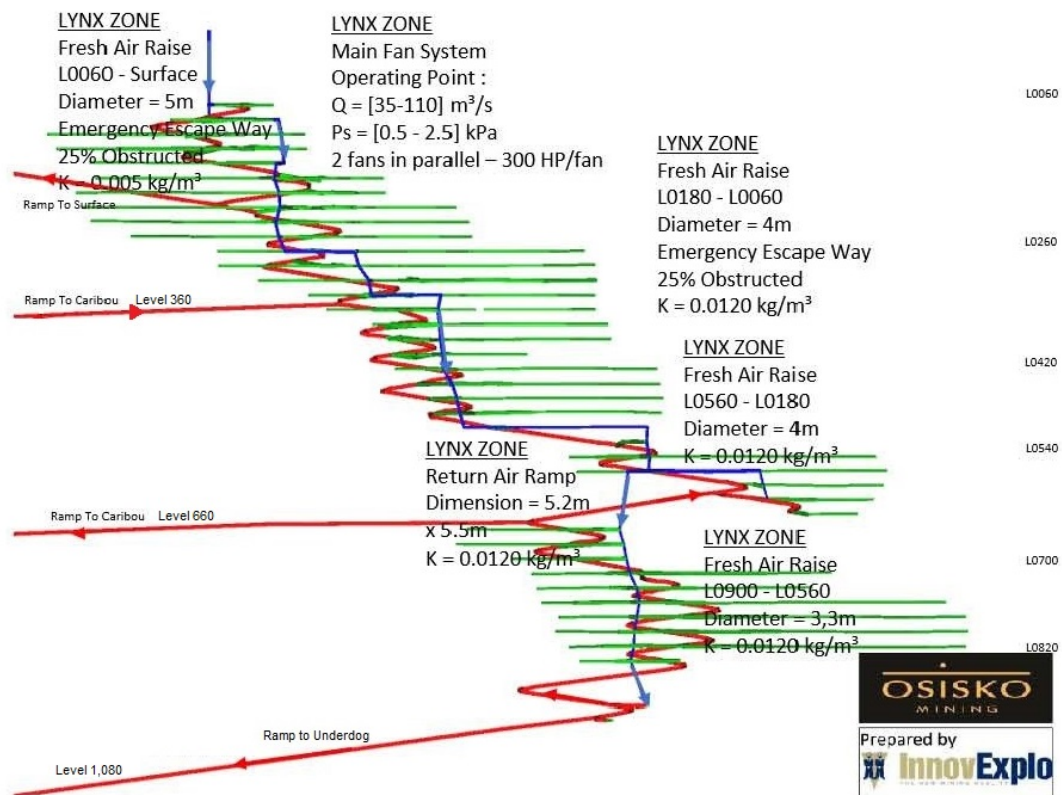


Figure 16-14: Properties of the ventilation network for Lynx Zone.

16.5.1.10 Heating System

Windfall Lake heating system consists of a direct flame propane combustion heater. The selected heating units will be a 6.9 MBTU/h, which can heat a flow of 60 kcfm. There will be six units in the Main Zone and four units in the Lynx Zone.

16.5.1.11 Auxiliary Ventilation

The auxiliary ventilation design for Windfall Lake has been done assuming the following elements:

- Trucks do not have access to the mineralized zones and will not go beyond the loading stations located at the entrance of the levels;
- The selection of auxiliary fans must be done by favouring the choice of a single fan that can be used in all situations;
- The fresh air requirement for a truck and a LHD is 35.4 kcfm (16.7 m³/s);
- An average typical fresh air requirement is 12.5 kcfm (5.9 m³/s).

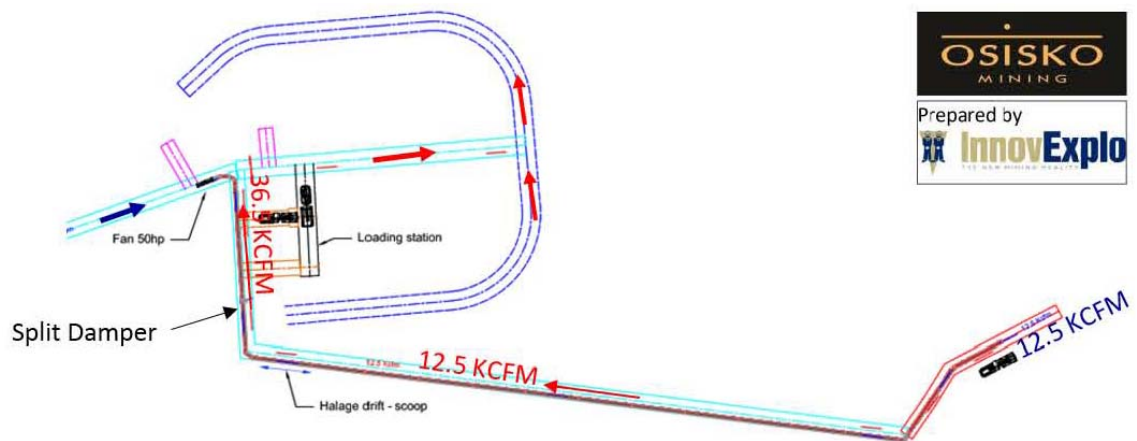


Figure 16-15: Typical layout for auxiliary ventilation in the Lynx Zone.

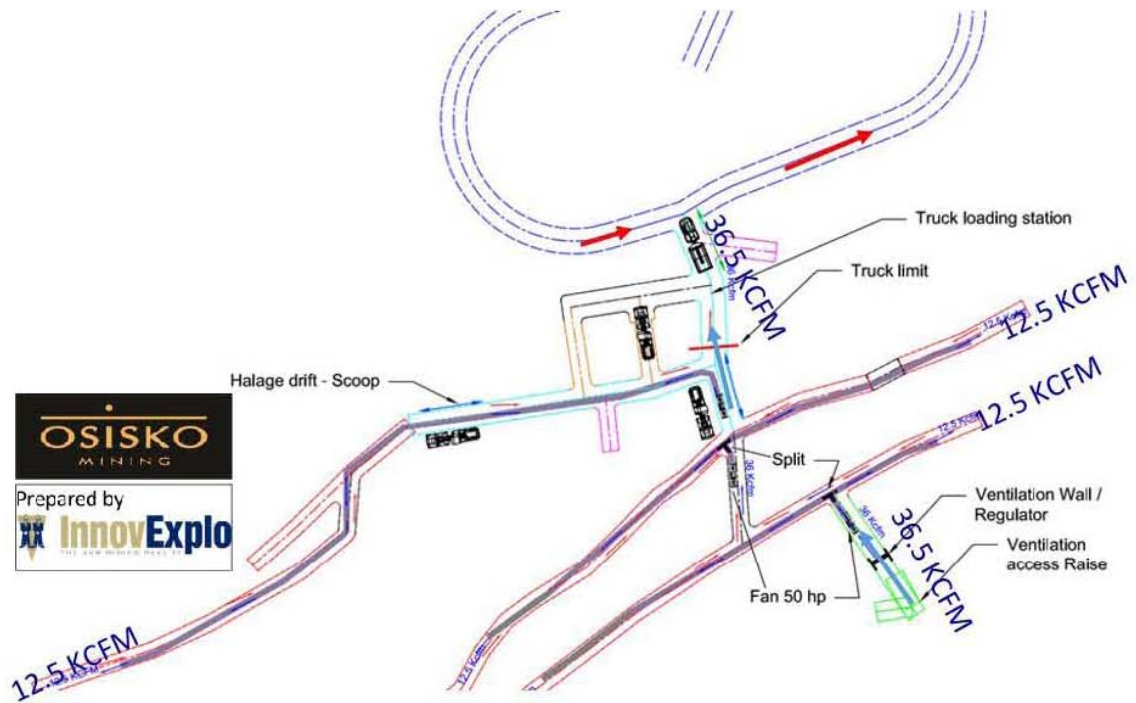


Figure 16-16: Typical layout for auxiliary ventilation in the Main and Underdog zones.

Auxiliary ventilation requirements were established using flexible ducting with a diameter of 42 inches. The model of the preselected fan is 4200-VAX-2100 – 50 hp (or equivalent). Each fan will be equipped with a variable speed drive to meet the requirement and will be connected by a ventilation control system to save energy. Figure 16-15 and Figure 16-16 show typical setup for auxiliary ventilation.

16.5.2 Osborne-Bell Deposit

16.5.2.1 Services and networks

The same principles concerning electrical services and communication network will be applied to the Osborne-Bell Mine Site, which will be operated by contractors. However, unlike the installations at Windfall Lake, no equipment teleoperation system, no tracking of personnel or vehicles and no ventilation-on-demand have been evaluated for this PEA. However, it will be considered for the feasibility stage. Also, on Osborne-Bell site, the surface distribution network is 25 kV. Sub-stations will transform the 25 kV voltage to 13.8 kV at portal to 600V on levels.



16.5.2.2 Fuel Distribution Network

There will be no fuel storage underground. A fuel truck will service equipment from the storage located on surface.

16.5.2.3 Permanent Mine Pumping Network

The same type of water management system as Windfall Lake is planned for Osborne-Bell, but for 2,000 m³/day.

16.5.2.4 Ventilation Network

Fresh Air Demand

The fresh air required to dilute emissions from each unit of mobile machinery listed in Table 16-7 is specified by its (CANMET) engine certificate. In estimating the aggregate rate of fresh air flow for the entire mine, a utilization rate has been applied to account for the time when machines may be mechanically unavailable, or simply not in use. The utilization rates are: 90% for production equipment, 60-75% for most service equipment, and 50% for machinery that functions primarily with electricity. Quantities only take into account equipment used and not spare ones.

A contingency of 15% has been applied on the total estimated fresh air requirements to allow for additional equipment that could be added during the life of mine. This includes an allowance for any potential leaks in the system.

Table 16-7 : Mobile equipment list for Osborne-Bell Mine

Equipment	Model		Engine	Power		Quantity	Utilization (%)	Air requirement (CFM)
				(hp)	(kW)			
LHD	Sandvik	LH514	Volvo TAD1171VE, Tier 4F	355	265	1	100	12,500
LHD	Sandvik	LH307	Volvo TAD572VE Tier4F	214	160	2	100	14,200
Truck	Sandvik	TH540	Volvo TAD1640VE Tier 2	543	405	4	100	125,600
Jumbo	Sandvik	DD422i	Cummins QSB 4,5, Tier 3 stage IIIA	159	119	2	50	6,500
Boom truck	Maclean	BT3	Mercedes 904	138	103	1	75	6,900
Anfo loader	Maclean	AC3	Deutz TCD2012	129	96	1	75	3,825
Scissor lift	Maclean	SL3	Mercedes 904	138	103	2	75	13,800
Fuel lube	Maclean	FL3	Mercedes 904	138	103	1	50	4,600
Tractor	Kubota	L5740	V2403-M-T, Tier 4i with EGR	57	43	3	50	4,650

According to the certified CANMET-MMSL approved diesel engines dilution rate and to the equipment list presented in Table 16-7, the maximum fresh air demand at Osborne-Bell, including the 15% contingency, is estimated at 222 kcfm (105 m³/s).

Ventilation Infrastructure and Network

The Osborne-Bell mine ventilation system is based on the same assumption as Windfall Lake. A fan system is installed in parallel (2 x 5400-VAX-2700-Howden – 300 hp or equivalent model) on the top of the main air intake raise. The raise will break through all levels from surface down to elevation 70 m where the fresh air uses the ramp to be transferred to an internal raise network to provide a deeper area with fresh air. The ramp is used as a return airway. Figure 16-17 shows Osborne-Bell's main ventilation infrastructure and its airflow system.

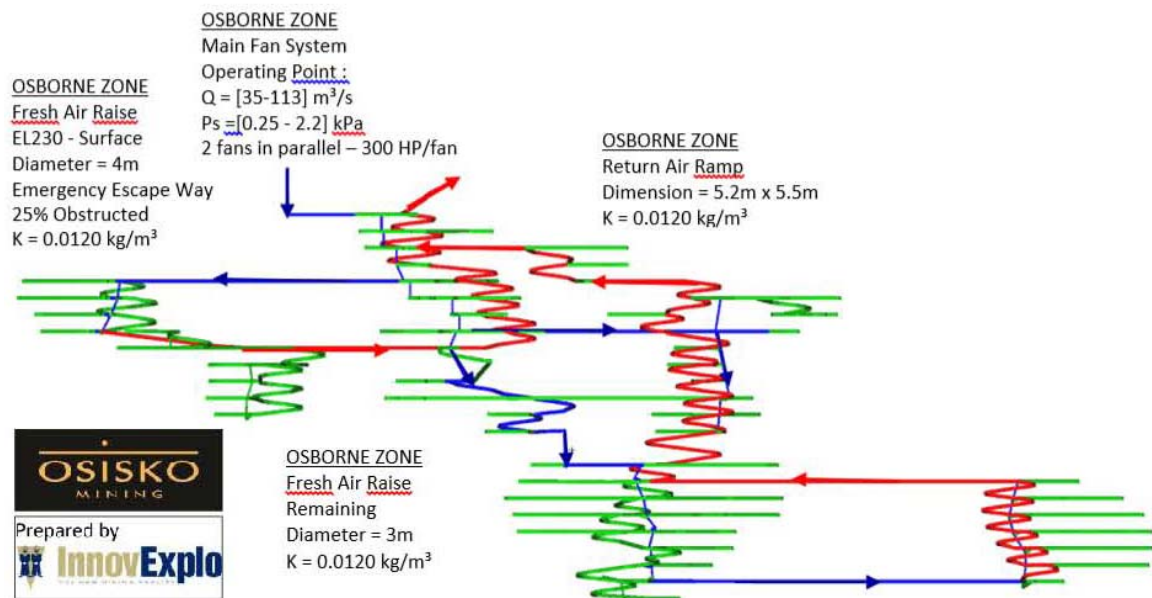


Figure 16-17: Properties of the ventilation network for Osborne-Bell.

16.5.2.5 Heating System

Osborne-Bell heating systems is similar to Windfall Lake. It consists of a direct flame propane combustion heater. The selected heating units will be a 6.9 MBTU/h, which can heat a flow of 60 kcfm. There will be four units at Osborne-Bell.



16.5.2.6 Auxiliary Ventilation

The auxiliary ventilation design for Osborne-Bell is similar to Windfall Lake. It has been done assuming the following elements:

- Trucks do not have access to the mineralized zones and will not go beyond the loading stations located at the entrance of the levels;
- The selection of auxiliary fans must be done by favouring the choice of a single fan that can be used in all situations;
- The fresh air requirement for a truck and a LHD is 35.4 kcfm (16.7 m³/s);
- An average typical fresh air requirement is 12.5 kcfm (5.9 m³/s).

Auxiliary ventilation requirements were established using flexible ducting with a diameter of 42 inches. The model of the preselected fan is 4200-VAX-2100 – 50 hp (or equivalent). Each fan will be equipped with a variable speed drive to meet the requirement and will be connected by a ventilation control system to save energy.

16.6 Mining Method

16.6.1 Longitudinal Long-hole Method Description

The long-hole longitudinal mining method was selected for the Project based on the geometry of the mineralized zones and the vertical dip and competency of the rock. This method involves accessing stopes using two longitudinal drifts: one above the stope for drilling, loading, blasting and backfill, and one below for mucking (Figure 16-18). The empty stope is then backfilled in part with cemented rock fill (~30%) and the remaining with uncemented rock fill. Mining continues while retreating towards the haulage drift. Stopes will be mined following a retreating sequence and have been grouped in domains. Many domains can be mined at the same time to increase productivity.

The development sequence consists of accessing the mineralized zone and excavating a level in the mineralized zone. The mining sequence will require the excavation of an opening raise, which is developed as a V30 raise done by a contractor. Once the development is completed, the mineralized zone is surveyed with precision for the preparation of the drilling and blasting pattern. Waste material generated from drift development will be used to backfill the long-hole stopes.

It is also possible to only use the lower access when no stopes are to be mined above or when recovering a sill pillar. In those cases, holes are drilled up instead of down and no backfill can be used.

For the Main and Underdog zones, the width of the development in the mineralized material will be 4 m, whereas it will be 3.5 m for the Lynx Zone to minimize internal dilution of the stopes. In all zones, stopes will measure 20 m high and can be as long as 40 m. Thickness will depend on the width of the vein.

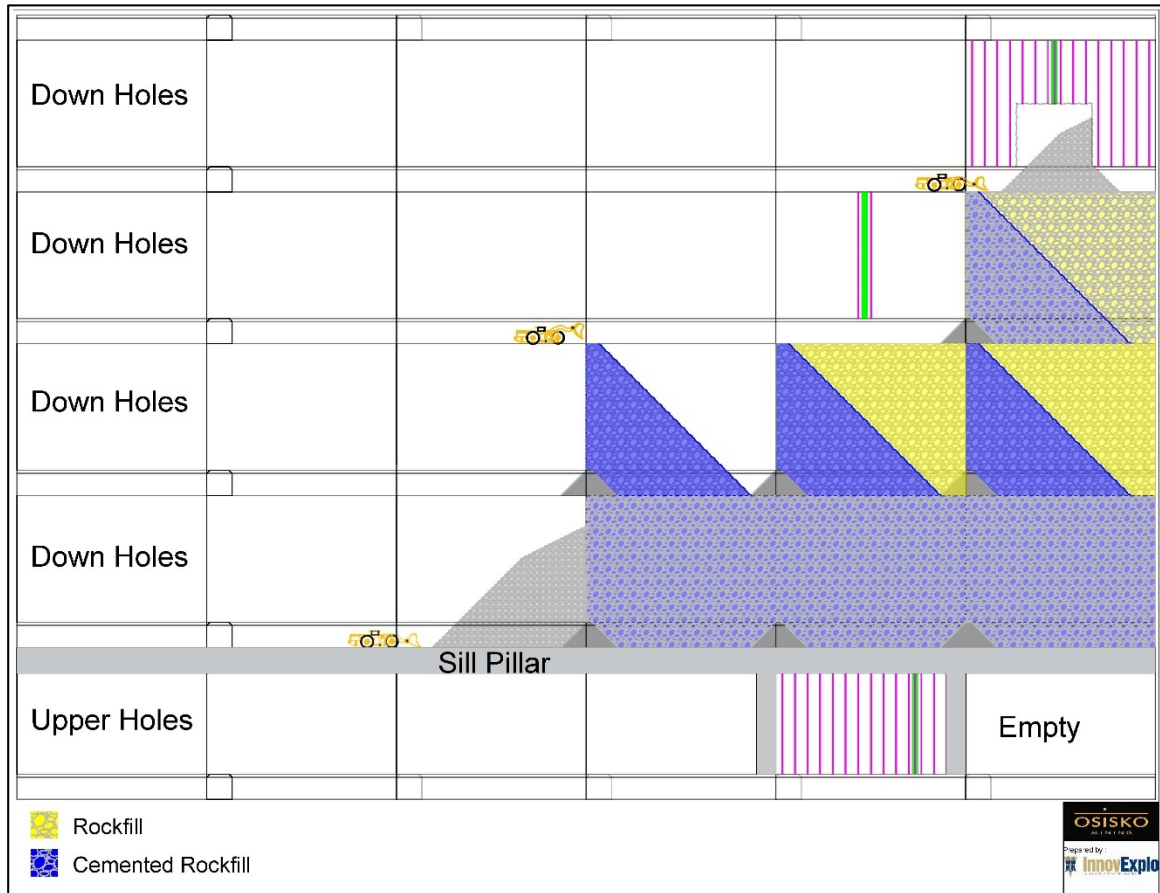


Figure 16-18: Long-hole longitudinal retreat mining method.



16.6.2 Stope Design

16.6.2.1 Windfall Lake Deposit

The Deswik Stope Optimizer module (“DSO”) has been used to design the stopes. Several iterations with different stope heights, widths and cut-offs have been run in each zone to identify the ideal mining method and parameters to use. Stope lengths were initially limited to 5 m sections to account for the flexibility afforded by the long-hole mining method for the variations in vein orientation. Adjacent sections were later merged to create stopes up to 40 m long, in line with geotechnical recommendations. For all iterations, an external dilution of 0.25 m on both the hanging wall and footwall was added. It was determined that a stope height of 20 m floor-to-floor gave more tonnage and better grade than 25 m and 30 m heights due to a better selectivity in all three zones. It was also found that the average stope width for Lynx was 3.4 m, while it was around 4.2 m for the other zones. It was thus decided to use a long-hole mining method with a minimal mining width of 3.5 m for Lynx and to use smaller equipment to lower internal dilution. For the other zones, a 4.0 m minimal width was used, which allowed the use of larger and more productive mining equipment. Based on the preliminary costs, a 3.5 g/t cut-off grade has been used. For the stope design, only revenues from gold were taken into account. Silver revenue was not considered due to lack of data availability for all blocks in the block model. All stopes inside the 30 m crown pillar have been removed from the mining plan. A 95% mining recovery has been considered for regular stopes and 85.5% for stopes drilled up where pillars need to remain in place when no backfill can be used. Development has also been subtracted from the stope tonnage. Table 16-8 gives the results of the stope optimization for Windfall Lake.

Table 16-8: Stope optimization results for Windfall Lake

Item	Unit	Lynx	Main	Underdog	Total Windfall Lake
Diluted tonnage	t	2,049,596	2,136,297	2,449,220	6,635,113
Au Diluted grade	g/t	7.11	6.17	6.24	6.48
Ag Diluted grade	g/t	2.07	5.55	2.04	3.18
Minimal width	m	3.5	4.0	4.0	-
Average width	m	4.4	4.9	4.5	-
Average length	m	29.4	27.2	31.8	-
Average tonnage	t	5,554	7,444	6,154	6,384
Average dilution	%	12.8	11.4	12.1	12.1
Down stopes	#	286	217	313	816
Up stopes	#	83	70	85	238



16.6.2.2 Osborne-Bell Deposit

The same methodology for slope design has been used at Osborne-Bell, except the cut-off grade was established at 4.0 g/t and the stopes were limited to 30 m long. Results are given in Table 16-9.

Table 16-9: Slope optimization results for Osborne-Bell

Item	Unit	Osborne
Diluted tonnage	t	845,496
Au Diluted grade	g/t	6.89
Minimal width	m	4.0
Average width	m	5.5
Average length	m	25.3
Average tonnage	t	6,039
Average dilution	%	10.0
Down stopes	#	99
Up stopes	#	41

16.6.3 Drilling and Blast Pattern

A drilling pattern has been designed for all zones: Main, Underdog and Lynx. Each zone has three planned patterns to cover all potential production scenarios. Most of the drilling will be done by downward long-hole, but upper drilling is planned for the top of the zones and below sill pillars. A 4-inch diameter has been selected for the drilling patterns throughout the mine. There is no constraint regarding the vibrations on the site and there is enough void available to require only one blast for each stope.

In the Main and Underdog zones, the stopes are 4 m wide and 30 m long on average. The drilling pattern is designed with nine rows of three holes, RC as seen on Figure 16-19. There are two holes close to the edge of the mineralized zone and a hole in the middle that is offset by 1 metre. The hole in the middle is oriented toward the opening raise, which is located near the middle of the stope. The holes are drilled vertically as shown in Figure 16-19.

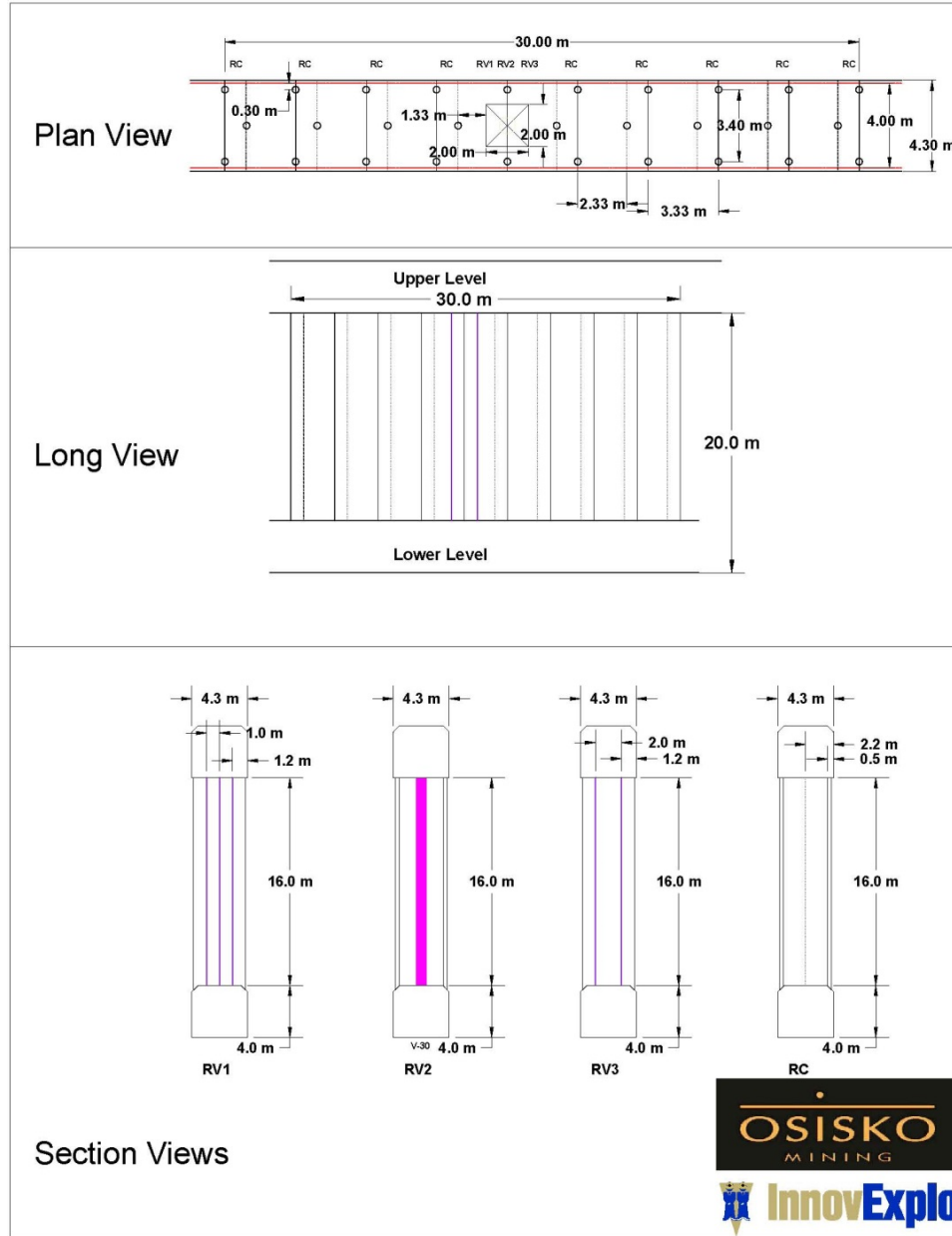


Figure 16-19: Drilling pattern #1.



In the case where the stope is at the top of a domain, no upper level will be developed to allow downward drilling. An upper long-hole drilling pattern has been designed to mine those stopes. This pattern, like pattern #1, consists of nine rows, RC, with three holes in each row, the middle one being offset toward the opening raise. There is an extra row, RCA as shown in Figure 16-20, that is shorter and close to the raise. The raise is located at the end of the stope in this case. The angle of drilling is 70° except for the four rows furthest from the raise, where the angle of drilling will increase by 5° to have vertical drilling on the last row.

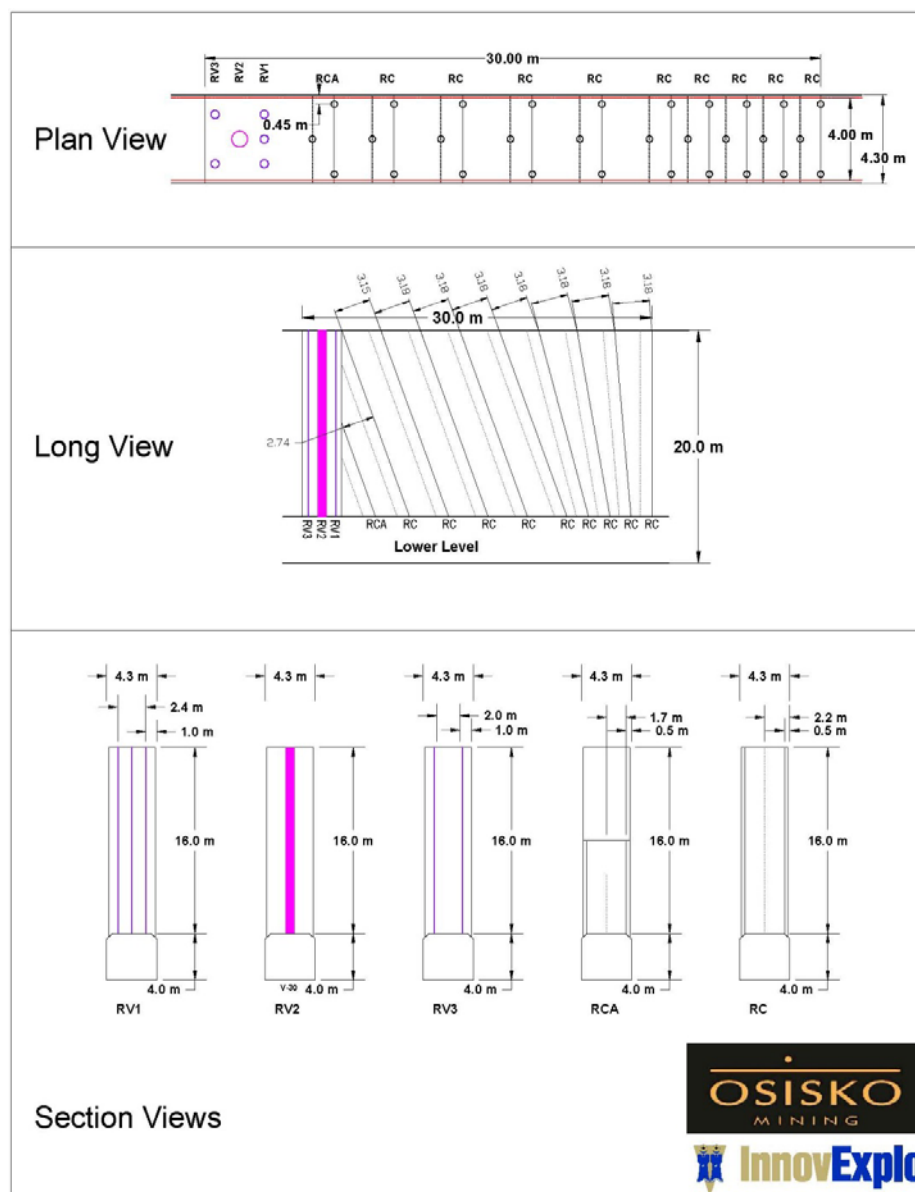


Figure 16-20: Drilling pattern #2.



If a domain is higher than five stopes high, the sequence is split in two and a sill pillar is created where the above stopes will already be mined. The stopes under this sill pillar will be drilled upward. This pattern is similar to pattern #2, the only difference being the holes are shorter. The same number of drilling rows and the opening raise is located at the end of the stope.

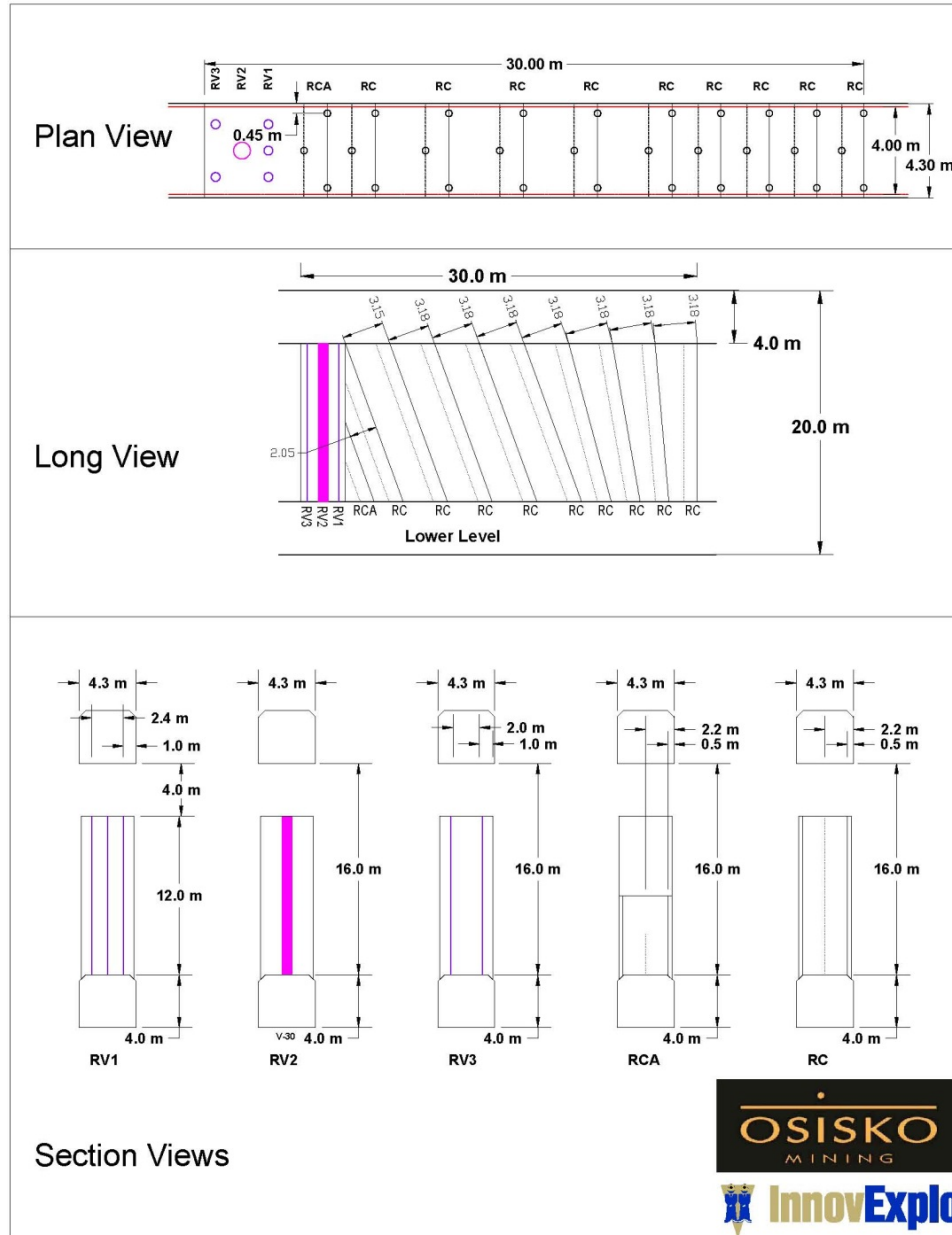


Figure 16-21: Drilling pattern #3.



In Lynx, the stopes are 3.5 m wide and 30 m long on average. The drilling pattern is designed with ten RC rows of three 4-inch holes each. There are two holes close to the edge of the mineralized zone and one hole in the middle that is offset by 0.68 m. This middle hole is oriented toward the opening raise, which is located near the middle of the stope. The holes are drilled vertically, as shown in Figure 16-22.

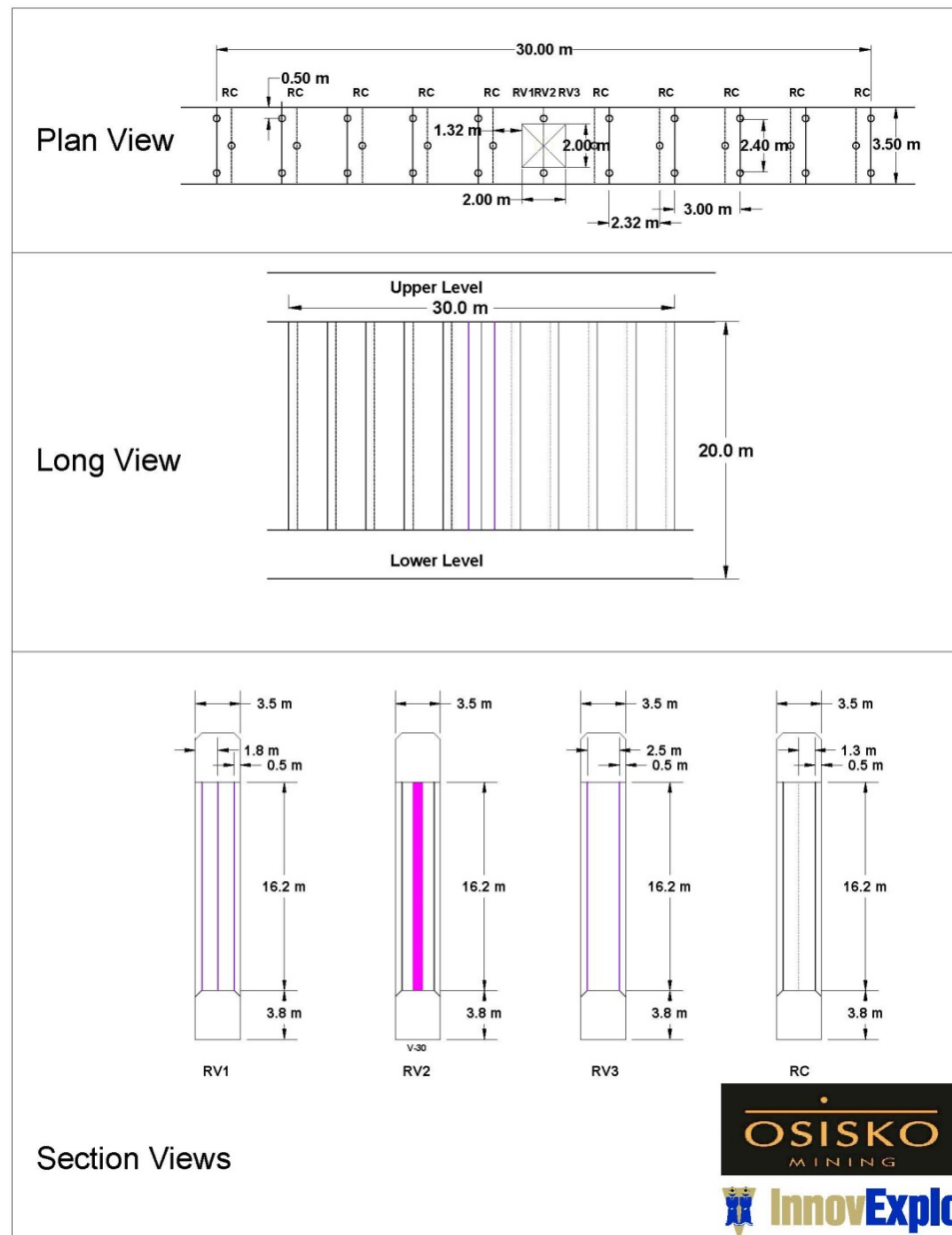


Figure 16-22: Drilling pattern #4.

In this case, the stope is at the top of a domain, no upper level will be developed to allow downward drilling. An upper long-hole drilling pattern has been designed to mine those stopes. This pattern is similar to pattern #2 of the Main and Underdog zones, with nine RC rows and a shorter RCA row next to the raise.

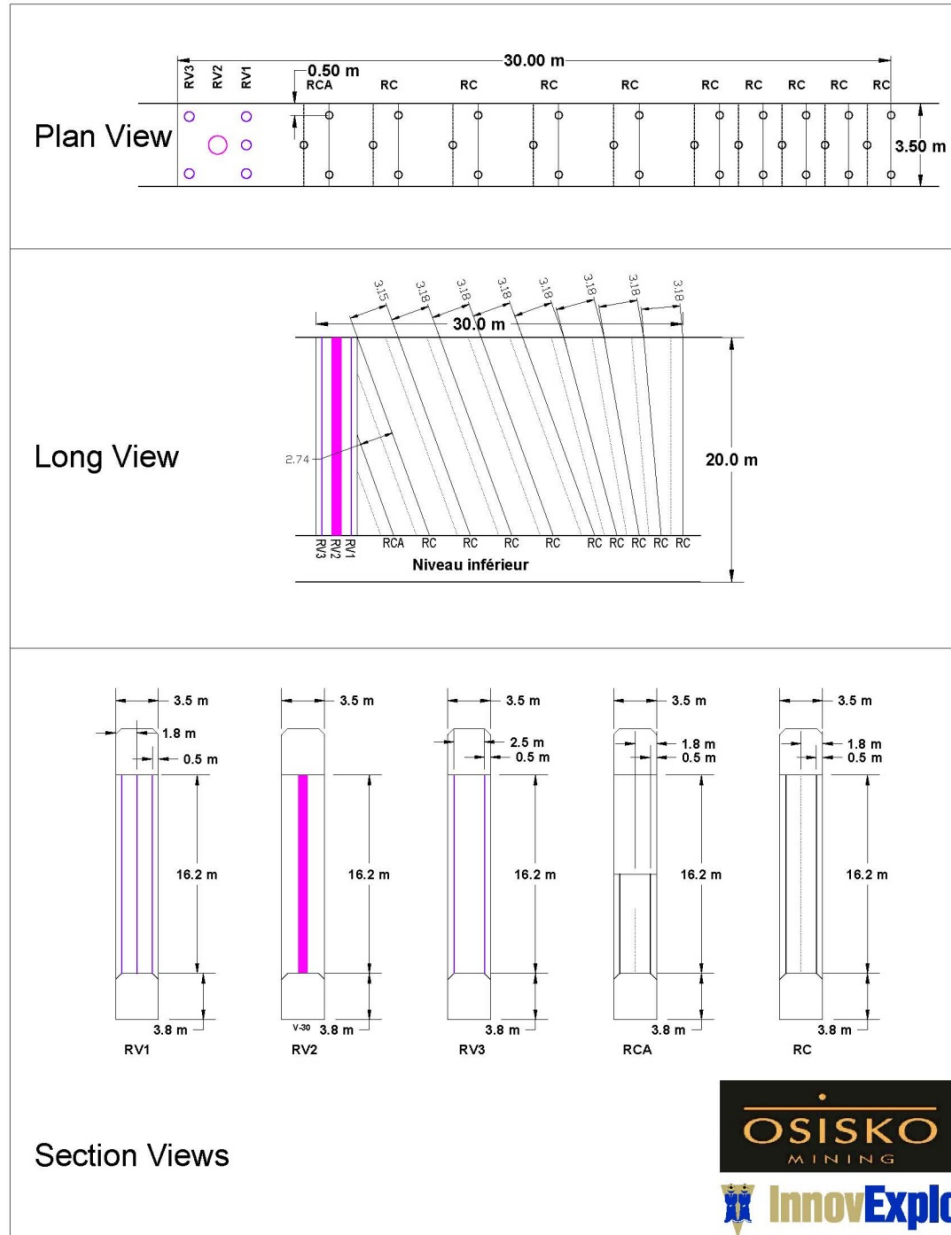


Figure 16-23: Drilling pattern #5.



If a domain is higher than five stopes high, the sequence is split in two and a sill pillar is created where the above stopes will already be mined. The stopes under that sill pillar will be drilled upward. This pattern is similar to pattern #3 of the Main and Underdog zones with the same number of drilling rows and the opening raise is located at the end of the stope.

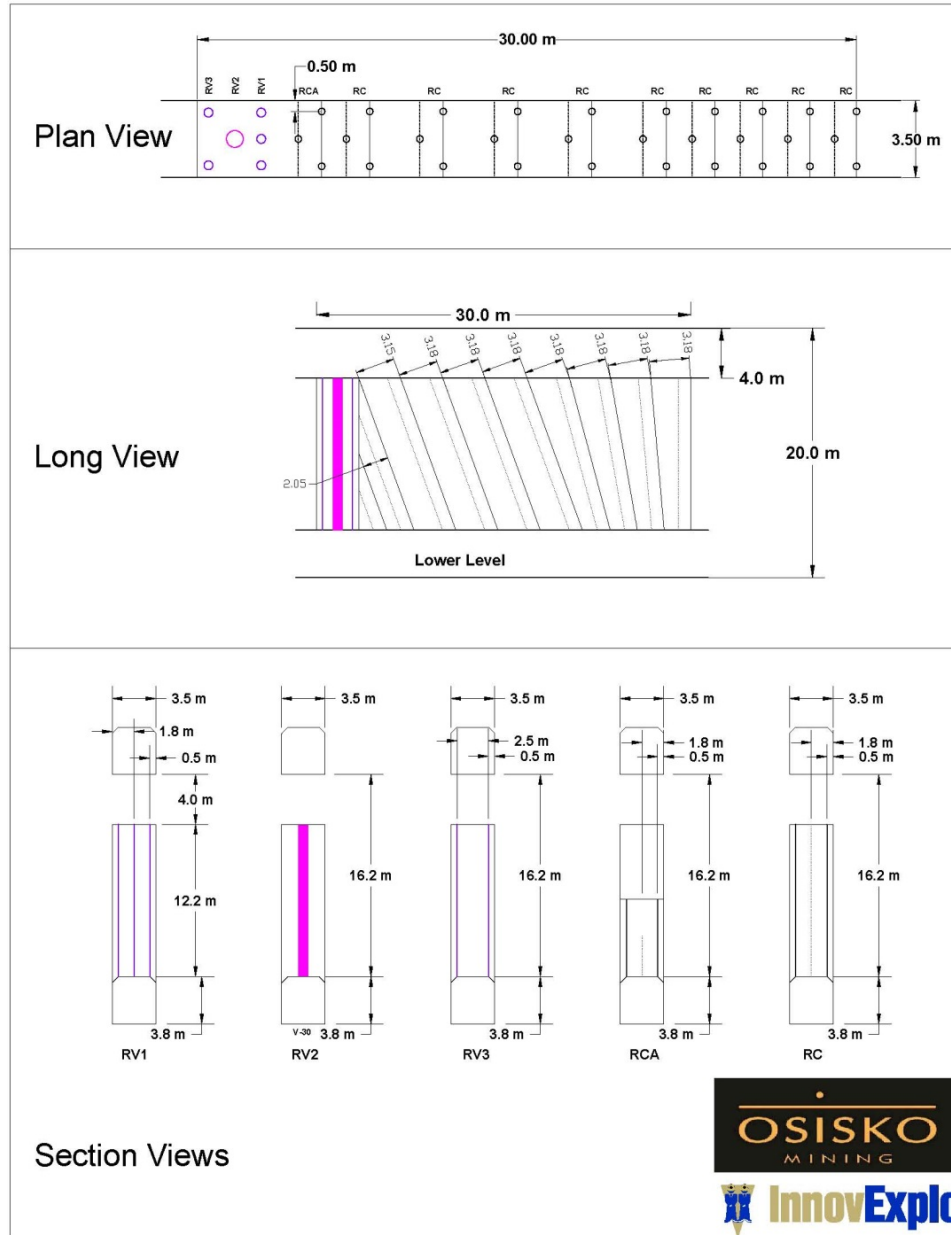


Figure 16-24: Drilling pattern #6.





16.6.4 Production Rate

16.6.4.1 Windfall Lake Deposit

Production rate has been established for the different zones based on the LHD capacity, cycle times and average distances. It has been calculated that the average productivity for the Lynx Zone is in the range of 900 tpd and 1,500 tpd for the Main and Underdog zones. Based on this productivity, a stope cycle time was calculated including slot raise drilling, production drilling, blasting, mucking, backfilling and curing. For Lynx, the cycle time is 23 days and 19 days for the Main and Underdog zones. To achieve this daily production on a monthly basis, three domains must be in production for Lynx and four for Main and Underdog zones as seen in Figure 16-25.

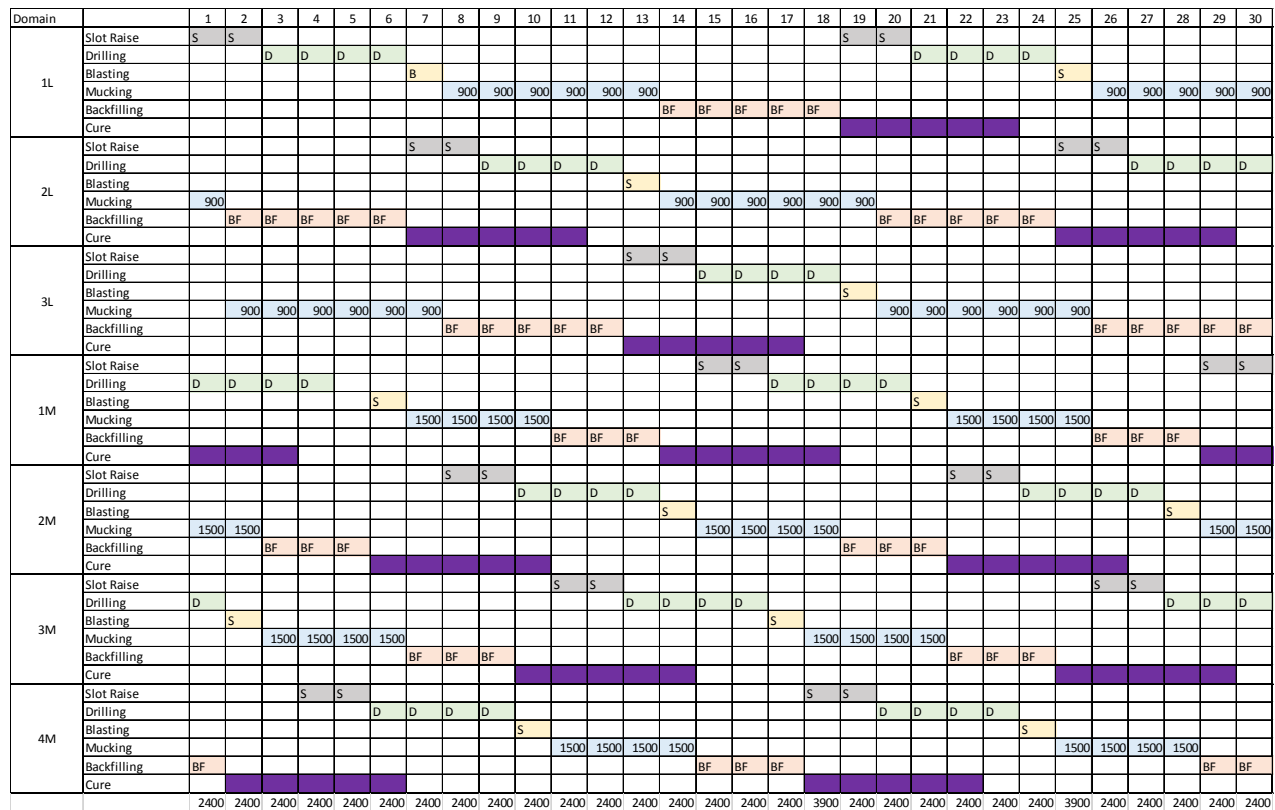


Figure 16-25: Production cycle time for Windfall Lake.



16.6.4.2 Osborne-Bell Deposit

The cycle time for long-hole mining with longitudinal retreat at the Osborne-Bell mine is expected to be approximately one month (33 days) per stope, as shown in Figure 16-26. The average stope contains 7,200 t of recoverable material and requires a total of 5,500 t of backfill material assuming a swell factor of 40%. In order to maintain a constant production rate of 600 tpd, a minimum of three stopes must be available in separate mining domains at all times. Figure 16-26 demonstrates a worst-case scenario where three domains requiring cemented backfill are active. As only ~30% of stopes in the mine required cemented fill, the more common mining cycle could be reduced by 5 days and fewer available domains may be necessary to maintain steady-state production. For similar equipment and stope size, the cycle time at Osborne-Bell is longer than at the Lynx Zone mostly because the latter is automated.

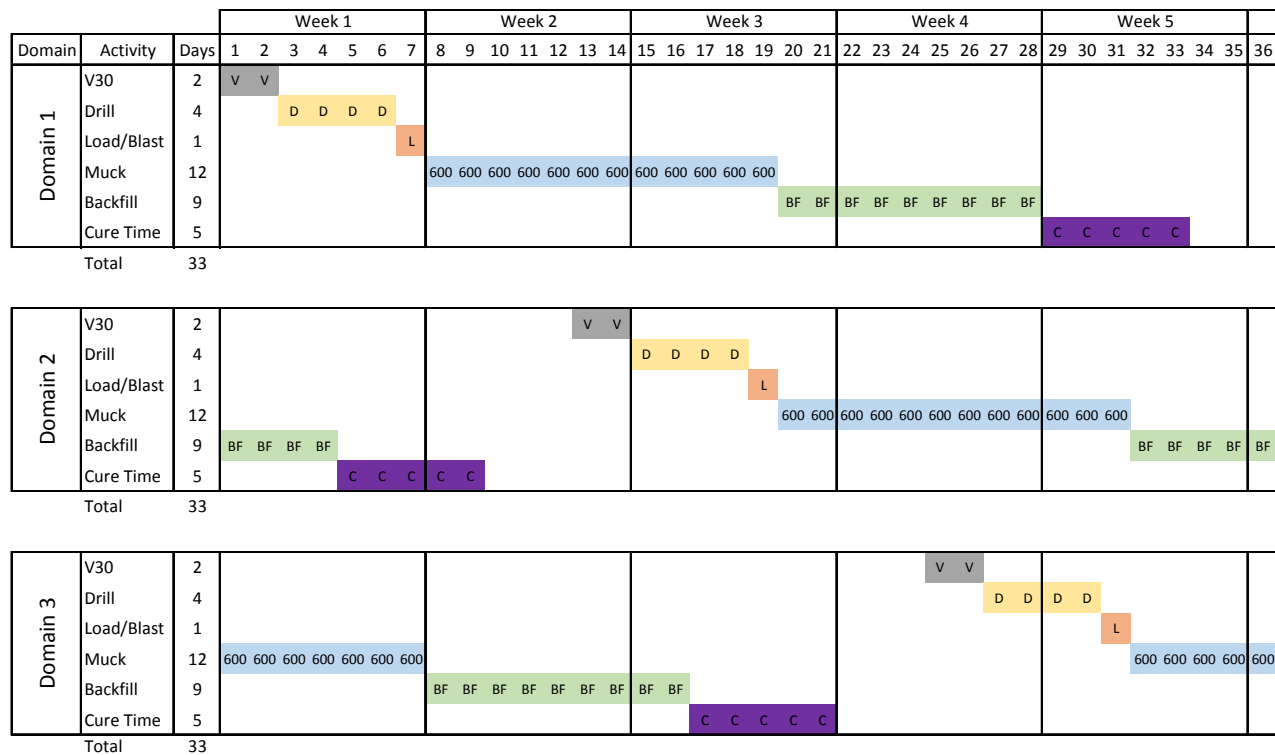


Figure 16-26: Production cycle time for Osborne-Bell.

16.6.5 Mining Sequencing

The selected longitudinal retreat mining method needs a strict sequencing. To provide a feasible sequence, stopes were combined in domains based on their location and access. Each stope in each domain was then individually sequenced. Finally, each domain was sequenced retreating toward the main access in a single (Figure 16-27) or double (Figure 16-28) retreating sequence. It is possible that conflict can occur with the availability of accesses with this sequence, but as enough domains are available at all times, it is considered sufficient for this stage of the study.

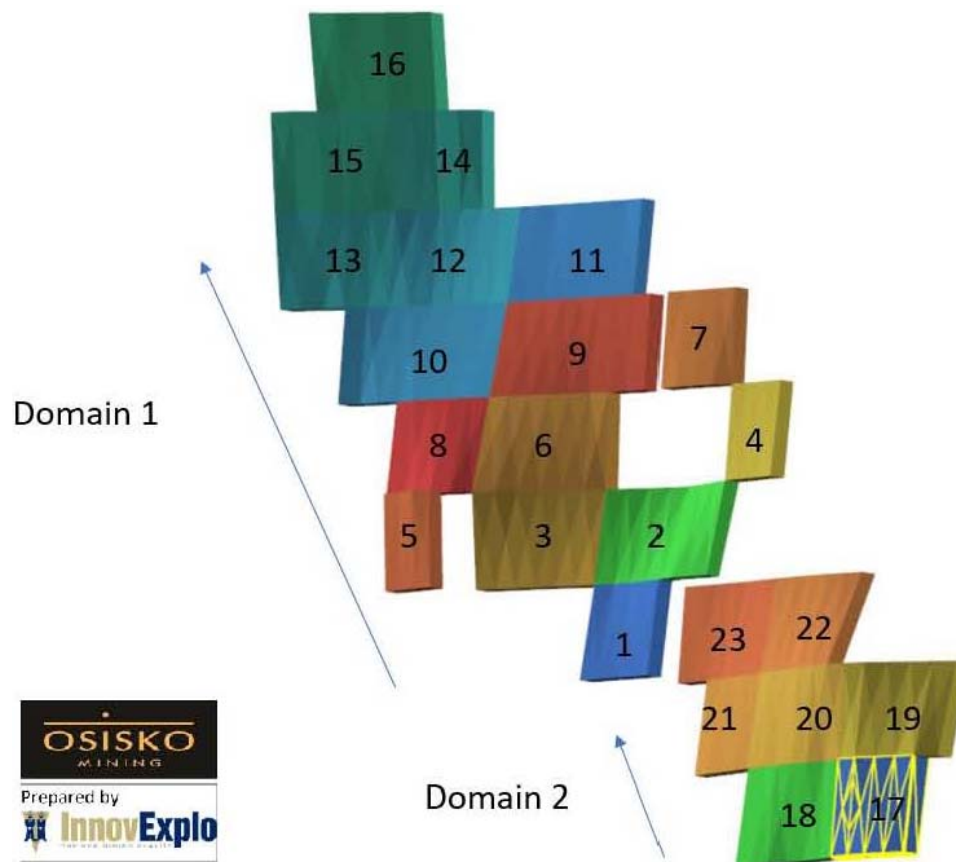


Figure 16-27: Typical single retreat mining sequence.

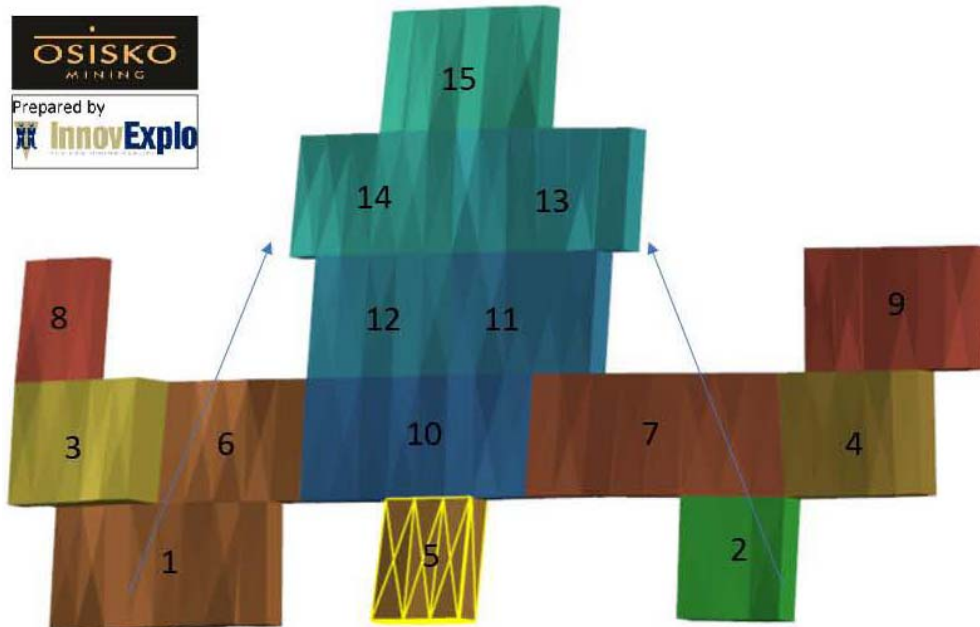


Figure 16-28: Typical double retreat mining sequence

16.6.6 Production Plan

16.6.6.1 Windfall Lake Deposit

The production plan is based on the calculated productivity from each centre of production with the mining sequence and mineralized material extracted from development. Mine development starts in early-2021 from where the exploration program is scheduled to be developed. It will take 18 months to complete the primary ventilation raise and gain access to enough mining domains to commence full production. Production starts in June 2022 and reaches an average total rate of 2,600 tpd after a 3-month ramp up. Approximately 200 tpd of production comes from development and 2,400 tpd from stopes. Material below the 3.5 g/t cut-off grade but above 2.5 g/t extracted during pre-production will be considered marginal and added to the mineralized material total to build a stockpile for the start-up of the mill. Once the mill has started, all material below the cut-off grade will be considered as waste material. Windfall Lake is projected to yield a total of 4.7 Mt of waste material, of which 4.46 Mt may be returned underground as backfill material. Some 1.27 Mt of mineralized material will be recovered through development and 6.64 Mt will be mined using the long-hole stoping method for a LOM total of 7.92 Mt at 6.66 g/t.

Table 16-10 shows the Windfall Lake production plan and gives the mineralized material resource category included in the mining plan per zone.

Table 16-10: Windfall Lake production plan

Mine production (mineralized material)	Unit	Pre-production		Production									Total
		2021	2022	2022	2023	2024	2025	2026	2027	2028	2029	2030	
Development	t mined	70,976	100,226	74,224	138,009	201,632	109,108	175,025	202,171	133,446	69,808	-	1,274,624
Au Grade	g/t	6.83	6.46	7.71	9.01	7.52	7.88	7.93	7.34	6.74	7.75	-	7.56
		-	-										
Long-hole	t mined	-	-	392,560	877,166	751,056	840,781	775,427	761,942	826,583	891,361	518,236	6,635,113
Au Grade	g/t	-	-	7.02	6.44	6.84	6.48	6.95	6.55	5.94	6.11	6.35	6.48
Total mined	t mined	70,976	100,226	466,784	1,015,175	952,688	949,889	950,453	964,112	960,030	961,169	518,236	7,909,737
Au Grade	g/t	6.83	6.46	7.13	6.79	6.98	6.64	7.13	6.71	6.05	6.23	6.35	6.66

Table 16-11: Mineralized material resource category for Windfall Lake mining plan

Zone	Category	Tonnes	Grade
Lynx	Indicated	734,858	7.1
	Inferred	1,314,738	7.2
	Total	2,049,596	7.2
Main	Indicated	573,796	7.0
	Inferred	1,562,501	5.9
	Total	2,136,297	6.2
Underdog	Indicated	122,051	6.5
	Inferred	2,327,169	6.2
	Total	2,449,220	6.2
Development	Indicated	274,843	8.1
	Inferred	999,782	7.4
	Total	1,274,624	7.6
Total	Indicated	1,705,548	7.2
	Inferred	6,204,189	6.5
	Total	7,909,737	6.7

Table 16-12: Osborne-Bell production plan

Mine production (mineralized material)	Unit	Production									Total
		2022	2023	2024	2025	2026	2027	2028	2029	2030	
Development	t mined	-	43,680	40,544	42,336	32,256	-	-	-	-	158,816
Au Grade	g/t	-	7.96	6.78	6.24	6.72	-	-	-	-	6.95
Long-hole	t mined	-	105,696	182,936	173,170	195,054	188,640	-	-	-	845,496
Au Grade	g/t	-	8.28	7.65	7.37	5.92	5.92	-	-	-	6.89
Total mined	t mined	-	149,376	223,480	215,506	227,310	188,640	-	-	-	1,004,312
Au Grade	g/t	-	8.18	7.49	7.15	6.03	5.92	-	-	-	6.90

Table 16-13: Mineralized material resource category for Osborne-Bell mining plan

Zone	Category	Tonnes	Grade
ALL	Indicated	0	0
	Inferred	845,496	6.9
	Total	845,496	6.9
Development	Indicated	0	0
	Inferred	158,816	7.0
	Total	158,816	7.0
Total	Indicated	0	0
	Inferred	1,004,312	6.9
	Total	1,004,312	6.9



16.6.6.2 Osborne-Bell Deposit

The LOM production schedule was generated for the Osborne-Bell mine based on a two-team development rate of 450 m per month and 600 tpd of mineralized material throughout production. The details of the annual production plan can be seen in Table 16-12. Table 16-13 shows the mineralized material resource category included in the mining plan. The duration of pre-production will last 12 months in order to complete the primary ventilation raise and gain access to enough mining domains to commence full production. The LOM will last 5 years at an annual production rate of 219 kt including a 3-month ramp-up period at 60% of full production. The mine is projected to yield a total of 1,024,782 t of waste material from pre-production through to 2026, of which 519,584 t may be returned underground as backfill material. 158,816 t of mineralized material will be recovered through development and 845,496 t will be mined using the long-hole stoping method for a LOM total of 1,004,312 t at 6.9 g/t.

16.7 Backfill

The long-hole mining method requires the use of waste rock as backfill to recover as much mineralized material as possible and to lower dilution. It would be possible to mine adjacent stopes without backfill, but it would require leaving a pillar of mineralized material in place. Furthermore, backfilling lowers the quantity of waste material extracted from the mine. It is sometimes possible to use tailings from the mill as paste fill, but since the mill will be over 100 km away, this type of backfill is less economically viable.

To avoid dilution coming from the backfill, cement is used to create cemented rock fill as it has enough cohesion to hold in the event it is blasted against. The entire stope does not have to be filled with cemented rock fill, only an approximate thickness of 2.0 m adjacent to the subsequent stope. With the angle of repose, only about 30% of the stope needs to be filled with cemented rock fill, the remainder can be filled with un-cemented rock fill.

16.7.1 Cemented Backfill Plant

An innovative solution is proposed to add cement to the rock fill. A mobile cement batching plant operated by a contractor will be used. A service truck will transport cement from the silo located on level 120 to the mobile plant. The mobile plant will be located on the level where backfill is being dumped. The cement mix will be sprayed over the backfill with a reusable flexible hose right at the stope. The spray will provide a better dispersion of the cement in the rock fill than regular batching in a LHD bucket or in a mixing bay, thus giving better quality control and reducing cement loss. At this time, a 3.5% cement content in the backfill is proposed and could eventually be reduced. This innovative solution also lowers capital expenditures as no distribution network is required.

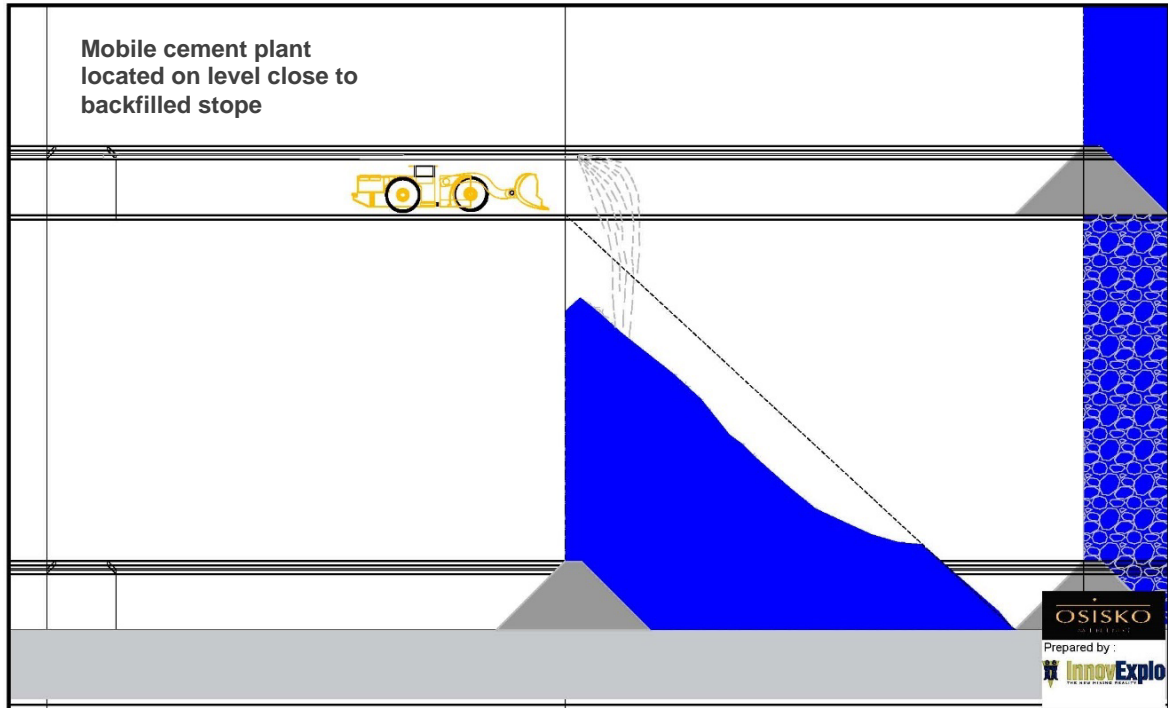


Figure 16-29: Schematic section of proposed backfill.

16.8 Underground Mine Equipment

Mining equipment has been selected to ensure the highest productivity at the lowest operating cost. For this reason, 14 t capacity LHDs have been selected as the primary loading equipment. These LHDs will be used for production and development. Teleoperation and automation will be implemented on production equipment to allow increased operating hours with the ability to work in between shifts. Development LHDs could also be equipped with the appropriate hardware for teleoperation to decrease cycle times if there is a need. It could also serve as a backup for production equipment. In the Lynx Zone, smaller LHDs will be used for stopes and development of mineralized material to lower external dilution. The production LHDs will also be equipped with automation and teleoperation capabilities.

Haulage for production and development will be accomplished using 51 t trucks. These trucks are a perfect match for the 14 t LHDs but will require more time to be loaded if 7 t LHDs are used, and a small ramp will be needed to ensure proper height to dump into the truck bed. It should not pose a problem as the only case 7 t LHDs will be used with 51 t trucks, there will be a loading bay with a ramp located at the entry of the level will be in place. Trucks associated with the production fleet will be equipped with automation capabilities.



Electrical production equipment was evaluated, but since electricity generated on site is at a much higher cost than the Hydro-Québec rate, it was not considered economical or efficient. At this time, battery operated production equipment is not commercially available and has not been intensively tested so it was decided to use diesel powered equipment equipped with Tier 4 engines to reduce ventilation requirements.

A trade off study was undertaken to evaluate the use of battery powered service equipment such as boom trucks, scissor lift, personnel carrier and such. Because of the high price tag associated with batteries and the high cost of energy, it was found that diesel powered equipment was still cheaper and more effective to operate in the long term, even if maintenance costs are lower for battery powered equipment.

16.8.1 Working Hours and Equipment Performance Table

The working schedule for the production and development crews is two shifts per day, at 12 h/shift, 365 d/year. As the Windfall Lake Project will be a highly mechanized and efficient operation, an 85% average availability rate and 80% average utilization rate was assumed for the majority of the equipment. These averages are based on industry standards and reflect the expected operating hours.

Mucking and hauling will be automated using a tele-operated system that will allow operators to control multiple equipment simultaneously from the control room. This will increase equipment operation hours by eliminating the time required for re-entry after blasting, lunch breaks and the time to access the working area by personnel. Table 16-14 shows the equipment operating parameters.

Table 16-14: Equipment operating parameters

	Mechanical availability (%)	Utilization rate (%)	Efficiency rate (%)	Total operational efficiency (%)	Operating hours per shift
LHD 14 t and 7 t	85.0	85.0	87.0	62.9	7.5
Truck 50 t (production)	85.0	85.0	87.0	62.9	7.5
Production drill	80.0	68.0	78.0	42.4	5.1
Truck 50 t (development)	85.0	75.0	87.0	55.5	6.7
Jumbo drill	80.0	75.0	87.0	52.2	6.3
Bolting machine	80.0	75.0	87.0	52.2	6.3
Scissor lift	85.0	75.0	87.0	55.5	6.7



16.8.2 Production Requirements

The type and amount of drilling equipment was determined based on the selected optimal drilling parameters of 102 mm (4 in) diameter holes with the proposed drilling patterns. Using a productivity of 200 m/d per drill that considers availability, efficiency and utilization, it was estimated that three drills would be sufficient to maintain the 2,400 tpd production target (including spare equipment). Since holes are 16 m long, deviation is not deemed problematic and so top hammer type drills are preferred for added performance.

For the development equipment (jumbos, LHDs and bolting machines), the quantities were based on the number of development crews working in each of the zones. A maximum of four development mining crews per shift will be active during the production phase over the life of the mine. A total of three 50 t trucks will be needed to move material from the four crews.

For the production equipment, 14 t and 7 t LHDs have been selected for their high production capacity. It was calculated that four 14 t and two 7 t LHDs would be needed to achieve the 2,400 tpd production rate using the following performance rate:

- 85% utilization rate (since they will be tele-operated as mentioned in the previous section);
- 87% efficiency rate;
- 85% mechanical availability.

Three 14 t and one 7 t LHDs are needed for backfilling and a spare 7 t LHD has been added for a total of seven 14 t and four 7 t will be needed for production.

Fifty-ton (50 t) production trucks will be used for haulage of mineralized material. The number of trucks needed varies over time depending on the depth of the stope from where the material is being extracted which affects the cycle time. A maximum of five trucks will be needed during the life of the mine to achieve the planned production.

16.8.3 Mine Equipment List

This study is based on new equipment that will be acquired for the Windfall Lake Project. The development equipment will be purchased for the start of mine production. Equipment provided by the mining contractor will be used in the preproduction period. A system of cassette will be used for service equipment to allow using the same carrier to do multiple tasks and thus reducing the number of equipment needed. A total of 59 units of mobile equipment will be required for the Project as listed in Table 16-15.



Table 16-15: Mining equipment for Windfall Lake Project

Mining equipment	2021-2022	2022-2030
Major production / Development equipment		
Jumbo 2 booms	-	5
Anfo charger	-	2
Emulsion cassette	-	1
LHD 14 t (CUZ)	-	7
LHD 7 t (LYNX)	-	4
Truck 50 t - Ramp haulage	-	8
Mechanical bolter (dev - CUZ)	-	4
Production drill (top hammer)	-	3
Scissor lift	-	3
Major services equipment		
Boom truck	1	2
Personnel carrier	1	2
Blockholer	-	1
Fuel-lube truck	1	2
Underground grader	-	1
Support mobile unit (cassette carrier)	-	2
Small services equipment		
Mine rescue vehicle	-	1
Electrical support mobile equipment	1	1
Mechanical support mobile equipment	1	2
Operation pickup	1	2
Mobile air compressor	1	2
Service tractor	2	4
Total	9	59



16.9 Mine Personnel

16.9.1 Windfall Lake Deposit

The mine will operate seven days per week, night and day (24/7). This schedule is equivalent to 365 days per year of operation.

- Development and production crews will be on a schedule of 7 days working / 7 days off, for 12 h/shift, night and day;
- The maintenance crew will also be on a schedule of 7 working days / 7 days off, for 12 h/shift, night and day or days only.

Table 16-16 lists the mine staff requirements on a schedule of 7 working days / 7 days off, for 12 h/shift days only. Table 16-17 lists the hourly manpower requirements on various schedules.

Table 16-16: Windfall Lake staff requirements – Maintenance services and operations

Supervision manpower	Average head count	
	2021-2022	2022-2030
Maintenance underground service		
Maintenance superintendent	1	1
Assistant maintenance superintendent	1	1
Mechanical supervisor	2	4
Mechanical planner supervisor	1	2
Electrical supervisor	2	2
Mechanical/electrical planner	2	2
Instrumentation technician	1	2
Reliability technician	1	2
Underground department		
Mine superintendent	1	1
Mine assistant superintendent	-	1
Mine captain	2	2
Mine supervisor	-	8
Total	14	28



Table 16-17: Hourly manpower requirements

Hourly manpower	Average head count	
	2021-2022	2022-2030
Fixed mechanics		
Fixed mechanics	2	2
Mobile equipment mechanics		
Mobile senior mechanics	4	16
Mobile feed mechanics	2	8
Electro mechanics	-	4
Fuel and lube attendant	-	4
Mobile junior mechanics	-	8
Electrical		
Electrician	4	8
Automation and communication specialist	1	2
Subtotal	13	52
Development		
Jumbo operator	-	16
Bolter operator	-	16
Development services	-	12
Development LHD operator	-	12
Development truck operator	-	12
Production		
Production drill operator	-	4
Blaster	-	8
Production LHD operator	-	4
Production truck operator	-	8
Backfill truck/LHD operator	-	12
Underground services		
Support services	-	8
Shotcrete/construction miner	-	6
Grader operator	2	4
Construction miner	-	4
Subtotal	2	126
Total	15	178



16.9.2 Osborne-Bell Deposit

The Osborne-Bell site will be operated by a mine contractor. The estimated workforce supplied by the contractor is provided in Table 16-18 below.

Table 16-18: Manpower for Osborne-Bell

Manpower	Head count
Indirect	
Superintendent	1
Supervisors	4
Mechanical supervisor	1
Mining technician	1
Mechanics	4
Electricians	2
Subtotal	13
Development	
Jumbo operator	4
Ground support miners	8
Development services	4
Development LHD operator	4
Development truck operator	4
Production	
Production drill operator	4
Production miners	2
Production LHD operator	4
Subtotal	34
Total	47



17. RECOVERY METHODS

The process flowsheet for the Windfall Lake Project was established on the basis of laboratory-scale testwork performed at the SGS Québec laboratory and on historical testwork performed by SGS Lakefield for the Osborne Bell deposit. The metallurgical testwork programs were carried out using composites prepared from drill core intervals representing both deposits. The testwork results are described in Chapter 13. The resulting flowsheet reflects the results of this initial testwork and forms the basis for the plant design and plant capital and operating costs development.

The process plant consists of crushing, mineralized material reclaiming, primary and secondary grinding including a gravity circuit with intensive leach, a carbon-in-leach ("CIL") circuit, followed by cyanide destruction and tailings disposal. An adsorption-desorption-recovery ("ADR") circuit and gold room recover the gold and produce doré. The plant also includes a reagent preparation area and two process water circuits (cyanide bearing and cyanide-free) to service the entire plant.

A schematic process flow diagram is presented in Figure 17-1.

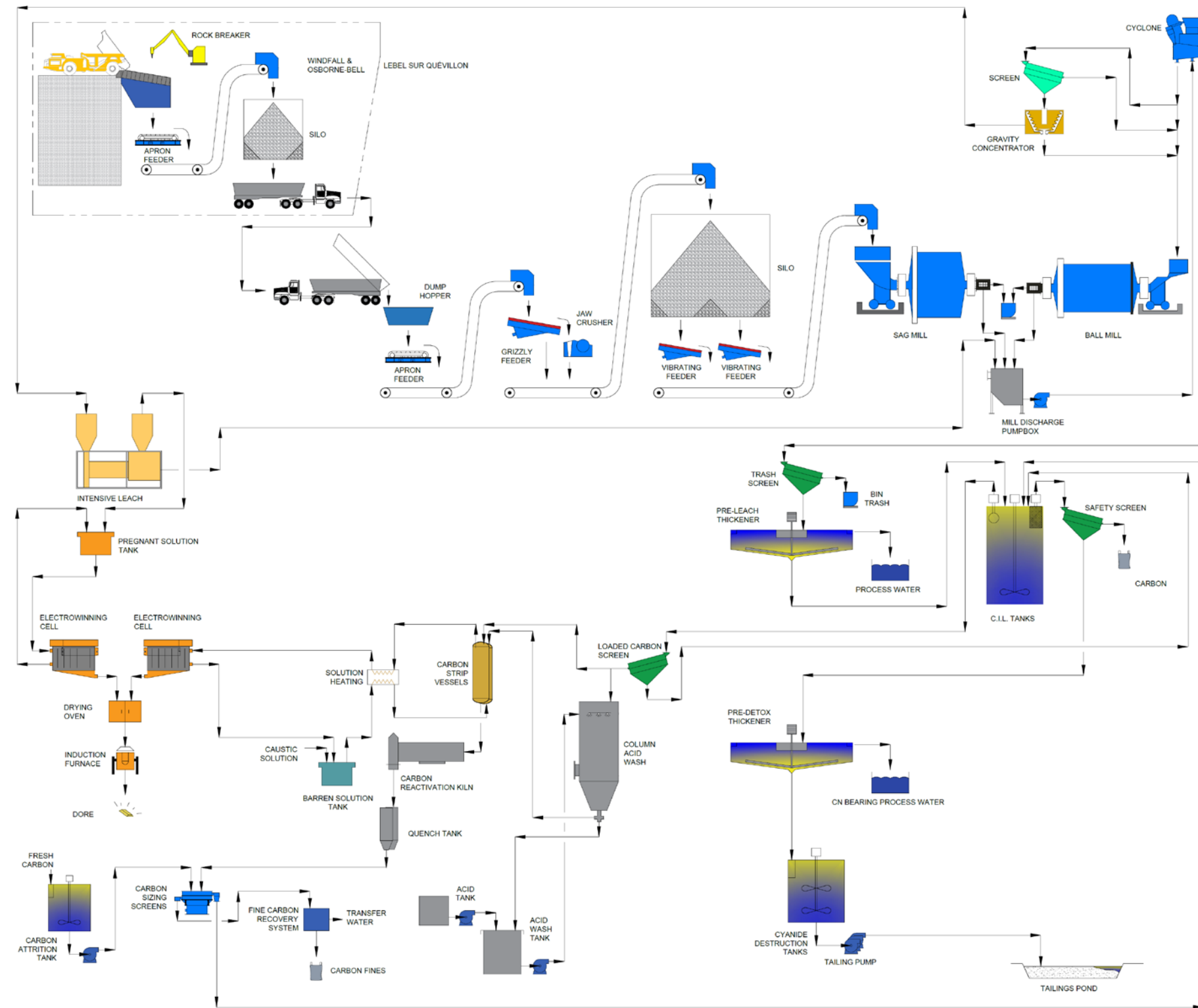


Figure 17-1: Simplified process flow diagram.



17.1 Process Plant Design Criteria

The design criteria to determine the sizing of the equipment are based on a nominal process plant throughput capability of 3,200 tpd, with a 95% availability factor.

Table 17-1 presents an overview of the main design criteria parameters used. The values presented were derived from testwork data, benchmarked values, BBA's database or based on Osisko's requirements.

Table 17-1: Process design criteria

Parameter	Units	Value
Plant throughput	tpd	3,200
Average Au feed grade	g/t	6.68
Average Ag feed grade	g/t	2.82
Crushing plant utilization	%	65
Process plant utilization	%	95
Gravity circuit	-	Yes
Grind size to CIL, P ₈₀	µm	45
CIL retention time	hr	40
Au recovery	%	92.4
Ag recovery	%	69.2
Carbon stripping, regeneration capacity	tpd	6
▪ Design Au grade and recovery	g/t - %	6 - 90
▪ Design Ag grade and recovery	g/t - %	8.5 - 75
Residual total cyanide concentration at plant discharge, (average/max)	mg/L	1/10
Final tailings slurry density target	% w/w	65

Note that the information used to size the carbon stripping and regeneration circuit capacity were preliminary design values of grade and recovery for Au and Ag available during equipment sizing. Additionally, the equipment sizing for carbon stripping and regeneration circuit considered another design factor of combined Au and Ag carbon loading not exceeding 8,200 g/t (gram of metal per tonne of carbon). The later design factor ensures an efficient Au and Ag carbon loading.

17.2 Process Plant Facilities Description

17.2.1 Crushing, Storage and Reclaim

Mineralized material transported from the two mines will have a P_{80} of 350 mm. Each truck from Windfall Lake Mine Site, consisting of two trailers, will carry a total of 75 tonnes per load. Trucks from Osborne-Bell Mine Site will carry a total of 38 tonnes per load. Upon arrival at the process plant, the trucks will unload the rock directly into an underground dump pocket. Material is withdrawn from below by apron feeders that feed the jaw crusher feed conveyor. The conveyor in-turn feeds a vibrating grizzly feeder where the oversize material is directed to a jaw crusher to further reduce the material to a P_{80} of 100 mm. The jaw crusher product and grizzly screen undersize are collected onto a conveyor belt feeding the crushed rock silo. The live silo capacity is 2,000 t, or 15 hours of nominal capacity. A layout is presented in Figure 17-2.

Four vibrating feeders reclaim rock from the silo and transfer it onto the semi-autogenous grinding (“SAG”) mill feed conveyor.

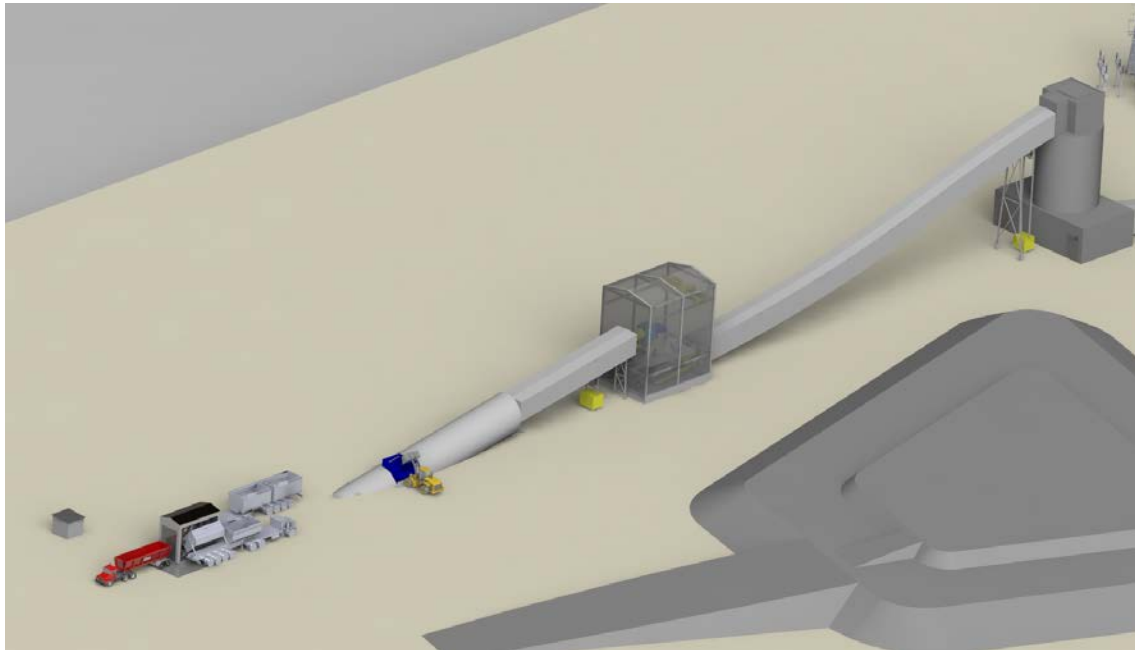


Figure 17-2: Process plant feeding circuit.

17.2.2 Grinding Circuit and Gravity Recovery

The grinding circuit consists of a SAG mill operated in open-circuit followed by a ball mill, operated in closed-circuit with hydrocyclones. The SAG and Ball mill area is serviced by overhead crane for maintenance duties and ball addition. A layout of the grinding circuit is shown in Figure 17-3.

SAG Mill Circuit

The reclaimed crushed rock is conveyed to the SAG mill. Water is added to the mill feed chute to achieve a slurry density of 75% solids within the mill. A SAG mill size of $\text{Ø}6.71 \text{ m} \times 3.35 \text{ m}$ ($\text{Ø}22' \times 11'$) flange to flange (“F/F”) was selected with a total installed power of 2,600 kW to grind the rock from a F_{80} of 100 mm to a P_{80} of 0.9 mm.

The mill is operated with a charge of $\text{Ø}127 \text{ mm}$ steel balls. New media is intermittently added to the mill feed chute via a ball bin fitted with a discharge gate to maintain the power draw and throughput capability.

The SAG mill product discharges into a pump box via a trommel screen which then feeds the ball mill via a hydrocyclone cluster. The trommel screen O/S will be collected in a trash bin.

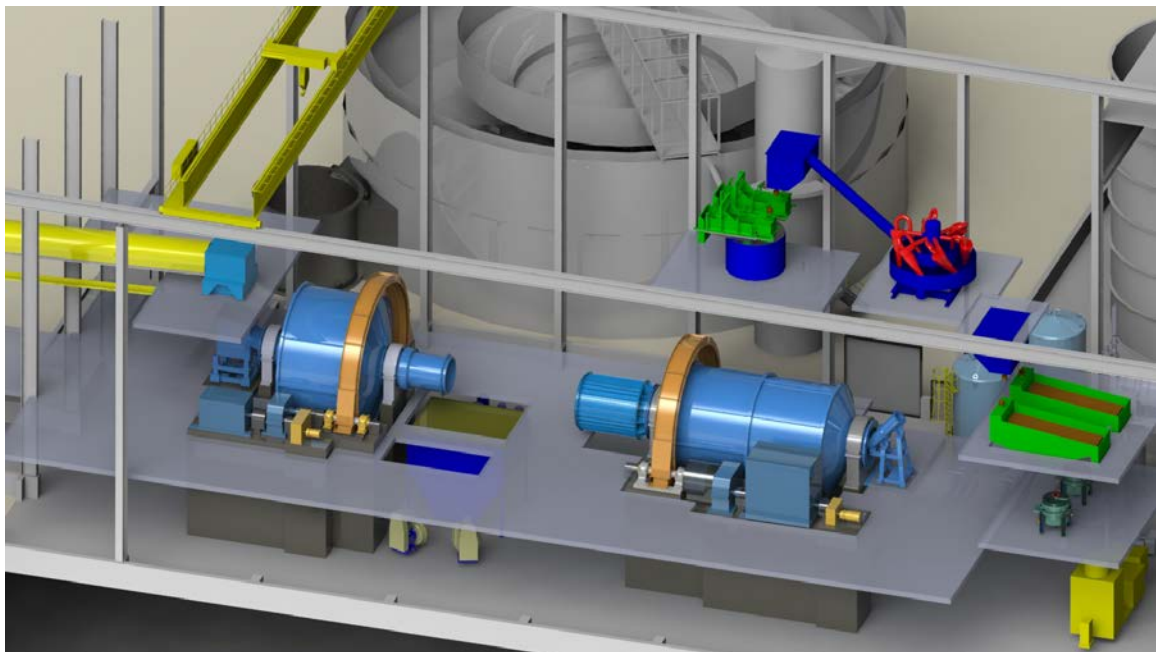


Figure 17-3: Grinding circuit.



Ball Mill Circuit

A ball mill, Ø4.57 m x 8.23 m (Ø15' x 27') F/F, fitted with a trommel screen was selected for secondary grinding. The total installed power matches the SAG mill at 2,600 kW. The ball mill will be operated in closed-circuit with a cluster of cyclones producing an average product P_{80} of 45 μm as CIL feed, with a pulp density of 35% (w/w) solids. The circuit was designed for a nominal circulating load of 300%, however, a sufficient number of cyclones was included to accommodate a circulating load of up to 400%.

The cyclone cluster is fed via a variable-speed centrifugal pump (with one stand-by unit). The ball mill will be charged to 35% of its volume with Ø51 mm steel balls added intermittently via a ball bin located at the ball mill feed chute. Water is added to the cyclone feed pump box to control the slurry density. The ball mill is fitted with a trommel screen and discharges into the same pump box as the SAG mill.

The cyclone overflow is sent to the linear motion trash screen ahead of the pre-thickener and the CIL circuit, while the oversize material in the underflow is returned to the ball mill for further grinding.

Gravity

A fraction of the cyclone underflow will be diverted to a gravity circuit feed pump box and pumps. Two screens will scalp off any coarse material prior to the gravity concentrators. The undersized material from the screens will feed two gravity concentrators, arranged in parallel. The gold concentrate from the gravity concentrators will feed an intensive cyanidation reactor. The pregnant leach solution from the intensive cyanidation vessel will be pumped to a dedicated electrowinning cell via a pregnant solution tank located in the gold room. The gravity tailings will be returned to the ball mill circuit via a set of pumps.

17.2.3 Carbon-in-Leach (CIL)

Pre-leach Thickening

Prior to leaching, the ground slurry is passed through a trash screen before being thickened to 60% (w/w) in the pre-leach thickener. Based on dynamic settling test results, a Ø25 m thickener was selected. The thickener overflow water is sent to the cyanide-free process water tank.

CIL

The pre-leach thickener underflow slurry is sent to a bank of eight agitated CIL tanks, each 11 m in diameter. The slurry is diluted to a solids density of 50% (w/w) using cyanide bearing water and lime is added to maintain a pH of approximately 11. Additional sodium cyanide is also added to the tanks to leach gold along with sparged process air using a cone sparger in the bottom of the

tanks in order to keep the dissolved oxygen concentration sufficient for leaching. Slurry travels through the CIL circuit via inter-stage pumping screens, while gold-loaded carbon is pumped counter-current to the slurry flow by carbon transfer pumps to the previous CIL tank and finally to the loaded carbon screen. This step is performed regularly, based on the carbon gold loading. Gold-loaded carbon is extracted from the first tank, screened and washed to remove the slurry solids. The clean carbon then feeds the ADR circuit by gravity. The undersize material from the screen (mineral slurry) flows by gravity back to the first CIL tank.

Once passed through the CIL circuit, the slurry is pumped to a Ø25 m pre-detox thickener. The overflow water is sent to a cyanide bearing process water tank. The thickened underflow at 65% (w/w) is pumped to the cyanide destruction circuit.

A layout presenting the CIL circuit and the pre-leach thickener is shown in Figure 17-4.

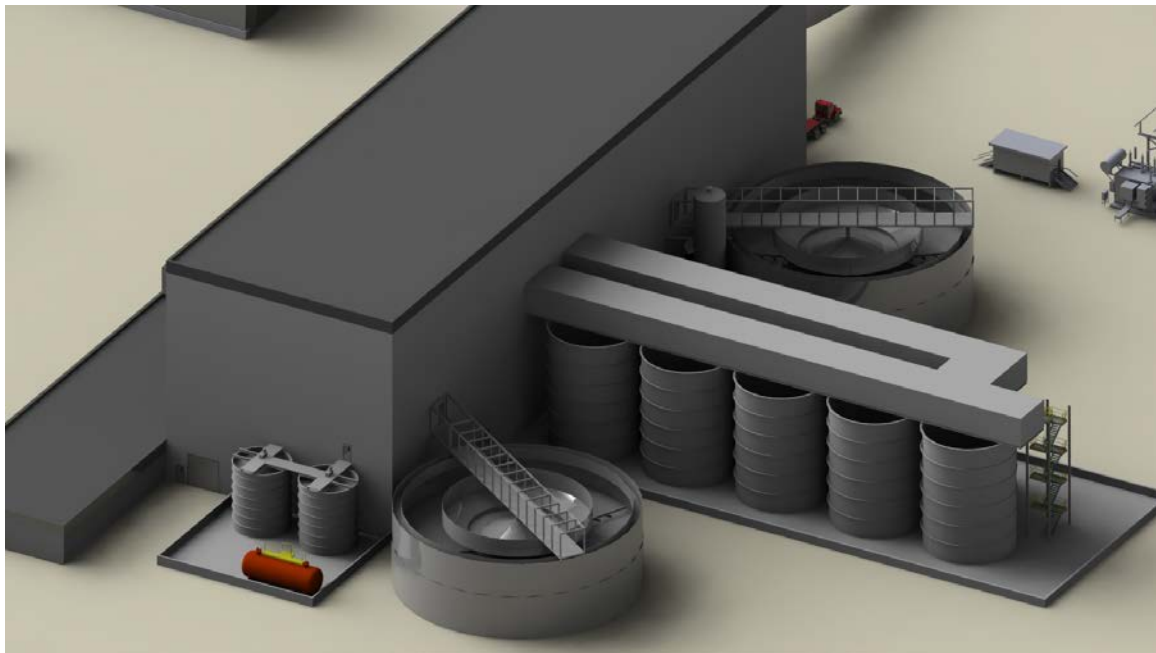


Figure 17-4: CIL circuit, pre-leach thickener and pre-detox thickener.

17.2.4 ADR Circuit

The gold recovery circuits are based on the processing of 6 tpd of loaded carbon.



Carbon Elution

Loaded carbon from the CIL circuits is transferred intermittently into the 3 t capacity acid wash vessel. Carbon transport water drains from the acid wash tank and returns to the carbon water tank.

A batch of 3% w/w nitric acid solution is prepared in the acid wash mix tank by transferring concentrated acid and fresh water. This acid solution circulates in the acid wash column, washing the carbon to remove scale deposits at a flowrate of two bed volumes per hour. The acid solution circulates for a nominal 1.5 hours and then partially reports to tailings, with the rest of the solution reused for the next wash along with a partial fresh make-up. After acid washing, a caustic solution circulates through the acid wash vessel to neutralize any acid remaining on the carbon. This solution also circulates through the carbon for a nominal 1.5 hours and then reports to tailings.

A carbon pump on the acid wash vessel pumps the washed and neutralized carbon load to one of two parallel elution columns, each with 3 t capacity. Carbon transport water flows to the acid wash vessel to facilitate the loaded carbon transfer and drains from the bottom of the elution vessel back to the carbon water tank at the end of the transfer process.

Carbon elution, or stripping, is initiated when a barren strip solution of 2% NaOH and 0.2% NaCN circulates through the elution column at a flow rate of two bed volumes per hour for 8 hours at an elevated temperature and pressure (high pressure Zadra process). The solution exits the elution column as pregnant solution (e.g. loaded strip solution). The recirculated strip solution flows from the barren tank through a heat exchanger before entering the stripping vessel. The purpose of heat exchanger is to recover energy of pregnant solution flowing from the stripping vessel by cooling the solution prior to electrowinning to prevent flashing. Final heating of barren solution is achieved using an electrical immersion heater, to reach the nominal strip solution temperature of 135°C. A pressure control valve on the pregnant solution line maintains the column at a nominal pressure of 650 kPa to ensure that the strip solution does not boil.

After a carbon strip is complete, transport water flows to the elution column and a pump transfers the carbon to a dewatering screen. The undersize fraction from the carbon dewatering screen reports to the carbon water tank and the oversize reports to the carbon regeneration kiln feed hopper.

Carbon Regeneration and Fines Handling

An electric carbon reactivation kiln regenerates the stripped carbon. The reactivation kiln operates at a nominal temperature of 650°C. During reactivation, organic materials accumulated on the carbon are burnt off. After reactivation, the carbon activity is near its original level.



The kiln discharge reports to the carbon quench tank. It is important that the water level in the tank remains high enough to maintain a water seal to prevent air from entering the kiln. At the kiln operating temperature, any contact between carbon and air will cause the carbon to burn and thus increase carbon consumption and the operating cost of the circuit. Cooling the carbon under water in the quench tank prevents it from coming into contact with air and eliminates the risk of burnt carbon.

New carbon to make up for losses in the system enters through a carbon attrition tank. Carbon fines overflow from the tank and report to the carbon water tank. New carbon and regenerated carbon pass through a sizing screen. Undersize carbon reports to the carbon water tank while the oversize reports to the CIL circuit by gravity.

The carbon water tank has two parts. On the inlet side, carbon fines settle and clear water overflows to the outlet side. A pump moves carbon transport water from the outlet side to wherever it is required. Transfer pumps periodically transfer the settled carbon fines slurry to a plate-and-frame filter press for dewatering. The filter press cake is bagged in tote bags and transported off site once sufficient inventory has built up. The fines are sold to a third party for recovery of the metal values contained in the carbon. The carbon fines filter press filtrate returns to the carbon water tank.

Electrowinning and Gold Casting

Two electrowinning (“EW”) cells recover gold and silver from the pregnant strip solution. The solution exiting the cells reports to the EW cell discharge pump box and is pumped to the barren stripping solution tank. A separate dedicated EW cell treats the intensive cyanidation pregnant solution. Each EW cell is equipped with a rectifier to supply DC current and control the electrical voltage provided to the cells.

The EW cells are fitted with stainless steel anodes and stainless steel basketless cathodes. A direct current passes through the cells between the electrodes and causes the gold and silver in solution to plate out onto the cathodes as sludge. An in-cell cleaning system using high-pressure water washes the gold-bearing sludge from the cathodes. A filter press removes excess moisture from the separated gold sludge. Following filtration, the precious metal sludge is dried in an oven to remove all additional moisture in preparation for smelting.

The dry EW sludge is cooled and mixed with fluxes before being fed to the induction smelting furnace. The gold and silver doré is poured from the furnace into a cascade of moulds. The doré bars are allowed to cool in the vault before being cleaned, marked, and weighed. They are returned to the vault, awaiting shipment to an off-site facility for further refining. The refining area and gold room are secure areas.



17.2.5 Cyanide Destruction Circuit and Tailings Treatment

A cyanide destruction (“CND”) circuit treats the thickened CIL residue slurry at 65% (w/w) solids. Cyanide destruction is completed using the Inco SO₂/Air process.

The CND process occurs in two tanks arranged in series, providing a retention time of one hour. Arrangement of the tanks in series reduces solution short-circuiting and the risk of having insufficient time to complete the reaction. Liquid SO₂ is added to the tanks and process air is injected through cone spargers located at the bottom of each tank and oxidize the cyanide species present. Copper sulphate is added to catalyze the destruction reaction. Hydrated lime addition controls the pH in each tank. An agitator in each tank ensures adequate mixing and gas dispersion.

The treated tails are subsequently pumped to the tailings management facility (“TMF”).

17.2.6 Reagent Systems

A summary of the reagents required in the process plant is presented in Table 17-2 along with the expected form of supply and mixing requirements.

Table 17-2: Reagent mixing systems

Reagent	Delivery	Preparation
Hydrated lime (Ca(OH) ₂)	Trucks – solid	Mixing tank, water addition
Sodium Cyanide (NaCN)	Tankers – liquid	No preparation required
Lead Nitrate (Pb(NO ₃) ₂)	Super sacks - solid	Mixing tank, water addition
Nitric acid (HNO ₃)	Totes – liquid	Dilution tank, water addition
Sodium hydroxide (NaOH)	Tanker – liquid	No preparation required
Flocculant	Bags – solid	Eductor, mixing tank, water addition to in-line mixer
Liquid sulphur dioxide (SO ₂)	Tankers – liquid	No preparation required (pressurized system)
Copper sulphate (CuSO ₄ ·5H ₂ O)	Super sacks – solid	Mixing tank, water addition
Anti-scalant	Metal drum – liquid	No preparation required

Receiving tanks are provided for liquid reagents and are sized to hold approximately two times the capacity of the delivery tanker. For solid reagents, or liquids requiring dilution, an agitated mixing tank is provided with batch controllers used to mix to the required reagent concentration. The mixing tank is typically sized so that no more than two batches per day are required to be prepared.



The liquid reagent tanks are contained in bermed areas of sufficient volume to handle the full volume in case of a vessel failure. Non-compatible reagents will have individual bunded areas.

The reagents are distributed throughout the plant via metering pumps or, in the case of lime and cyanide, pumps feeding a pressurized distribution loop. All pumps are provided in pairs, one operating and one stand-by.

17.3 Energy, Water and Consumable Requirements

17.3.1 Energy Requirements

The electrical energy requirements for the process plant were derived from the equipment list in which expected motor sizes for all equipment and ancillaries have been provided. Each motorized item of equipment was assigned utilization, efficiency, and load factors to derive the data presented in Table 17-3. Crushing and material handling loads are included in “other”.

Table 17-3: Process plant power demand by area

Area	Connected load (kW)	Load factor	Utilization	Yearly consumption (GWh)
SAG mill	2,500	90%	92%	20.5
Ball mill	2,500	90%	92%	20.5
Process - other	3,400	90%	92%	27.3
Service buildings + heating	2,300	75%	50%	9.8
TOTAL	11,100	-	-	78.2

Network losses were accounted for in the load factor.

17.3.2 Water Requirements

The water requirements for the plant are divided into two main areas, fresh water and process water.

The fresh water is sourced from Quévillon Lake and is used in the following areas:

- Carbon elution (acid wash, strip solution make-up, EW solution cooling);
- Reagent preparation;
- Equipment cooling;
- Gland seal water.



Process water is used throughout the plant and is separated into two distinct systems: cyanide bearing and non-cyanide bearing. The recycling of cyanide bearing water reduced the fresh cyanide requirements.

The fresh water requirement for the process plant was estimated at 50 m³/hr.

17.3.3 Consumable Requirements

The main consumables for the process plant include the grinding media and liners for the SAG and ball mills, as well as the reagents used in the CIL, gold recovery and CDN circuits.

The grinding media consumption for the SAG and ball mills was estimated using benchmarking data for similar projects and adjusted using power calculations (Bond equation or Moly-Cop tools software). The average media consumption for both grinding applications is presented in Table 17-4.

Table 17-4: Estimated grinding media consumption

Area	Type	Size (mm)	Consumption (tpy)
SAG mill	Forged steel	127	601
Ball mill	Forged steel	51	1,060

The crusher, SAG and ball mills liner replacement schedules were based on vendor recommendations and BBA's database.

The average reagent consumptions and addition points are outlined in Table 17-5.

Table 17-5: Reagents – Application and consumption

Area	Use	Consumption (tpy)
Hydrated lime (Ca(OH) ₂)	pH modifier	600
Sodium cyanide (NaCN)	Gold lixiviant, gold eluant	1,886
Lead nitrate (Pb(NO ₃) ₂)	Gold lixiviant reaction catalyst	545
Activated carbon	Adsorption of gold	87
Nitric acid (HNO ₃)	Carbon wash	105
Sodium hydroxide (NaOH)	Carbon stripping/washing	259
Flocculant	Flocculation of solids in thickeners	65
Liquid sulphur dioxide (SO ₂)	Cyanide destruction	1,264
Copper sulphate (CuSO ₄ .5H ₂ O)	Cyanide destruction reaction catalyst	147
Leach aid	Improving leach efficiency	2
Anti-scalant	Scale control	16



17.4 Process Plant Personnel

A total of 55 workers are required in the process plant, including 19 salaried staff and 36 hourly workers. Table 17-6 and Table 17-7 present the salaried and the hourly manpower requirements, respectively, for the process plant.

Table 17-6: Process plant salaried personnel

Position	No. of employees
Process plant production superintendent	1
Process plant maintenance superintendent	1
Planner	1
Mechanical foreman	2
Electrical engineer and foreman	2
Instrumentation technician	4
Automation technician	2
Metallurgist	2
Metallurgical technician	4
TOTAL	19

Table 17-7: Process plant hourly personnel

Position	No. of employees
Crushing and grinding	4
General labourer	6
CIL-Elution operator	4
Control room operator	4
Lab operator	2
Industrial mechanic	12
Electrician	4
TOTAL	36

18. PROJECT INFRASTRUCTURE

18.1 General

The Windfall Lake Project surface infrastructure and services are designed to support the planned 3,200 tpd production rate from the Windfall Lake and Osborne-Bell mines and include reuse and/or upgrades to existing buildings and the construction of new buildings.

The Windfall Lake Project comprises three different sites: the Osborne-Bell and Windfall Lake Mine sites and the Plant Site located in Lebel-sur-Quévillon. The Windfall Lake Mine and Osborne-Bell Mine sites are located 115 km northeast and 23 km north of the plant, respectively. The locations of the Mines and Plant sites are shown on Figure 18-1.



Figure 18-1: Windfall Lake Project site locations.



The Windfall Lake Project envisions construction or upgrade of the following key infrastructure items:

- Windfall Lake Mine Site access;
- Windfall Lake Mine, Osborne-Bell Mine and Plant on-site control gate and parking area;
- Overhead transmission line from Lebel-sur-Quévillon to the Plant Site;
- 120 kV on Plant Site substation fed from the Hydro-Québec grid;
- Osborne-Bell Mine main electrical substation and overhead transmission line (25 kV);
- Process plant including maintenance shop;
- Administration building;
- Service buildings and warehouses;
- Pumping station for fresh water, drinking water and fire protection at Plant Site;
- Waste water treatment at the Plant and Osborne-Bell sites;
- Waste rock stockpiles at Windfall Lake and Osborne-Bell sites;
- Windfall Lake Mining Complex comprising the mine dry, offices, cafeteria, fitness room and dormitory;
- Windfall Lake Mine, Osborne-Bell Mine and Plant sites effluent water treatment plants;
- Overburden stockpile on all sites;
- Tailings management facility.

18.2 Windfall Lake Mine Site Infrastructure

As the Windfall Lake Mine Site is located approximately 115 km east of Lebel-sur-Quévillon, a camp is planned for the employees and contractors. An existing road for lumber transport is already in use. There is an existing 300-person capacity lodging camp with kitchen and all related infrastructure for the drilling and exploration ramp development. Whenever possible, existing infrastructure will be reused for the Windfall Lake Mine operation phase.

The Windfall Lake Mine Site is divided into two main areas: the mining infrastructure area and the camp complex area.

The mining infrastructure area will include the following:

- Mine portal – Exploration (existing);
- Mine portal – Production (new);
- Fuel storage and distribution (to be upgraded);
- Service megadome (existing);



- Offices trailers (existing);
- Mining material storage area (existing, to be upgraded);
- Mineralized material discharge station, conveyor, and storage silo (new);
- Waste rock stockpiles (existing to be upgraded and new);
- Contact water ditches, sedimentation and polishing pond (existing and new ones);
- Effluent treatment facility (new);
- Mineralized material stockpile (new);
- Overburden stockpile (existing);
- Explosive storage (existing, but not required for production phase);
- Exploration ventilation raise (will be installed during exploration phase);
- Zone 27 ventilation raise (new);
- Lynx Zone ventilation raise (new);
- Power generation plant (existing, to be upgraded);
- Gatehouse (existing);
- Employee parking (to be upgraded);
- Remote controlled gatehouses (new);
- Helipad (existing).

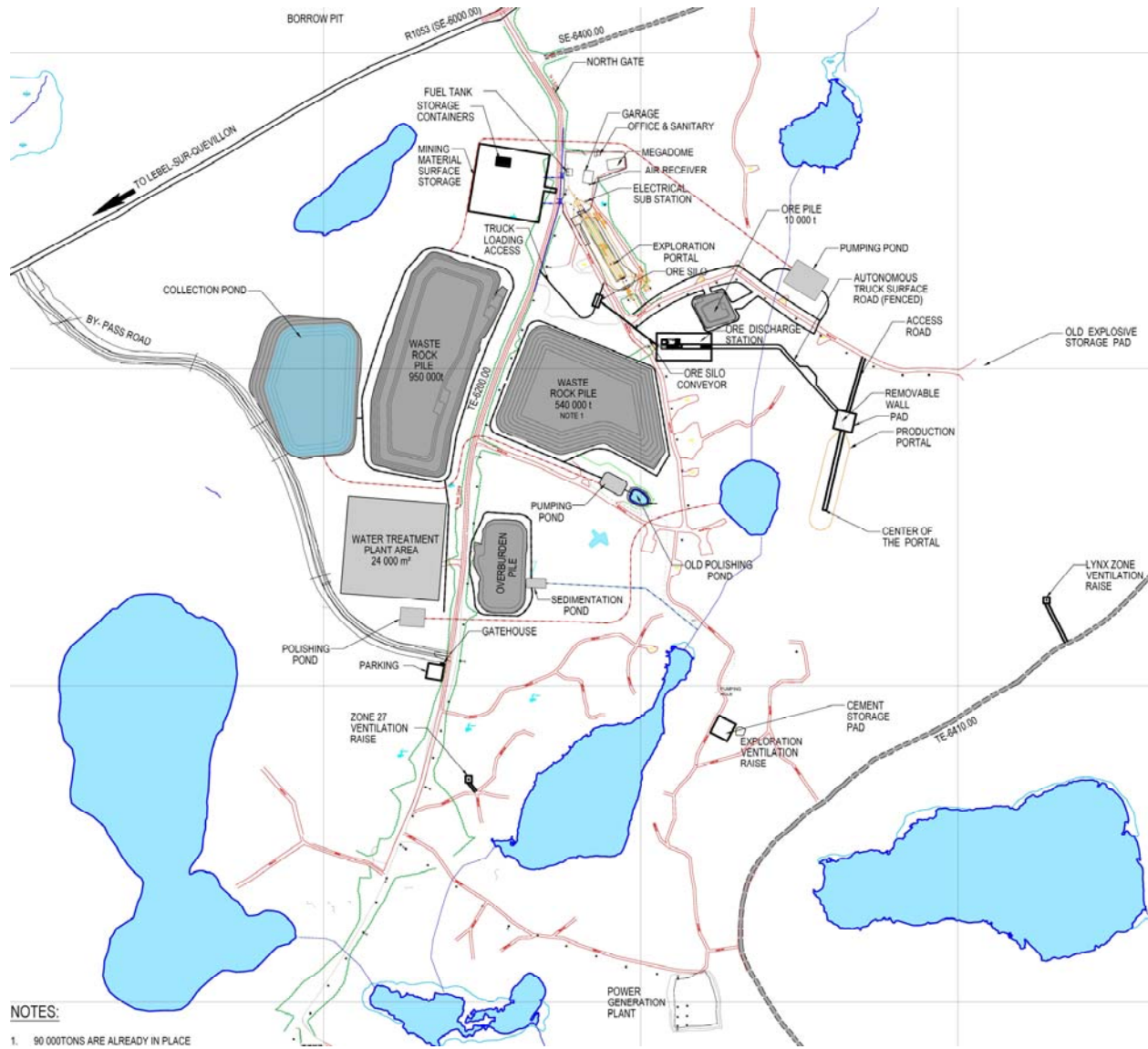


Figure 18-2: Windfall Lake Mine infrastructure area general arrangement.



The camp complex area will include the following:

- Camp complex (new), including:
 - Administrative offices;
 - Infirmary and mine rescue room;
 - Dry;
 - Community hall and fitness room;
 - Cafeteria with kitchen;
 - Conference rooms;
 - Rooms with individual bathrooms;
 - Storage rooms;
 - Laundry rooms.
- Drinking water wells (existing);
- Waste water treatment systems (existing);
- Cultural centre (new);
- Employee parking (to be upgraded);
- Quarantine rooms building (relocated module);
- Environmental material megadome (existing);
- Maintenance megadome (existing);
- Fuel storage and distribution (existing);
- Core shack and core storage (existing).



Figure 18-3: Windfall Lake Camp complex area general arrangement.

18.2.1 Camp Complex Area Arrangement

The camp complex area includes exploration phase facilities currently on site. The same area will be used for future permanent facilities during mine operation phase. Exploration phase facilities include some of the buildings currently on site serving an essential purpose, such as the cafeteria and dormitories, which will have to be kept for the duration of the work. A dismantling sequence for these buildings is presented in Section 18.2.11.



The new permanent facilities will include dormitories and an administrative building that will serve several purposes, such as the dry, the offices, the fitness room, the infirmary, the community hall, and the kitchen/cafeteria. Also, a traditional teepee will be installed and available as cultural centre for First Nations employees.

The reorganization around the camp complex is planned for the second year of operation.

18.2.2 Site Preparation

Whenever possible, existing earthwork, roads, and pads will be preserved and used for the Windfall Lake mine operation phase infrastructure. In particular, pads prepared for the camp and other buildings will be upgraded only if required. Some areas on site will serve new purposes, for example the main parking area will be located where the reception area was originally located. Some work will be executed on the slopes between the pad levels to ease movement of personnel or vehicles.

18.2.3 Geotechnical Studies

Regional surface deposits consist of fluvio-glacial sediments and glacial till. Fluvio-glacial sediments are mainly composed of sand and gravel and are located in the northern part of the site, while till is found in the eastern sector of the site. It is a heterogeneous glacial unit encountered just above the bedrock contact.

A limited number of geotechnical boreholes were completed at the site (Genivar, 2008, Golder, 2018a). The available geotechnical information in the vicinity of the waste and water management infrastructure generally shows the following stratigraphy:

- Organic layer with a thickness of about 0.1 m;
- Sand layer consisting generally of a fine to medium grained sand with traces of gravel and silt. The thickness varies from about 1 m to about 8 m;
- Bedrock.

The compactness of the sand layer varies in general from loose to compact. The water level is in general between 1 m to 6 m below the surface.

A complementary geotechnical investigation is necessary to assess subsurface conditions and potential requirements for infrastructure foundation.



18.2.4 Off-site Access Road

The Windfall Lake Mine Site is currently accessible by way of a 115 km gravel road branching off the *Chemin du Moulin* road, southeast of Lebel-sur-Quévillon where the Plant Site will be located. Access is primarily via a Grade 1 forestry road (10 km R1050, 55 km R0853) and 47 km of Grade 2 forestry road (R1053) (see Table 18-1). The Grade 1 road was built as a main road for hauling of oversized commercial wood in the early 1990s and was eventually extended by a Grade 2 road to access new lands to develop wood exploitation in the area of the Windfall Lake Mine Site.

It is estimated that there are at least 300 culverts on the total length of the road, two major river crossings with culvert structures, and a wood and steel bridge (also detailed in Table 18-1).. It is assumed that the bridge deck and some culverts are refurbished during exploration phase. The capacity of the bridge has been reduced to 138 tonnes from the original design of 165 tonnes by Projexco-Innovation Inc., as mandated by the *Ministère des Forêts, de la Faune et des Parcs* ("MFFP") of Québec in 2015.

In 2014, work was done on one of the major river crossings, but the culvert systems and the road structure need to be inspected in the summer time to qualify their capacity since original design calculations are not available. To conform to new design guidelines from the *Règlement sur l'aménagement durable des forêts* ("RADF"), a hydraulics study will have to be conducted prior to replacing culverts in critical condition. Since April 1, 2018 any construction of, or repair to watercourse structures must conform to RADF recommendations. Replacement of certain major culverts could require construction of a bridge to conform to the new RADF guidelines. Before mineralized material haulage begins, it is planned to refurbish approximately 25% of the length of the road and replace 15% of culverts on the most structurally critical sections. The refurbishing work will consist of laying 100 mm of 0-20 mm crushed stone. During the operation of the road, it is planned to refurbish 10% of the most challenged part of the road every year, and also to clear trees that reduce visibility at a rate of 10 ha per year. Costs for road surface grading and general road maintenance will be assumed jointly by logging companies using the road, and work will be carried out by a specialized contractor.

With this planned refurbishing work, the road will be adequate for mineralized material haulage in 75-tonne trucks and for transporting required material to the Mine Site.



Table 18-1: Windfall Lake off-site access road details

Section	Description	Length (km)	Width (m)	Grade	Capacity (tonnes)	Details
1	R1050 (1000)	10.0	10.50	1	138	Grade 1 forestry road Good condition
2	R0853 (5000)	55.0	10.50	1	138	Major culverts at km 14 (R0853-01) Major culvert at km 47 (R0853-02) Bridge at km 65 (R0853-03) Good condition
3	R1053 (6000) / SE-6000.00	47.0	10.0	2	138	Grade 2 forestry road Good condition

18.2.5 Site Access Control

The Windfall Lake main gatehouse will be located at the intersection of the bypass road and forestry road TE-6200.00, covering the entire site on a north-south axis. This will be considered the Windfall Lake Mine Site main entrance and gatekeepers will be able to keep track of personnel on site, mineralized material haulage, and material delivery. The main gatehouse is already on site and will be used for the exploration and mine operation phases.

Remotely controlled barriers will be located at the southeast entrance, near the helipad and at the north entrance of the site on the road TE-6200.00. There will be no gatekeeper at these locations. Both the main and secondary gatehouses will be equipped with a surveillance camera system and an intercom system. For the mineralized material haulage trucks, an access card system is planned to allow truck drivers to control the barrier. The system will monitor the entrances and exits of the site and reports will be available for the main gate operator.

The main gate operator will be able to control the secondary gatehouse barrier remotely to allow passage of vehicles, including those carrying lumber.

No truck scale is planned at the Windfall Lake Mine Site; mineralized material haulage quantities will be validated at the Plant Site.

18.2.6 Onsite Access Roads

Since the construction of a bypass road, access to the Windfall Lake site via forestry road R1053 north of the site is now restricted to mining vehicles. On site, existing roads for access to the camp, to the explosives storage building, to the generators, and to the exploration ventilation raise will remain as they are. Overhauls will be done wherever required.



New service roads are planned to access the following added infrastructure:

- Production portal;
- Zone 27 ventilation raise;
- Lynx Zone ventilation raise.

18.2.6.1 Mineralized Material Haulage Road – Surface Trucks

A small portion of the existing storage pad near the exploration portal will be upgraded to be used as a haulage road to allow mineralized material silo access to surface trucks.

18.2.6.2 Mineralized Material Haulage Road – Mining Trucks

Autonomous trucks selected by the mine team and provided by Sandvik will transport mineralized material at surface between the two ramps and the mineralized material loading station. Since no GPS system is available yet for the truck model selected, remote operation will be conducted for on surface, until such system can be used. Otherwise, corridors should be built to allow the autonomous trucks to follow their trajectory along walls as they do in underground drifts. For safety, this mineralized material haulage road will be fenced, with doors and openings to remove snow accumulation and allow maintenance, thus stopping autonomous truck transport.

Waste rock will be transported to the stockpile by conventional driver-operated trucks, using the existing service road.

18.2.7 Electrical Infrastructure

Most of the infrastructure required for the site power generation and electrical distribution is already on site for the exploration ramp development and will be kept during mining operations.

Power generation will be supplied by three Cummins 1,600 kW (prime operation capacity) generators installed before the mine operation phase. Each 600V generator will be installed in a soundproof walk-in building and will be supplied with a main breaker (2,500A), an electronic synchronization control panel, a muffler, a heater, and a 4 hours capacity double-wall daily tank. Voltage will be raised to 13.8 kV with step-up transformers then connected to site overhead line. A prefabricated electrical room will include a 15 kV switchgear for Genset synchronization, distribution panels and a transfer switch for the black start generator (120/240V).

Also installed on site are two 50,000-litre double-walled vacuum tanks for generator diesel storage.



Actual load estimates show that a fourth generator will need to be installed in parallel to supply the Mine Site during the production phase.

The 13.8 kV overhead line currently services most of the site, including the generator enclosure, the exploration portal, the explosives storage, the main gatehouse, the effluent water treatment, the exploration ventilation raise, and the camp complex.

New portions of the overhead line will be needed to service the following added infrastructure:

- Production portal substation;
- Zone 27 ventilation raise;
- Lynx Zone ventilation raise.

For the camp complex and mine surface infrastructure, the electrical load is estimated at 3,950 kW.

18.2.8 Mine Office and Dry Building

18.2.8.1 Administration Offices

The administrative offices will be housed in a one-storey conventional timber structure that will also house the dry for the workers. The deep foundations will be of "shooting sole" type with a slab on ground. This design allows significant savings in structural costs and construction time.

The area needed for the estimated 20 administration offices is based on a closed office configuration for half of the offices and an open area for the other half.

The administrative offices will be located in two sections of the building. Conference rooms, a cafeteria with kitchen, bathrooms, a fitness room, and a community hall are also provided in this building.

The kitchen will include all the facilities necessary for meal preparation, a food delivery and storage area, a large walk-in freezer, and refrigerators. The kitchen equipment will be salvaged from the kitchen currently on site. The cafeteria will seat 96 people, and additional seating could be available in the community hall, if needed.

The fitness room will have an approximate area of 185 m² and will be annexed to the community hall. The community hall room area will be approximately 220 m².

Ventilation in the administration offices and dry will be provided by a HVAC unit with supply and return grids in each room. This unit will provide propane burner heating and air conditioning with a DX coil.



Ventilation in the kitchen, fitness room, and community hall will be the same as the in offices, but will be provided by a separate HVAC unit.

18.2.8.2 Dry Building

It has been estimated that approximately 120 workers per shift will use the dry facilities located inside the administration building. The men's bathroom will include 80 lockers and baskets, and the women's bathroom will include 40 lockers and baskets. There will be 20 showers in the men's bathroom, and ten in the women's bathroom.

Approximately $\frac{1}{4}$ of the building will be occupied by the dry facilities. This area will need a higher roof since the lockers and baskets are usually lodged in a two-storey building.

Ventilation in the dry will be provided by a ventilation unit which supplies the air at targeted temperature. The air will be heated with a propane burner.

18.2.9 First Aid / Emergency Services

A first aid room will be provided in the administrative building. Two examination rooms and an observation room are also planned. The infirmary reception room will be annexed to the ambulance reception double-door area, and a secured pharmacy is planned near the main entrance to the first aid room, for a total area of 65 m².

The fire truck is already on site and is parked in the megadome of mechanical installations. A unit of the existing Dorm #200 will be relocated and will serve as a quarantine/isolation area.

18.2.10 Room Complex

The modular buildings will be assembled in a single-storey configuration; this will allow using part of the gravel pad required to install the modules. The area required will be somewhat larger than the area affected by the existing exploration camp. The foundation will therefore consist of a compacted gravel floor and wooden cages.

There will be a total of 161 rooms in the dormitory; 145 single-occupancy and 16 double-occupancy for couples. These will be high-end units. Each room will include a large bed, and a bathroom with shower. A central corridor will provide access to the dry/administrative building, and a laundry room will be located at the end of each unit.

The modules are 3.65 m x 18.29 m (12' x 60') and will accommodate approximately four rooms when installed side by side (see Figure 18-4).

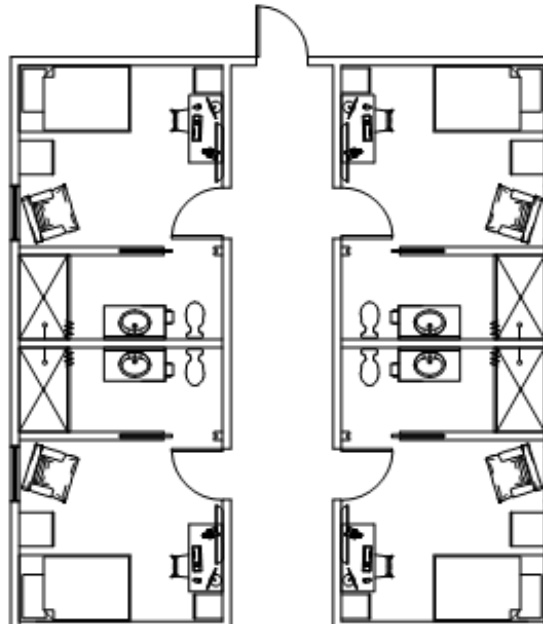


Figure 18-4: Windfall Lake permanent room complex - Room with individual bathroom.

Heating in the room complex will be provided by electric baseboards for occupant comfort, and tempered air ventilation will be provided by propane furnaces with supply and return grids in each room.

The existing propane camp currently used for the exploration camp will be kept for the permanent camp.

18.2.11 Dismantling of Existing Buildings at Windfall Lake

Several modular buildings currently used for the exploration camp will have to be dismantled or moved. The work is scheduled for the second year of operation and will be carried out using a phased approach.

The proposed dismantling/moving sequence is as follows, and is shown on Figure 18-5:

1. Buildings A, B and G will be moved first to allow for the construction of the new dormitories. Buildings A and B will be temporarily relocated elsewhere on the site to serve as dormitories during the construction, without hampering the construction of the permanent camp. At the end of construction, Building A will be removed completely, and a part of Building B will be kept to serve as the permanent quarantine area. Building G is in a very poor condition and will be completely removed from the site.



2. Buildings C, D, E and F will remain on site during construction of the permanent camp and will continue to serve as dormitories. These buildings will be dismantled and sold once the construction of the permanent camp is completed.
3. Building 2 (kitchen/cafeteria) will also be kept on site during construction. This building will be dismantled and sold once construction of the permanent camp is completed, but kitchen equipment will be moved to the new kitchen.
4. Building 3, the community room, will be dismantled and sold. The dome on Building 4 will be moved to the exploration area. These buildings currently house the training room and the community hall and will have to be relocated at the beginning of construction as they are located on the construction area for the future room complex and the administration/dry building.
5. Building 5 is the infirmary/quarantine area and will be dismantled and sold.
6. There are currently two office buildings (7); the geology offices (circled in green) will be kept on site, while the health and safety offices and storage (crossed with a red X) will be dismantled and sold.
7. Building 8 (core shack) and Building 18 (core racks) will remain at their current location.
8. Building 10 (CMAC dry) and Building 11 (Rouillier dry) will be dismantled under the responsibility of the contractor.
9. Building 12 (technical services dry) and Building 19 (electrical distribution container) will remain at their current location.
10. Building 13, the dry and mining rescue, will be kept, but moved to the exploration area.
11. Building 17 (Storage containers) will be kept and moved on site for another purpose.
12. Building 23 (bathroom), item 22 (propane tank) and item 27 (sedimentation pond), will be kept and will remain at their current location.
13. Building 29, the new reception area, will be dismantled and sold.

Note: To better illustrate the dismantling sequence, only one section of the camp area is shown on Figure 18-5. Buildings 8, 18 and 27 are not shown, since they are located higher in the figure, but these buildings will not be touched.

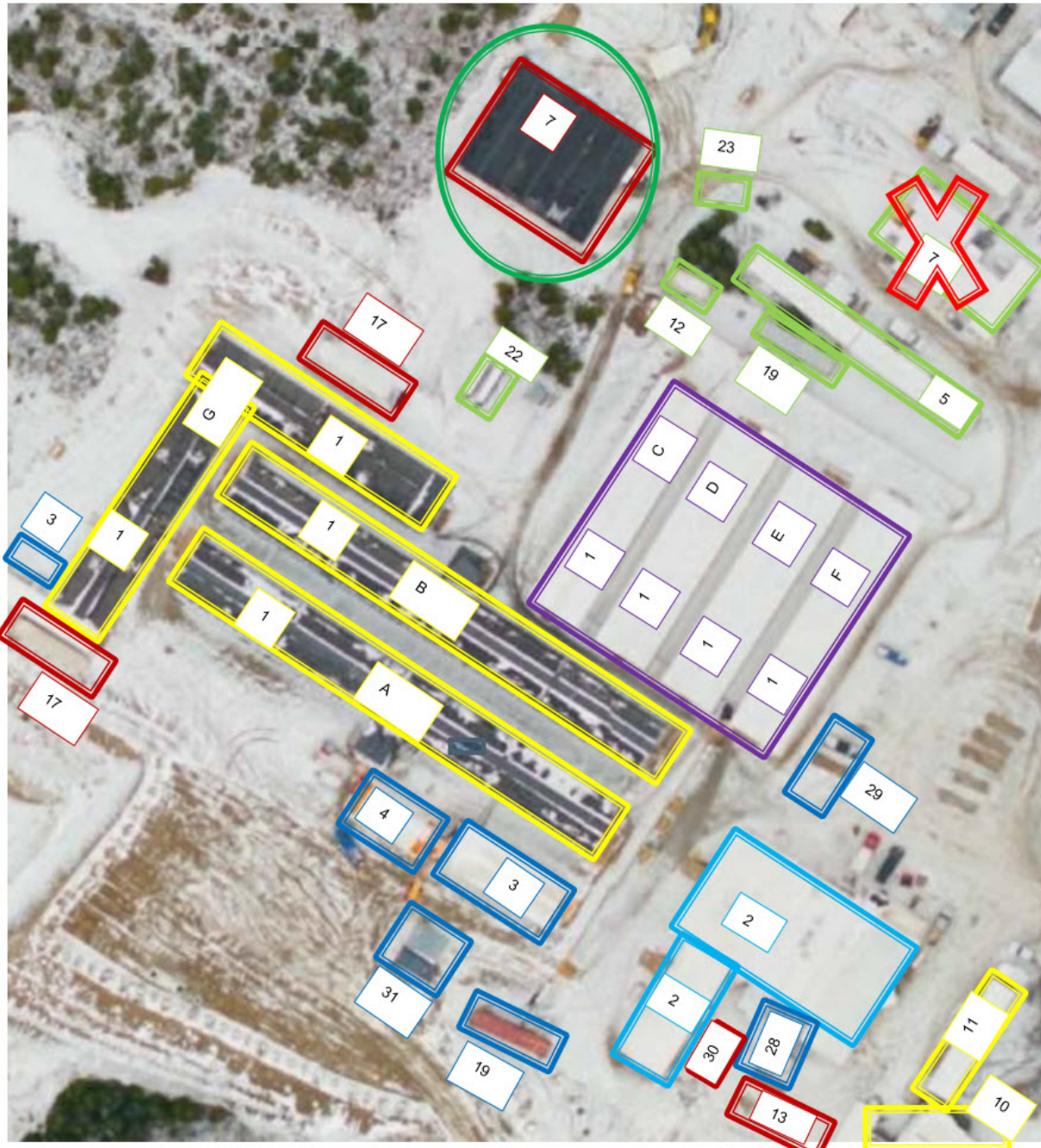


Figure 18-5: Sequence of dismantling.



18.2.12 Cement Storage Pad

The cement needed for rock backfill will be supplied by Fournier's Swatcrete system as described in Chapter 16 - Mining Infrastructure. On surface, there will be a 30 m per 30 m pad for cement storage and a shelter around the dry cement distribution line.

18.2.13 Bulk Explosives and Magazine Storage

With the bulk explosives and magazines storage already inside the exploration ramp, no surface storage will be needed.

18.2.14 Mineralized Material Discharge Station, Conveyor and Silo

The autonomous truck coming from the ramp will discharge mineralized material at the mineralized material discharge station, on a grizzly, rock breaker, apron feeder, and a conveyor system. This 1.5 m (60") wide conveyor will feed a silo with a live capacity of 500 tonnes. The silo will be mounted on a raised structure to allow truck loading underneath with an arc gate.

18.2.15 Fire Protection Water and System

The existing exploration fire water system has been upgraded and will be used for the permanent camp.

18.2.16 Site Lighting

Road lighting will be limited to minimal requirements at intersections. There is an overhead line along the road, and a single-phase transformer will be installed if needed; however, current will come from adjacent buildings wherever possible.

Lighting will be present in pedestrian areas and in working or storage areas. There will be dedicated exterior lighting installed on the building at all garage doors or man doors. For all exterior lighting, LED fixtures will be used to reduce maintenance time. Photocells will be installed to reduce power consumption.

18.2.17 Truck Shop and Warehouse

There are currently three megadomes on site. Two of these, one located near the portal and one located in front of the camp complex, are dedicated for maintenance of surface vehicles. A concrete slab and an oil recuperation system will be installed in both buildings for environmental reasons. The third megadome, also located in front of the camp complex, is used as a warehouse by the environmental group.



A truck shop will be located underground for the underground machinery.

Surface storage of the mining material will be on existing pads near the exploration portal, but containers will be added to increase storage capacity and efficiency. The available surface of the storage will be increased with the construction of a new storage and material handling pad.

18.2.18 Surface Diesel and Mobile Equipment

The Windfall Lake site service road maintenance, mine operation, and mineralized material and waste handling will be sub-contracted, therefore only a service wheel loader (CAT 972) is considered in the mobile equipment list to be purchased.

18.2.19 Fuel Storage and Delivery

A new permanent diesel storage and distribution system will be installed near the portal to service the Windfall Lake mine mobile equipment. The equipment will be similar to the system currently in use in the camp complex area, near the megadome.

The proposed fuel system includes two 50,000-litre double-walled vacuum tanks for leak prevention and sealing, both verifiable by pressure control. The tanks include an environmental management console, which is an anti-siphon valve that prevents complete emptying in case of system problems. In addition, a shear valve interrupts the supply in case of detachment or cutting of the distribution pipe connected to the nozzle of the pump. This provides additional protection to avoid emptying the tank.

A slab of reinforced concrete will be built next to the pump to accommodate trucks during fill-up and to facilitate clean-up in case of a spill.

A mechanical fill limiter will ensure that the level of liquid in the tank never exceeds the maximum, and several mechanical probes will continuously monitor the level of the tank and allow a fast and precise reading.

18.2.20 Waste Management Strategy

The waste management strategy for both the mine and camp complex areas consists in waste being transported from the mine and camp complex areas to authorized sites by a specialized contractor. Temporary collection and dedicated storage systems per category of waste material will be implemented to ease loading onto trucks and transportation to authorized sites. Categories of waste material are shown in Table 18-2. Sorting of waste material at the point of generation is crucial, therefore adequate bins and containers will be provided on site. The Windfall Lake Site is equipped with a composter, all compostable waste will be composted and cardboard will be used in the process.



This waste management method will leave virtually no environmental footprint and will require no post-closure management during site restoration.

Table 18-2: Waste material categories

Waste material category	Description
Recyclable material	Paper, glass, plastic, metal.
Compostable material	Scraps, food waste from the cafeteria, carcasses, expired food, grease.
Hazardous Household Waste ("HHW")	Antifreeze, solvent, aerosol, paint, fluorescent bulbs, lamps, batteries, smoke detector.
Waste oil, grease and oily water	Various, from mechanical workshops.
Construction, renovation and demolition debris	Wood, aggregates, various composite objects that end up in the ultimate waste depending on their level of contamination.
Ultimate waste	Bulky waste, litter bags, polystyrene foam, packaging, sanitary tissue, composite objects, contaminated objects, non-recyclable plastic, rubber, ash, process waste, various empty containers.
Septic tank sludge	Excluded from residual materials. Tank is emptied every year by a specialized pump truck service.
Contaminated soils	Excluded from residual materials. Refer to the Land Protection and Rehabilitation Regulation for the management of contaminated soils.
Biomedical waste	Excluded from waste materials. Refer to Regulation for management by the on-site medical department.

18.2.21 Drinking Water

The existing Windfall Lake exploration camp area drinking water needs are met by three bored wells (P1, P2 and P3) already connected to a network of buried piping. This system will have sufficient capacity to adequately supply the mine camp and infrastructure in this area. Only connections to new buildings will be required.

Bored wells P2 and P3 are located in the northern area of the camp and serve the camp's entire drinking water distribution system. According the hydrological studies conducted in 2016 and 2017 by WSP Canada Inc. for bored wells P2 and P3, the flowrate capacities are 44 m³/d and 100 m³/d respectively. However, a total of 60 m³/d withdrawal rate is authorized by the Ministry of Environment of Québec for bored wells P2 and/or P3.

Bored well P1 is located southwest of the core shack building and north of the administration and technical services building. This well serves the core shack building, and it is also connected to the distribution system. According the hydrological study conducted in 2007 by Genivar, the flowrate capacity of bored well P1 is 8 m³/d, which concurs with the withdrawal flowrate authorized by the Ministry of Environment of Québec. Table 18-3 summarizes the bored well locations, the flowrate capacities and authorized withdrawal rates.



Table 18-3: Windfall Lake description of bored wells

Bored wells identification	Location	Flowrate capacity (m ³ /d)	Drawdown (m)	Authorized withdrawal rate (m ³ /d)
P1	Southwest of the saw shack and north of technical services building	8	N/A	60
P2	Northern area of the camp	44	96	
P3	Northern area of the camp	100	6	

Potable water will be disinfected using ultraviolet (UV) lamps.

There is currently no operational bored well with a pumping system to supply the mining area with fresh water. Fresh water needs at the mining area could be accommodated by the effluent from the ponds and the underground dewatering system. The flowrate capacities from these two systems are expected to be adequate to supply fresh water to the mining area.

18.2.22 Waste Water Treatment

The existing waste water collection systems installed for the Windfall Lake exploration camp (TEU #1, TEU #2, and TEU #3) will have sufficient capacity to adequately serve the planned mine camp and infrastructure of this area. Only connections to new buildings will be required. The proposed permanent mine camp location was selected considering the existing system to avoid modifications whenever possible, as disused septic tank formerly connected to TEU #1 will be dismantled.

Table 18-4 summarizes the information on the three waste water treatment systems described above.

Table 18-4: Description of waste water treatment systems

Waste water treatment system	Construction date	Septic tank	Rehabilitation date	Soil type	Leaching field type	Treatment capacity (people)
TEU #1	2007	FSM-20000	2017	Permeable	Modified	50
TEU #2	2016	FSM-20000	-	Permeable	Modified	61
TEU #3	2017	FSM-46000 FSM-25000	-	Permeable	Advanced secondary treatment	189



18.2.23 Communication and IT

All buildings on site will have Ethernet Category 6 cables and jacks wherever a phone or a computer could be needed.

The Windfall Lake camp complex will have wireless Ethernet access points built to accommodate the phone communication and administrative network access.

To link Windfall Lake to the mill site, a 100 Mbps microwave link will be deployed via a tower.

18.2.24 Water Management Infrastructure

All contact water (water that comes in contact with mine facilities) at the mine site will be collected using ditches, sumps and ponds and will be managed separately depending on water quality.

The following surface water management infrastructure is in place at the Windfall Lake Mine Site:

- Ditches along access roads and existing infrastructure;
- Sedimentation pond;
- Polishing pond;
- Water treatment, a rental unit designed for site maintenance.

New surface water management infrastructure will be implemented with the extension of the existing lined and unlined waste rock stockpiles, extension of the overburden stockpile, the new mineralized material stockpile location, and the haul road to the second portal for automated equipment; they are:

- Collection ditches surrounding the extension of the waste rock pile to the east, waste rock pile to the west, the overburden pile, the mineralized material pile and the haul road;
- Two pumping basins to pump runoff from the mineralized material pile and haul road to the collection pond;
- A collection pond for temporary storage of storm water runoff before its treatment and discharge to the new polishing pond;
- An emergency spillway at the collection pond;
- A new polishing pond to serve as the last control point for the water before its discharge to the environment;
- A new sedimentation pond for temporary storage of storm water runoff from the overburden stockpile before its discharge to the environment;
- A new water treatment facility.



The existing sedimentation pond of the waste rock pile to the east will be converted into a pumping basin to transfer excess storm water to the collection pond. Existing water management infrastructure will have to be integrated to the ones planned at the feasibility stage. Adjustments and upgrades may be required locally to be consistent with site development.

Figure 18-2 presents the surface water management infrastructure planned at the Windfall Lake Mine. Ditches conveying runoff from the waste rock piles, the mineralized material pile and the haul road as well as pumping basins will be lined to limit water infiltration into the ground. The collection ditch surrounding the overburden stockpile and its collection pond will not be lined.

18.2.24.1 Water Treatment Infrastructure

Water treatment ("WT") will be required for the Windfall Lake Mine Site. The treatment will be required for two main purposes:

- Modify contact water quality to meet mining effluent discharge criteria from the Provincial Directive 019 (MDDEP 2012) and the MDMER (Fisheries Act 2018) from the Federal Government, including the non-toxic criterion, for water discharge in the environment;
- Modify contact water quality to meet additional environmental discharges objectives (*objectifs environnementaux de rejet* ("OER")) criteria (undefined at this stage of the project).

The available water flow and volume for the Windfall Lake water treatment plant ("WTP") is presented in Table 18-5.

Table 18-5: Water volume and flow for the Windfall Lake Mine Site WTP

Treatment plant	Yearly average volume (m ³)	Maximum flow to treatment (m ³ /h)	Maximum flow for higher rain/snow event (m ³ /h)
Windfall Lake Mine Site WTP	1,179,000	350	350

The Windfall Lake Mine WTP was designed for a maximum flow of 350 m³/h.

In order to access the mineralized material, ramps and underground infrastructure will be built and dewatered. The dewatering output will be conveyed to a WT plant at the Mine Site and treated along with the contact water from mineralized material and waste rock stockpiles.

The existing water treatment system currently at the Mine Site is a rental unit designed for site maintenance and is not believed to be sufficient for future needs. It is considered that new installation will be required at the Mine Site.

Presently, the water is first pumped to a sedimentation basin with 1,500 m³ capacity for primary total solid in suspension (“TSS”) sedimentation and to buffer flow and quality. The existing system includes a second stage of the treatment consisting in a physico-chemical treatment for metal precipitation. The pH is adjusted using caustic soda (NaOH-50%) to form metal precipitates, followed by a coagulant (ferric sulfate) and flocculant addition to agglomerate and settle the metal precipitates. The water is then pumped to a geotube unit (27.4 m x 30.5 m) for solid and water separation. The filtered water is sent to a polishing basin with a volume of 600 m³ and undergoes a final pH reduction in order to reduce TAN toxicity before final discharge. Very little sludge is produced as the concentrations of treated metals are minimal. Planning for future nitrogenous blasting, a new TAN treatment equipment will be installed downstream of the physico-chemical treatment. The TAN rental unit currently consists of zeolite ion exchange membrane.

Figure 18-6 presents the current installations at the Windfall Lake Mine Site.

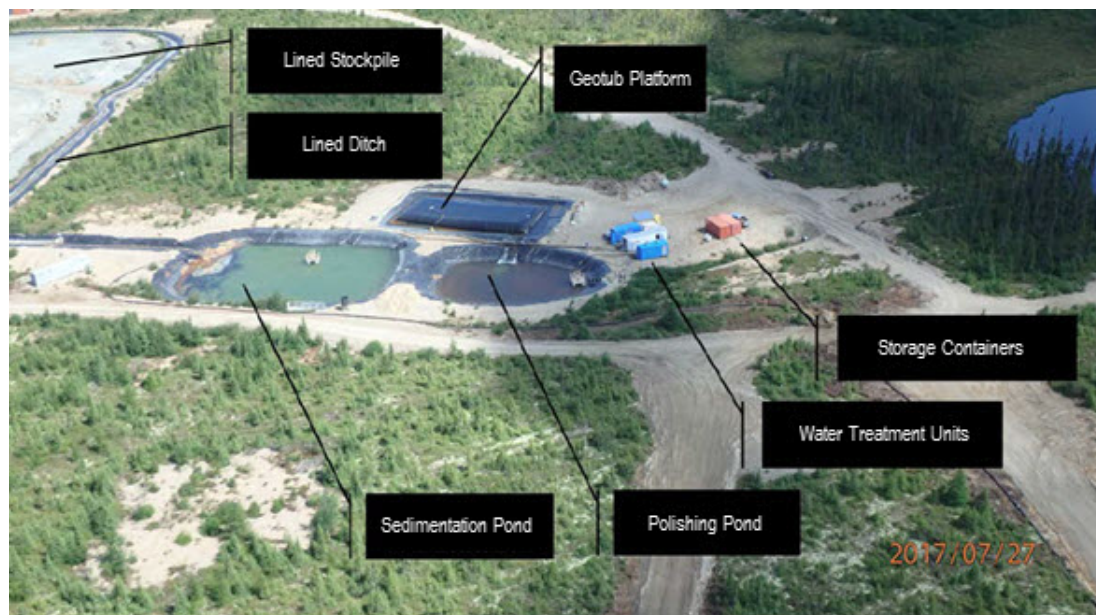


Figure 18-6: Current water treatment infrastructure at the Windfall Lake Mine Site.

The planned water treatment facilities at the Windfall Lake site include a new permanent water treatment facility and treated water will be discharged in the Sans Nom Lake. The existing rental unit will no longer be required, the existing sedimentation basin and polishing basin will be re-purposed.

More information about the water treatment is presented in a technical memorandum (Golder, 2018b).



18.2.25 Waste Rock Stockpile

The waste rock stockpiles are located in the northern end of the Mine Site at the same location of the existing ones. The stockpile to the east of the main road is an extension of the existing lined stockpile and will have a capacity of 0.54 Mt including 90,000 tonnes already in place. The one to the west will be built over the existing unlined stockpile for a capacity of 0.9 Mt. The total capacity of both stockpiles is 1.4 Mt of waste rock. Figure 18-2 shows the location of the stockpiles.

The foundation under the stockpiles is composed of sand, which is permeable. The waste rock stockpiles are planned to be lined to limit water infiltration into the ground. A bituminous liner is proposed at this stage of the study for its mechanical properties and its requirement for lesser base-layer preparation. The geomembrane product should be reviewed at the feasibility stage according to site constraints and soil conditions. The selected liner properties should be tested and its compatibility with contact water quality will need to be evaluated. The existing waste rock stockpile to the east of the access road is lined with an HDPE geomembrane. An HDPE liner will be used for the extension of the east waste rock pad. The liner under the extension will need to be connected to the existing to ensure continuity under the stockpile. Details of the connection will be defined at a later stage in the Project.

Soil stripping and foundation preparation will be required before liner installation. It is assumed that the liner will be installed directly on the natural ground. A protection layer composed of sand will be placed over the liner. The extension of the existing stockpile to the east will maintain the current configuration with 3H:1V slope and a single lift of 13 m high. The layer of waste rock on the existing stockpile to the west will be removed, soil will be stripped over the storage area, where needed, and foundation will be leveled and asperities removed. Slopes of the stockpile to the west are planned at 1.5H:1V. The stockpile will be developed in 10 m high lifts to a final height of 16 m, with 10 m wide benches. Figure 18-7 presents the typical cross-section of the waste rock stockpile (west) used for cost estimate. Preliminary configuration and material requirements defined for cost estimate purposes will need to be reviewed at the feasibility stage of the Project. Stability analyses will have to be carried out once the foundation and borrow source materials have been characterized.

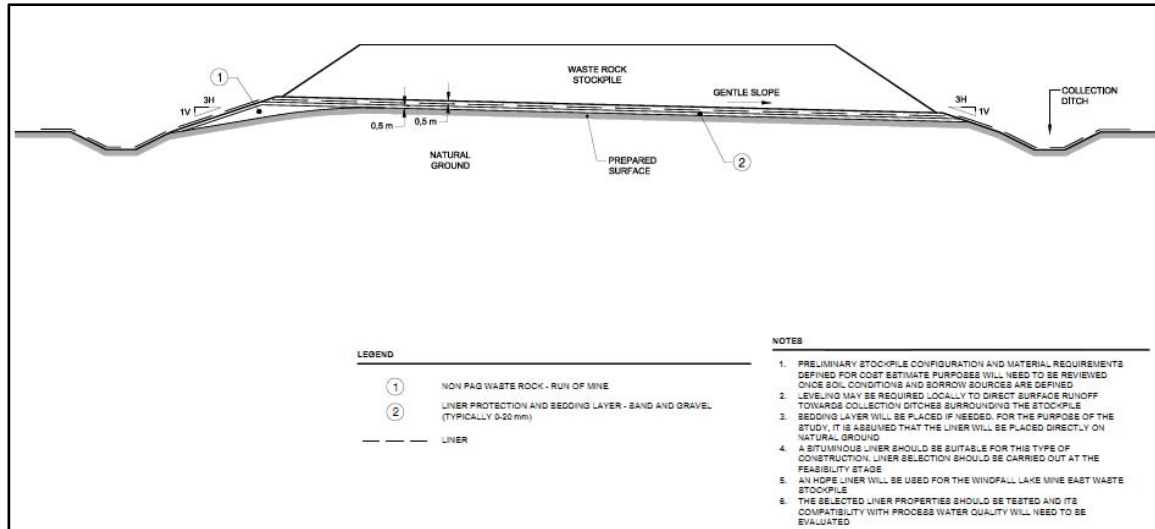


Figure 18-7: Mineralized material and waste rock stockpile typical cross-section.

18.2.26 Mineralized Material and Overburden Stockpiles

The location of the mineralized material and overburden stockpiles is shown on Figure 18-2. The capacity of the mineralized material stockpile is 10,000 t, and 16,000 m³ for the overburden stockpile.

The foundation under the stockpile is composed of sand, which is permeable. The mineralized material stockpile is planned to be lined to limit water infiltration into the ground. The configuration and materials for the construction of the mineralized material stockpile are based on the ones used for the waste rock stockpile at the Windfall Lake Mine Site. The height of the stockpile is 7 m. Soil stripping and foundation preparation will be required before liner installation. Preliminary configuration and material requirements defined for cost estimate purposes will need to be reviewed at the feasibility stage of the Project. Stability analyses will have to be carried out once the foundation and borrow source materials have been characterized.

The overburden stockpile will be built directly on natural ground. Soil stripping and foundation preparation will be required before building the pile. Slopes of the stockpile are planned at 3H:1V. The stockpile will be developed in 5 m high lifts with 10 m wide benches. Stability analyses will have to be carried out once the foundation has been characterized.



18.3 Mine Site Infrastructure

The Osborne-Bell site is located 23 km north of the Lebel-sur-Quévillon Plant Site and is accessible via the Chemin du Moulin and asphalted R1000 forest access road. The Chemin du Moulin is maintained by the municipality of Lebel-sur-Quévillon, while R1000 road is maintained by the *Ministère des Transports, de la Mobilité durable et de l'Électrification des transports* (MTMDET). Given its proximity to Lebel-sur-Quévillon, no permanent infrastructure is built on the Osborne-Bell site, which is currently in the exploration phase.

Comtois lumber mill, owned by Resolute Forest Products, is also located along R1000, near the Bell River, approximately 5 km south of the Osborne-Bell site. At further phases of study, sharing some infrastructure, such as fresh water or truck scale among others, could be considered.

Most of the infrastructure required for the mine development and operation will be supplied and maintained by the mining contractor. The site's new infrastructure, which will be located in an industrial zone selected to avoid soft soil and intensive drilling activities, will include the following:

- Gatehouse and parking;
- Service truck shop;
- Offices trailers;
- Dry trailer;
- Mining material cold shed and storage area;
- Fuel storage and distribution;
- Main electrical substation (25 kV);
- Mine portal;
- Explosives and magazines storage area;
- Ventilation raise;
- Mineralized material discharge area with mineralized material stockpile;
- Waste rock stockpile;
- Contact water ditches, sedimentation and polishing pond;
- Effluent water treatment system;
- Overburden stockpile;
- Fresh water well and drinking water treatment;
- Waste water treatment.

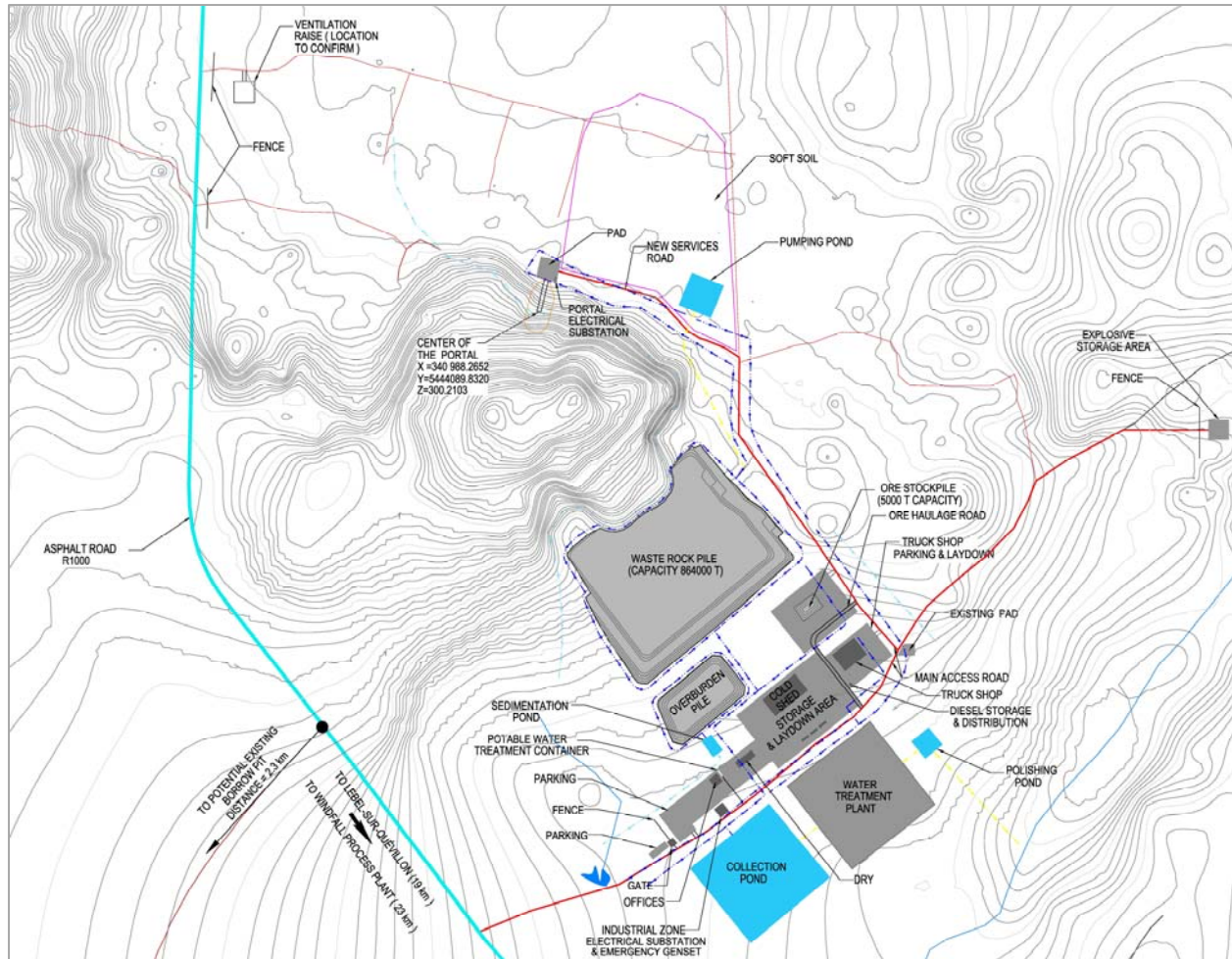


Figure 18-8: Osborne-Bell infrastructure general arrangement.

18.3.1 Osborne-Bell Geotechnical Studies

The Osborne-Bell area is located within the limits of the former glacial lake Barlow-Ojibway, where topographical lows and surface depressions are filled with fine glacio-lacustrine sediments, and hills are covered by coarser sediments and top soil. Regionally, deep water clay deposits presenting thicknesses between 1 m and 50 m are encountered (Veillette and al., 2003). Ice contact deposits, typically composed of permeable sand and gravel and presenting thicknesses ranging between 5 m and 50 m, are also present in the area (Veillette and al., 2003). Usually, in the Abitibi region, the water table is close to the surface, it is also expected to be close to the surface at Osborne-Bell.



Based on the geological database, the overburden thickness encountered in exploration drill holes is around 10 m. No geotechnical investigation was completed at the site to date. Soil stratigraphy under site planned infrastructure is unknown and soil geotechnical properties are not available.

A geotechnical investigation is necessary to assess subsurface conditions and potential requirements for infrastructure foundation.

18.3.2 Site Access Roads

Access to the Osborne-Bell site during the exploration phase is currently via a forest road in good condition located to the south of the hill where the portal is planned. The road will remain for the operation phase but will need to be widened by 4 m and reinforced to allow safe circulation of staff, mining and haulage trucks.

New access roads will need to be built to get to the portal, ventilation raise, and explosives storage area. No autonomous trucks will operate at Osborne-Bell, therefore conventional roads will be adequate.

Material required for the construction of new roads and pads will come from an existing borrow pit located approximately 2.5 km from the site, on the opposite side of R1000.

18.3.3 Site Access Control

The Osborne-Bell site gatehouse will be a remotely controlled barrier located at the site entrance, near the R1000. Similarly to Windfall Lake's secondary gatehouses, there will be no gatekeeper on site, but a surveillance camera system and an intercom system will allow access control from the Lebel-sur-Quévillon Plant. For mineralized material haulage trucks, an access card system will allow truck drivers to control the barrier. The system will monitor the site entrances and exits, and reports will be available for the main gate operator.

No truck scale is planned at the Mine Site; mineralized material haulage quantities will be validated at the Plant Site.

18.3.4 Electrical Infrastructure and Electricity Consumption

Electrical power will be brought to the site by connecting to the Hydro-Québec grid, which currently ends at the Comtois plant. The 25 kV overhead line will be extended to the electrical main substation. Metering for Hydro-Québec will be done at this location. The overhead line will power the area where the buildings, portal, explosives, and ventilation raise are located. For minor loads, pole-mounted transformers with fused disconnect switches will be installed.

The electrical load at the Osborne-Bell site is estimated to be 1.875 MW.



18.3.5 Mine Office and Dry Building

The administration offices will be an array of trailers supplied by the mining contractor. This will include offices, restrooms, conference/dining room, infirmary and mine rescue room. Four offices will be available for Osisko staff.

The dry facility will also be trailer-type and supplied by the mining contractor.

18.3.6 Explosives and Magazines Storage

The bulk explosives and magazines storage will be in a secured fenced area, located 600 m from other infrastructure, and will store up to 20,000 kg of explosives. Eventually, storage will be underground, therefore this area will be used only during ramp development.

18.3.7 Fire Protection Water and System

No extensive fire protection system is planned for the site. Appropriate extinguishers will be available in each building.

18.3.8 Site Lighting

Road lighting will be limited to minimal requirements at intersections. Exterior lighting will be present in pedestrian areas and in working or storage areas, mostly installed on the buildings. For all exterior lighting, LED fixtures will be used to reduce maintenance time and increase energy savings. Photocells will also be installed to reduce power consumption.

18.3.9 Truck Shop and Warehouse

The truck shop and a cold shed will be supplied by the mining contractor. A concrete slab and an oil recuperation system will be installed in the truck shop for environmental reasons. The mine air compressors and the Selective Catalytic Reduction ("SCR") injection system and storage tank will also be installed in the truck shop. The truck shop will be heated by two propane heaters.

Surface storage for the mining material will be available around the cold shed.

18.3.10 Surface Diesel and Mobile Equipment

Osborne-Bell site service road maintenance, mine operation, material, and mineralized material and waste handling will be sub-contracted to the mining operator; therefore, no mobile equipment is included in the list of equipment to be purchased.



18.3.11 Fuel Storage and Delivery

The diesel storage and distribution system will be installed near the truck shop to service both the mine and surface mobile equipment. The system will include a 50,000-litre double-walled tank, an anti-siphon valve, level probes, piping, low and high flow pumps and a concrete slab.

18.3.12 Used Disposal Building Facilities

The waste management strategy consists in waste being transported to authorized sites by a specialized contractor. Temporary collection and dedicated storage systems per category of waste material will be implemented to ease loading onto trucks and transportation to authorized sites. Refer to Table 18-2 for waste material categories.

18.3.13 Drinking Water

An artesian well is planned for drinking water supply to the site. Drinking water will be pumped to the drinking water treatment container located near the offices. Sizing of the systems will be adequate for 30 people.

A hydrological study and water characterization will be needed to confirm adequate location of the bored well and treatment to be implemented if needed. Monitoring to respect environmental guidelines such as sampling procedures and flow monitoring will also be implemented.

18.3.14 Waste Water Treatment

A 30-person capacity waste water collection system will be installed for the offices, the dry, and the truck shop area. The appropriate location and optimal treatment system will be determined at the next stage of the study with geotechnical study and soil characterization.

18.3.15 Communication and IT

To link Osborne-Bell to the mill site, a 100 Mbps microwave link will be deployed. A mobile radio repeater with an antenna in the same tower as the microwave link will be deployed locally at Osborne-Bell site for local surface operations.

Alternatively, a fibre optic cable link could be deployed to link the Osborne-Bell site to the mill site. A fibre optic cable along R1000 road with a fusion point located 3.5 km away from the Osborne-Bell site is available. That option would be more costly.



Similarly to the Windfall Lake site, the phone system will be IP based and all buildings on site will have Ethernet Category 6 cables and jacks wherever a phone or a computer could be needed. Wireless Ethernet access points will also be installed to accommodate the phone communication and the administrative network access inside and around the buildings.

18.3.16 Water Management Infrastructure

All contact water (water that comes into contact with mine facilities) at the Osborne-Bell Mine Site will be collected using ditches, sumps and ponds and will be managed separately depending on water quality. Diversion ditches will be implemented where needed. The main components of the water management system are:

- Collection ditches surrounding the waste rock pile, the overburden pile, the mineralized material pile, the industrial area and the haul road;
- A pumping basin to pump runoff from the haul road to the collection pond;
- A collection pond for temporary storage of storm water runoff before its treatment and discharge to the polishing pond;
- An emergency spillway at the collection pond;
- A polishing pond to serve as the last control point for the water before its discharge to the environment.
- Diversion ditches to divert surface runoff from the access ramp and the industrial area and stockpiles.
- Water treatment facility.

Ditches conveying runoff from the waste rock pile, the mineralized material pile, the haul road and the industrial area will be lined to limit water infiltration into the ground, as well as pumping basins. The collection ditch surrounding the overburden stockpile and its collection pond will not be lined.

18.3.16.1 Water Treatment Infrastructure

Water treatment ("WT") will be required for the Osborne-Bell Mine Site. The treatment will be required for two main purposes:

- Modify contact water quality to meet mining effluent discharge criteria from the Provincial Directive 019 (MDDEP 2012) and the MDMER (Fisheries Act 2018) from the Federal Government, including the non-toxic criterion, for water discharge in the environment;
- Modify contact water quality to meet additional environmental discharges objectives (OER) criteria (undefined at this stage of the project).

The available water flow and volume for the Osborne-Bell WTP is presented in Table 18-6.



Table 18-6: Water volume and flow for the Osborne-Bell Mine Site WTP

Treatment plant	Yearly average volume (m ³)	Maximum flow to treatment (m ³ /h)	Maximum flow for higher rain/snow event (m ³ /h)
Osborne-Bell Mine Site WTP	824,500	250	250

The Osborne-Bell Mine Site facility is designed for a maximum flow of 250 m³/h.

The water treatment at the Osborne-Bell Mine Site will consist of a new permanent water treatment facility and the treated water will be discharge to tributary of the Bell River.

More information about the water treatment is presented in a technical memorandum (Golder, 2018b).

18.3.17 Waste Rock Stockpile

The waste rock stockpile is located northwest of the main service buildings for the mine. It has been designed for a storage capacity of 0.86 Mt of waste rock. Figure 18-8 shows the location of the stockpile.

The waste rock stockpile is planned to be lined to limit water infiltration into the ground. A bituminous liner is proposed at this stage of the study for its mechanical properties and its requirement for lesser base-layer preparation. The geomembrane product should be reviewed at the feasibility stage according to site constraints and soil conditions. The selected liner properties should be tested and its compatibility with contact water quality will need to be evaluated.

Soil stripping and foundation preparation will be required before liner installation. The waste rock stockpile abuts in part the hill and rougher terrain is expected in that area. It is assumed that a sand bedding layer will be required for liner installation. This bedding layer will also serve as an underdrainage layer to evacuate water that could percolate under the stockpile from higher ground and prevent pore water pressure build up under the liner. A geodrain will be installed in the bedding layer to promote drainage of the bedding layer. A geodrain will also be placed over the liner to promote drainage of the protection layer placed on the liner. The protection layer will be composed of sand. Slopes of the stockpile are planned at 1.5H:1V. The stockpile will be developed in 10 m high lifts to a final height of 15 m, with 10 m wide benches. Figure 18-9 presents the typical cross-section of the waste rock stockpile used for cost estimate. Preliminary configuration and material requirements defined for cost estimate purposes will need to be reviewed at the feasibility stage of the Project. Stability analyses will have to be carried out once the foundation and borrow source materials have been characterized.

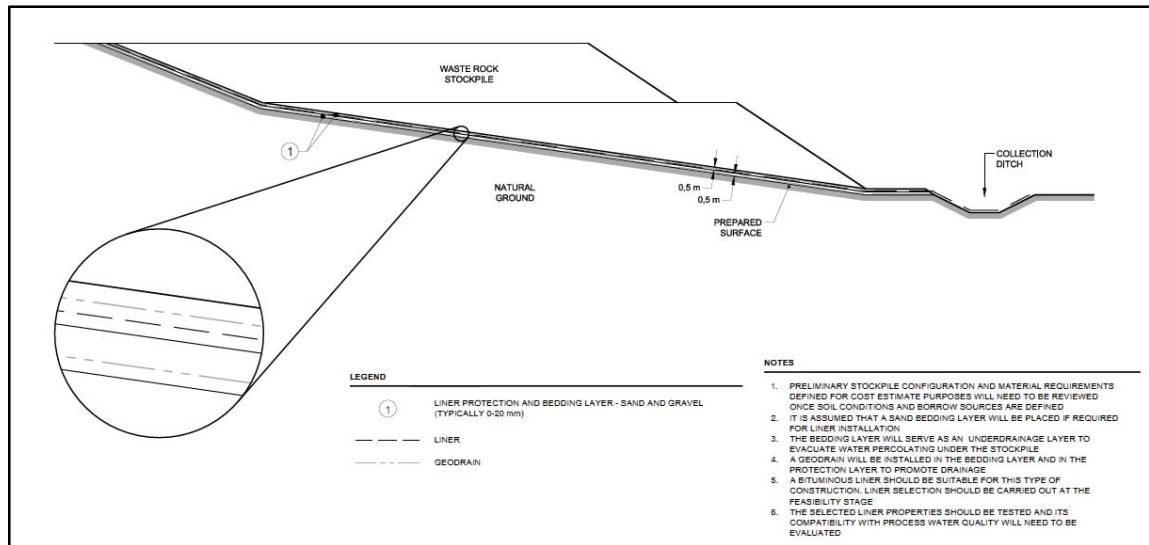


Figure 18-9: Waste rock stockpile typical cross-section.

18.3.18 Mineralized Material and Overburden Stockpiles

The location of the mineralized material and overburden stockpiles is shown on Figure 18-8. The capacity of the mineralized material stockpile is 5,000 t, and 30,000 m³ for the overburden stockpile.

The mineralized material stockpile is planned to be lined to limit water infiltration into the ground. The configuration and materials for the construction of the mineralized material stockpile are based on the ones used for the waste rock stockpile at the Windfall Lake Mine Site. Soil stripping and foundation preparation will be required before liner installation. The height of the stockpile is 8 m. Preliminary configuration and material requirements defined for cost estimate purposes will need to be reviewed at the feasibility stage of the Project. Stability analyses will have to be carried out once the foundation and borrow source materials have been characterized.

The overburden stockpile will be built directly on natural ground. Soil stripping and foundation preparation will be required before building the pile. Slopes of the stockpile are planned at 3H:1V. The stockpile will be developed in one lift to a height of 3 m. Stability analyses will have to be carried out once the foundation has been characterized.

18.4 Plant Site Infrastructure (Lebel-sur Quévillon)

The Windfall Lake Project plans the construction of an operating facility as well as new infrastructure located at Lebel-sur-Quévillon. This site is referred to as the Plant Site.

The Plant Site's new infrastructure will include the following:

- Gatehouse and parking;
- Administrative building;
- Main electrical substation (120 kV)
- Emergency power generators;
- Process plant;
- Service building and warehouse;
- Fuel storage and distribution;
- Drinking water and fresh water facility including treatment;
- Waste water treatment;
- Mineralized material stockpile;
- Overburden stockpile;
- Contact water ditches, sedimentation and polishing pond;
- Effluent water treatment;
- Tailings management facility.

18.4.1 Arrangement

The Plant Site arrangement is presented in Figure 18-10. This plan shows all of the Plant Site surface infrastructure as well as the preliminary location of the mineralized material pile

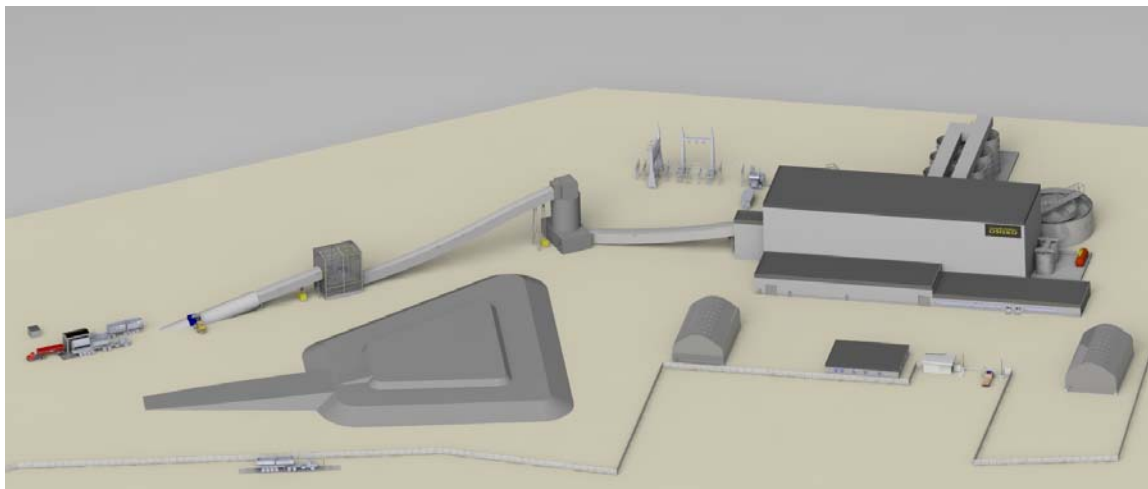


Figure 18-10: Plant Site arrangement.



18.4.2 Preparation

For site development work, deforestation, removal of the peat soil, and installation of a granular infrastructure on the entire surface for the construction of buildings is planned.

Runoff from the plant area will be conveyed by gravity to the collection pond.

18.4.3 Geotechnical Studies

The area is located within the limits of the former glacial lake Barlow-Ojibway, where topographical lows and surface depressions are filled with fine glacio-lacustrine sediments, and hills are covered by coarser sediments and top soil.

Based on the available surficial deposit map prepared by the Geological Survey of Canada (Veillette and al., 2003), the surficial deposits are generally composed of typically low permeability deep water sediments (clay and silt). Locally, lenses of glacial till (continuous, thickness of more than 1 m) and organic material (peat) are also present. At the southern edge of the site, south of the existing railway, an esker composed of sand and gravel juxta glacial sediments is present and aligned in a northeast-southwest direction. The water table in the Abitibi region is typically close to the surface.

At the time of writing this report, no geotechnical data is available. Soil stratigraphy under site planned infrastructure is unknown and soil geotechnical properties are not available.

A geotechnical investigation is necessary to assess subsurface conditions and potential requirements for infrastructure foundation.

18.4.4 Access Road and Control

It will be possible to access the Plant Site by the Mill road (Chemin du Moulin) from the 113 provincial road. A control gate building and a fence will be erected at the main entrance of the site to supervise the personnel entrance, mineralized material and merchandise transport. Security personnel will ensure visitor registration and following of safety protocols. The site access control is based on an industry-proven security access system that will include a network of cameras and ID tags.

The site access control infrastructure will stand as a single-storey building of 57 m² with steel structure on a concrete slab. This construction will mainly contain an open office for the surveillance personnel with wide windows to see and operate the access gate. A toilet and mechanical room will complete the floor area.

A 90-t capacity truck scale whose dimensions are 3.6 m x 28 m will be located before the main gate.



Lighting will be installed where required.

18.4.5 On-site Roads

Existing roads for light vehicle access to the future site are already in place. These roads will be preserved and modified where needed in order to provide a comprehensive access to the planned surface infrastructure.

A parking area will be located next to the site access control building. Electrical supply for lightning and 120 V outlets will come from the administration building.

An access road from the process plant to the tailings site has been planned. The surface preparation also involves the removal of part of an existing railway and the use of a section of the disused railway line to construct a road (integrated with the existing ballast) allowing accessibility to the tailings site.

Road maintenance as well as a loader to move mineralized material will be subcontracted to a local company.

18.4.6 Electrical Infrastructure

The total power demand of the Windfall Lake process complex is approximately 12.6 MW.

The power demand was derived mainly from the SAG and ball mill power without considering standby equipment and applying representative efficiency and load factors.

The following table shows the distribution of power by area.

Table 18-7: Power demand by area at the Windfall Lake Complex

Area	Power demand (kW)
Process fixed load	3,400
Grinding (SAG and ball mills)	5,100
Process plant heating	2,300
Infrastructure	600
Office building and administration	400
Service building	400
Electrical network losses (~3%)	400
Total	12,600



The largest motors are those of the SAG mill, ball mill and regrind mill, accounting for more than half of the total site power demand. All of these are controlled by variable frequency drives, and are configured to keep the harmonics generation within acceptable limits.

Electricity will be supplied to the site at a voltage level of 120 kV via an overhead line originating in the nearby Hydro-Québec Lebel-sur-Quévillon substation, approximately 4 km away, as shown on Figure 18-11.

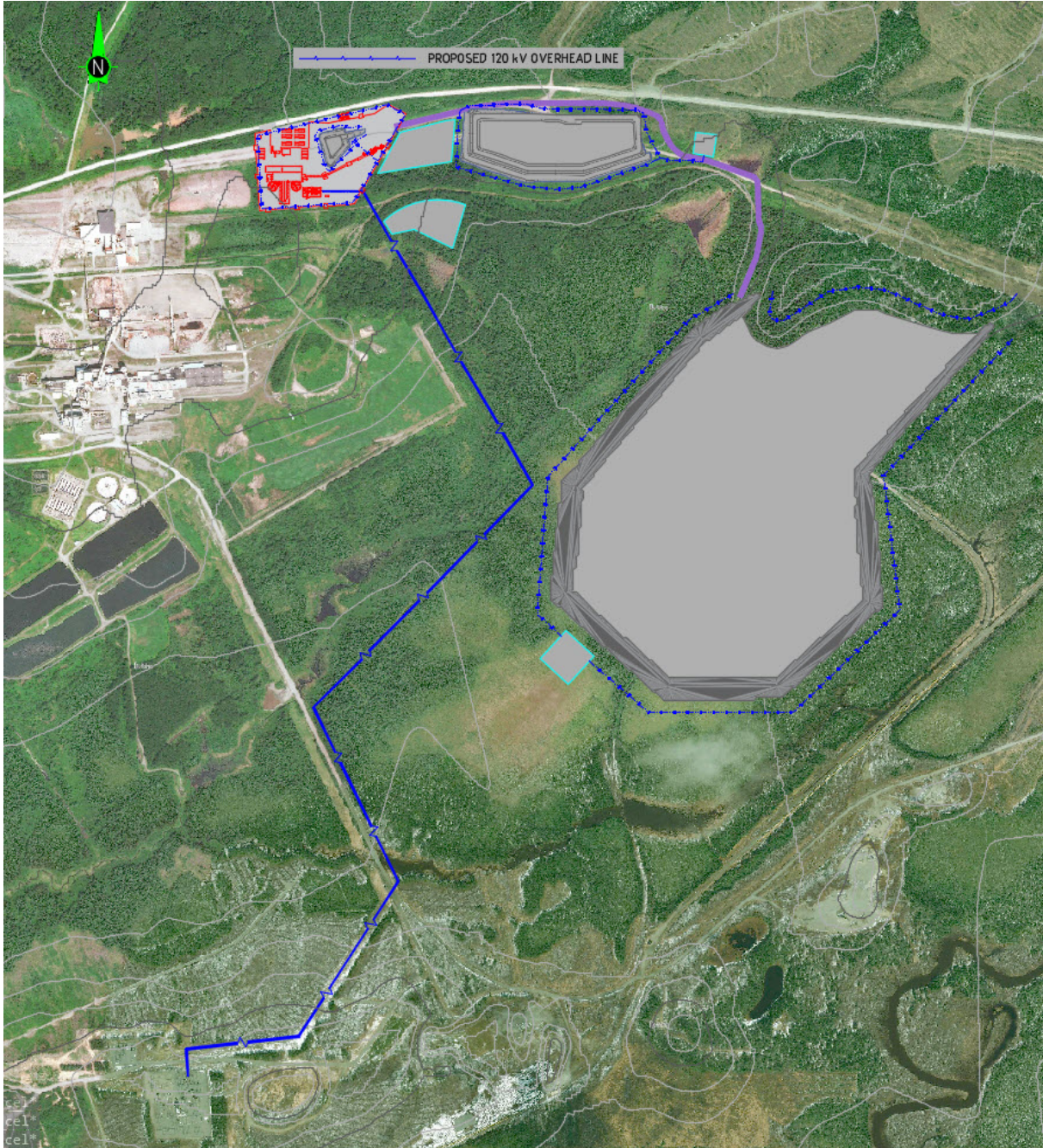


Figure 18-11: Proposed 120 kV overhead line.



At the site, the outdoor substation will lower the incoming voltage to 4.16 kV using two main transformers of 120-4.16 kV, 16/20 MVA each, for a combined firm power of 20 MVA. During normal operation, both transformers will share the load, but during maintenance or repair work, one transformer will supply the entire plant load, thus increasing the overall electrical supply reliability.

The output of the two main transformers will go into a 4.16 kV arc-resistant switchgear of the air insulated switchgear (“AIS”) type located in an electrical room within the process building. This main switchgear will distribute power throughout the plant. Most 4.16 kV feeders supply transformers to further step down the distribution voltage to useable 600 V voltage level. There will also be dedicated 4.16 kV feeders for the SAG mill, ball mill and regrind mill, and two circuits feeding overhead lines used to power the pumping station area. Given the rather close proximity of the administration building, service building and parking area on site, underground cables for powering those areas will be considered.

18.4.7 Emergency Power

Three emergency power generators (600V) are planned for the purpose of supplying the critical equipment and installations when the main power is lost. Critical loads in the process building, infrastructure buildings and at the pumping station area will be grouped into different categories where some will be attended to automatically and others controlled manually.

The emergency power demand requirements and generation are as follows:

Table 18-8: Process plant emergency power demand

Area	Voltage level	Emergency load (kW)	Power generation (kW)
Process plant	600 V	1,800	1,250
Administration and service buildings	600 V	300	250
Tailings pumping station	600 V	300	250
Fresh and fire water pumping station	600 V	325	200

The emergency load requirements far exceed the planned installed power generation as is typically the case in early project phases. The emergency system will be optimized (PLC based) both in quantity and sequencing of the critical loads (all do not need to run at once) and ensure that the installed generation capacity is adequate. A 50,000-litre double-walled tank will be installed in order to feed the process plant emergency generator.



18.4.8 Administrative Office

The offices will be constructed as a single-storey building of nearly 500 m², with steel structure on a concrete slab. The building will contain a reception, 15 offices, 2 conference rooms and its services, such as toilets, mechanical room, janitorial room, server room, printing room and a dining area located on a corner to get as much natural lighting as possible.

18.4.9 First Aid / Emergency Services

The planned First Aid facilities will provide sanitary facilities, running water and will include all instruments, supplies and furniture necessary for the trained and qualified staff to give first aid. The facilities will be designed and operated as per the “First-Aid Minimum Standards Regulation” Chapter A-3.001, r. 10). The room will be part of the process building and will be located on the perimeter of the building to ensure direct access to the paramedic team. The first aid room will cover approximately 52.5 m², including sanitary facilities.

18.4.10 Fire Protection Water and System

Site fire hydrants, as well as the surface buildings’ sprinklers, will be fed by water supplied from Quévillon Lake. The system will be equipped with an electrical booster pump as well as a diesel back-up pump of equal capacity. Sprinkler systems will be installed in the process plant. The sprinkler system will be installed so as to meet legal and insurance obligations in areas such as: belt conveyors, hydraulic and lube units, and cyclone clusters.

Wall outlets for fire protection are planned around the process building. Other fire hydrants will be installed in the field to cover the fire protection of other buildings.

18.4.11 Warehouse & Services Building

The warehouse will be located close to the process plant; it will consist of a dome structure fixed to the foundations wall, which will be bearing on a concrete footing. The warehouse will include racking and reception facilities. The planned covered area of the warehouse is 540 m².

The service building is made up of a similar dome as the warehouse. The heated building will have a slab on grade to accommodate mobile equipment. The service building will include an oil interceptor, sand trap and a 5-t capacity crane. The approximate dimensions of the service building will be 18 m x 30 m.



18.4.12 Fuel Storage and Delivery

A 9,600-litre fuel tank and a fuel pump located on the Plant Site will be installed along with a fuel management system to control the mobile equipment consumption and fuel supply.

18.4.13 Drinking and Fresh Water

Following discussions with a third party having its pumping station located in the Quévillon Lake, Osisko has been permitted to consider installing its pumping installation and its pipeline next to the existing one in order to minimize the environmental impact as these footprints are already impacted.

The pumping installation will deliver fresh water that will be fed through a 3.5 km pipeline to be used as drinking and process water.

Water will be treated before consumption. The drinking water system will be able to handle the peak hour demand.

A drinking water and a waste water network will service all buildings.

18.4.14 Waste Water Treatment

The waste water system for all surface infrastructure will be connected to a modular waste water treatment system with the sufficient capacity to handle the required flow.

18.4.15 Communication & IT

Access to the Internet and telephony services will be provided to the Windfall Lake Project by a local service provider.

A fibre optic network will interconnect critical areas, including the following:

- Gate house;
- Administration offices;
- Warehouse and service buildings;
- Main electrical substation;
- IT and networking rooms;
- Control room in the process plant;
- Other Plant Site facilities.



Telecommunication services for non-critical, remote locations will be provided by a wireless network.

The fibre optic network will be shared between the following systems:

- Process plant control system (process control network and electrical systems);
- Corporate IT (phone, data, operation and maintenance);
- Fire detection;
- Video surveillance and access control systems.

A mobile radio system will be deployed to the plant personnel and vehicles.

To link the Plant Site to the Osborne-Bell and Windfall Lake Mine sites a 100 Mbps microwave link will be deployed.

A mobile radio repeater with an antenna in the same tower as the microwave link would be deployed locally at Osborne-Bell site for local surface operations.

18.4.16 Process Plant

The process plant will consist of two main sections:

- Process section: 28 m wide x 92 m long x with a height of 21 m;
- Service section – HVAC & Electrical Rooms – Mechanical Shop 18 m wide x 61.5 m long, with a height of 8 m.
- Service section - Plant Office – Dry & Infirmary: 18 m wide x 52.5 m long with a height of 5 m.

A plan view of the process plant is presented in Figure 18-12.

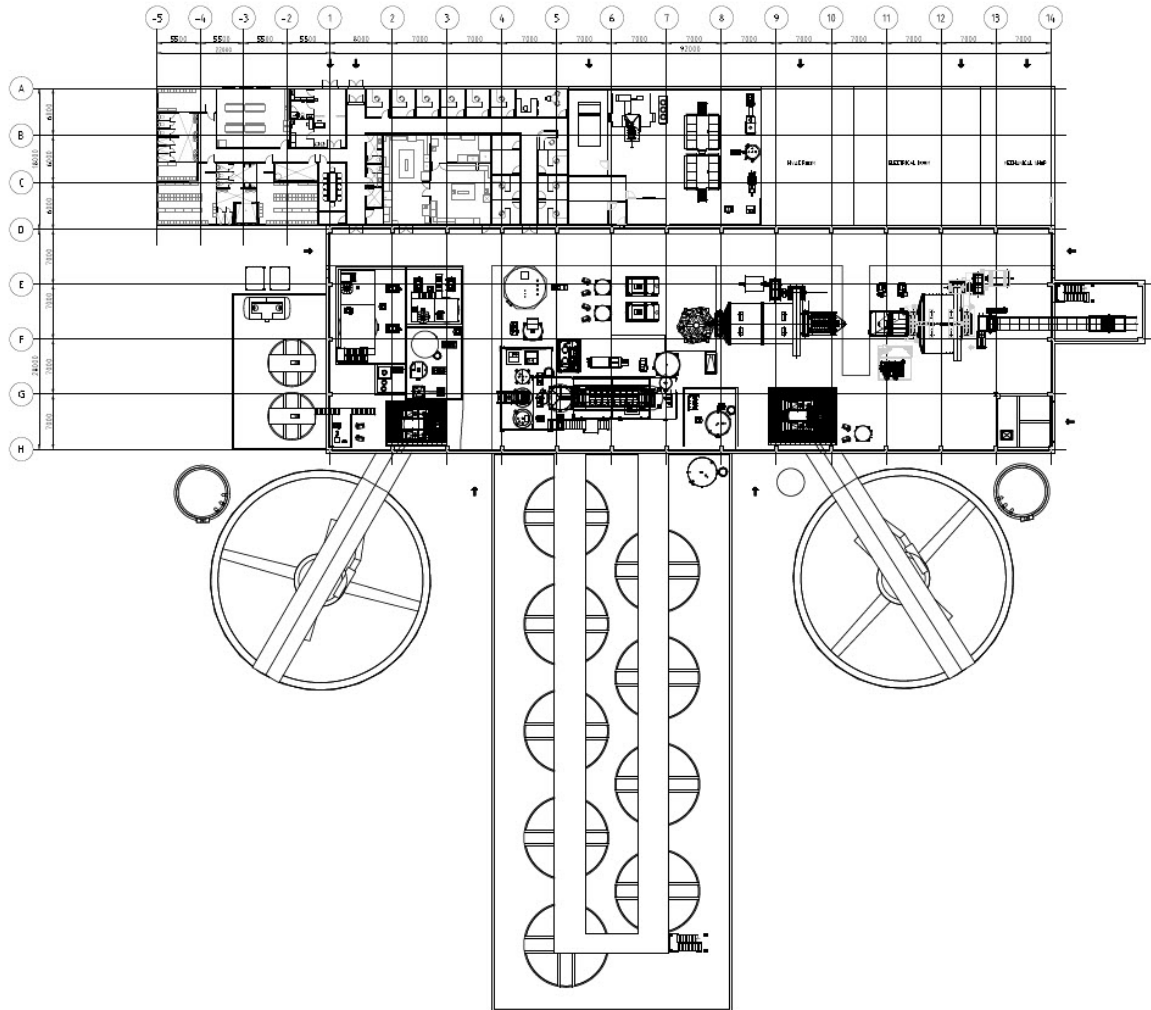


Figure 18-12: Plan view of the process plant.

18.4.16.1 Process Section

The process section will house the grinding and gold recovery areas.

The grinding area will contain the SAG and ball mills, along with the cyclone cluster, gravity circuit and intensive leach reactor. This area will be serviced by an overhead crane with enough capacity to lift the heaviest mill parts. The control room will be located in the grinding area on an elevated floor.

The gold recovery area will contain the carbon stripping, the reagent preparation areas and the tailings pumps. This area will be serviced by the same crane as the grinding area.



18.4.16.2 Service Section

The gold room (including electrowinning and refining), plant maintenance shops, electrical and HVAC rooms will be located in the service section of the building.

The operations/maintenance office staff, conference room, documentation room, computer server room, lunch room, washrooms, and change rooms will be located west of the service section of the main building.

18.4.16.3 Outdoor Area

The pre-leach thickener, CIL tanks, pre-detox thickener, cyanide destruction tanks and the hydrated lime silo will be located outside of the process plant.

18.4.17 Mobile Equipment

The majority of mobile equipment requirements for the Plant Site will be subcontracted with the exception of pick-up trucks that will be purchased.

18.4.18 Tailings Management Facility Infrastructure

Tailings generated from mineralized material processing will be sent to a TMF located south of the plant. Figure 18-13 shows the general arrangement of the TMF and related water management infrastructure. The TMF consists of one large cell surrounded by a dam. It has a capacity to contain 10 Mt of tailings and the design event for the water management pond.

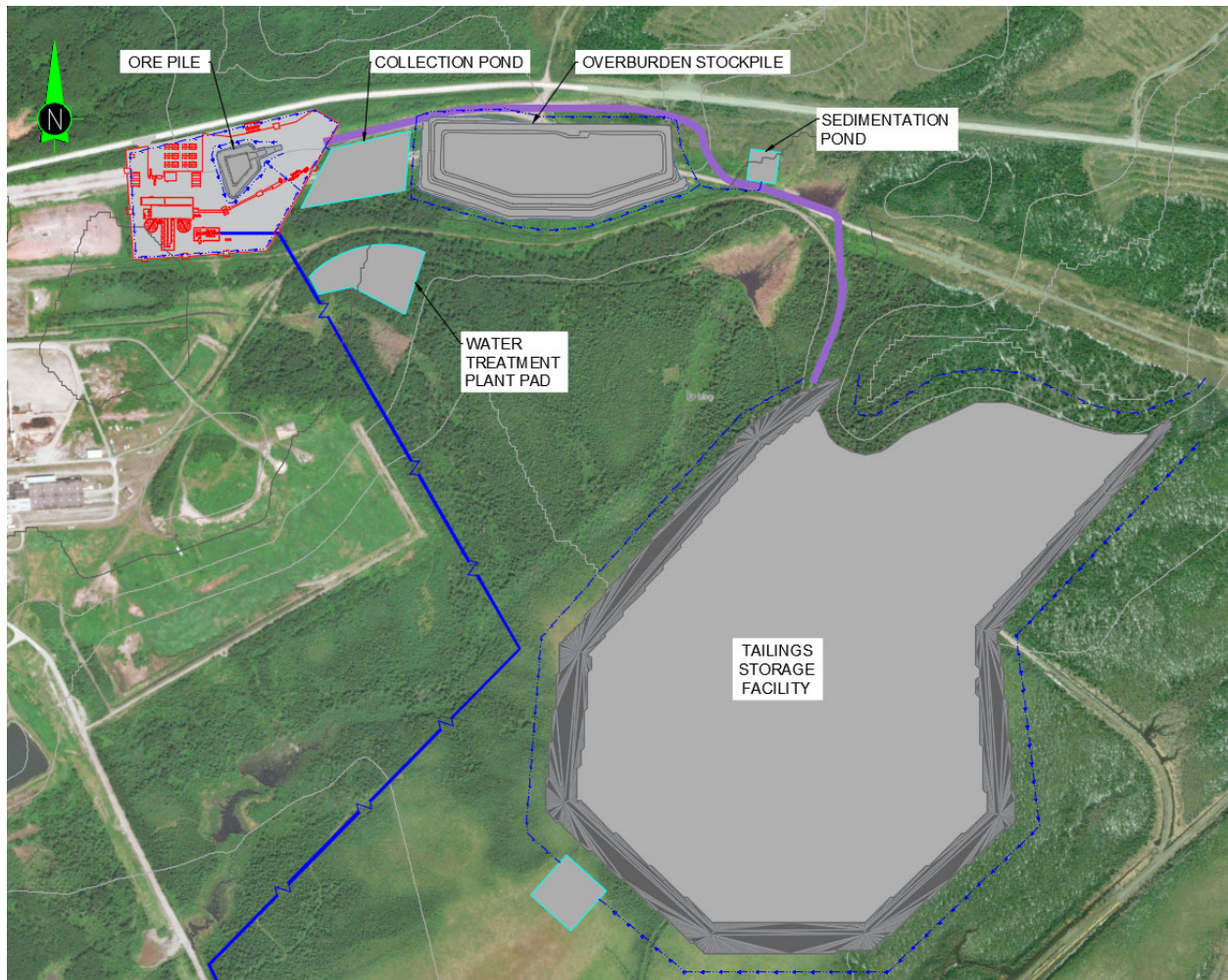


Figure 18-13: Plant Site general infrastructure arrangement.

The entire facility is planned to be lined to limit water infiltration into the ground. The liner requirements will be further reviewed at the feasibility stage. A bituminous liner is proposed at this stage of the study considering its versatility, its long construction period and its requirement for lesser base-layer preparation. The geomembrane product should be reviewed at the feasibility stage according to site constraints and soil conditions. The selected liner properties should be tested, and its compatibility with expected process water quality will need to be evaluated. Soil stripping and foundation preparation will be required before liner installation. It is assumed that the liner will be installed directly on natural ground. The need for an underdrainage system to evacuate potential pore water pressure build up under the liner will be assessed at the feasibility stage.

Tailings will be deposited directly over the liner. It is assumed that the tailings distribution system will include extended pipes down the slope of the dam and rub sheets to protect liner against abrasion on the liner; hence no granular protection layer over the liner is planned at this stage.

The construction of the TMF will be done in three stages lasting approximately two to four operating years with a downstream raise of the dam. The final crest elevation is at 304 m. The spillway sill elevation has been set 1 m below the dam crest. The dam will consist of a general fill with an upstream inclined low permeability element. The low permeability element will include a bituminous liner system consisting of the membrane itself laid on top of an appropriate transition layer system. A protection layer composed of granular material will be laid on the downstream slope of the dam. Figure 18-14 presents the typical cross-section of the dam used for cost estimate. Preliminary dam configuration and material requirements defined for cost estimate purposes will need to be reviewed once soil conditions and borrow sources are defined.

Prior to the construction of the dam, topsoil stripping and foundation preparation will be required. Limited information is available on foundation conditions other than that available from the surface deposit map. Deep water sediments (clay and silt) are expected under the dam. Thick deposits of clayey material may constitute a challenge if they have low bearing capacity; phasing construction, preloading, drainage blanket or vertical drains are examples of construction techniques that could be used to improve ground conditions. It is assumed, at this stage of the study, that dam construction will not require ground improvement. A toe berm is planned where the dam height is above 14 m. The berm is 10 m wide by 3 m high at its highest elevation. The toe berm configuration and length will be assessed at the feasibility stage. Stability analyses will have to be carried out once the foundation and borrow source materials have been characterized.

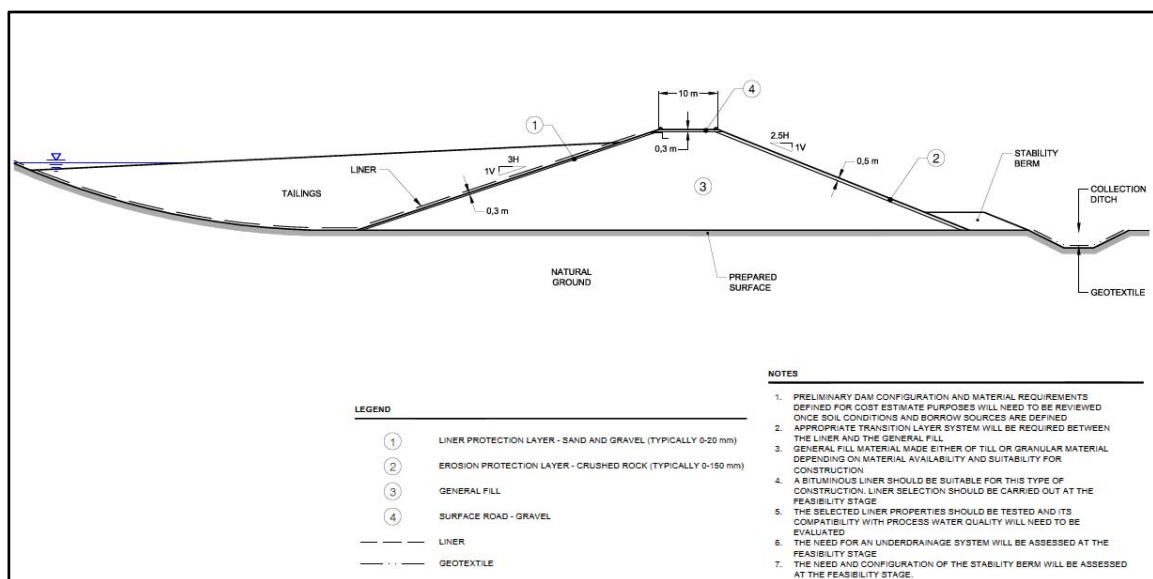


Figure 18-14: TMF dam typical cross-section.



18.4.19 Water Management Infrastructure

At the Plant Site, all contact water will be collected using ditches, sumps and ponds and will be managed separately depending on the water quality. Figure 18-13 presents the main surface water management infrastructure planned at the Plant Site.

The main components of the water management system around the TMF are:

- The TMF water storage area;
- The TMF emergency spillway;
- The toe (seepage collection) ditches and the associated pumping basin.

The main components of the water management system around the mineralized material piles and plant area are:

- Two collection ditches surrounding the general plant area and the mineralized material pile;
- An excavated collection pond;
- A sedimentation pond;
- A polishing pond;
- An effluent treatment facility.

Ditches conveying runoff from mineralized material piles and industrial area will be lined to limit water infiltration into the ground, as well as pumping basins. The collection ditch surrounding the overburden stockpile and its collection pond will not be lined.

18.4.19.1 Water Treatment

Water treatment ("WT") will be required for the Plant Site. The treatment will be required for two main purposes:

- Modify contact water quality to meet mining effluent discharge criteria from the Provincial Directive 019 (MDDEP 2012) and the MDMER (Fisheries Act 2018) from the Federal Government, including the non-toxic criterion, for water discharge in the environment;
- Modify contact water quality to meet additional environmental discharges objectives (OER) criteria (undefined at this stage of the project).

The available water flow and volume for the Plant Site's WTP are presented in Table 18-9.



Table 18-9: Water volume and flow for the Plant Site WTP

Treatment plant	Yearly average volume (m ³)	Maximum flow to treatment (m ³ /h)	Maximum flow for higher rain/snow event (m ³ /h)
Process Plant WTP	721,000	350	650 ⁽¹⁾

⁽¹⁾ Ongoing validation.

At the Plant Site, it is assumed that the peak flow rain/snow event, typically during spring freshet, will be either managed at the site in ponds (subject to further work) or using a simple low density sludge (“LDS”) treatment to treat excess to the capacity of the main WT facility. The peak flows may be diluted during freshet, and would simply require trace metal removal with a single stage. The WT facility of the Plant is designed for a maximum flow of 350 m³/h with an additional allowance provided for a LDS system to treat high flows (for a total peak flow of 650 m³/h).

The water treatment at the Plant Site will consist of a new permanent water treatment facility and the treated water will be discharged in the Quévillon River.

More information about the water treatment is presented in technical memorandum (Golder, 2018b).

18.4.20 Mineralized Material and Overburden Stockpiles

The placement of the mineralized material and overburden stockpiles is shown on Figure 18-13. The capacity of the mineralized material stockpile is 80,000 t, and 625,000 m³ for the overburden stockpile.

The mineralized material stockpile is planned to be lined to limit water infiltration into the ground. The configuration and materials for the construction of the mineralized material stockpile are based on the ones used for the waste rock stockpile at the Windfall Lake Mine Site. The height of the stockpile is 8 m. Soil stripping and foundation preparation will be required before liner installation. Preliminary configuration and material requirements defined for cost estimate purposes will need to be reviewed at the feasibility stage of the Project. Stability analyses will have to be carried out once the foundation and borrow source materials have been characterized.

The overburden stockpile will be built directly on natural ground. Soil stripping and foundation preparation will be required before building the pile. Slopes of the stockpile are planned at 3H:1V. The stockpile will be developed in 5 m high lifts with 10 m wide benches to a total height of 15 m. Stability analyses will have to be carried out once the foundation has been characterized.



19. MARKET STUDIES AND CONTRACTS

19.1 Introduction

The Windfall Lake Project will produce gold in the form of doré bars. Neither BBA, nor Osisko has contacted any precious metal refineries for competitive treatment bids for the doré expected to be produced by the Project.

19.2 Market Studies

Gold is a freely traded precious metal commodity on the world market, for which there is a steady demand from numerous buyers. The gold market is global in nature and is unlikely to be affected by production from the Project. Neither BBA, nor Osisko has conducted a market study in relation to the doré that will be produced by the Project.

Due to its widely traded nature, it is not difficult to determine the market value of gold at any particular time. Gold doré bullion is typically sold through commercial banks and metals traders with sales price obtained from the World Spot or London fixes. These contracts are easily transacted and standard terms apply. BBA expects that the terms of any sales contracts would be typical of, and consistent with, standard industry practices and would be similar to contracts for the supply of doré elsewhere in the world. Limited additional effort is expected to be required to develop the doré marketing strategy.

19.3 Gold and Silver Price Projections

This PEA assumes a gold and silver price for the mine design and economic analysis (Chapter 22) of USD1,300/oz and USD17.00/oz respectively (base case). The gold and silver prices are consensus prices derived from bank analysts' long term forecasts, historical metal price averages and prices used in publically disclosed comparable studies that were deemed to be credible. The forecasted gold and silver price is kept constant and is meant to reflect the average metal price expectation over the life of the Project. It should be noted that metal prices can be volatile and that there is the potential for deviation from the LOM forecasts.

19.4 Contracts

There are no refining agreements or sales contracts currently in place for the Project that are relevant to this Technical Report. BBA expects that terms contained within any sales contract that could be entered into would be typical of and consistent with standard industry practices, and be similar to contracts for the supply of gold elsewhere in the world.



There are several large 3rd party gold refineries with well-established industry relationships in North America. Among the more notable ones are:

- Metalor Technologies USA; North Attleboro, Massachusetts, USA;
- Johnson Matthey; Salt Lake City, Utah, USA;
- Canadian Mint; Ottawa, Ontario, Canada.

None of the aforementioned companies have been contacted to provide a competitive treatment bid.

This PEA assumes a refining, transportation and insurance charge of USD5.00/oz of gold and payable terms of 99.95% for gold content.

19.5 QP Note

Colin Hardie, QP, has reviewed the information provided by Osisko on marketing and contracts, and notes that the information provided is consistent with that available in the public domain, and that it can be used in the mine plans and the financial analysis presented in this Report.



20. ENVIRONMENTAL STUDIES, PERMITTING, AND SOCIAL OR COMMUNITY IMPACT

This chapter summarizes the existing environmental and social baseline conditions within the study area and is based on data available at this stage of the Project. It also provides an overview of the regulatory context applicable to the Project, including the EIA procedure as well as applicable laws and regulations and preliminary permitting requirements, including those for mine closure. In addition, this chapter presents the different consultation activities conducted so far, as well as the main concerns raised by the different stakeholders consulted. Finally, it outlines the Closure Plan of the mine as required.

20.1 Environmental Baseline Studies

During the period spanning 2007-2015, several environmental studies, analyses and reports, have been completed for the Project, more specifically at the Windfall Lake Mine Site. After Osisko acquired the Project, additional baseline studies were carried out in 2015, 2016 and 2017 at the Windfall Lake Mine Site to obtain up-to-date data as well as get an accurate picture of existing baseline conditions within the mine sector to allow assessing the Project's impacts for the EIA. A complete list of studies/reports completed so far is provided in Chapter 27.

Some baseline studies were initiated in 2017 at the Plant Site area and several additional field inventories are planned to be carried out in the spring and summer of 2018. These inventories will mainly focus on the following components:

- Vegetation and wetlands;
- Fauna (mammal and herpetofauna);
- Avifauna;
- Aquatic fauna;
- Water and sediments;
- Hydrology;
- Hydrogeology;
- Noise;
- Air quality.

Studies that will be carried out at the Plant Site will allow collecting data from the receiving environment and obtaining the baseline information required to assess the Project's impacts for the EIA. As for the Osborne-Bell Mine, a baseline study was conducted in 2011 and 2012 by Roche Ltd on the Comtois property for Maudore. Inventories are planned also in 2018 to update the information.



The following sub-sections summarize the existing environmental and social baseline conditions mainly for the Mine Site. In addition, the inventories conducted for the Environmental Baseline Study on the Comtois property is presented.

A description of existing baseline conditions for other components such as greenhouse gases, landscape, artificial night lighting, human environment, archaeology potential and a Phase I Environmental Site Assessment ("ESA") will also be provided in the EIA. Moreover, a geochemical characterization of the mines material such as waste rock, mineralized material, tailings and overburden will also be included in the EIA.

20.1.1 General Sites Description

The main site of the Project is located north of the 49th parallel in the Nord-du-Québec administrative region, less than 10 km north of the limit with the Abitibi-Témiscamingue region in the Eeyou Istchee James Bay ("EIJB") territory, on Category III lands. The Windfall Lake Mine Site is approximately 285 km from the city of Val-d'Or and 115 km east of Lebel-sur-Quévillon. The Plant Site is expected to be located about 4 km southeast of Lebel-sur-Quévillon, partially within the municipality of Lebel-sur-Quévillon and on the Eeyou Istchee James Bay territory. The Windfall Lake Mine and the Plant Site are separated by approximately 115 km of the forest roads R1050, R0853, R1053 and TE-6200.00 (formerly named: 1000, 5000 and 6000). The Osborne-Bell Mine Site is located 23 km northwest of the Plant Site and is located on the EIJB territory.

The geographic coordinates of the Windfall Lake Mine Site (in the centre of the property) are:

- North latitude (NAD 83): 49° 04' 10";
- West longitude (NAD 83): 75° 39' 14".

The Windfall Lake property is mainly located in an isolated mining and forestry area.

The Plant Site will be in an industrial area near the former Domtar plant, about 4 km southeast of Lebel-sur-Quévillon. The Osborne-Bell Mine Site is located about 17 km from the municipality of Lebel-sur-Quévillon.

The geographic coordinates for the Osborne-Bell Mine Site, (in the centre of the property) are:

- North latitude (NAD 83): 49°02'55";
- West longitude (NAD 83): 76°06'05".

The study areas' limits used for the EIA are illustrated in Figure 20-1. As shown in Figure 20-1, the two main study areas have been defined for the analysis of biophysical components, namely one for the Windfall Lake Mine Site and one for the Plant Site as well as the existing road connecting between the Windfall Lake Mine Site and the Plant Site. Moreover, there is a specific study area for the human components that covers the Plant and the Windfall Lake Mine Site. The Figure 20-1 also presents the study area for inventories that will take place in 2018 for Osborne-Bell Mine Site.

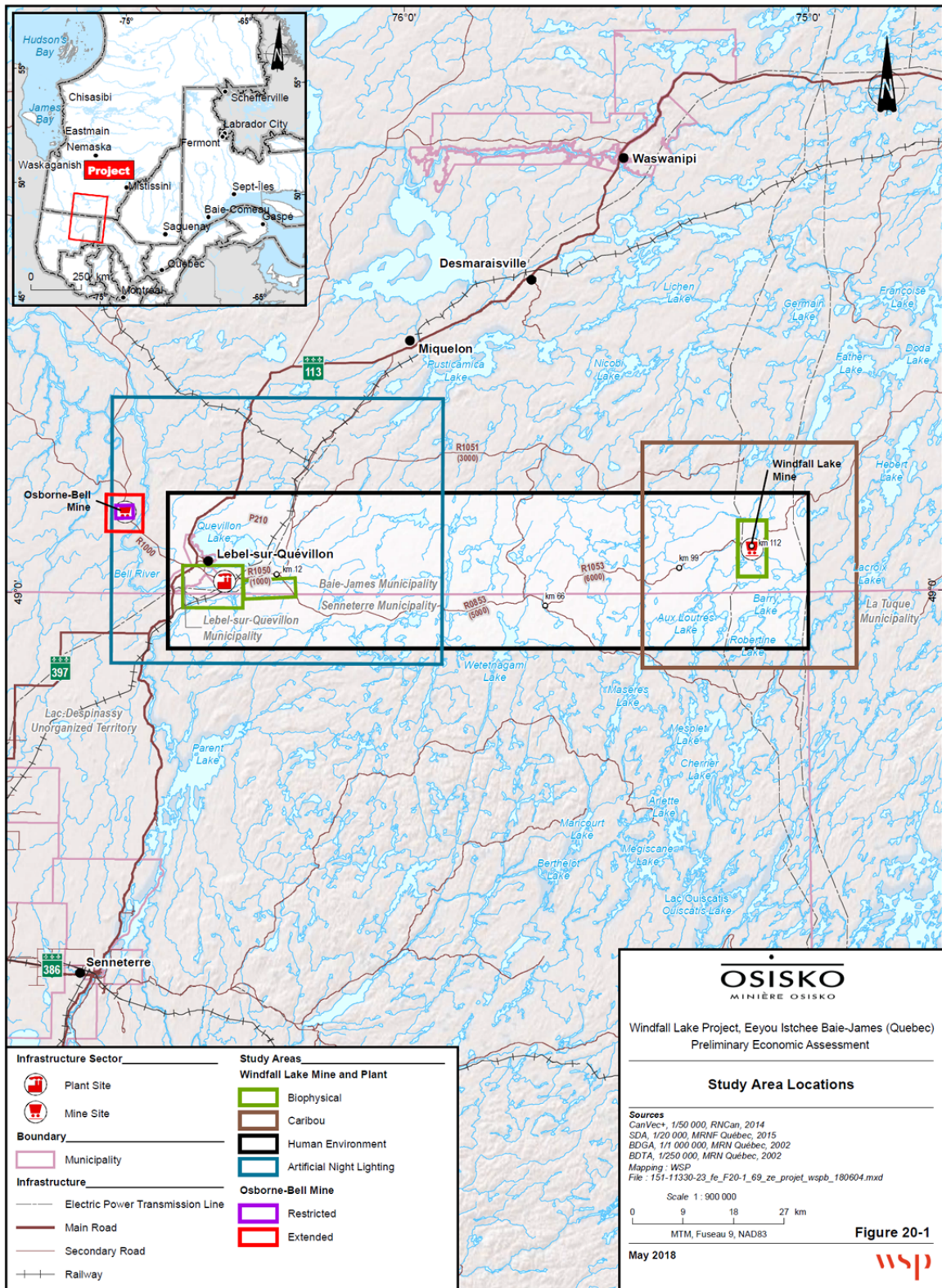


Figure 20-1: Study area locations.



The following sub-sections provide the main information gathered on the environmental and social components within the study area for the Windfall Lake Mine Site. The inventories conducted for the Environmental Baseline Study on the Comtois property is also presented. The main source of the information for the Osborne-Bell Mine Site is the Environmental Baseline Study from Roche (2012).

20.1.2 Windfall Lake Mine Site

20.1.2.1 Physical Environment

Information on the biophysical environment was obtained through field inventories conducted beginning in 2007 and extending until 2017. The information presented below is mainly the information collected within the Mine Site area. At this stage, an overall picture of the Project's host environment can be drawn for the Mine Site area, using the data.

Also, other sources of information were used including:

- Public databases and documents;
- Information requests to public and private organizations;
- Studies and reports available from Noront Resources Ltd and Eagle Hill Corporation;
- Aerial photographs, satellite images, maps and geomatic tools.

Climate

The study area is in a zone defined by a humid continental climate, characterized by long and cold winters and warm and slightly humid summers. Temperatures vary broadly and extremes, observed at the Lebel-sur-Quévillon station, were between -43.0°C and 34.4°C. January is the coldest month with an average temperature of -17.9°C whereas July is the warmest month with an average temperature of 17.2°C. Total yearly precipitations reach an average of 927.8 mm and are more abundant from April to October. Snowfalls occur from November to April and reach an average of 226.2 mm of precipitation.

Physiography and Relief

The study area is situated in the James Bay physiographic region, in the Mistassini Uplands. This region is characterized by glacial deposits of silt and clay that promoted the formation of numerous vast peat bogs interspersed by forest tracts.

More specifically, the topography of the study area is flat with very gentle slopes. The elevation on the property of the Mine Site is roughly 400 m above sea level.



Hydrology and Hydraulics

Four field campaigns were conducted to characterize main watercourses located within the Project's vicinity at the Mine Site area, including two campaigns in fall of 2015 and two campaigns in summer and fall of 2016.

The two targeted watercourses belong to different watersheds. Watercourse R1, located to the north, is part of watershed 03AA000, which flows into Matagami Lake via the Waswanipi River and then to Rupert Bay. Watercourse R2, located to the south, is part of watershed 03AC000, which also flows into Matagami Lake, but via the Bell River.

The average annual flow of watercourses located in the study area is estimated at 33.5 L/s/km². The low water level (Q10.7) is estimated between 0.8 and 5.2 L/s/km² whereas the annual low water level (Q2.7) is estimated between 1.7 and 6.5 L/s/km². High flows vary from 280 to 320 L/s/km² for a 2-year return period. These relatively low values are mainly explained by the relatively flat watersheds containing a high proportion of waterbodies and wetlands. All the details for the Mine Site component are available in a sectoral report prepared in March 2018 (WSP, 2018).

Surface Water and Sediment Quality

Studies were conducted in 2010 and 2015 to characterize surface water and sediment quality within the Mine Site area. Data collected during these studies were presented in different characterization reports. To complete the characterization of surface water and sediments at the Mine Site area, including Windfall Lake, six field campaigns were conducted in 2016 and 2017 at various sampling stations (lake/watercourse). Data collected in 2016 and 2017 is presented in a sectoral report for the Mine Site prepared in March 2018.

Beside the mining exploration activities, concentrated in the centre of the study area, human influences are minimal. Therefore, concentrations observed for the various elements through these inventories represent the natural state of the surface water and sediment within the study area. In order to make comparisons with the results, accepted water and sediment criteria were used.

For water, following criteria, developed by the *Ministère du Développement Durable, de l'Environnement et de la lutte contre les Changements Climatiques* (MDDELCC, 2014) and by the Canadian Council of Ministers of the Environment (CCME, 2001, CCMRE, 1987) were used:

- Prevention of contamination of aquatic organisms (CPC[O]);
- Protection of aquatic life, chronic effect (CVAC);
- Protection of aquatic life, acute effect (CVAA);
- Protection of fish-eating wildlife (CFTP);
- Protection of recreational activities and aesthetics (CPARE).



For sediment, following criteria, drew from Critères pour l'évaluation de la qualité des sédiments au Québec et cadres d'application : prévention, dragage et restauration (EC et MDDEP, 2007) were used :

- Rare effect concentration (CER);
- Occasional effect concentration (COE);
- Threshold effect level (TEL);
- Probable effect Level, (CEP).

Some pH values, measured in the field revealed that surface water sampled in 2016 and 2017 is occasionally more acid than the criteria of reference (pH = 6.5). A number of samples present concentrations exceeding criteria for mercury (CFTP criteria) and aluminum (CVAC criteria); over a total of 36 results, 22 exceeded criteria for mercury and 10 exceeded criteria for aluminum. The highest measured concentrations are: 0.041 µg/L for mercury; and 140 µg/L for aluminum. Occasional exceedances of CVAC criteria were also noted for other metals such as lead (two stations) and zinc (one station).

The most restrictive criteria, CVAA criteria, for all parameters of major ions were not exceeded. However, some exceedances of the criteria for phosphorous concentrations were noted at four stations.

Finally, sediment samples collected within the Mine Site area do not reveal any signs of contamination for all analyzed parameters. Values obtained for all samples respected the most severe criteria, except for one station (WL-10) that presents a mercury concentration above ("COE") and ("CEP") criteria. It is also at this station that higher concentrations of sulphur and petroleum hydrocarbons were observed. However, there are no applicable criteria for these parameters.

Hydrogeology and Groundwater Quality

This section presents the description of the hydrogeological context at the Windfall Lake Mine Site as presented in Section 16.3.

The hydrogeological conditions in the vicinity of the Windfall Lake Mine site were defined based on the fieldwork conducted during the fall of 2017 and a previous hydrogeological study (Genivar, 2008). The results of these investigations are summarized in Golder (2018a). The fall 2017 investigation program consisted in the completion of packer tests (13 tests in two exploration boreholes) and the implementation of eight observation wells. These observation wells were installed in the overburden and shallow bedrock. Groundwater sampling was completed in 16 monitoring wells. Static water level measured during the 2017 fall field campaign in observation and exploration wells throughout the site range from 0.1 m to 14 m below ground surface.



The generally flat topography is marked by some creeks and lakes. Surface deposits consist of fluvio-glacial sediments (sand and gravel), glacial till overlying felsic to mafic rocks intruded by granitoids and subvertical dikes, which are associated with the gold mineralization. Those geological formations are intersected by a complex network of brittle-ductile subvertical structures including Windfall Lake and Romeo faults, oriented NNE, and Bank fault related to the *Maséres* NE shear zone. Four hydrostratigraphic units have been identified.

Fluvio-glacial Deposits (Esker)

It consists of sand and gravel located in the northern part of the site. The thickness varies from 1 m to 25 m. The hydraulic conductivity of this unit varies between 2×10^{-6} m/s and 7×10^{-4} m/s with a geometric mean of 7×10^{-5} m/s (based on 16 hydraulic tests results).

Till

It is a heterogeneous glacial unit encountered just above the bedrock contact. A hydraulic conductivity of 3×10^{-7} m/s was measured at one location. Considering the heterogeneous nature of this material, a hydraulic conductivity in the 10^{-5} m/s and 10^{-7} m/s range is expected for this unit.

Bedrock

It consists of basaltic flows and volcanoclastic. Hydraulic conductivity of bedrock varies between 2×10^{-9} m/s and 2×10^{-6} m/s based on packer test results. Geometric mean is 1×10^{-7} m/s. Based on the distribution of hydraulic conductivity with depths presented in the Golder (2018a) report and on the groundwater flow model calibration, a hydraulic conductivity of 1.5×10^{-7} m/s was assigned to the upper bedrock (up to an elevation of 370 m), 1×10^{-8} m/s for the intermediate bedrock (between 370 m and 200 m of elevation) and 3×10^{-9} m/s for deep bedrock. A lower hydraulic conductivity was assigned to deep bedrock because according to Stober and Bucker (2006), bedrock hydraulic conductivity of Precambrian rock of the Canadian Shield tends to decrease with depth.

Structural Elements (Faults)

Packer tests conducted in fractured areas have given maximum hydraulic conductivity values of 2×10^{-6} m/s along OSK-W-17-1149 borehole and 1×10^{-6} m/s along OSK-W-17-1270 borehole. Only two faults out of the 12 identified were tested. For an exhaustive representation of structural elements, the hydrogeological model considers 12 faults, each of which is assigned a hydraulic conductivity value of 1×10^{-7} m/s. A hydraulic conductivity of 1×10^{-6} m/s was assigned to the faults for the sensitivity analysis.



Baseline Groundwater Quality

Groundwater sampling was completed in 16 monitoring wells in November 2017 and in selected monitoring wells in March 2018 to define the baseline groundwater quality. The groundwater samples were analyzed for dissolved metals, anions, cations, cyanides and nitrogen compounds, petroleum hydrocarbons C10-C50 and radionuclides. Physicochemical parameters including pH, electrical conductivity, oxidation reduction potential and temperature were measured in situ during the sampling. The results of the groundwater sampling campaigns are currently being compiled and interpreted.

Soil Quality

Following intense exploration activities in the Windfall Lake property, a Phase I ESA was conducted in November 2016 to establish the potential for environmental risk in the study site.

Based on information gathered during the Phase I ESA, past activities carried out on the study site represent an environmental risk for soils in the Portal 2008 sector. Thus, environmental characterization in the Portal 2008 sector has been conducted and results of the study will be available shortly. This environmental characterization will allow, among other things, to delineate the extent of soil contamination in those areas where levels of petroleum hydrocarbons are higher than generic criterion C of the MDDELCC. Moreover, once the Project moves forward to the operations phase, mining activities will be regulated by the Regulation for Soil Protection and Contaminated Sites Rehabilitation ("RSPCSR"). The RSPCSR fixes the limit values for a range of contaminants and defines the types of industrial activities contemplated by the regulation. It also establishes the conditions under which groundwater quality must be monitored downstream of the lands on which some of those activities take place. Finally, the regulation respecting the burial of contaminated soils governs the layout, extension, operation, closure and post-closure monitoring of sites used for the burial of contaminated soils. According to the RSPCSR, special provisions should be made in the following circumstances:

- Cessation of a prescribed activity;
- Change in the use of contaminated land;
- Voluntary rehabilitation of a contaminated site; and/or
- Possible migration of contaminants.

Air Quality

The air quality modelling will be completed during the feasibility stage. Modelling will be completed on two project phases (construction, operations) for each site (Mine, Plant). Ambient air concentrations, established by the MDDELCC for northern projects, will be used as baseline conditions for modelling at the Mine Site, whereas modelling at the Plant Site will be based on ambient air concentrations measured in the field. In fact, air quality samplings are currently being undertaken at the Plant Site and data collected will be integrated in the EIA.



Noise

A field campaign was conducted in July 2017 at the Plant Site area and at certain locations along the road (especially near the cottages). The objective was to measure noise levels before the construction and operations phases of the Project and to determine applicable noise criteria for each sensitive area (residences, cottages, etc.) regarding land uses and applicable regulations (municipal regulations, MDDELCC's Directive 019 for the Mining Industry, Policy on traffic noise of the MTMDET, etc.). Two receiver points were established for the campaign, which are both located at cottages near the Mine Site.

The next step will be modelling noise levels resulting from mining activities. If required, site-specific mitigation measures will be proposed to respect applicable noise regulations.

20.1.2.2 Biological Environment

This section gives information on biological components for the Mine Site area. As previously indicated, data for the Plant Site area will be available in 2018, once the inventories and data analyses are completed. Various inventories were conducted to gather information required to describe the biological environment. In addition, information concerning observations regarding biological components from workers and members of the Waswanipi community gather along the EIA process will be used to complete acquired field data.

Vegetation and Wetlands

Two field campaigns were conducted in August 2016 and 2017 to characterize terrestrial vegetation groups and wetlands within the Mine Site area. Prior to these campaigns, photo-interpretation of vegetation groups was conducted.

Results from the field campaigns revealed that terrestrial vegetation accounts for 60.6% (2,121.96 ha) and 80.5% (360.15 ha) of the extended (3,502 ha) and the limited (447 ha) study areas respectively. Terrestrial vegetation is mainly composed of regenerating forest groups dominated by black spruce and white pine. Wetlands account for about 30% and 7% of the extended and limited study areas respectively. They are dominated by open and forested ombrotrophic bogs.

No special status plant species were recorded at the Mine Site or within an 8-km radius from it. Among all plant species observed in the field, based on literature (Uprety et coll., 2012), about 36 plants of interest are potentially used by the Cree.

Avifauna

Three field campaigns were conducted in the spring and summer of 2016. In total, 70 bird species (28 families) were found during these field campaigns as well as during the other inventories conducted in 2017. A total of 16 nesting species were confirmed.



Five special status bird species were observed within the Mine Site area: the bald eagle (*Haliaeetus leucocephalus*), the common nighthawk (*Chordeiles minor*), the rusty blackbird (*Euphagus carolinus*), the olive-sided flycatcher (*Contopus cooperi*) and the Canada warbler (*Cardellina canadensis*).

Herpetofauna

Inventories conducted in the summer of 2017 consisted of active searches (transect and fix stations) such as automatic recording stations. Moreover, opportunistic observations were carried out during various field campaigns conducted in 2016 and 2017.

In total, eight species of herpetofauna were observed: the blue-spotted salamander (*Ambystoma laterale*), the northern two-lined salamander (*Eurycea bislineata*), the spring peeper (*Pseudacris crucifer*), the northern green frog (*Rana clamitans malanota*), the American toad (*Bufo americanus*) the mink (or north) frog (*Rana septentrionalis*), the wood frog (*Rana sylvaticus*) and the common garter snake (*Thamnophis sirtalis*).

Moreover, according to the Atlas of Amphibians and Reptiles of Québec, six other herpetofauna species could potentially be found within the study area: the red-backed salamander (*Plethodon cinereus*), the yellow-spotted salamander (*Ambystoma maculatum*), the eastern newt (*Notophthalmus viridescens*), the northern leopard frog (*Lithobates pipiens*), the bullfrog (*Lithobates catesbeianus*) and the red belly snake (*Storeria occipitomaculata*). No special status species were recorded and of the six herpetofauna species that could be found in the area none are “special status species”.

Fish

Three field campaigns were conducted in the summer of 2009, 2016 and 2017 to characterize fish communities and their habitats. Twelve fish species were caught during these campaigns: the northern pike (*Esox lucius*), the mottled sculpin (*Cottus bairdii*), the cisco (*Coregonus artedii*), the burbot (*Lota lota*), the white sucker (*Catostomus commersoni*), the lake chub (*Couesius plumbeus*), the brook trout (*Salvelinus fontinalis*), the yellow perch (*Perca flavescens*), the fallfish (*Semotilus corporalis*), the walleye (*Sander vitreus*), the lake whitefish (*Coregonus clupeaformis*) and the brook stickleback (*Culaea inconstans*). The northern pike was caught in all waterbodies inventoried. The yellow perch was more abundant in Windfall Lake. The brook trout was only caught in watercourse No. 7, and the walleye was caught only in an unnamed lake No. 2.

Among the species caught during inventories, northern pike, cisco, burbot, brook trout, yellow perch, walleye and lake whitefish are of interest for recreational and traditional fishing. No special status species were recorded. Information concerning observations regarding fish from workers and members of the Waswanipi community gather along the EIA process will be used to complete acquired field data.



Mammals

Micromammals

As for the micromammals, 17 species are potentially present in the study area. An inventory carried out in August 2016 revealed the presence of five species of micromammals: the Gapper's red-backed vole (*Myodes gapperi*), the eastern heather vole (*Phenacomys ungava*), the deer mouse (*Peromyscus maniculatus*), the masked shrew (*Sorex cinereus*) and the smoky shrew (*Sorex fumeus*). The Gapper's red-backed vole and the masked shrew were the most abundant species captured. No special status species have been recorded.

Other mammals

The presence of eight mammalian species (excluding small mammals and chiropterans) was confirmed during the inventories that took place in 2016 and 2017 at the Mine Site. The species are, mainly, the beaver (*Castor canadensis*), the red squirrel (*American red squirrel*), the snowshoe hare (*Lepus americanus*), the grey wolf (*Canis lupus*), the eastern chipmunk (*Tamias striatus*), the moose (*Alces americanus*), the black bear (*Ursus americanus*) and the muskrat (*Ondatra zibethicus*). As mentioned, information concerning observations regarding other mammals from workers and members of the Waswanipi community gather along the EIA process will be used to complete acquired field data.

Caribou

The report from the Committee on the Status of Endangered Wildlife in Canada ("COSEWIC") established a national consensus regarding the various "Designatable Units" ("DU") for caribou in Canada. Most of DU 6, which corresponds to Boreal caribou, is located within the province of Québec. Distribution of this ecotype of caribou is the boreal forest extending from Labrador, across Québec, Ontario and the Prairies up to the Rockies and the Northwest Territories. The boreal caribou is also called woodland caribou at the provincial level. The woodland caribou's status is distinct from that of the eastern migratory caribou (DU 4), which includes the George River herd and the Leaf River herd. However, in the vicinity of the Project, it is likely that only woodland caribou would be found.

Few studies document the real effects of a mining project on woodland caribou. These species seem to generally avoid areas less than 4 km from the centre of a mine and this distance increases with the intensity of mining activity, regardless of the season. Thus, a 4-km radius area of influence/disturbance from the centre of the Mine Site has been considered to identify and assess the Project's potential effects on caribou habitat conditions. Then, the outskirts of this arbitrary area is located about 76 km south of the area of application of the provincial recovery plan for the woodland caribou in Québec



Within and around the influence area of the Mine Site, the cumulative effects of several sources of disturbance have already generated a certain level of pressure on the species. These disturbances greatly reduced the quality and availability of key habitats for the woodland caribou within the study area. These sources of disturbance included, among other things, logging and associated road networks as well as forest fires.

According to data provided by the provincial ministry, *Ministère des Forêts, de la Faune et des Parcs* ("MFFP"), the closest observations of woodland caribou are located about 20 km from the Mine Site. These observations come from an undated incidental sighting acquired in aerial inventories. Furthermore, according to telemetry collar data, the closest group of woodland caribou is concentrated within an area located about 75 km north of the Mine Site. However, in spring, some individuals may approach to a distance of 40 km.

A three-day aerial inventory was conducted in March 2018 to address specific Waswanipi community concerns regarding the presence of woodland caribou in the area. During this inventory, covering 1,600 km², three woodland caribous were observed in a large peatland complex located 14 km to the south-east of the Mine Site.

Finally, because of the marginal caribou presence and the low habitat quality within the study area it is possible to conclude that impacts to the woodland caribou from project activities are negligible.

Chiropterans

Specific inventories carried out in 2016 and 2017 within the Mine Site Area confirmed the presence of the following six species of chiropterans: the hoary bat (*Lasiurus cinereus*), the northern long-eared bat (*Myotis septentrionalis*), the red bat (*Lasiurus borealis*), the big brown bat (*Eptesicus fuscus*), the little brown bat (*Myotis lucifugus*) and the silver-haired bat (*Lasionycteris noctivagans*).

Both the northern long-eared bat and the little brown bat are identified as endangered by the COSEWIC, whereas the hoary bat, the red bat and the silver-haired bat are identified as likely to be designated threatened or vulnerable in Québec. However, the Project will not affect the individuals or key habitat components for the species and therefore, impacts to these species from project activities are negligible.

No chiropteran hibernacula or maternity were found within the Project's area of influence.

Protected Area under provincial and federal legislation

No established or planned protected areas are located in the Project area.



20.1.2.3 Social Environment

Land Use

The Project is located on the territory of the Eeyou Istchee James Bay Regional Government. With 7,504 inhabitants (2016), Chibougamau has the largest population in the region. Other towns include Lebel-sur-Quévillon with a population of 2,187 (2016).

The land regime defined in the James Bay and Northern Québec Agreement (“JBNQA”) is a determining factor in land use. It provides for the division of the James Bay territory into Category I, II and III lands. The Windfall Lake Project is located on Category III lands, which are mostly public lands dominated by forestry activities. On Category III lands, the Cree have the exclusive rights to trap fur animals and have some advantages in providing outfitting services, without exclusive rights.

Lebel-sur-Quévillon, located 115 km west of the Mine Site, is an urbanized area that includes residential, commercial, service, industrial, institutional and public work uses.

The land use is being documented and will be integrated in the EIA.

Archaeological Potential

The archaeological potential study conducted by Archéo-08 in 2007 shows that the archaeological significance of the Mine Site is largely unknown and no documented site is present. According to the Archéo-08 (2007) report, the only known archaeological manifestations in this area are two native prehistoric Aboriginal sites discovered in the late 1970s on the banks of the Saint-Cyr River, 6 km east of Barry Lake.

The remaining land, representing the most part of the study area, has no archaeological interest according to Archéo-08 (2007). However, stream banks in the confined area are considered to have high archeological potential. They hold characteristics that are conducive to human occupation and are also located within areas historically used by Aboriginal peoples for their livelihood activities. Inventories are currently conducted in high potential areas that could be affected by exploration activities. It is recommended to carry out a systematic archaeological inventory of areas with high archaeological potential that will be affected by the Project, both by the works and by the intensive occupation of the site.



Ancestral Rights

Three First Nation communities have been identified as having a potential interest in the Project: the Cree First Nation of Waswanipi, the Algonquin community of Lac Simon and the Attikamekw community of Obedjiwan/Opitciwan. The Mine Site is located on the traditional lands of the Waswanipi Cree community, specifically on the family trapline of Mr. Marshall Icebound (W25B). The Cree village of Waswanipi is located about 75 km north-northwest of the Windfall Lake Project. The communities of the Opitciwan Attikamekw First Nation and the Lac-Simon Anishnabeg First Nation are located at 69 km and 169 km respectively, from the Mine Site.

The Plant Site is located on private land except for a small portion of the TMF located on Crown land (on the territory of the Eeyou Istchee Regional Government). One part of this private land is included in the boundaries of the municipality of Lebel-sur-Quévillon and the other part is on the territory of the Eeyou Istchee Regional Government. The area in the vicinity of Lebel-sur-Quévillon is claimed as traditional territory by the Anishnabeg of Lac Simon.

Meetings with Waswanipi tallymen on traditional knowledge and uses of the land were conducted to learn about activities on the territory and to locate camps and sites of interest.

As part of its public information and consultation activities, Osisko has regular discussions with the Waswanipi Cree First Nation and the Grand Council of the Crees. The mining company has also begun a dialogue with the Atikamekw First Nation of Opitciwan and the Lac-Simon Anishnabeg First Nation. Osisko intends to maintain its relationship with these three First Nations throughout the development of the Project, as recommended by CEAA and MDDELCC guidelines for the conduction of the Environmental Assessment ("EA").

20.1.2.4 Mineralized Material, Waste Rock and Water Management Strategy

Production Schedule

The Windfall Lake Mine will be in operation for about 8 years. The exploitation of the mine will generate:

- Mineralized material: 7.9 Mt;
- Waste rock: of all the waste rock generated: a maximum of 1.4 Mt will be stored on the surface at one point in time.

The mineralized material extracted from the mine will be hauled by trucks to the process plant located in Lebel-sur-Quévillon. A silo will be present at the Windfall Lake Mine Site to temporarily store the mineralized material awaiting haulage to the Plant Site.



Geochemical Assessment

An independent study was carried out to define the geochemical and environmental properties of the mineralized material and waste rock to be produced by the operations at Windfall Lake related to the potential for acid rock drainage (“ARD”) and metal leaching (“ML”). Short-term static testing methods were used to assess the ARD potential, the chemical composition, and the ML potential of the mineralized material and waste rock in comparison to the soil and both groundwater (for consumption and for draining to surface water) quality criteria defined by MDDELCC (2017). Analyses carried out on the samples consisted of acid base accounting, extractable metal analyses and static leachability tests using analytical protocols from the *Centre d’expertise en analyse environnementale du Québec* (“CEAEQ”) as prescribed in Directive 019 (MDDEP, 2012). Results were used to classify these materials according to Directive 019 and to evaluate the risk associated with the mineralized material and waste materials. Such results are generally used to define waste disposal strategies and may also be used as a guide for contact water management practices for the proposed mining operation.

Mineralized Material Samples

A total of 15 composite mineralized material samples were selected by Osisko for the four mineralized zones (Caribou, Zone 27, Underdog and Lynx). The composite samples include variable lithology proportions (rhyolite or felsic volcanics - V1, andesite or mafic volcanics - V2, quartz eyes porphyry dikes - I1P, fragmental porphyry units - I2P and I1 Frg, fine grained quartz monzonite - I13, and gabbro - I3A), mineralized material grades (low to high) and variable depths of mineralized zones when applicable (e.g. upper and lower zones for Caribou, Zone 27 and Lynx). Results obtained by Genivar (2007) for two additional mineralized material samples are included in this study for informative purposes. A summary of the geochemical characterization results obtained on mineralized material samples is presented in Table 20-1.

Table 20-1: Summary of mineralized material geochemical characteristics

Zone	Number of samples	Percentage PAG samples ⁽¹⁾	Leachable parameters ^(1, 2)
Zone 27	4	100%	As(4), Cd(2), Cu(1), Zn(2)
Caribou	4	100%	As(4), Cd(4), Cu(1), Pb(1), Zn(3)
Lynx	4	100%	As(4), Zn(2)
Underdog	3	100%	As(3), Cd(1), Cu(2), Zn(1)
WSP (2007)	2	100%	As(2)

⁽¹⁾ Following Directive 019 guidelines.

⁽²⁾ The number of leachable samples is given in parentheses for the indicated parameters.



Acid base accounting results indicate that all mineralized material samples are potentially acid generating (“PAG”) due to high total sulphur (mostly as sulphide) content (1.75% to 12.2% S by weight) and insufficient neutralization potential (“NP”), which is mostly provided by reactive carbonates. The Directive 019 criteria suggest that for a sample to be considered non-acid generating it must have a sulphide content of less than 0.3% (by weight), or a ratio of neutralizing potential to acid generation potential (NP/AP) of greater than 3, or a net neutralizing potential (“NNP”) above 20.

Comparing short term static leach test results to the Directive 019 guidelines results in mineralized material samples that have been classified as leachable for the following parameters: arsenic, cadmium, copper, lead (only one sample), and zinc. Additional parameters of interest have been identified in comparison of leach test results against surface water quality guidelines (Québec and federal surface water criteria for the protection of aquatic life (long term effects), from MDDELCC (2017) and CCME (2008)) as follows: aluminum, silver, beryllium, barium, fluorine, iron, mercury, manganese, selenium, antimony. Although not directly applicable with respect to discharge internal limits on mineralized material contact water, comparison to these receiving water criteria allow for identification of parameters that have the potential to influence treatment requirements before discharge to the environment.

These results indicate that management measures will need to account for potential ARD/ML during the temporary storage of mineralized material at the Windfall Lake Mine Site and at the Plant Site. Results also provide a preliminary understanding of the geochemical properties of tailings that will be produced. Geochemical characterization of tailings and process water will be needed to further define management measures. Additional work including long-term kinetic tests will be required. Results from ongoing testing and long-term kinetic tests will be used to develop appropriate mineralized material and tailings ARD/ML mitigation strategies as necessary.

Waste Rock

Geochemical data for a total of 116 waste rock samples were used to evaluate the geo-environmental characteristics of waste rock to be generated at Windfall Lake. The expected waste rock tonnage to be stored on the surface will be 1.4 Mt at one point in time. It is important to note that, at the time of sampling, the mining plan was not fully developed; as such, the waste rock samples were selected based on a preliminary understanding of the mining zones, according to their low gold content (cut-off grade of 3 g/t for gold was used). Samples were selected such that most of the expected geochemical variations would be captured for the majority of the studied mineralized zones.

Included in this data set are 76 waste rock samples from the Caribou, Zone 27, Lynx and Underdog zones. These samples were selected and collected by Golder in December 2017, except for the I1 Frg lithology (samples selected by Osisko), and were chosen to cover spatially the distribution of waste that may be generated from regions situated near the mineralized zones (for Caribou, Zone 27, Lynx and Underdog), and from areas where the location of access ramps was planned at the time of sampling (Figure 20-2). Further distinctions in sample selection were made within these regions according to lithology types and sulphur content to select representative samples. The major sampled lithologies are rhyolite or felsic volcanics (V1), andesite or mafic volcanics (V2), fragmental porphyry units (I2P and I1P Frag), quartz monzonite dike 'Red Dog' (I2F), quartz eyes porphyry dikes (I1P YL, I1P TrY), and gabbro (I3A).

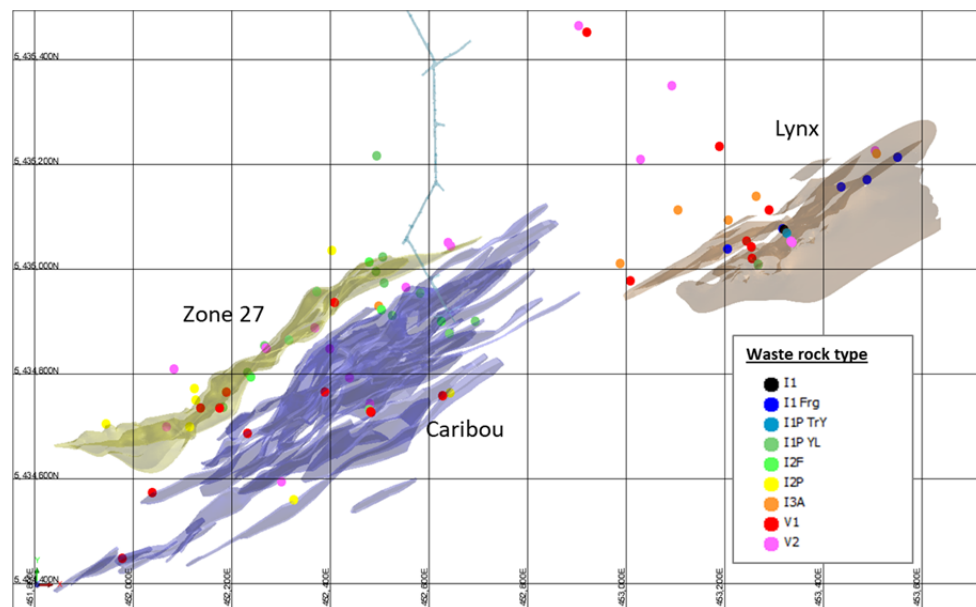


Figure 20-2: Plan view of the distribution of waste rock samples from the Caribou, Zone 27 and Lynx mineralized zones.

Waste rock core intervals between 1 m and 6 m were chosen according to the statistical distribution of available sulphur concentrations in the drill core database provided by Osisko. For each mineralized zone, the distribution of sulphur representing waste rock (based on a cut-off grade of 3 g/t for gold) was determined for each major rock type. Details on the sampling can be found in Golder (2018b).



Since the selection and sampling of waste rock occurred in 2017 when it was planned to mine only Zone 27, Caribou and Lynx, the number of waste samples selected from the Underdog zone is limited. Only one sample for each lithology (V1, I1P YL, I3A) and two I2P samples were chosen from the Underdog zone. Understanding of the geochemical variability present in the Underdog zone will be further developed as the Project progresses.

Additional results from previous studies on waste rock (Golder 2018c; Genivar 2007, 2010 and 2011) were also included for reference in this evaluation (a total of 40 additional samples). These samples were collected from existing waste rock on site or previous sampling campaigns, and no distinction was made according to their lithology. A summary of the geochemical characterization results obtained on waste rock sampled from all zones is compiled in Table 20-2 according to lithology type.

Table 20-2: Summary of waste rock geochemical characteristics by lithology

Lithology	Number of samples	Percentage PAG samples ⁽¹⁾	Leachable parameters ^(1, 2)
Rhyolite or felsic volcanics (V1)	18	61%	As(17), Cd(1), Zn(1)
Andesite or mafic volcanics (V2)	18	50%	As(13), Mn(7), Cd(1), Cu(1), Ni(2), Pb(1), Zn(1)
Quartz eyes porphyry dikes (I1P)	18	50%	As(15), Ba(1), Cd(1), Cu(3), Mn(1), Zn(1)
Fragmental porphyry unit (I1 Frg)	5	non-PAG	As(4)
Porphyry unit (I2P)	7	71%	As(3), Cu(1)
Quartz monzonite 'Red Dog' (I2F)	4	non-PAG	As(1)
Gabbro (I3A)	6	non-PAG	As(5), Cr(1), Mn(4)
Golder (2018) – unlined waste rock pile	10	10%	As(2), Cu(2), Mn(6)
Genivar (2010, 2011) – unlined waste rock pile	13	23%	n/a
Genivar (2010) – lined waste rock pile	9	66%	n/a
Genivar (2007)	8	25%	As(5), Ba(7), Zn(1)

⁽¹⁾ Following Directive 019 guidelines.

⁽²⁾ The number of leachable samples is given in parentheses for the indicated parameters.

n/a: Results not available.



Waste rock samples exhibit variable acid generation potential; this is due to variation in sulphur (mostly as sulphide) contents (0.04% to 10.9% sulphur in selected samples) and neutralization potentials (5.9 kg to 300 kg CaCO₃/t) within most lithology types. For several lithologies (e.g., V1, V2, I1P, I2P), between 50% and 71% of samples are classified as acid generating according to Directive 019 criteria and three lithologies have been classified as non-acid generating: these include porphyry dikes (I1 Frag), Red Dog monzonite (I2F), and gabbro (I3A). Additional results on mixed waste rock (Golder, 2018c; Genivar 2007, 2010 and 2011) confirm the variability of the acid generation potential, with up to 66% of samples being classified as PAG.

Waste rock data were also classified according to mineralized zones to evaluate the differences in geochemical character of the waste rock for: 1) Caribou and Zone 27; 2) Lynx; 3) Underdog; and 4) the unmineralized Red Dog.

Table 20-3: Summary of waste rock geochemical characteristics by mineralized zones

Zone	Number of samples	Percentage of PAG samples ⁽¹⁾	Leachable parameters ^(1,2)
Caribou and Zone 27	41	63%	As(32), Ba(1), Cd(1), Cu(4), Mn(4), Ni(1), Zn(1)
Lynx	26	23%	As(21), Cd(2), Cr(1), Mn(8), Ni(1), Pb(1), Zn(1)
Underdog	5	60%	As(4), Cu(1)
Red Dog (un-mineralized)	4	non-PAG	As(1)

⁽¹⁾ Following Directive 019 guidelines.

⁽²⁾ The number of leachable samples is given in parentheses for the indicated parameters.

The predominant lithologies of Caribou and Zone 27 regions are V1, V2, I1P and I2P, and the percentage of PAG samples relative to the total number of samples from each of these respectively is above 60%.

According to the obtained data, the low proportion of PAG samples for Lynx is explained by the presence of two non-PAG units: I1Frg (five samples) and I3A (five samples). Most of the PAG samples belong to V1 for Lynx units. Some additional verification samples will be required for the I1Frg unit.

It is important to note that in the case of the Underdog zone additional samples will be required to further develop an understanding of the geochemical variability within each lithology and how it affects the overall proportion of PAG materials. Regarding the Red Dog unit, four samples out of four are non-PAG and this distinct unit may be considered as non-acid generating.



Comparing short term static leach test results to the Directive 019 guidelines shows that waste rock samples are classified as leachable for the following parameters: arsenic, cadmium, copper, manganese, nickel and zinc; only one sample was classified as leachable for each barium, chromium and lead. Additional parameters of interest have been identified by screening leach test results against surface water quality guidelines (Québec and federal surface water criteria for the protection of aquatic life (long term effects), from MDDELCC (2017) and CCME (2008), respectively). Identified parameters based on this screening are as follows: aluminium, silver, barium, beryllium, fluorine, iron, mercury, lead, antimony and selenium). Although not directly applicable with respect to discharge internal limits on waste contact water, comparison to these receiving water criteria allow for identification of parameters that have the potential to influence treatment requirements before discharge to the environment.

Based on available results, management measures will need to account for potential ARD/ML for the disposal of waste rock produced from all zones since substantial proportions of all waste material samples are classified as PAG and/or leachable. Additional Underdog waste rock samples will need to be analyzed to ensure that possible geochemical variability has been captured. Additional work including long-term kinetic tests will be required. Results from on-going testing and long-term kinetic tests will be used to develop appropriate waste rock ARD/ML mitigation strategies as necessary.

Waste Rock Management Strategy

There are currently two existing waste rock stockpiles at the Windfall Lake Mine Site. One waste rock stockpile to the east of the access road is lined with an HDPE geomembrane. The waste rock stockpile located west of the access road is unlined. An overburden stockpile is also present east of the access road and it is unlined.

The strategy for mineralized material and waste management is to reuse existing storage areas, when possible, to limit ground disturbance. The planned waste rock and overburden stockpiles will be extensions of the existing ones. Adjustments and upgrades may be required to integrate existing storage areas to planned ones. A new area will be developed for the mineralized material stockpile as this one will be located close to the ramp for the automated equipment. Figure 20-3 presents a plan view of the mineralized material, waste rock and overburden stockpiles with related surface water management infrastructure.

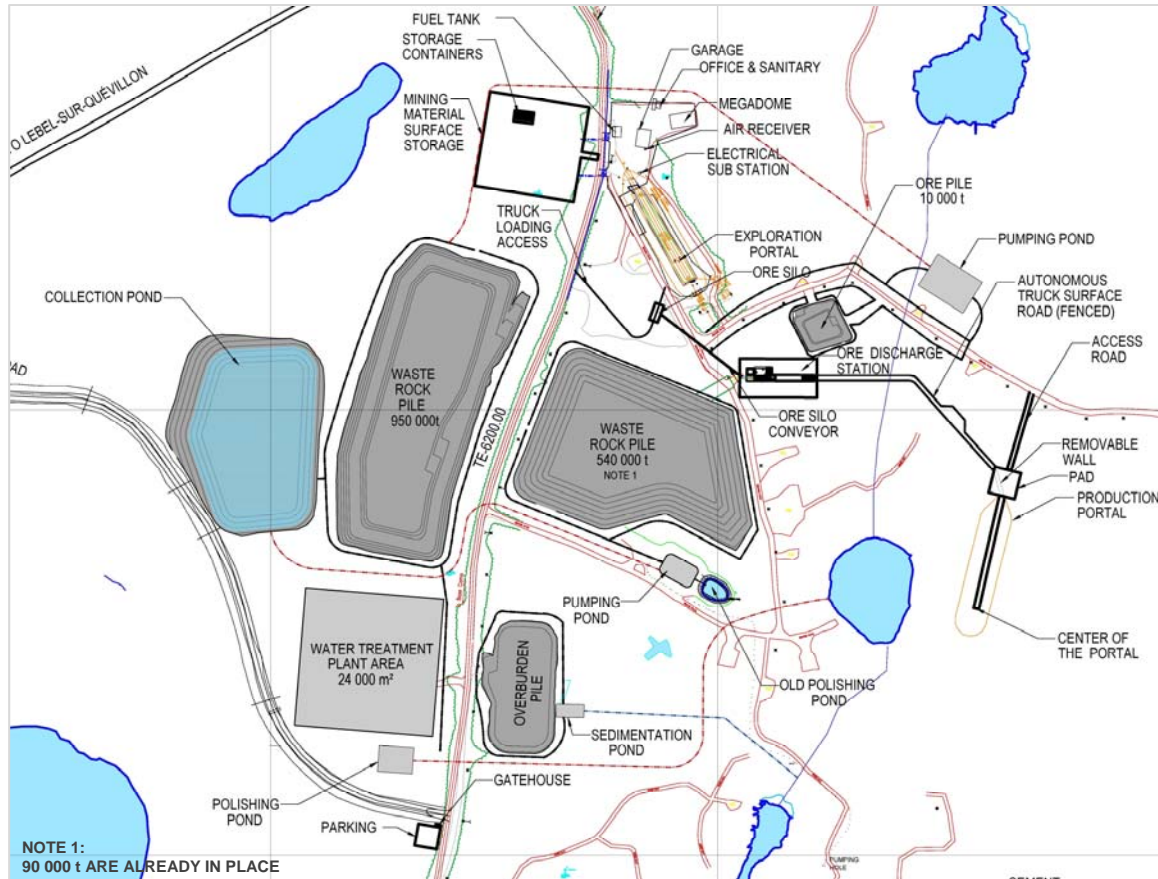


Figure 20-3: Waste, mineralized material and overburden stockpiles.

It is planned to install a liner at the mineralized material and waste rock storage areas considering the nature of the foundations and the geochemical assessment regarding the mineralized material and the waste rock (PAG and potentially leachable for metals). The foundation under the stockpiles is composed of sand, which is permeable. The liner system will limit losses of potentially contaminated water to the underlying aquifers.

The east waste rock stockpile should be developed first, followed by the west waste rock stockpile. The extension of the existing stockpile to the east will maintain the current configuration with 3H:1V slope and a single lift. The liner under the extension will need to be connected to the existing to ensure continuity under the stockpile. Once developed to its full extent, waste rock deposition will be moved to the west storage area.

Existing waste rock on the unlined stockpile will have to be removed and firstly sent back underground to be used as rock fill or disposed of on the east waste rock stockpile to prepare the area for waste rock disposal. Slopes of the stockpile to the west are planned at 1.5H:1V.



The stockpile will be developed in 10 m high lifts to a final height of 16 m, with 10 m wide benches. Depending on the reclamation measure selected for this stockpile, slopes may have to be flattened at closure at 3H:1V or less to accommodate a cover.

Water Management Strategy

All contact water (water that comes into contact with mine facilities) at the Windfall Lake Mine Site will be collected using ditches, sumps and ponds and will be managed separately depending on water quality. The existing surface water management infrastructure at the Mine Site are:

- Ditches along access roads and existing infrastructure;
- Sedimentation pond;
- Polishing pond.

New surface water management infrastructure will be implemented with the extension of the existing lined and unlined the waste rock stockpiles, extension of the overburden stockpile, the new mineralized material stockpile location, and the haul road to the second portal for automated equipment. Existing water management infrastructure will have to be integrated to the ones planned at the feasibility stage. Adjustments and upgrades may be required locally to be consistent with site development.

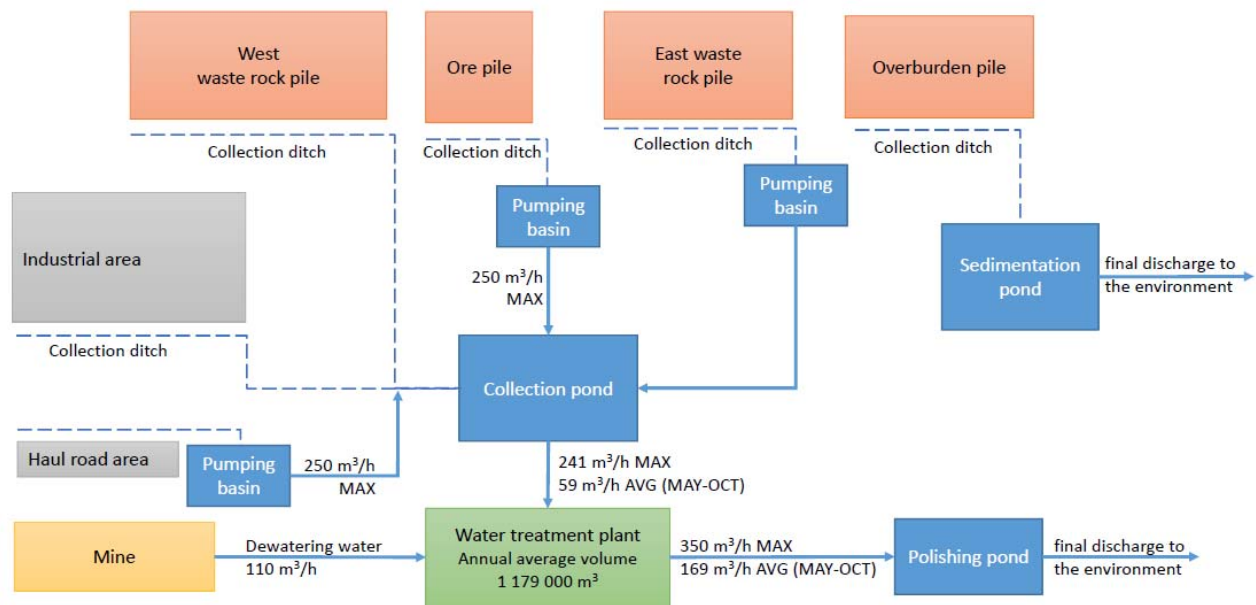
Runoff from waste rock stockpiles, mineralized material stockpile, haul road and industrial area, as well as mine dewatering groundwater will be conveyed by gravity or via a pumping station into a new collection pond. The existing sedimentation pond east of the lined waste rock stockpile will be converted into a pumping basin to transfer excess storm water to the new collection pond. From the pond, the water will be pumped to a treatment plant before discharging it to the polishing pond for control before the final discharge to the environment. Ditches conveying runoff from the waste rock piles, the mineralized material pile and the haul road as well as the collection pond and pumping basins will be lined to limit water infiltration into the ground.

Runoff from the overburden stockpile is expected to require particle sedimentation only; it will thus be managed separately. Runoff will be conveyed into a sedimentation pond to allow sedimentation of particles before discharge to the environment. This infrastructure will not require lining.

Figure 20-3 presents the layout of the surface water management infrastructure and Figure 20-4 presents a schematic of the surface water management system.

The new collection pond and the pumping basins are designed to contain and manage the regulatory project flood that is the 1:2,000-year 24-hour rainfall superposed to the 1:100-year

snow accumulation melting uniformly over 30 days. The ditches are designed to convey the 1:100-year peak flow event.



Note : Water treatment plant availability is assumed to be 95%.
Security factor for pumping and piping design are not considered in this water balance

Figure 20-4: Schematic of Water Management System – Windfall Lake Mine Site.

20.1.3 Osborne-Bell Mine Site

As previously mentioned, an Environmental Baseline Study (“EBS”) was conducted in 2012 by Roche Ltd. The study area of the EBS is presented in Figure 20-1. The main objective of the EBS was to describe the receiving environment before the implementation of a project. Field surveys were conducted between July and October 2011 and in August 2012. They focused on:

- Characterization of local vegetation cover: desktop study for initial delineation (ecoforestry maps and photo-interpretation) and one field validation;
- Definition of soil, groundwater, surface water and sediment quality: five soil samples, one campaign of groundwater (five stations) two campaign for surface water (10 stations) and one campaign for sediment (10 stations);
- Characterization of fish habitat and biodiversity: two distinct fish inventories and various opportunistic observation for other fauna;
- Characterization of benthic communities: one campaign (four stations);



- Stream flow measurements: two field campaigns (four gauging stations) and a hydrological study completed by the *Centre d'expertise hydrique du Québec* (CEHQ).

The EBS also identified project-related constraints and opportunities. According to the available information, no other significant environmental work has been undertaken on the property since the publication of the EBS in 2012.

20.1.3.1 Physical Environment

Hydrogeology and Groundwater Quality

The Osborne-Bell projected Mine Site is located 2 km east of the Bell river, on a local topological high and at the head of two small river catchment areas (i.e. less than 5 km²). Regionally, deep water clay deposits presenting thicknesses between 1 m and 50 m are encountered (Veillette and al., 2003). Ice contact deposits typically composed of permeable sand and gravel and presenting thicknesses ranging between 5 m and 50 m are also present in the area (Veillette and al., 2003).

Based on the geological database, the overburden thickness encountered in exploration drill holes is typically ranging around 10 m. In its present layout, a portion of the mine's underground developments are located under or at proximity of the footprint of the ice contact deposits. Based on the available RQD data, rock quality at Osborne-Bell is good. The orebodies to be mined are compartmented by a succession of numerous criss-crossing feldspar-amphibole porphyry dikes.

The ice-contact sediments unit is currently understood to be the zone of aquifer recharge due to its permeability. No major water-bearing structures were encountered in the rock mass during the exploration drilling campaigns. The in situ hydraulic conductivity of the main hydrogeological units identified has not yet been determined.

Baseline Groundwater Quality

Groundwater samples were collected in July 2011 from five observation wells by Roche (2012). The baseline groundwater quality data documented in Roche (2012) have shown exceedance of groundwater resurgence criteria for barium, mercury and zinc in one sample. Mercury exceeded drinking water standard at one sampling location.



20.1.3.2 Mineralized Material, Waste Rock and Water Management Strategy

Production Schedule and Waste Rock

The Osborne-Bell Mine will be in operation for about 5 years. Exploitation of the mine will generate:

- Mineralized material: 1.0 Mt;
- Waste rock: of all the waste rock generated: a maximum of 0.86 Mt will be stored on the surface at one point in time.

The mineralized material extracted from the Osborne-Bell Mine will be hauled by trucks to the process plant located in Lebel-sur-Quévillon. A stockpile will be present at the Osborne-Bell Mine Site to temporarily store the mineralized material awaiting haulage to the Plant Site.

Geochemical Assessment

An environmental baseline study was carried out by Roche Ltd. in 2012 in the Osborne-Bell region to assess potential environmental risks associated with mine waste according to Directive 019 guidelines (MDDEP, 2012). The Roche (2012) study carried out a preliminary geochemical characterization of the mineralized material (six samples) and waste rock (nine samples) to evaluate ARD potential and ML potential. Analyses include acid base accounting, extractible metals and static leach tests, which were completed according to analytical protocols from the CEAEQ, as prescribed in Directive 019. For this PEA section, the Roche (2012) results were screened against soil criteria, groundwater criteria (RES – criteria for groundwater draining into surface water and EC – criteria for groundwater destined for consumption) defined by MDDELCC (2017), final effluent criteria (Directive 019), as well as federal and provincial surface water quality guidelines for the protection of aquatic life (long term effects) (MDDELCC (2017) and CCME (2008), respectively).

These are the only available geochemical results from Osborne-Bell to date. Of note is that the list of analyzed parameters given in Roche (2012) is not complete, and that the detection limits (“DL”) for several parameters are above the soil and/or water criteria used.

Mineralized Material Samples

The Osborne-Bell deposit is a disseminated pyrite gold deposit and most of the mineralization occurs in the synvolcanic felsic units and along the interface with the mafic volcanic rocks (InnovExplo, 2018). A total of six composite mineralized material samples were selected by Roche (2012) according to the following lithologies: intermediate intrusive dike, intermediate to mafic volcanic and felsic volcanic (see Table 20-4).



Acid base accounting results indicate that all mineralized material samples except the intermediate intrusive dike are potentially acid generating due to high total sulphur (up to 4 wt%) and insufficient NP.

An evaluation of the available geochemical static test results (TCLP leach test results and extractable metal contents) shows that out of the six mineralized material samples, four are classified as leachable for copper, one for cadmium and one for zinc (Table 20-4). However, the metal leachability classification is not complete because the DL for the analysis of certain parameters in leachates (e.g., silver and copper) are greater than the values of the applicable groundwater criteria. The leaching potential of these metals needs to be confirmed for several samples. Furthermore, results are not available for all the parameters that are generally considered for surface and groundwater quality monitoring (e.g. fluoride, chloride, boron, phosphorous, uranium and antimony).

Further work is required, including the characterization of a representative series of mineralized material samples by means of static leach tests (SPLP and CTEU-9 in addition to TCLP), and leachate analysis at lower DL. Long-term kinetic tests are also required to assess potential environmental risks associated with the handling and management of mineralized material according to Directive 019 guidelines. A more thorough characterization is required for the intermediate intrusive dike lithology, which was classified as non-PAG and shows a weak metal leachability potential based on the analysis of one sample only. Geochemical characterization of tailings and process water will be needed to further define management measures.

Table 20-4: Summary of Osborne-Bell mineralized material geochemical characteristics by lithology

Lithology	Number of samples	Percentage of PAG samples ⁽¹⁾	Leachable parameters ^(1, 2)
Intermediate intrusive dike	1	0%	Ag may be potentially leachable (DL greater than criteria)
Intermediate to mafic volcanic	2	100%	Cu(1); Ag(2), Cu(1) may be potentially leachable (DL greater than criteria)
Felsic volcanic	3	100%	Cd(1), Cu(3) and Zn(1); Ag(3) may be potentially leachable (DL greater than criteria)

⁽¹⁾ Following Directive 019 guidelines.

⁽²⁾ The number of leachable samples is given in parentheses for the indicated parameters.

DL: Detection limit



Waste Samples

Nine composite waste rock samples were selected and characterized by geochemical static tests in the Roche (2012) study. Waste rock was selected, as in the case of the mineralized material, according to the following lithologies: intermediate intrusive dike, intermediate to mafic volcanic and felsic volcanic (see Table 20-5). The geology of the Osborne-Bell area is dominated by undifferentiated mafic and intermediate volcanic rocks (InnovExplo, 2018). Felsic volcanic and volcanoclastic rocks and local interlayers of various sedimentary rocks have also been documented. Acid base accounting results indicate that seven of the nine samples are potentially acid generating due to high total sulphur (up to 2 wt%) and insufficient NP. The felsic and intermediate to mafic volcanic lithologies are classified as PAG, whereas the intermediate intrusion dike is classified as non-PAG.

An evaluation of the geochemical static test results (TCLP leach test results and extractable metal contents) according to Directive 019 guidelines shows that waste rock is classified as non-leachable, with the possible exception of silver, arsenic and copper, which need to be reanalyzed with more precision in the TCLP leachates (i.e., at detection limits that are more precise and below groundwater criteria). The SPLP and CTEU-9 leachates indicate that overall, the concentration of the analyzed metals is below the detection limit of analysis, which is higher than the guideline for many parameters. More precise analyses are recommended to identify potential parameters of environmental interest.

Furthermore, additional analyses are required for the TCLP and SPLP tests to include fluoride, chloride, boron, phosphorous, uranium and antimony, and for CTEU-9 to include fluoride, chloride, aluminum, beryllium, boron, cadmium, iron, lithium, lead, phosphorous, antimony, thallium, uranium, vanadium and zinc. Additional work including kinetic tests is also required to confirm leachable elements from the waste rock on the long term, to assess potential environmental risks associated with the handling and management of waste rock, and to define the environmental parameters to be used in waste management plans according to Directive 019 guidelines.



Table 20-5: Summary of Osborne-Bell waste rock geochemical characteristics by lithology

Lithology	Number of samples	Percentage of PAG samples ⁽¹⁾	Leachable parameters ^(1, 2)
Intermediate intrusive dike	2	0%	Ag(2) may be potentially leachable (DL greater than criteria)
Intermediate to mafic volcanic	4	75%	Ag(4), Cu(1) may be potentially leachable (DL greater than criteria)
Felsic volcanic	3	100%	As(1), Ag(3) and Cu(1) may be potentially leachable (DL greater than criteria)

⁽¹⁾ Following Directive 019 guidelines.

⁽²⁾ The number of leachable samples is given in parentheses for the indicated parameters.

DL: Detection limit

Considering the analytical limitations, the limited number of parameters, and the limited number of samples that were analyzed to date, available data is not sufficient to conclude on the geochemical characteristics (metal leaching in particular) of the waste rock and mineralized material for Osborne-Bell. As discussed in the previous sections, long-term kinetic tests, as well as further geochemical analyses are recommended to provide a more accurate assessment of the potential for metal leaching, and to better capture the chemical and lithological variability for mineralized material and waste rock from the Osborne-Bell region. Until such time as additional information is available, the Osborne-Bell materials should be treated as acid generating and metal leaching for the purposes of waste and water management.

Waste Rock Management Strategy

Waste rock, mineralized material and overburden stockpiles will be located near the industrial area, south of the mine access ramp. Figure 20-5 presents a plan view of the mineralized material, waste rock and overburden stockpiles with related surface water management infrastructure.

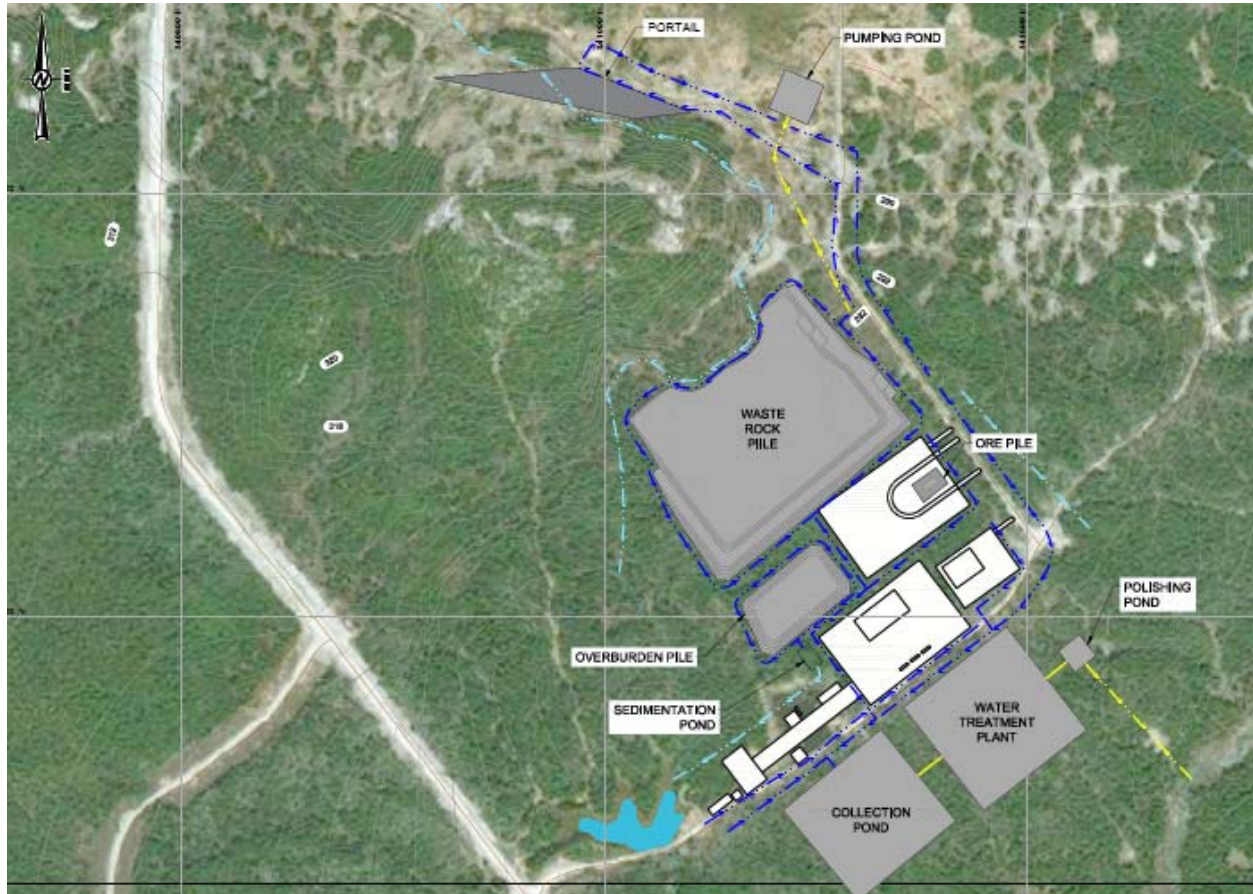


Figure 20-5: Waste, mineralized material and overburden stockpiles.

For this study, it is planned to install a geosynthetic liner system for the mineralized material and waste rock storage areas considering the geochemical assessment regarding the mineralized material and the waste rock (PAG and potentially leachable for metals). The liner system will limit losses of potentially contaminated water to the underlying aquifers. The need for a geosynthetic liner will be reviewed at the feasibility stage, once the soil foundation assessment has been conducted.

The waste rock stockpile will be built along the side of the hill to the north. A diversion ditch will be built upslope of the stockpile to limit runoff into its foundation and drainage layers will be incorporated in the liner system to drain water percolating through the pile and limit potential pressure build-up under the liner. The stockpile will be developed in 10 m high lifts to a final height of 16 m, with 10 m wide benches. Slopes of the stockpile are planned at 1.5H:1V. Depending on the reclamation measure selected for this stockpile, slopes may have to be flattened at closure at 3H:1V or less to accommodate a cover.



Water Management Strategy

All contact water (water that comes into contact with mine facilities) at the Osborne-Bell Mine site will be collected using ditches, sumps and ponds and will be managed separately depending on water quality.

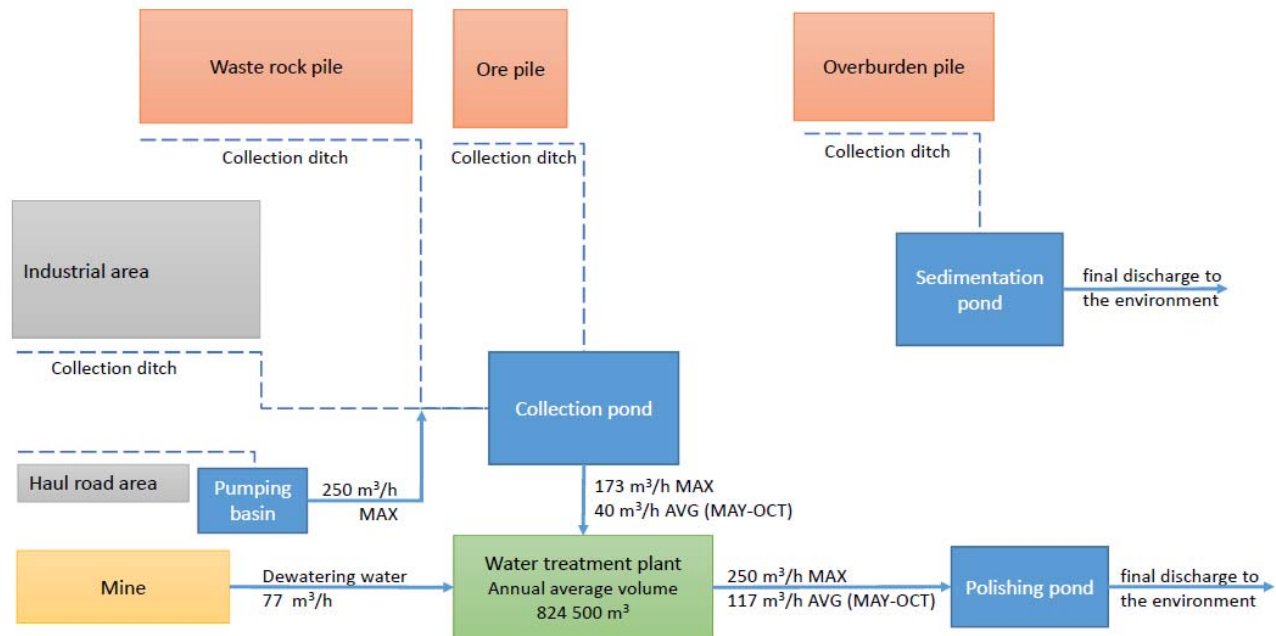
Runoff from waste rock stockpile, mineralized material stockpile, haul road and industrial area, as well as mine dewatering groundwater will be conveyed by gravity or via a pumping station into a collection pond. From the pond, the water will be pumped to a treatment plant before discharging it to the polishing pond for control before the final discharge to the environment. Ditches conveying runoff from the waste rock pile, the mineralized material pile and the haul road as well as the collection pond and the pumping basin will be lined to limit water infiltration into the ground.

Runoff from the overburden stockpile is expected to require particle sedimentation only; it will thus be managed separately. Runoff will be conveyed into a sedimentation pond to allow sedimentation of particles before discharge to the environment. These infrastructure will not require lining.

Runoff from undisturbed area uphill of the site will be diverted from the access ramp and the industrial area and stockpiles by diversion ditches. Diversion ditch will convey runoff to the nearest stream.

Figure 20-5 presents the layout of the surface water management infrastructure and Figure 20-6 presents a schematic of the surface water management system.

The collection pond and the pumping basins are designed to contain and manage the regulatory project flood that is the 1:2000-year 24-hour rainfall superposed to the 1:100-year snow accumulation melting uniformly over 30 days. The ditches are designed to convey the 1:100-year peak flow event.



Note : Water treatment plant availability is assumed to be 95%.
Security factor for pumping and piping design are not considered in this water balance

Figure 20-6: Schematic of Water Management System – Osborne-Bell Mine Site.

20.1.4 Plant Site (Lebel-sur-Quévillon)

20.1.4.1 Physical Environment

Hydrogeology

The hydrogeological context of the Plant Site is based on the interpretation of the available surficial deposit map prepared by the Geological Survey of Canada (Veillette and al., 2003). The surficial deposits are generally composed of typically low permeability deep water sediments (clay and silt). Locally, lenses of glacial till (continuous, thickness of more than one metre) and organic material (peat) are also present. At the southern edge of the site, south of the existing railway, an esker composed of sand and gravel juxta glacial sediments is present and aligned in a northeast-southwest direction. Typically the sand and gravel in the esker are high permeability materials.



20.1.4.2 Mineralized Material, Tailings and Water Management Strategy

Production Schedule and Tailings Streams

The mineralized material from Windfall Lake and Osborne-Bell will be processed at the Plant Site in Lebel-sur-Quévillon at a designed milling rate of 3,200 tpd. Table 20-6 presents the designed mill rate and total tailings production data.

Table 20-6: Designed mill rate and total tailings production based on LOM

Description	Unit	Nominal mineralized material mill rate and tailings production
Daily	Dry tonnes	3,200
Average annual production	Dry tonnes	1,090,000
Total		8,914,000

Mineralized Material Stockpile and TMF Management Strategy

The mineralized material stockpile will be located near the process plant. As for the TMF, it will be located in a valley south of the plant. The area is constrained by streams to the north and to the south. The terrain is primarily flat with a gentle slope to the east where the TMF abuts a hill. Figure 20-7 presents a plan view of the mineralized material and overburden stockpiles, as well as the TMF, with related surface water management infrastructure. It should be noted that a site selection study for the TMF location is ongoing. The TMF location shown on Figure 20-7 is one of the sites under study, amongst others, for the site selection process. It has been retained for the purpose of the PEA study.

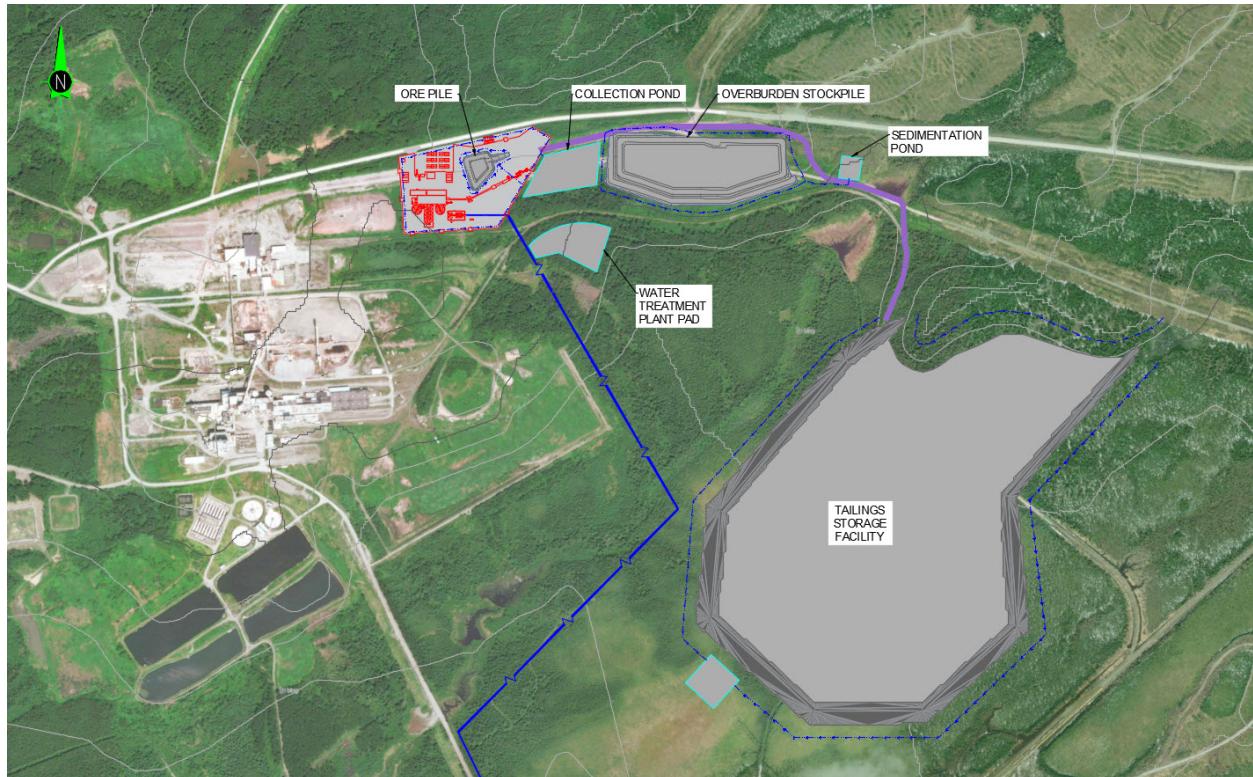


Figure 20-7: TMF, mineralized material and overburden stockpiles.

For this study, it is planned to install a geosynthetic liner system for the mineralized material storage area and the TMF considering the geochemical assessment regarding the mineralized material (PAG and potentially leachable for metals). The liner system will limit losses of potentially contaminated water to the underlying aquifers. The need for a geosynthetic liner will be reviewed at the feasibility stage.

Mineralized material processing will generate about 8.9 Mt of tailings. The capacity of the TMF includes a 10% contingency to account for potential additional reserve as the Windfall Lake and Osborne-Bell mines are being developed or custom milling for a total capacity of 10 Mt. Bleed water and contact water will be managed in the TMF. The TMF can store the design event for the water management pond with the spillway sill set a metre below the dam crest. The spillway will safely convey the probable maximum flood.

The tailings production, main physical characteristics and parameters for the TMF design are summarized in Table 20-7. Assuming a dry density for the tailings of 1.4 t/m³, the capacity needed is estimated at 7.14 Mm³.



Table 20-7: Tailings production and main deposition parameters

Description	Unit	Parameter
Total	Mt	8.9
Contingency	%	10
TMF capacity	Mt (Mm ³)	10 (7.14)
% Solids at deposition	%	65
Average dry density (estimated)	t/m ³	1.4
% Solids in place (estimated)	%	75
Deposition slope (estimated)	%	1

A simplified tailings deposition scheme has been modelled to evaluate the TMF capacity. Discharge points will be initially located along the crest of the dam. As the TMF reaches its capacity, discharge points will be relocated on the tailings surface to maximize the capacity. Tests to evaluate tailings thickening potential are ongoing. A complete laboratory testing program should be carried out on tailings to define their physical properties, including hydrogeological and geotechnical characterization, settling and thickening, and rheological properties. Testing program could potentially include flume deposition testing to better define deposition angles. The TMF design should be validated once results are available.

The overall surface area occupied by the TMF will be approximately 111 ha. The TMF will be built in three main stages. The final elevation of the dam crest will reach 304 m, representing a maximum height of approximately 17 m above the original ground. Table 20-8 summarizes the main characteristics of the deposition stages. Figure 20-8 presents the development of the TMF.

Table 20-8: Modelled deposition quantities and elevations

Stage	Years of Operation	Cumulative Volume (Mm ³)	Dam Crest Elevation (m)
Stage 1	2	1.7	296.5
Stage 2	5	4.2	300.5
Stage 3	8 (with contingency on capacity)	7.1	304.0

Tailings deposition aims at directing the water pond close to the hill. During the last stage, as deposition progresses, tailings deposition should aim at relocating the water pond to the northwest side of the TMF, close to the spillway to prepare tailings surface for closure. At closure, the tailings covered surface will be shaped to direct surface runoff towards the spillway where it will leave the TMF. The spillway spill level will probably need to be adjusted to the surface level of the tailings according to reclamation concept.

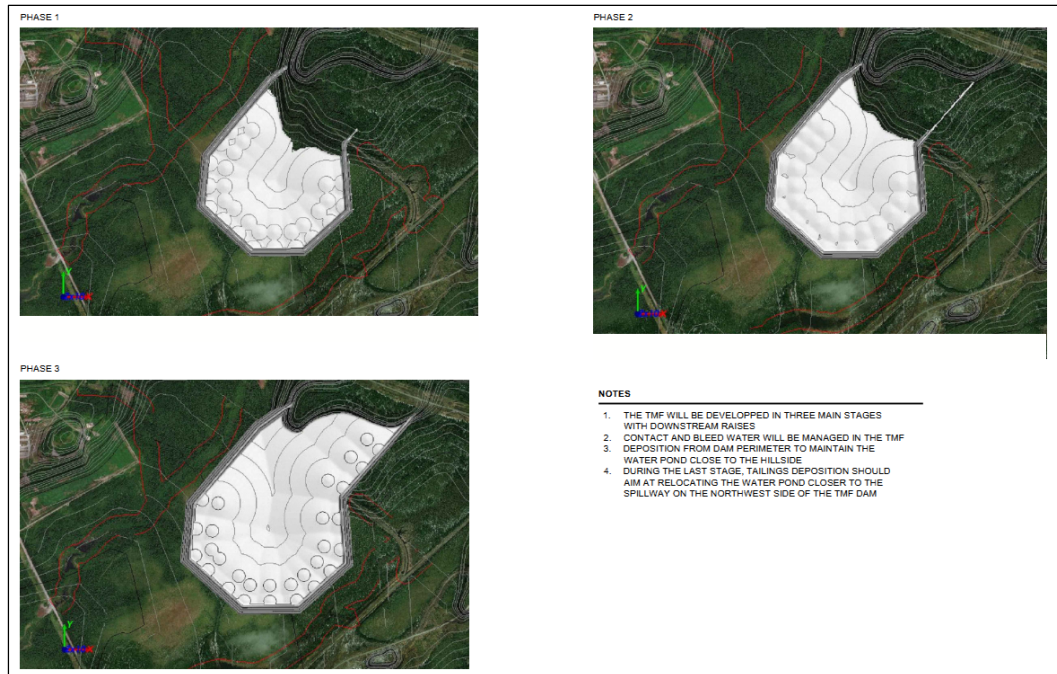


Figure 20-8: TMF development phases.

Water Management Strategy

The water management plan at the Plant Site aims at maximizing contact water recirculation from the TMF to limit fresh water consumption for process water supply. As for contact water from the plant area, it will be collected using ditches, sumps and ponds and will be managed separately depending on water quality.

Tailings bleed water and contact water will be stored in the TMF, which will serve as the main contact water storage pond. Under normal climate conditions, the water stored in the TMF will be recirculating to the mineralized material process plant. Excess storm water runoff during large flood events will be pumped to the treatment plant. The treatment plant outflow will be pumped to the polishing pond for water quality control before the final discharge to the environment. A seepage collection ditch is planned at the toe of the dam. Seepage collected will be conveyed to a pumping basin and pumped back into the TMF. The seepage ditch will be unlined, while the pumping basin will be lined as water levels are expected to be near the surface in the area. Seepage collected will be monitored for water quality. If needed, the collection system can be lined later on during operations.

Runoff from the mineralized material stockpile and plant area will be conveyed by gravity to a collection pond, treated in the treatment plant, and pumped to the polishing pond before the final discharge to the environment. Ditches conveying runoff from the mineralized material



stockpile and plant area, as well as the collection pond, will be lined to limit water infiltration into the ground.

Runoff from the overburden stockpile is expected to require particle sedimentation only; it will thus be managed separately. Runoff will be conveyed into a sedimentation pond to allow sedimentation of particles before discharge to the environment. These infrastructure will not require lining. Figure 20-7 presents the layout of the surface water management infrastructure and Figure 20-9 presents a schematic of the surface water management system.

The TMF water storage capacity is designed to contain and manage the regulatory spring “project flood”, that is the 1:2,000-year 24-hour rainfall superposed to the 1:100-year snow accumulation melting uniformly over 30 days. The design accounted for the expected water volume in the TMF at the end of the winter season. The design also verified that the proposed capacity is sufficient for an extreme summer flood. Finally, the design accounted for a conservative 15-day delay in the start-up of the water treatment plant during spring conditions.

The collection pond is designed to contain and manage the regulatory project flood that is the 1:2,000-year 24-hour rainfall superposed to the 1:100-year snow accumulation melting uniformly over 30 days. The ditches are designed to convey the 1:100-year peak flow event.

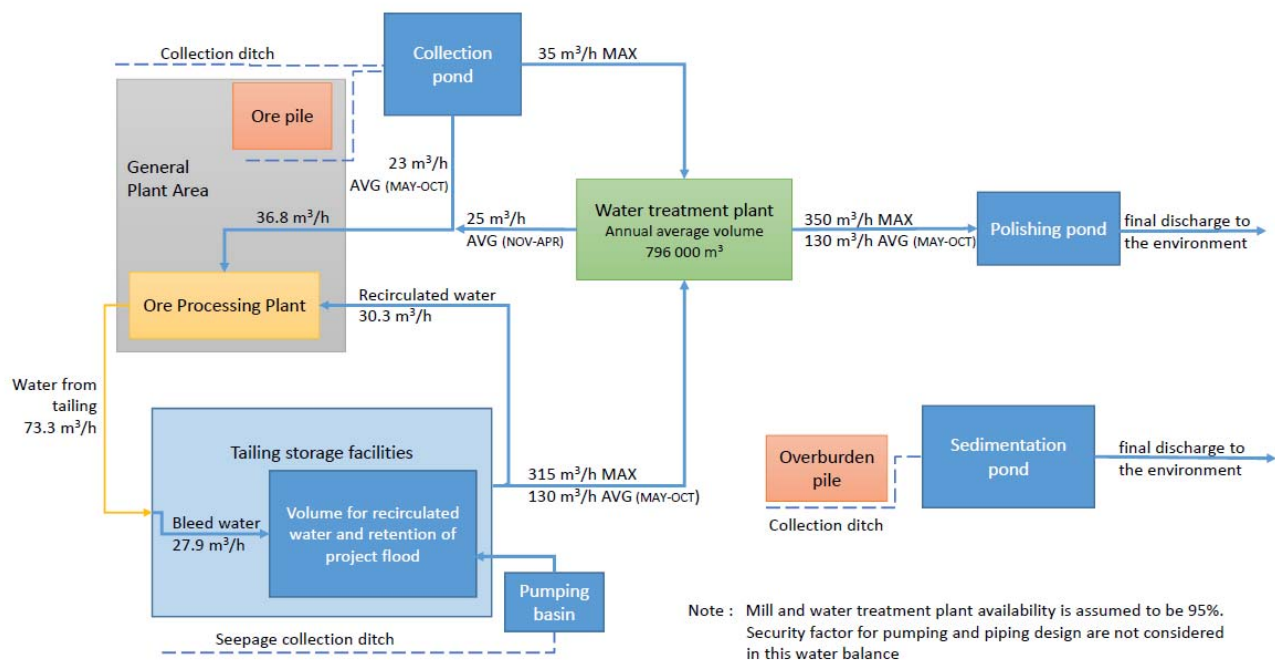


Figure 20-9: Schematic of Water Management Design – Plant Site.



20.2 Regulatory Context

20.2.1 Environmental Assessment Procedure

Provincial Procedure

The EA procedure in the province of Québec is divided into two regimes: Southern and Northern. The Mine Site of the Windfall Lake Project is located in the Northern regime; on territory governed by the JBNQA. Therefore, Osisko must follow the environmental assessment and review procedures as described in the *Regulation respecting the environmental and social impact assessment and review procedure applicable to the territory of James Bay and Northern Québec* (Q-2, r.25). All mining projects located in this territory are subject to the *Environment Quality Act* (EQA, Title II, chapter II) and the JBNQA.

On May 19th, 2017, Osisko provided preliminary project information to the MDDELCC. Since the Windfall Lake Mine Site is in the application territory of the JBNQA, the environmental and social assessments of projects under Québec jurisdiction are the responsibility of the Evaluation Committee (COMEV) and the Review Committee. Based on the information received, in July 2017 the MDDELCC has submitted Guidelines (“Directive”) for the mining project for the preparation of an EIA. The next steps in the provincial EA for the Project are:

- Preparation of the EIA according to the requirements of MDDELCC's Guidelines and submission of the EIA to MDDELCC;
- Verification of the EIA's compliance with the Guidelines by the MDDELCC;
- Analysis of the EIA by the Review Committee. During the analysis, the Review Committee can forward questions or comments to Osisko to obtain additional information and/or clarifications. During this period, the public can make representations to the committee. The Review Committee can also hold public hearings or any other form of consultation activities. Once its analysis is completed, the Review Committee will recommend or not that the Project be authorized and may specify modifications or conditions;
- Once the Administrator receives the recommendations from the Review Committee, he can refuse the Project or approve it and issue a certificate of authorization. This authorization does not exempt Osisko from obtaining authorization(s) that may be required by any law or regulation, including those in the EQA.

The Plant Site including the TMF is located both in the town Lebel-sur-Quévillon and in the municipal territory of the regional government of Eeyou Istchee James Bay and thus is under the Southern regime jurisdiction regarding the EA procedures. According to this regime, which is now regulated by the new *Environmental Assessment and Review of Certain Project's Regulation* since March 23, 2018, the daily processing capacity of a gold plant must be equal to or greater than 2,000 metric tons to trigger the southern impact assessment procedure.



For the authorization for extraction of mineralized material at Osborne-Bell Site, located in the southern regime, only a ministerial authorization will be required, as the daily extraction would be below the threshold under section 22 of the LQE. Since March 23, 2018, a single authorization is now required within the LQE (section 22 of the LQE). In this same authorization, the elements related to water management and treatment facility or when it is required to install equipment intended to prevent, reduce or stop releases of contaminants into the atmosphere would be covered.

It is planned that more than 2,000 tonnes of mineralized material per day will be processed at the plant. Therefore, it will additionally be subject to the evaluation procedure by the *Bureau d'audiences publiques sur l'environnement* (BAPE), which adds one more step in the authorization process of the Quebec government before moving forward with the final authorization of the Project.

Once a decision is made for the Project and the certificate of authorization is issued, various authorizations will have to be obtained from the MDDELCC according to the provisions contained in Title I of the EQA before proceeding with construction work. This law has recently been reviewed and is in effect since March 23rd, 2018. A new regulatory framework under this law has been developed and is expected to be in force by December 1st, at the latest. The construction and operations authorizations for the Project will have to be obtained based on this new regulation.

Federal Procedure

The federal government requires an Environmental Impact Statement ("EIS") for a designated project covered under the *Canadian Environmental Assessment Act, 2012* (CEAA 2012). The CEAA 2012 applies to projects described in the *Regulations Designating Physical Activities*. The Windfall Lake Project is submitted to the federal EA procedure. According to Section 16(c) of the *Regulations Designating Physical Activities* (S.C. 2012, c. 19, s. 52), a Project is subject to the federal EA procedure when it involves the construction, operations (and, eventually, the decommissioning and closure) of a new gold mine, other than a placer mine, with a mineralized material production capacity of 600 tpd or more.

On June 5, 2017, Osisko submitted a project description to the CEAA for the Windfall Lake Mine Site, which includes the Plant Site. Based on the Project description, CEAA determined that an EIS was required.

The CEAA provided Osisko with the Guidelines for the preparation of an EIS in September 2017. The Guidelines present the minimum information requirements for the preparation of an EIS for a designated project to be assessed pursuant to the CEAA, 2012.



Under CEAA 2012, an EIS focuses on potential adverse environmental effects that are within federal jurisdiction, including:

- Fish and fish habitat;
- Other aquatic species;
- Species at risk;
- Migratory birds;
- Federal lands;
- Effects that cross provincial or international boundaries;
- Effects that impact Aboriginal people, such as their use of lands and resources for traditional purposes;
- Environmental changes that are directly linked to, or are incidentals of, any federal decision about a project.

The EIS will consider a comprehensive set of factors that include potential adverse environmental effects, cumulative effects, mitigation measures and comments received from the public, follow-up program, etc.

The Canada-Québec Agreement on Environmental Assessment Cooperation was signed in August 2010. The agreement promotes a better coordination of the two EA processes (federal and provincial) in order to reduce overall delays. Through this agreement, information can be exchanged between the two levels of government and a joint review panel may be used to conduct hearings, if necessary.

20.2.2 Laws and regulations

The Windfall Lake Project will require several approvals, permits and authorizations prior to initiation and throughout all stages of the Project, following provincial and federal approvals. The Project must also comply with any other terms and conditions associated with the authorization issued by the provincial and federal agencies.

The next sections present the most significant laws, regulations and directives with which the Project will have to comply. This list is non-exhaustive and it is based on information known so far. Their applicability will have to be reviewed as the Project components are defined.



Provincial Jurisdiction

Mining Act (CQLR, Chapter M-13.1)

The Mining Act, with its *Regulation respecting mineral substances other than petroleum, natural gas and brine* (CQLR, chapter M-13.1, r. 2), determines how mines must be developed, operated and closed. Under this law, mining companies must submit a rehabilitation and restoration plan which must be approved by the *Ministère de l'Énergie et des Ressources naturelles* ("MERN"). This plan must be reviewed when changes in the mining activity warrant occurs and every five years, unless a shorter period is fixed by the Minister on approving the plan or revised plan (article 232.6). Thus, a rehabilitation and restoration plan will be developed as part of the present project, as required and rehabilitation and restoration costs must be estimated. The financial guarantee must be submitted before the mining lease can be issued. The guarantee is within two years of the plan approval date in three installments distributed as follows: a first payment representing 50% of the total amount within 90 days of receiving the approval of the plan: each subsequent payment representing 25% each of the total amount of the guarantee, on the anniversary date of the approval of the plan.

Directive 019 on the Mining Industry (March 2012 Edition)

The Project is subject to Directive 019 on the mining industry, the tool currently used to analyze mining projects requiring certificates of authorization or other authorizations under the EQA. In addition to the information required for these requests, this directive also includes standards for the safe management of tailings, overburden and waste rock piles as well as the MDDELCC's broad guidelines regarding environmental protection.

Environment Quality Act (CQLR, Chapter Q-2)

The main regulations to which the Project will be subject to under the EQA include:

- Regulation respecting ministerial authorizations and declarations of compliance in environmental matters (not in force at the publication of this document, but in effect by December 1, 2018, under the Regulation respecting certain transitional measures to carry out the Act to amend the EQA to modernize the environmental authorization scheme and to amend other legislative provisions, to reform the governance of the Green Fund, which has been in effect since March 23, 2018);
- Regulation respecting work related to a water management or treatment facility (not in force at the publication of this document, but will be in effect by December 1, 2018 under the Regulation respecting certain transitional measures to carry out the Act to amend the EQA to modernize the environmental authorization scheme and to amend other legislative provisions, in particular to reform the governance of the Green Fund, which regulation has been in effect since March 23, 2018);
- Clean Air Regulation (CQLR, Chapter Q-2, r. 4.1);



- Regulation respecting mandatory reporting of certain emissions of contaminants into the atmosphere (CQLR, Chapter Q-2, r. 15);
- Protection Policy for Lakeshores, Riverbanks, Littoral Zones and Floodplains (CQLR, Chapter Q 2, r. 35);
- Water Withdrawal and Protection Regulation (CQLR, Chapter Q-2, r. 35.2);
- Regulation respecting the quality of drinking water (CQLR, Chapter Q-2, r. 40);
- Land Protection and Rehabilitation Regulation (CQLR, Chapter Q-2, r. 37);
- Soil Protection and Contaminated Sites Rehabilitation Policy;
- Regulation respecting pits and quarries (CQLR, Chapter Q-2, r. 7);
- Regulation respecting industrial depollution attestations (CQLR, Chapter Q-2, r. 5).
- Regulation respecting the landfilling and incineration of residual materials (CQLR, Chapter Q-2, r. 19);
- Regulation respecting hazardous materials (CQLR, Chapter Q-2, r. 32);
- Regulation respecting waste water disposal systems for isolated dwellings (CQLR, Chapter Q-2, r. 22);

Other Provincial Laws and Regulations

- Act respecting the conservation of wetlands and bodies of water (Bill 132, 2017, chapter 14, sanctioned on June 16th, 2017);
- Act respecting the conservation and development of wildlife (CQLR, chapter C-61.1);
- Regulation respecting wildlife habitats (CQLR, chapter C-61.1, r. 18);
- Conservation and Development of Wildlife Act (CQLR, chapter C-61.1);
- Act respecting threatened or vulnerable species (CQLR, chapter E-12.01);
- Regulation respecting threatened or vulnerable wildlife species and their habitats (E-12.01, r.2);
- Sustainable Forest Development Act (CQLR, chapter A-18.1);
- Regulation respecting standards of forest management for forests in the domain of the State (CQLR, chapter A-18.1, r. 7);
- Act respecting the Lands in the domain of the State (CQLR, chapter T-8.1);
- Transportation of Dangerous Substances Regulation (CQLR, chapter C-24.2, r. 43);
- Petroleum Products Act (CQLR, chapter P-30.01) and its implementing regulation;
- Construction Code (CQLR, chapter B-1.1, r. 2) and Safety Code (CQLR, chapter B 1.1, r. 3) for the installation of oil equipment, both governed by the Building Act;
- Act respecting explosives (CQLR, chapter E-22) and its implementing regulation;



- Watercourses Act (CQLR, chapter R-13);
- Regulation respecting the water property in the domain of the State (R-13, r. 1);
- Cultural Heritage Act (CQLR, chapter P-9.002);
- Occupational Health and Safety Act (CQLR, Chapter S-2);
- Regulation respecting occupational health and safety in mines (CQLR, chapter S-2.1, r.14).

Federal Jurisdiction

Canadian Environmental Protection Act (CEPA), 1999 (S.C. 1999, C. 33)

The CEPA aims to prevent pollution and protect the environment and human health with a view to sustainable development. The main regulations to which the Project is subject to under this law include:

- PCB Regulations (SOR/2008-273);
- Ozone-Depleting Substances Regulations, 1998 (SOR/99-7);
- Environmental Emergency Regulations (SOR/2003-307);
- Federal Halocarbon Regulations, 2003 (SOR/2003-289);
- National Pollutant Release Inventory.

Fisheries Act (R.S.C., 1985, C. F-14)

Section 35 of the Fisheries Act states that any activity or facility that may cause serious harm to any fish that is part of a commercial, recreational or Aboriginal fishery, or any fish that is the source of such fishing, shall be authorized by the Minister of Fisheries and Oceans Canada and dealt with in accordance with their set conditions.

Moreover, under the Fisheries Act, the Metal Mining Effluent Regulations ("MMER") (SOR/2002-222) provide the framework for mining activities with regard to the protection of fish habitats and resources through environmental effects monitoring ("EEM"). It also sets thresholds that mining effluents must comply with, for the following parameters: total solids in suspension ("TSS"), pH, metals (As, Cu, Pb, Ni, Zn), cyanides, radium, toxicity.

Other Federal Laws and Regulations

- Canadian Wildlife Act (R.S.C., 1985, c. W-9);
- Wildlife Area Regulations (C.R.C., c. 1609);
- Hazardous Products Act (R.S.C., 1985, c. H-3);
- Migratory Birds Convention Act, 1994 (S.C. 1994, c. 22);
- Migratory Birds Regulations (C.R.C., c. 1035);
- Species at Risk Act (S.C. 2002, c. 29);



- Navigation Protection Act (R.S.C., 1985, c. N-22);
- Explosives Act (R.S.C., 1985, c. E-17);
- Transportation of Dangerous Goods Act, 1992 (S.C. 1992, c. 34);
- Transportation of Dangerous Goods Regulations (SOR/2001-286).

20.2.3 Preliminary Permitting Requirements

Provincial Level

Several types of applications for authorization or certificates of authorization, for construction and operations, were previously required for the application of the Environmental Quality Act. But since the overhaul of the law, which came fully into force on March 23, 2018, all such requests will be consolidated into a single, scalable ministerial authorization, which is now called a ministerial authorization. This authorization, which will be effective on December 1, 2018 at the latest, is provided under the EQA's new section 22. All documentation to be provided regarding such an application for authorization is provided in the *Regulation respecting ministerial authorizations and declarations of compliance in environmental matters*. This regulation provides the information to be provided according to the subjects concerned (industrial establishments, water withdrawals, mining facilities such as roads, dikes, waste rock and tailings management facilities, access wells, borrow pits, water management or treatment, wetlands and bodies of water, etc.). The evolutionary authorization may be the subject of several separate applications and the Project may be divided into several lots to facilitate authorization, from deforestation and site preparation, to operations and industrial depollution attestations.

In addition to the ministerial authorization, the following other permits or authorizations must be obtained at the provincial level. The list presented below is non-exhaustive and should be reviewed as the Project is defined:

- Restoration plan (Mining Act, s. 232.1);
- Permit for explosives (Regulation under the Act respecting explosives, s.II);
- Permit for the use of high risk petroleum equipment (Safety Code, s.120; Construction Code, Chap. VIII, s.8.01);
- Land lease for mining waste (Mining Act, s. 239 and an Act respecting the lands in the domain of the State, s.47) (see 8.7.3);
- Authorization to deposit mining waste in the approved location (Mining Act, s. 241);
- Permit for tree clearing (Regulation respecting standards of forest management for forests in the domain of the State);
- Authorization under section 128.7 of the Act respecting the conservation and development of wildlife.



Also, if necessary, Osisko must compensate for the loss of wetlands. A compensation program will be developed in collaboration with the environmental authorities. This should be done in the context of the application of the Act respecting the conservation of wetlands and bodies of water (Bill 132, 2017, chapter 14). For this purpose, transitional measures are foreseen for compensation projects in this law if the new regulation is not adopted. However, no date is known for this regulatory adoption and the Project Description was submitted before the new law was passed in June 2017. The transitional regime provides for some form of financial compensation rather than restoration projects. All this will need to be discussed with the authorities.

Federal Level

At this stage of the Project, it is foreseen that the following federal authorizations will be required:

- Permit to store explosives according to sections 2 and 3 of the Explosives Act;
- Permit from Environment Canada (storage of chemicals) according to the Canadian Environmental Protection Act;
- Completion of a declaration to the National Pollutant Release Inventory.

To date, there is no plan to encroach on fish habitat or any watercourse for the Project. In the case where an encroachment would occur in a fish habitat, Osisko must compensate for the loss of the fish habitat.

In such a case, a compensation program must be developed in collaboration with the environmental authorities. A permit would be required and the compensation plan for loss of fish habitat would be included.

Other permits/authorizations could be required following the conclusions of the federal analysis of the EIA.

20.3 Relations with stakeholders

20.3.1 Consultation Activities

Consultation and communication activities with the stakeholders were initiated in 2015 and are ongoing, notably with the Waswanipi Community and the municipalities of Lebel-sur-Quévillon. Table 20-9 to Table 20-12 summarize all the meetings that have been held with the Cree First Nation of Waswanipi, other First Nation communities, other municipalities and other land users respectively. It should be noted that the Osisko team attended all the consultation activities carried out so far and provided answers and explanations to the questions asked by the different stakeholders.



20.3.1.1 Cree Community of Waswanipi

The Windfall Lake Project is located on the traditional lands of the Cree community of Waswanipi, specifically on the traplines of Mr. Marshall Icebound (W25B) and Mr. Gary Cooper (W25A). The Cree village of Waswanipi is located about 75 km north-northwest of the Windfall Lake Project.

Information on exploration work was forwarded to the Chief, the Deputy Chief, the Director of Natural Resources, the Mining Coordinator, the tallymen, the Cree Trappers' Association, the Cree Mineral Exploration Board, and the Cree Human Resources Development. The information was shared through meetings, presentations and information letters. Meetings were held with the tallymen to explain the nature of the work and to understand how they use the territory. Osisko also presented the Windfall Lake Project to the entire community at the Waswanipi Mining Exposition in February 2017, during the Cree Trapper's Association General Assembly on November 2, 2017, during the Open House events in Waswanipi on November 2, 2017 and February 28, 2018, and during the Waswanipi General Assembly on January 9, 2018. In addition, the bulk sampling project has been discussed with the Cree community of Waswanipi since last October (Table 20-9).

Before Osisko acquired the Project, several information meetings had been held between Eagle Hill Corporation representatives and Waswanipi representatives, including former Chief Paul Gull. These meetings led to the signing in 2012 of an Advanced Exploration Agreement with the Cree First Nation of Waswanipi, the Grand Council of the Crees and the Cree Regional Authority. Osisko continues to honour the terms of the 2012 Exploration Agreement between Eagle Hill Corporation and Waswanipi. Among other things, the Agreement stipulates the negotiation of a Social and Economic Participation Agreement (essentially an impact and benefit agreement: IBA) in the event the Project is shown to be economically viable. In fact, discussions with Waswanipi representatives and representatives of the Cree Nation Government commenced on December 19, 2017 and are scheduled throughout 2018 with the goal of establishing an Impact Benefit Agreement for the Project.

The main concerns of the Waswanipi Community members are the following:

- Increased disturbances to the land and the cumulative effect of all activities, as well as the ways in which such activities may affect their own use of the land;
- Land protection, especially lands that hold intact forests;
- Potential effects of exploration activities on water quality and wildlife;
- Economic benefits for the community members (job and training opportunities);
- Avoiding cultural sites when planning work activities.



Roughly 60 people from First Nation communities (mainly Cree First Nation of Waswanipi) work at the Windfall Lake site.

Two other First Nation communities have been identified as having an interest in the Project: the Algonquin Anishinabeg Nation of Lac Simon and the Atikamekw d'Obedjiwan community. Up to now, these two communities were visited (Table 20-10) and the details of the Windfall Lake Project, description and the details of the bulk sampling project towards Lynx and Underdog were presented.

20.3.1.2 Communities of Lebel-sur-Quévillon, Chapais, Chibougamau and Senneterre

Osisko held various meetings and information sessions with representatives and members of local communities (Table 20-11) and with other users (Table 20-12). In addition, information letters on exploration activities were sent to municipalities. It should be noted that before Osisko acquired the Project, Eagle Hill Corporation representatives met informally with Lebel-sur-Quévillon representatives and attended an information session organized by the Economic Development Corporation of Lebel-sur-Quévillon in November 2014. Osisko presented the Windfall Lake Project to the population in 2016 and 2017. Two Open House events were organized in Lebel-sur-Quévillon on October 2, 2017 and February 27, 2018 to present the Windfall Lake Project to the population.

An agreement has been reached between Osisko and the city of Lebel-sur-Quévillon. This collaborative process primarily aims to ensure transparency and effective communication with the city, to foster the social acceptability of the Project, and to maximize the socioeconomic benefits of the Project for Lebel-sur-Quévillon, all in a spirit of partnership.

The major concerns raised by the citizens of Lebel-sur-Quévillon relate mainly to the potential economic benefits for the City and the Project's timetable. As for Senneterre, Chapais and Chibougamau, even though the Windfall Lake Project is not on their territory, stakeholders felt that local entrepreneurs could benefit from business opportunities generated by the Project.

As the Windfall Lake Project progresses, a formal communication and consultation plan will be developed by the Corporation to engage both the Aboriginal and non-Aboriginal stakeholders. The objectives of these activities will be to inform and consult the First Nations and the public on the Windfall Lake Project activities, to address their concerns and to collect their comments.



Table 20-9: Communication activities with the Waswanipi Community

Date of meeting	Objective	Location
2018-04-17 & 19	Conference calls about extension of exploration ramp and waste rock stockpile	-
2018-04-04	Update on the Windfall Lake Project to Waswanipi Band Council Reorganization and next steps of the Project Extension of exploration ramp and waste rock stockpile	Mont Tremblant
2018-03-05	Update on the Windfall Lake Project Discussion around Advance Exploration Agreement	Toronto
2018-02-28	Second Open House	Waswanipi
2018-02-26	Informal meeting with the Tallyman concerning hunting and work conditions	Windfall Lake Project
2018-01-25	Update on the Windfall Lake Project Drilling activities	Lebel-sur-Quévillon
2018-01-09	Waswanipi General Assembly Presentation on the Windfall Lake Project	Waswanipi
2017-12-19	Kick off meeting IBA negotiations	Waswanipi
2017-12-18	Update on the Windfall Lake Project to land user Harry Grant	Waswanipi
2017-11-16	Discussions about Waswanipi capacity to revise EA report	Waswanipi
2017-11-15	Update on the Windfall Lake Project current and futures activities Extension of exploration ramp and waste rock stockpile	Windfall Lake Project
2017-11-02	First Open House Project description presentation	Waswanipi
2017-11-02	Cree Trappers' Association Assembly Presentation on the Windfall Lake Project	Waswanipi
2017-10-26	Discussions around IBA negotiations to undertake Cree workers Environmental Assessment process	Montreal
2017-10-18	Update on the Windfall Lake Project Cree workers	Montreal
2017-10-18 & 19	Invitation to XPLOR convention	Montreal
2017-09-25	Windfall Lake Project deviation and access roads	Lebel-sur-Quévillon
2017-09-06	Meeting with Miyuu Kaa Corporation and partners Cree workers	Montreal
2017-08-16	Land use interview with tallyman Marshall Icebound Cree Land Use Map presentation Deviation and access roads to the Project Update on the Windfall Lake Project	Waswanipi
2017-08-16	Meeting with Miyuu Kaa Corporation Cree workers	Waswanipi
2017-08-15	Field visit Update on the Windfall Lake Project Deviation and access roads to the Project	Windfall Lake Project
2017-08-11	Waswanipi mining portfolio transition to another responsible Update on the Windfall Lake Project	Montreal



Date of meeting	Objective	Location
2017-07-17	Presentation and discussion around Windfall Lake Project Description document Update on the Windfall Lake Project activities Deviation and access roads to the Project	Montreal
2017-07-06	Presentation and discussion around Windfall Lake Project Description document	Montreal
2017-05-26	Update on the Windfall Lake Project Discussions around Cree land use (W25A and W25B) Deviation and access roads to the Project	Waswanipi
2017-05-25	Windfall Lake Project presentation to local entrepreneurs	Waswanipi
2017-05-25	Update on the Windfall Lake Project to Waswanipi Band Council	Waswanipi
2017-03-06	Update on the Windfall Lake Project	Toronto
2017-03-06	Presentation of Cree Human Resources Development programs	Toronto
2017-03-05	Invitation to Osisko ROM event	Toronto
2017-02-09	Waswanipi Mining Exposition Fact sheet on the Windfall Lake Project Presentation on the Windfall Lake Project	Waswanipi
2017-02-09	Presentation of maps from the Forestry Department Signing of a confidentiality agreement regarding access to Cree land-use maps	Waswanipi
2017-02-09	Informal meeting to discuss the subject of Waswanipi community members working as employees at Osisko sites, and to provide information about the ongoing planning of ramp development work	Waswanipi
2017-01-18	Community visit – Community Health and Fitness Centre Discussions with tallymen about their use of the land and traditional knowledge Consultation plan Job interviews	Waswanipi
2017-01-17	Site visit Update on the Windfall Lake Project Discussion with tallyman about his use of the land and traditional knowledge (Marshall Icebound)	Windfall Lake Project
2017-01-16	Community visit – Cultural Village, Sabtuan Regional Vocational Training Centre Job interviews	Waswanipi
2016-11-23	Involvement of Waswanipi community members as employees of the Windfall Lake Project	Québec City
2016-11-16	Presentation of Cree Human Resources Development (CHRD) programs	Montréal
2016-11-14	Discussions with tallymen about their use of the land and traditional knowledge	Waswanipi
2016-11-01	Orbit-Garant/ Miyuu Kaa Corp. Joint-Venture Update on the Windfall Lake Project	Montréal
2016-10-06	Update on the Windfall Lake Project	Montréal
2016-09-12	Discussions with tallymen about their use of the land and traditional knowledge	Waswanipi



Date of meeting	Objective	Location
2016-07-22	Update on the Windfall Lake Project	Montréal
2015-12-07	Presentation of the Windfall Lake Project to Waswanipi Band Council members Job interviews	Waswanipi
2015-10-08	Introductory meeting: presentation of Waswanipi, Oban and Osisko representatives	Montréal

Table 20-10: Communication activities with Lac Simon and Obedjiwan

Date of meeting	Objective	Location
2018-05-23	Follow-up meeting on Windfall Lake and Urban Barry projects	Obedjiwan
2017-12-06	Update on the Windfall Lake Project and Quévillon Project	Lac Simon
2017-11-27	Update on the Windfall Lake Project	Obedjiwan
2017-05-29	Presentation of the Windfall Lake Project and Osisko Mining	Obedjiwan
2017-05-24	Presentation of the Windfall Lake Project and Osisko Mining	Lac Simon

Table 20-11: Communication activities with municipalities

Date of meeting	Objectives	Location
2018-04-11	Journée Donneurs d'ordre et fournisseurs, Société du Plan Nord Presentation of the Windfall Lake Project Meeting with local entrepreneurs	Chapais
2018-04-05	Update on the Windfall Lake Project Reorganization and next steps of the Project	Lebel-sur-Quévillon
2018-02-28	Third meeting of the collaboration committee with Lebel-sur-Quévillon city	Lebel-sur-Quévillon
2018-02-27	Second Open House	Lebel-sur-Quévillon
2018-02-27	Administration régionale Baie-James Presentation of the Windfall Lake Project	Lebel-sur-Quévillon
2018-01-31	Lebel-sur-Quévillon airport and Société du Plan Nord	Québec
2017-11-28	Presentation of the Windfall Lake Project to Chapais Mayor and Chibougamau Mayor	Chibougamau
2017-11-09	Presentation of the Windfall Lake Project to ICM members and local entrepreneurs	Chibougamau
2017-10-02	First Open House Presentation of the Project description	Lebel-sur-Quévillon
2017-10-02	Second meeting of the collaboration committee with Lebel-sur-Quévillon city	Lebel-sur-Quévillon
2017-08-14	First meeting of the collaboration committee with Lebel-sur-Quévillon city	Lebel-sur-Quévillon
2017-08-10	Site visit (Lebel-sur-Quévillon Mayor)	Windfall Lake Project
2017-07-06	Discussions around Windfall Lake Project	Lebel-sur-Quévillon



Date of meeting	Objectives	Location
2017-05-24	Update on the Windfall Lake Project with Lebel-sur-Quévillon	Val d'Or
2017-05-10	Semaine minière Local entrepreneurs Presentation of the Windfall Lake Project to general public Information booth	Lebel-sur-Quévillon
2017-04-05	Journée Donneurs d'ordre et fournisseurs, Société du Plan Nord Presentation of the Windfall Lake Project Meeting with local entrepreneurs	Chibougamau
2017-01-19	Update on Windfall Lake Project	Lebel-sur-Quévillon
2016-11-29	Update on Windfall Lake Project to the population of Lebel-sur-Quévillon	Lebel-sur-Quévillon
2016-11-01	Introductory presentation on the Windfall Lake, Urban Barry and Black Dog projects	Senneterre

Table 20-12: Communication activities with other users

Date of meeting	Objective	Location
2018-03-20	Presentation of the Windfall Lake Project and Osisko Mining Outfitters	Montreal
2017-11-14	Presentation of the Windfall Lake Project and Osisko Mining Cabin lease owner	Montreal
2017-10-05	Presentation of the Windfall Lake Project and Osisko Mining Cabin lease owner	Montreal

20.4 Mine Closure Requirements

In accordance with provincial law, a rehabilitation and restoration plan has to be prepared and approved by the MERN before the mining lease can be issued. The objective of the mine rehabilitation and restoration plan is to return the site to an acceptable condition, ensuring that the environment will eventually be able to take back its course and that future generations will be able to use the site. The rehabilitation and restoration plan focuses on the rehabilitation of land and areas affected by mining activities (i.e. roads, pads, waste rock piles, tailing management facilities, portals, buildings, water ponds, surface drainage patterns, etc.).

An amendment to Article 111 of the Regulation respecting Mineral Substances other than Petroleum, Natural Gas and Brine (Chapter M-13.1, r. 2) was adopted on July 23, 2013 (Decree 838-2013). Thus, mining companies must now provide a financial guarantee whose amount corresponds to the total anticipated cost of completing all the work set forth in the rehabilitation and restoration plan. Moreover, in November 2017, the MERN published a stricter version of the Guide for the preparation of rehabilitation and restoration plans for mining sites in Québec. A detail breakdown of the dismantling cost for all infrastructure built on site must now be provided



and the engineering and supervisions fees have been fixed to a minimum of 30% of the direct cost including the post restoration monitoring at the conceptual stage of the Project. A minimum contingency of 15% must be added to the estimated cost.

Total guarantee for the Windfall Lake Project is evaluated at approximately \$58.8M. This cost includes the direct and indirect costs of site rehabilitation and restoration as well as post restoration monitoring. At closure, it is essential and mandatory that the site remains safe for the population. The plan will include blocking the portals' openings with waste rock. Buildings and infrastructure erected for the operations of the mine will be dismantled to retrofit the site to a state compatible with the surrounding environment.

All impacted areas such as service and haulage roads, laydown areas, industrial work bays, mineralized material pads as well as the various dismantled buildings footprint areas will be scarified to improve drainage and revegetated.

Before the scarification and revegetation of the impacted areas, an environmental characterization will be completed, targeting each area impacted by the operations constituting potential contamination risks for soils and/or groundwater. If contaminated soils and/or groundwater exceeding the applicable criteria are found during the environmental characterization, appropriate measures, in accordance with the LQE and the *Règlement sur la protection et la réhabilitation des terrains* (c. Q-2, r.18.1.01), will be put in place in order to meet the applicable regulation.

The TMF will be restored to prevent impact on surface and groundwater. A part of the waste rock will be used in underground openings as backfill. All waste rock piles remaining on surface will be restored to prevent impact on surface and groundwater. The sludge at the bottom of the water management ponds will be characterized before its disposal underground. The membranes in the ponds will be disposed of and the ponds will be backfilled to re-establish natural drainage.



21. CAPITAL AND OPERATING COSTS

The capital and operating cost estimates presented in this PEA for the Windfall Lake Project are based on the construction of two underground mines at the Windfall Lake and Osborne-Bell sites, as well as a process plant and tailings management facility based at Lebel-sur-Quévillon. The process plant is designed to have a capacity of 3,200 tpd (1.17 Mtpy) over the LOM.

All capital and operating cost estimates cited in this Report are referenced in Canadian dollars.

21.1 Capital Costs

21.1.1 Summary

The total pre-production capital cost for the Windfall Lake Project is estimated to be \$397M (including contingencies and indirect costs). The cumulative life of mine capital expenditure including costs for pre-production, sustaining, site reclamation and closure is estimated to be \$809M. Figure 21-1 provides an overview of the capital costs (pre-production and sustaining) on an annual and cumulative basis for the life of the Project.

Table 21-1: Project pre-production capital cost summary

WBS	Cost area	Pre-production capital cost (\$M)	Sustaining capital cost (\$M)	Total cost (\$M)
000	General administration (Owner's costs)	27.6	-	27.6
200	Underground mine	72.7	309.0	381.6
300	Mine surface facilities	23.5	24.5	47.9
500	Plant Site infrastructure	19.2	2.1	21.3
600	Process plant	107.6	-	107.6
800	Tailings and water management	48.9	35.5	84.4
900	Indirects	46.0	-	46.0
999	Contingency	51.8	-	51.8
	Total	397.3	371.1	768.4
	Site reclamation and closure	-	58.8	58.8
	Salvage value	-	(18.3)	(18.3)
	Total - Forecast to spend	397.3	411.7	809.0

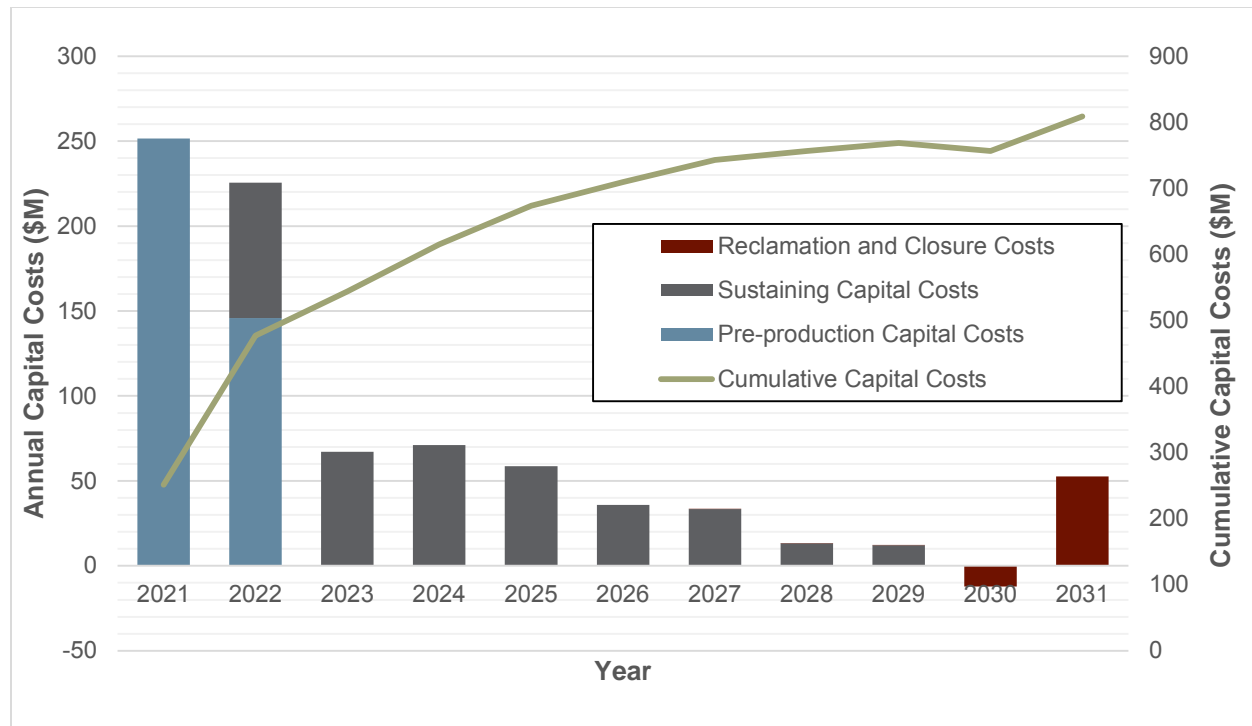


Figure 21-1: Annual and cumulative project capital costs.

21.1.2 Scope and Structure of Capital Cost Estimate

The overall capital cost estimate developed in this Preliminary Economic Assessment Study generally meets the AACE Class 4 requirements and has an accuracy range of between -30% and +30%. The capital cost estimate for this study forms the basis for the approval of further development of the Project by means of a feasibility study. Generally, engineering performed to date is between 1% to 15% of full project definition.

The capital cost estimate abides by the following criteria:

- Reflects general accepted practices in the cost engineering profession;
- Assumes contracts will be awarded to reputable contractors on a cost reimbursable basis;
- Labour costs are based on the current Québec Industrial construction collective bargaining agreement;
- Winter conditions are expected between the months of October and April. This is incorporated within the Project productivity factors;
- Pre-production capital costs are expressed in constant Q2 2018 Canadian dollars (CAD); with an exchange rate of 1.00 CAD for 0.78 US Dollar (USD).



The Project schedule, from the feasibility study, detail engineering to start-up, was also used in the estimate preparation; refer to Chapter 24 for the execution plan and schedule. The decision to proceed with construction of the Project is expected to be made in Q3/Q4 2019. Any capital expenditures before this date are considered “Early Works” (work plan capital) and are not included in this capital cost estimate. The cost estimate was divided into the following elements:

- Pre-production Capital Costs:
 - Owner’s costs (WBS 000 General Administration): costs associated with the Project specific personnel, management, support infrastructure, safety and environmental, community relations, administration and finance, human resources, training and others;
 - Direct costs (WBS 200 to 800): costs for productive works and permanent infrastructure. Includes productive infrastructure, services and equipment required for the extractive process;
 - Indirect costs (WBS 900): costs needed to support the construction of the facilities included in the direct costs. Includes engineering, procurement and construction management (“EPCM”) services, EPCM temporary facilities (infrastructure) and construction management, capital spare parts, freight and logistics;
 - Contingency (WBS 999): includes variations in quantities, differences between estimated and actual equipment and material prices, labour costs and site-specific conditions. Also accounts for variation resulting from uncertainties that are clarified during detail engineering, when basic engineering designs and specifications are finalized.
- Sustaining Capital Costs:
 - Capital expenditures after the start of operations: include costs for continued development of the tailings management facility, surface tailings and reclaim water pipelines, underground mine extensions and associated infrastructure, production equipment replacement, and closure costs. These costs are included in the financial analysis in Chapter 22 in the year in which they are incurred. Capital costs after Q2 2022 are classified as sustaining capital.

21.1.2.1 Work Breakdown Structure (WBS) and Estimate Responsibilities

The capital cost estimate was developed in accordance with Osisko’s work breakdown structure (“WBS”) with the estimate responsibilities summarized in Table 21-2:



Table 21-2: CAPEX estimate responsibilities by WBS

WBS area	WBS description	Responsible entity
000	General administration (Owner's cost)	Osisko, BBA and InnovExplo
200	Underground mines (Windfall Lake and Osborne-Bell)	InnovExplo
300	Mine surface facilities (Windfall Lake and Osborne-Bell)	WSP
500	Plant site infrastructure (Quévillon)	SNC-Lavalin and BBA
600	Process plant	BBA
800	Tailings and water management	Golder
900	Indirects	Osisko
999	Contingency	Osisko
	Site closure and reclamation	WSP

21.1.2.2 Exclusions

The following items were excluded from the capital cost estimate:

- Certain land acquisitions;
- Licensing and financing costs;
- Project development costs incurred to date, including studies and early works;
- Taxes (included in the financial model);
- Geotechnical anomalies (must be considered as risk);
- Pre-operations testing and start-up beyond C4 certificate;
- Operating costs;
- Changes to design criteria;
- Work stoppages;
- Scope changes or an accelerated schedule;
- Hydrological, environmental or hazardous waste issues;
- Costs relating to certain agreements with third parties.

21.1.3 Pre-production Capital Costs

The Project pre-production capital cost summary is outlined in Table 21-3 and shown as a pie chart in Figure 21-2. The capital cost breakdown descriptions are outlined in the following sections.



Table 21-3: Project pre-production capital cost summary

Area	Cost area description	Pre-production capital cost (\$M)	CAPEX (%)
000	General administration (Owner's costs)	27.6	7.0
200	Underground mine	72.7	18.3
300	Mine surface facilities	23.5	5.9
500	Plant site infrastructure	19.2	4.8
600	Process plant	107.6	27.1
800	Tailings and water management	48.9	12.3
900	Indirects	46.0	11.6
999	Contingency	51.8	13.0
	Total	397.3	100.0

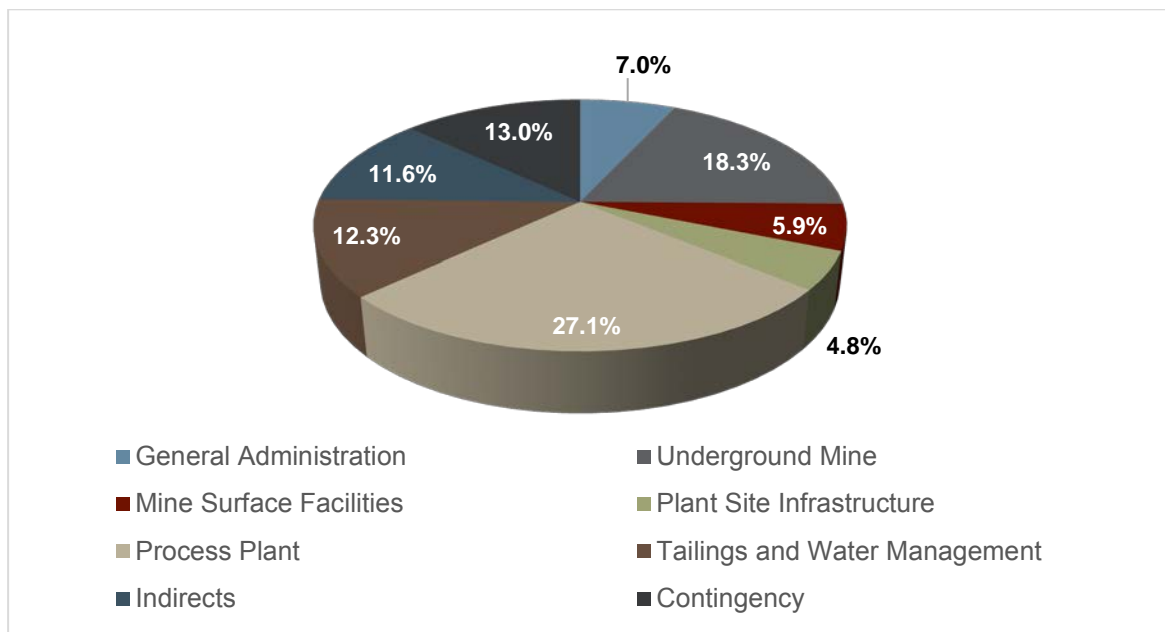


Figure 21-2: Distribution of pre-production capital costs.

21.1.3.1 Direct Costs (Areas 000 to 800)

Direct cost details, based on the previously described assumptions, construction crew wages and productivities for the mine, process plant, site infrastructure, and tailings and water management are provided in the following sections according to the Project WBS:



21.1.3.2 General Administration (Area 000) – Owner’s Costs

The following items are part of the General Administration area, representing the Owner’s costs during pre-production:

- Employee salaries until production begins;
- Energy, consumables and maintenance costs during mine development;
- Insurance during pre-production;
- Surface mobile equipment for the site and the warehouse;
- Environmental management and mitigation;
- Security;
- Pre-investment costs;
- Personnel training;
- Administration, financial and human resources costs;
- Community relations.

Owner’s costs total \$27.6M. Table 21-4 summarizes the General Administration pre-production capital costs.

Table 21-4: General administration (Owner’s costs) pre-production capital cost summary

Cost area description	Total cost (\$M)	CAPEX (%)
General management	17.5	63.4
Mine pre-production Owner's costs	6.1	22.0
Process plant pre-production Owner's costs	2.6	9.3
Insurance	0.8	2.9
Mobile equipment	0.7	2.4
Total	27.6	100.0

21.1.3.3 Exploration and Geology (Area 100)

Exploration and geology work for the Windfall Lake Project was completed prior to the effective date of the FS and is thus considered part of the Early Works. The exploration and geology costs have not been included in the pre-production capital costs.



21.1.3.4 Underground Mine (Area 200)

InnovExplo provided estimates for all underground mine capital costs. The total underground mine pre-production capital cost is \$72.7M for Windfall Lake Mine. Underground mine Owner's cost (\$6.1M) are included in the General Administration area mentioned in Section 21.1.3.2. Osborne-Bell development will start in mid-2022.

Table 21-5 summarizes the pre-production underground capital costs and provides a breakdown per item. Pre-production capital costs include material and manpower for each category.

Table 21-5: Total project underground mine pre-production capital costs

Capital costs summary	Windfall Lake	CAPEX
Pre-production	(\$M)	(%)
U/G construction	3.6	5.0
U/G permanent dewatering	0.3	0.4
U/G electrical & communication network	8.6	11.8
U/G ventilation	7.7	10.6
U/G mobile equipment-CAPEX	0.2	0.3
Differed development contractor	35.0	48.2
Capitalized OPEX	17.2	23.7
Total pre-production capital costs	72.7	100.0

21.1.3.5 Mine Surface Facilities (Area 300)

The mine site infrastructure capital costs for the Windfall Lake Site infrastructure were prepared and assembled to respect the WBS defined for the Project. Material Take-offs ("MTOs") were derived from the general arrangement drawings prepared for site infrastructure, based on neat quantities, with applied factors for waste. However, no design growth factor was applied on these quantities. Costs were estimated using these MTOs, similar projects factorization, or handbooks. Labour rates and productivity factors were defined based on a 70-hour per week schedule. The total capital cost of the Windfall Lake mine surface facilities site is estimated to be \$23.5M. There are no pre-production costs associated to the Osborne-Bell Mine Site infrastructure as development will begin in mid-2022.

Potential borrow pits were identified for both access road rehabilitation and site works, and hauling distances were considered in costs. Aggregate is assumed to be produced near the site, using a portable crushing and screening plant. Earthworks and concrete construction are assumed to be carried out during the summer.



A residual value was estimated for the actual exploration camp buildings that will be dismantled.

The Mine Site infrastructure capital costs for the Windfall Lake site are shown in Table 21-6:

Table 21-6: Windfall Lake Site surface infrastructure CAPEX – By WBS area

Area	Description	Total cost (\$M)	CAPEX (%)
350	Mobile equipment	0.68	2.9
353	Surface material handling	7.60	32.4
354	Air intake	4.72	20.1
360	Electrical site distribution	2.74	11.7
363	Telecommunication	3.53	15.0
364	Site preparation	0.43	1.8
365	Site access road to Windfall Lake Site	2.38	10.1
366	Site roads	0.50	2.1
367	Site access control	0.04	0.2
373	Service buildings	0.10	0.4
374	Fuel storage facilities	0.23	1.0
380	Water management and pumping system	0.50	2.2
Total		23.46	100.0

21.1.3.6 Plant Site Infrastructure (Area 500)

Site surface infrastructure capital costs were estimated by SNC-Lavalin, with the exception of the site electrical works which were supplied by BBA and the new railway line which was estimated by Osisko. The capital costs for the Plant Site infrastructure were determined by performing preliminary level engineering and architectural design to generate factored estimates based on building surface area. The total capital cost of the Plant Site infrastructure facilities is estimated to be \$19.2M.

Assumptions used to determine the capital cost of site infrastructure include the following:

- The Plant Site is accessed using existing roads, which implies no major additional cost for site access road construction;
- The Plant Site infrastructure location is assumed to have a typical geotechnical capacity with no rock blasting required;



- Capital for the service building, administration building, and site access control building is based on factored estimates to complete the work;
- Fire water system costs are included in the capital costs for each building;
- Underground piping costs were estimated using a site layout and each of the building's requirements;
- Access road to TMF cost was based on the utilization of a disused railway line combined with an existing road and a complementary path;
- The railway lines were estimated using a preliminary level design as the basis of factored cost estimate;
- The main substation, site telecommunications and emergency power generation costs are based on other recent projects of similar size, power rating and layout;
- The 120 kV electrical line is based on an approximate distance of 4 km.

A summary of the site surface infrastructure capital costs is provided in Table 21-7.

Table 21-7: Plant Site infrastructure pre-production capital costs

Area	Cost description	Total cost (\$M)	CAPEX (%)
501	General site arrangement	0.23	1.2
502	Electrical site distribution	11.37	59.3
505	Site preparation	1.68	8.8
520	Site access control	0.57	3.0
525	Administration building	1.23	6.4
535	Warehouse	0.63	3.3
545	Fuel storage facilities	0.20	1.1
555	Fire protection system	2.44	12.7
560	Drinking water	0.41	2.1
565	Sanitary sewer system	0.43	2.3
	Total	19.19	100.0



21.1.3.7 Process Plant (Area 600)

The design of the process plant was largely based on BBA and Osisko experience on recent projects. This design included the production of a general arrangement drawing of the process plant by BBA and Osisko during the PEA. An equipment list was developed with equipment sizes, capacities, and motor power from the process flow diagrams developed for the PEA. The process plant cost estimate was calculated from factors based on purchase cost of process equipment and the process plant layout. Quantities were summarily developed for concrete and steel to validate the factoring methodology. The cost estimate includes the equipment and materials for tailings discharge from the process plant and water reclaim from the TMF.

The total capital cost of the process plant facility is estimated to be \$107.6M as summarized in Table 21-8:

Table 21-8: Process plant pre-production capital costs

Cost description	Total cost (\$M)	CAPEX (%)
Site works	4.8	4.5
Concrete activities	9.8	9.1
Structural elements	8.2	7.6
Architectural finishes	6.0	5.5
Mechanical - Process - Equipment	47.7	44.4
Mechanical - Building - Utilities	4.8	4.4
Piping	10.8	10.0
Electrical	8.6	8.0
Automation and telecommunication	6.9	6.4
Total	107.6	100.0

The following sections provide the basis for the capital cost estimates for the major component costs of constructing the process infrastructure.

Mechanical

An equipment list, including platework, was developed from the process flow diagrams. Budget pricing was obtained for the primary process equipment while the remainder of the equipment was factored based on a recent firm pricing obtained on a similar project. The Installation cost is factored from the purchase value.



Concrete

Preliminary design sketches were used to develop the concrete quantities to validate the cost factoring methodology.

Structural

Preliminary design sketches were used to develop the steel quantities to validate the cost factoring methodology.

Other Disciplines

The following items were factored from the cost of process equipment to match ratios found in BBA and Osisko's past project of similar magnitude and geographical location.

Supply and installation costs of architectural works, (i.e. siding, roofing, doors, plant offices, etc.), HVAC (units and ducting), electrical distribution (e-rooms equipment, cable tray and power cables), and automation (instruments, control and communication cabling) were also factored from the supply cost of process equipment.

Construction Labour

Construction Labour Force was inferred from the factored installation cost and crew rates and productivity loss factors developed on a recent similar project in the same geographical area.

21.1.3.8 Tailings and Water Management (Area 800)

The material, tailings and water management capital costs for the mining sites (Windfall Lake and Osborne-Bell) and the plant site were estimated by Golder.

The tailings management facility which will be located at the plant site will be built in 3 stages. The pre-production capital cost estimate includes the first stage representing the capacity required for the first 2 years of operations.

Construction of the Osborne-Bell water treatment plant will start in 2022 and will be functional for the beginning of 2023. A portion of the overall construction cost is included in the project sustaining capital estimate. The Plant Site water treatment facility will be built during the first year of operation, therefore its costs are also included in the project sustaining capital estimate.

The total pre-production capital cost of material, tailings and water management infrastructure for the Windfall Lake Project is estimated to be \$48.9M, and is summarized in Table 21-9.



Table 21-9: Tailings and water management infrastructure pre-production capital costs (Windfall Lake, Osborne-Bell and Plant sites)

Location	Cost description	Total cost (\$M)	CAPEX (%)
Windfall Lake Site	Water management	4.9	10.0
	Waste management	1.5	3.0
	Water treatment	5.9	12.1
Osborne-Bell Site	Water management	4.6	9.5
	Waste management	3.2	6.5
	Water treatment	1.8	3.7
Plant Site	Water management	5.9	12.1
	Waste management	0.7	1.5
	Tailing management facility (Stage 1)	20.4	41.7
Total		48.9	100.0

For the tailings management facility, the earthwork unit costs for the capital cost estimate were based on recent quotations from local contractors. The capital cost estimate for the tailings management facility does not include the following items: tailings thickener and delivery system to TMF, water pumping stations and pipelines, earthworks for pumping stations or thickening plant, earthworks for access road to TMF, water basins, mineralized material and waste stockpiles, waste and water management infrastructure reclamation cost.

Capital cost estimates for the water treatment plant (WTP) infrastructure components were developed using the factored cost method. The capital costs are estimated as proportion of equipment costs, having competed only a limited amount of engineering for the WTP facilities. Equipment costs are estimated based on past costs for other projects by Golder within North America within the last five years. The capital cost estimate for the WTPs does not include allowances for site-specific and infrastructure costs, such as: power supply to the plant, roads, lighting, drinking water, sewage disposal, fencing, and it does not include feed pipelines and effluent pumping systems and sludge handling costs..

21.1.3.9 Direct Cost Summary (Area 000 to 800)

The overall pre-production capital direct costs (WBS Areas 000 to 800) for the Windfall Lake Project total \$397.3M.



21.1.3.10 Indirect Costs (Area 900)

Indirect costs for the Windfall Lake Project include all costs needed to carry out the engineering, procurement, and construction management services. These costs were calculated by Osisko's estimating group. The main costs in this category are EPCM services, temporary facilities, third-party services, spare parts, freight, and customs.

For the Project indirect costs included within the pre-production capital cost estimate, an itemized list of elements has been used to generate factored estimates. The following have been covered:

- EPCM;
- Costs associated with permitting and public consultations;
- Construction temporary facilities erection and operation;
- Land and ocean freight for process and major electrical equipment;
- Pre-operational verifications;
- Commissioning support;
- Vendor representatives;
- Capital spares;
- One year operating spares;
- Commissioning spares;
- First fills;
- Waste disposal;
- Sanitary blocks;
- Construction temporary power.

The indirect costs were calculated using various sources of information, including the construction execution plan and information provided by Osisko. Indirect costs, excluding Owner's costs (WBS 000) total \$46.0M.

21.1.3.11 Contingency (Area 999)

Contingency is an allowance included in the pre-production capital cost estimate that is expected to be spent to cover unforeseeable items within the scope of the estimate. These can arise due to currently undefined items of work or equipment, or to uncertainty in the estimated quantities and unit prices for labour, equipment and materials. Contingency does not cover scope changes or project exclusions.



The pre-production cost contingency for the Project was calculated as a whole by Osisko using a deterministic approach based on their experience, execution philosophy, historic data, assessment of major risks/opportunities, level of project definition and advancement of engineering as well as contributions from the various firms according to their scope of work.

The total amount calculated for the contingency is \$51.8M representing 15% of the pre-production capital costs (direct and indirect).

It is expected that in order to meet the budget for the Project sufficiently developed engineering, adequate project management and tight construction cost controls will be implemented.

21.1.4 Sustaining Capital Costs

The sustaining capital costs incurred over the eight years of production (Q3 2022 to 2030) from both the Windfall Lake and Osborne-Bell mines are estimated to total \$411.7M of project-related capital expenditures, including end-of-mine salvage value and site reclamation and closure costs. The breakdown of LOM sustaining capital expenditures by area is provided in Table 21-10 and Figure 21-3, while a detailed sustaining capital schedule is provided in Table 21-11. The sustaining capital costs include a contingency of 15% except the underground mining costs for Windfall Lake and Osborne-Bell sites, which have no contingency allowance as these costs were estimated based on actual contracts currently in place.

Table 21-10: Project sustaining capital cost summary

Area	Description	Sustaining capital cost (\$M)	CAPEX (%)
200	Windfall Lake underground mine	189.9	46.1
200	Osborne-Bell underground mine	119.1	28.9
300	Windfall Lake Mine surface facilities	16.4	4.0
350	Osborne-Bell Mine surface facilities	8.1	2.0
500	Plant Site surface infrastructure	2.1	0.5
800	Tailings and water management	35.5	8.6
	Total	371.1	90.1
	Site reclamation and closure	58.8	14.3
	Salvage value	(18.3)	(4.4)
	Total	411.7	100.0

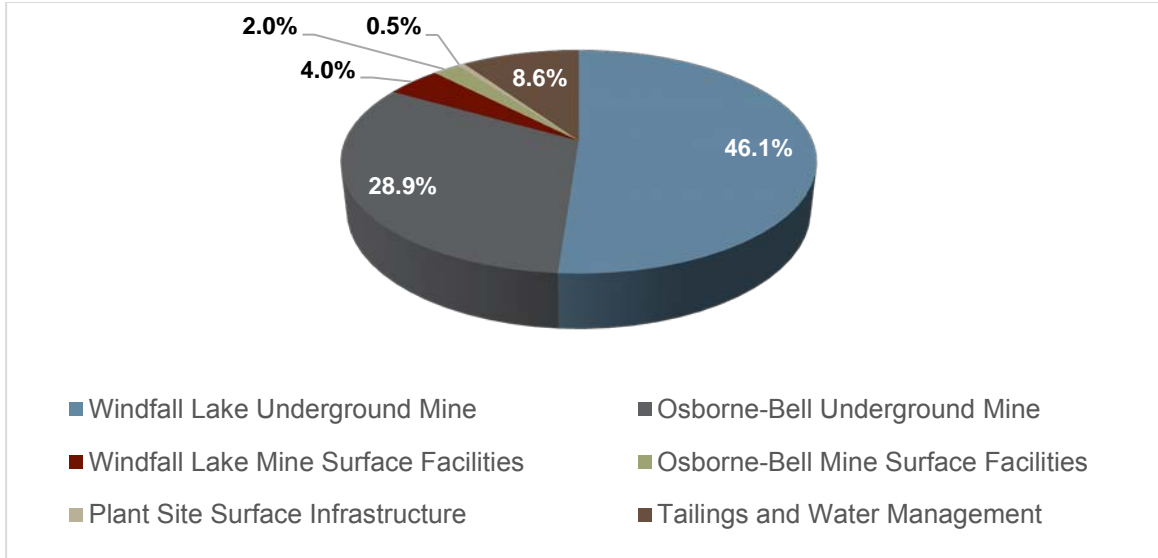


Figure 21-3 Project sustaining capital cost summary.



Table 21-11: Sustaining capital cost breakdown

		Year	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	Total	CAPEX (%)
Area	Description	Sustaining Capital Cost (\$M)											Total	CAPEX (%)
200	Windfall Lake underground mine	54.9	21.0	16.1	29.4	23.8	19.4	13.3	12.1	-	-	-	189.9	46.1
200	Osborne-Bell underground mine	18.5	30.7	28.6	29.3	12.1	-	-	-	-	-	-	119.1	28.9
300	Windfall Lake Mine surface facilities	-	0.2	16.2	-	-	-	-	-	-	-	-	16.4	4.0
350	Osborne-Bell Mine surface facilities	6.2	1.8	-	-	-	-	-	-	-	-	-	8.1	2.0
500	Plant Site surface infrastructure	-	2.1	-	-	-	-	-	-	-	-	-	2.1	0.5
800	Tailings, waste and water management	-	11.2	10.2	-	-	14.1	-	-	-	-	-	35.5	8.6
	Total	79.6	67.1	71.0	58.7	35.9	33.5	13.3	12.1	-	-	-	371.1	90.1
	Site reclamation and closure	-	-	-	-	-	0.0	0.1	0.1	0.5	58.1	-	58.8	14.3
	Salvage value	-	-	-	-	-	-	-	-	(12.7)	(5.6)	-	(18.3)	(4.4)
	Total	79.6	67.1	71.0	58.7	35.9	33.5	13.3	12.1	(12.2)	52.5	-	411.7	100.0



21.1.4.1 Underground Mining (Area 200)

The majority of sustaining capital costs is attributable to the underground mining operations at the Windfall Lake and Osborne-Bell sites. The underground mine related sustaining capital costs are estimated to be \$309M and are broken down by activity in Table 21-12. Significant sustaining capital is required as mining progresses. Sustaining capital includes drifts, ventilation raises, ramp extension, underground infrastructure, contractor developed, and mobile equipment. No contingency is assumed to be included in these costs as they were estimated based on actual contracts in place.

Table 21-12: Underground sustaining capital costs

Item	Windfall Lake (\$M)	Osborne-Bell (\$M)	Total cost (\$M)	CAPEX (%)
Underground construction	1.1	1.1	2.3	0.7
Underground dewatering	3.4	2.1	5.4	1.8
Underground electrical and communications	24.5	10.8	35.3	11.4
Underground ventilation	5.3	4.1	9.4	3.0
Underground mobile equipment	51.3	-	51.3	16.6
Underground mobile equipment sustaining	12.1	-	12.1	3.9
Differed development mine	85.7	-	85.7	27.7
Contractor-operated development	6.5	101.0	107.5	34.8
Total	189.9	119.1	309.0	100.0

21.1.4.2 Mine Surface Facilities (Area 300)

The sustaining capital costs for the mine surface facilities required by underground mining operations at the Windfall Lake and Osborne-Bell sites are estimated to be \$24.5M and are broken down by activity in Table 21-13. Significant sustaining capital for the mine surface facilities includes the construction of a mining operations complex building at the Windfall Lake site.

The Mine Site infrastructure sustaining capital costs for both the Windfall Lake and Osborne-Bell sites infrastructure were prepared and assembled to respect the WBS defined for the Project. Material Take-offs ("MTOs") were derived from the general arrangement drawings prepared for site infrastructure, based on neat quantities, with applied factors for waste. However, no design growth factor was applied on these quantities. Costs were estimated using these MTOs, similar projects factorization, or handbooks. Labour rates and productivity factors were defined based on a 70-hour per week schedule.



Potential borrow pits were identified for both access road rehabilitation and site works, and hauling distances were considered in costs. Aggregate is assumed to be produced near the site, using a portable crushing and screening plant. Earthworks and concrete construction are assumed to be carried out during the summer.

Table 21-13: Mine surface facilities sustaining capital costs

Site	Cost item	Total Cost (\$M)	CAPEX (%)
Windfall Lake	Remote gatehouse	0.2	0.8
	Complex building	16.1	65.7
	Sewage disposal	0.1	0.5
Osborne-Bell	Air intake	3.4	14.0
	Truck shop	0.2	1.0
	Electrical site distribution	1.3	5.3
	Telecommunication	0.4	1.8
	Site preparation	1.1	4.3
	Site roads	0.3	1.4
	Administration, dry and warehouse	0.3	1.1
	Fuel storage facilities	0.2	1.0
	Drinking water and sewage treatment	0.5	1.9
	Water management pumping system	0.1	0.5
	Gatehouse	0.2	0.7
Total		24.5	100.0

21.1.4.3 Plant Site Surface Facilities (Area 300)

The sustaining capital costs for the plant site surface facilities are estimated to be \$2.1M and are broken down by activity in Table 21-14. Significant sustaining capital for the plant site includes the installation of a service building, the extension of a railway siding and fencing.

Table 21-14: Plant Site facilities sustaining capital costs

Cost item	Total cost (\$M)	CAPEX (%)
Fencing	0.2	11.1
Service building	0.9	42.0
Railway	1.0	46.9
Total	2.1	100.0



21.1.4.4 Tailings and Water Treatment Infrastructure (Osborne-Bell and Plant sites) (Area 800)

The sustaining capital costs for the tailings and water treatment infrastructure was estimated by Golder for the Osborne-Bell and Plant sites. It is estimated to be \$35.5M as shown in Table 21-15. Significant sustaining capital for the plant site includes the activities for the remaining two construction stages of the surface tailings management facility to reach the LOM tailings capacity requirement of 10 Mt (including a 10% contingency on capacity) as well as water treatment facilities for the Osborne-Bell and process plant sites. Included in the TMF costs are site preparation, dyke construction and material, rock and gravel fill, geotextile liners and contingency.

Table 21-15: Tailings and water treatment sustaining capital costs

Site	Cost item	Total cost (\$M)	CAPEX (%)
Osborne-Bell	Water treatment	3.5	9.8
Plant Site	Tailings storage facility - Stage 2 (Yr 3 to 5)	10.2	28.7
	Tailings storage facility - Stage 3 (Yr 6 to 9)	14.1	39.7
	Water treatment	7.7	21.7
Total		35.5	100.0

21.1.4.5 Rehabilitation and Mine Closure Capital Costs

Reclamation and closure costs for all three sites were provided by WSP and estimated to total \$58.8M. This estimate includes the reclamation, dismantling and removal of proposed buildings and foundations, restoration of the surface footprint of the infrastructure, restoration of the waste rock pile, restoration of the tailings storage facility, and restoration of the water storage ponds. Reclamation for Osborne-Bell site will start in 2027 after the end of the mine production. The remaining rehabilitation activities are expected to be performed in Year 10 (2031), coinciding with the termination of Windfall Lake operations. Table 21-16 provides a breakdown of the costs associated with site rehabilitation and closure. The costs include the engineering and contingency as required by MERN guidelines.

Table 21-16: Site rehabilitation and closure

Cost area	Total cost (\$M)	CAPEX (%)
Restoration of the Windfall Lake Site	8.4	14.2
Restoration of the Osborne-Bell Site	4.3	7.2
Restoration of the Process Plant and TMF Site (Quévillon)	46.2	78.5
Total	58.8	100.0



21.1.4.6 Salvage Value

The salvage value (sustaining capital credit) of mechanical and underground mobile equipment was estimated to total \$18.3M. Table 21-17 provides a breakdown of the credit associated with the salvage value of equipment from the Windfall Lake Project.

Table 21-17: Salvage value

Cost Area Description	Total credit (\$M)	CAPEX (%)
Underground mine mobile equipment	12.7	69.5
Process plant equipment	3.6	19.6
Recoverable material	2.0	10.9
Total	18.3	100.0

21.2 Operating Costs

21.2.1 Summary

The average operating cost over the 8-year mine life is estimated to be \$126.47/t milled or \$638/oz (CAD). Table 21-18, Table 21-19 and Table 21-20, below, provides the breakdown of the projected operating costs for the Windfall Lake Project.

Table 21-18: Windfall Lake Project operating cost summary

Cost area	LOM (\$M)	Annual average cost (\$M)	Average LOM (\$/tonne milled)	Average LOM (\$/oz)	OPEX (%)
Underground mining	565.1	69.6	63.82	319.3	50.5
Mineralized material transport	126.2	15.5	14.26	71.3	11.3
Process plant	238.1	29.3	26.89	134.5	21.3
Tailings, water treatment and environment	31.8	3.9	3.59	17.9	2.8
General and administration	158.7	19.5	17.93	89.7	14.2
Total	1,119.9	137.9	126.47	637.25	100.0



Table 21-19: Windfall Lake Site operating cost summary

Cost area	LOM (\$M)	Annual average cost (\$M)	Average LOM (\$/tonne milled from the deposit)	Average LOM (\$/oz)	OPEX (%)
Underground mining	494.7	60.9	63.02	316.5	44.2
Mineralized material transport	115.1	14.2	14.66	73.7	10.3
Process plant	212.1	26.1	27.02	135.7	18.9
Tailings, water treatment and environment	27.6	3.4	3.52	17.7	2.5
General and administration	141.3	17.4	18.01	90.4	12.6
Total	990.9	122.0	126.22	639.2	100.0

Table 21-20: Osborne-Bell Site operating cost summary

Cost area	LOM (\$M)	Annual average cost (\$M)	Average LOM (\$/tonne milled from the deposit)	Average LOM (\$/oz)	OPEX (%)
Underground mining	70.4	8.7	70.05	340.4	6.3
Mineralized material transport	11.1	1.4	11.07	53.8	1.0
Process plant	26.0	3.2	25.87	125.7	2.3
Tailings, water treatment and environment	4.2	0.5	4.14	20.1	0.4
General and administration	17.4	2.1	17.32	84.2	1.6
Total	129.0	15.9	128.45	624.5	100.0

21.2.2 Basis of Operating Cost Estimate

The operating cost estimate was based on Q2 2018 assumptions. The estimate has an accuracy of $\pm 25\%$. All operating cost estimates are in CAD. Mining, process and tailings management are generally itemized in detail, however, General and Administration (“G&A”) items are calculated estimates, or have been included as an allowance. Many items of the operating cost estimate are based on budget quotations, allowances are based on in-house data and salaries are based on Osisko’s projected salary chart.

The operating cost estimate is based on the mine schedule indicative tonnage per time period that was produced by InnovExplo on July 6, 2018 and inclusive of site costs to final Project close-out (“LOM”) including waste management facilities. Costs up to and including C4 commissioning are excluded from operating costs and are included in the capital cost estimate.



Assumptions and Exclusions

The following items were assumed:

- All equipment and materials will be new;
- The labour rate build-up will be based on the statutory laws governing benefits to workers that were in effect at the time of the estimate;
- No cost of commissioning assistance post C4 certificate issuance is included in the operating cost estimate;
- Freight estimates are based on vendor supplied freight quotations or in-house data. Freight for reagents is included in the price of those commodities. Freight for steel consumables is included in the price of that material. Freight for spare parts is calculated as a percentage of equipment cost expected to be used annually;
- No contingency is assumed;
- No cost escalation (or de-escalation) is assumed;
- No costs relating to certain agreements with third parties;
- The Osborne-Bell deposit will be mined by contractors.

The following items were specifically excluded from the operating cost estimate, unless identified by the Owner's team and included in the Owner's costs:

- Cost of financing and interest;
- Pre start-up operations and maintenance training;
- Transport and handling of doré from the plant (included in the financial analysis).

Estimate Responsibilities

The overall operating cost estimate combined inputs from a number of sources including BBA, InnovExplo, Golder, and Osisko as summarized in Table 21-21.

Table 21-21: OPEX estimate responsibilities

Cost area	Responsible entity
Mining	InnovExplo
Mineralized material transport	BBA
Process plant	BBA
Tailings, waste and water management and environment	Golder, Osisko
General and administration	Osisko



General Unit Rates

General rates used in the operating cost estimate are summarized in Table 21-22.

Table 21-22: General rate and unit cost assumptions

Parameter	Unit	Value
Average daily LOM tonnage	tpd	3,200
Years of operations	year	8.1
LOM production	M tonnes	8.9
LOM gold grade	Au g/t	6.68
LOM silver grade	Ag g/t	2.82
LOM gold production	Au M oz	1.77
LOM silver production	Ag M oz	0.56
Power at Osborne-Bell Site	\$/KWh	0.0719
Power at Windfall Lake Site	\$/KWh	0.24
Power at Plant Site	\$/KWh	0.0545
Natural gas	\$/L	0.7
Diesel fuel	\$/L	1.17

21.2.3 Mining

InnovExplo provided estimates for all underground mine operating costs. The total underground mine operating cost is \$494.7M for Windfall Lake and \$70.4M for Osborne-Bell with an overall operating cost of \$565.1M for the Project. The operating unit costs were calculated over the total mineralized material mined from development and from production, including the marginal tonnages during pre-production. The unit cost is \$63.02/t for Windfall Lake and \$70.05/t for Osborne-Bell with an overall operating unit cost of \$63.82/t for the overall Project.

Table 21-23 summarizes the underground operating costs for Windfall Lake and provides a breakdown per item. Table 21-24 provides the same results for Osborne-Bell and Table 21-25 provides the operating costs for the overall Project.



Table 21-23: Underground mining operating costs – Windfall Lake Site

Operating costs – Windfall Lake Site		Total LOM cost	Average LOM cost	OPEX
Activity	Sub-activity	(\$M)	(\$/t)	(%)
Grade control	Grade control - Definition drilling	33.6	4.28	6.8
Mine development	Mine development	106.7	13.59	21.6
Production	Production – Slot raise	18.6	2.37	3.8
	Production – Stope support/preparation	3.3	0.43	0.7
	Production – Extraction	23.9	3.05	4.8
	Production – Mucking/hauling	70.9	9.04	14.3
Services	Energy cost U/G	39.9	5.08	8.1
	UG services	58.2	7.42	11.8
	Mechanical services	68.9	8.78	13.9
	Electrical services	23.0	2.94	4.7
	Backfill	47.6	6.06	9.6
Total operating costs – Windfall Lake Site		494.7	63.02	100.0

Table 21-24: Underground mining operating costs – Osborne-Bell Site

Operating costs - Osborne-Bell Site		Total LOM cost	Average LOM cost	OPEX
Activity	Sub-activity	(\$M)	(\$/t)	(%)
Grade control	Grade control - Definition drilling	4.3	4.26	6.1
Mine development	Mine development	25.3	25.18	35.9
Production	Production – Slot raise/extraction/mucking	12.2	12.16	17.4
	Production – Stope support/preparation	0.0	-	0.0
	Production – Hauling	14.7	14.67	20.9
Services	Energy cost U/G	6.3	6.29	9.0
	Backfill	7.5	7.49	10.7
Total operating costs – Osborne-Bell Site		70.4	70.05	100.0



Table 21-25: Underground mining operating costs – Windfall Lake Project

Operating costs – Windfall Lake Project		Total LOM cost	Average LOM cost	OPEX
Activity	Sub-activity	(\$M)	(\$/t)	(%)
Grade control	Grade control - Definition drilling	37.9	4.27	6.7
Mine development	Mine development	132.0	14.90	23.4
Production	Production – Slot raise/extraction	54.7	6.18	9.7
	Production – Stope support/preparation	3.3	0.38	0.6
	Production – Mucking/hauling	85.7	9.68	15.2
Services	Energy cost U/G	46.2	5.22	8.2
	UG services	58.2	6.58	10.3
	Mechanical services	68.9	7.79	12.2
	Electrical services	23.0	2.60	4.1
	Backfill	55.1	6.22	9.8
Total operating costs – Windfall Lake Project		565.1	63.82	100.0

The next three tables present a more detailed overview of the underground operating costs. It provides a breakdown per item and per year. Table 21-26 presents the results for Windfall Lake, Table 21-27 presents the results for Osborne-Bell and Table 21-28 presents the total results for the overall Project.

Table 21-26: Underground mine operating costs per year – Windfall Lake Site

Operating costs – Windfall Lake Site		2022	2023	2024	2025	2026	2027	2028	2029	2030	Total cost
Activity	Sub-activity	(\$M)	(\$M)	(\$M)	(\$M)	(\$M)	(\$M)	(\$M)	(\$M)	(\$M)	(\$M)
Grade control	Grade control - Definition drilling	2.0	4.4	3.8	4.3	3.9	3.9	4.2	4.5	2.6	33.6
Mine development	Mine development	9.2	15.4	20.4	11.1	15.2	19.1	11.5	4.9	0.0	106.7
Production	Production - Slotraise	1.1	2.5	2.1	2.4	2.2	2.2	2.3	2.4	1.4	18.6
	Production - Stope support/preparation	0.2	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.2	3.3
	Production - Extraction	1.4	3.2	2.8	3.1	2.8	2.8	3.0	3.1	1.7	23.9
	Production - Mucking/hauling	2.7	6.6	7.1	8.4	8.3	8.9	10.2	11.7	7.2	70.9
Services	Energy cost U/G	1.8	4.0	4.3	4.7	4.8	4.9	4.9	5.3	5.3	39.9
	UG services	3.5	7.1	7.1	7.1	7.1	6.9	6.7	6.8	6.1	58.2
	Mechanical services	2.7	8.3	8.3	8.3	8.3	8.3	8.3	8.3	8.3	68.9
	Electrical services	1.4	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	23.0
	Backfill	2.1	5.6	5.8	6.6	6.2	6.1	6.0	5.9	3.2	47.6
Total operating costs – Windfall Lake Site		28.1	60.1	64.8	59.0	61.8	66.0	60.1	56.1	38.7	494.7

Table 21-27: Underground mine operating costs per year – Osborne-Bell Site

Operating costs – Osborne-Bell Site		2022	2023	2024	2025	2026	2027	2028	2029	2030	Total cost
Activity	Sub-activity	(\$M)	(\$M)	(\$M)	(\$M)	(\$M)	(\$M)	(\$M)	(\$M)	(\$M)	(\$M)
Grade control	Grade control - Definition drilling	-	0.5	0.9	0.9	1.0	1.0	-	-	-	4.3
Mine development	Mine development	0.6	6.7	6.4	7.0	4.6	-	-	-	-	25.3
Production	Production - Slotraise/extraction/mucking	-	1.5	2.6	2.5	2.8	2.7	-	-	-	12.2
	Production - Stope support/preparation	-	-	-	-	-	-	-	-	-	-
	Production - Hauling	-	1.5	2.6	2.8	4.1	3.7	-	-	-	14.7
Services	Energy cost U/G	0.3	1.0	1.3	1.5	1.3	1.0	-	-	-	6.3
	Backfill	-	0.4	1.6	1.4	1.9	2.3	-	-	-	7.5
Total operating costs – Osborne-Bell Site		0.9	11.6	15.5	15.9	15.7	10.7	-	-	-	70.4

Table 21-28: Underground mine operating costs per year – Windfall Lake Project

Operating costs – Windfall Lake Project		2022	2023	2024	2025	2026	2027	2028	2029	2030	Total cost
Activity	Sub-activity	(\$M)	(\$M)	(\$M)	(\$M)	(\$M)	(\$M)	(\$M)	(\$M)	(\$M)	(\$M)
Grade control	Grade control - Definition drilling	2.0	5.0	4.7	5.1	4.9	4.8	4.2	4.5	2.6	37.9
Mine development	Mine development	9.8	22.0	26.8	18.0	19.8	19.1	11.5	4.9	0.0	132.0
Production	Production - Slotraise/extraction	2.5	7.2	7.5	8.0	7.9	7.7	5.3	5.5	3.1	54.7
	Production - Stope support/preparation	0.2	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.2	3.3
	Production - Mucking/hauling	2.7	8.1	9.8	11.2	12.4	12.6	10.2	11.7	7.2	85.7
Services	Energy cost U/G	2.1	5.0	5.6	6.2	6.1	5.9	4.9	5.3	5.3	46.2
	UG services	3.5	7.1	7.1	7.1	7.1	6.9	6.7	6.8	6.1	58.2
	Mechanical services	2.7	8.3	8.3	8.3	8.3	8.3	8.3	8.3	8.3	68.9
	Electrical services	1.4	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	23.0
	Backfill	2.1	6.0	7.4	7.9	8.0	8.4	6.0	5.9	3.2	55.1
Total operating costs – Windfall Lake Project		29.0	71.8	80.3	74.9	77.5	76.7	60.1	56.1	38.7	565.1



21.2.4 Mineralized Material Transport

The cost to transport mineralized material from the Windfall Lake and Osborne-Bell mine sites to the process plant at Lebel-sur-Quévillon was estimated based on a preliminary transport study and the LOM mine plan. At steady state, it is forecast that a total of approximately 3,200 tpd of mineralized material will be transported from the Windfall Lake (2,600 tpd) and Osborne Bell (600 tpd) mines to the process plant over a distance of 115 km and 35 km respectively. For the PEA it was assumed that the mineralized material transport would be provided by a local bulk transport company using 75 t trucks on a contracted basis. In order to take into consideration the thawing period in spring, a load reduction factor of 18% for truck transportation capacity has been applied for a period of 30 days. A material moisture factor of 3% has also been applied. The annual operating costs for mineralized material transport (truck loading, transport, dumping and administration) was calculated to be \$15.5M or \$14.26 per tonne milled.

Table 21-29: Material transport operating costs

Cost area	LOM cost (\$M)	Annual cost (\$M)	Cost per tonne milled (\$/t)	OPEX (%)
Transport Windfall Lake to Lebel-sur-Quévillon (115 km)	115.1	14.2	13.00	91.22
Transport Osborne-Bell to Lebel-sur-Quévillon (35 km)	11.1	1.4	1.26	8.8
TOTAL	126.2	15.5	14.26	100.0

21.2.5 Process Plant

The average process plant operating costs were calculated over the LOM. The annual operating cost was estimated to be \$29.3M or \$26.89 per tonne milled.

The steady-state operating costs include reagents, equipment consumables and maintenance, grinding media, personnel (including contractors), electrical power, as well as external laboratory assays and an allowance for special projects. The process consumables include grinding media as well as mill and crusher liners. A breakdown of the steady-state process plant operating costs, without contingency, is presented in Table 21-30.



Table 21-30: Process plant operating costs

Cost area	Average Annual cost (\$M)	Cost per tonne milled (\$/t)	OPEX (%)
Reagents	11.7	10.72	39.9
Equipment consumables and maintenance	4.1	3.74	13.9
Grinding media	2.3	2.13	7.9
Personnel	7.3	6.71	25.0
Utilities	3.2	2.97	11.1
Miscellaneous	0.7	0.60	2.2
TOTAL	29.3	26.89	100.0

Reagents

Numerous reagents are required for the Windfall Lake process flowsheet to operate the CIL, elution and cyanide destruction circuits as well as the thickeners. The reagent consumptions were estimated based on testwork results, industrial references and literature, and are presented in Chapter 17.

Budgetary prices, including delivery to site, were obtained for all reagents.

A summary of the average annual cost for each of the reagents is presented in Table 21-31.

Table 21-31: Average reagent costs

Area	Average Annual cost (\$M)	Cost per tonne milled (\$/t)	OPEX (%)
Hydrated lime (Ca(OH) ₂)	0.2	0.20	1.8
Sodium Cyanide (NaCN)	6.9	6.31	58.9
Lead Nitrate (Pb(NO ₃) ₂)	1.8	1.62	15.1
Activated Carbon	0.3	0.32	3.0
Nitric acid (HNO ₃)	0.1	0.13	1.2
Sodium hydroxide (NaOH)	0.2	0.15	1.4
Flocculant	0.3	0.23	2.2
Liquid sulphur dioxide (SO ₂)	1.3	1.21	11.3
Copper sulphate (CuSO ₄ .5H ₂ O)	0.4	0.38	3.5
Leach aid	0.1	0.05	0.5
Anti-scalant	0.1	0.06	0.6
Reagent preparation & distribution system rental	0.1	0.06	0.5
Total	11.7	10.72	100.0



The average annual cost of reagents was calculated to be \$11.7M, or \$10.72 per tonne milled. Nearly 60% of the reagents costs are for cyanide alone, and an additional 25% for lead nitrate and liquid SO₂.

Personnel

A total of 55 workers are required in the process plant, including 19 salaried staff and 36 hourly workers divided amongst management and technical services, operations and maintenance departments. The list of personnel, along with the salaries and benefits, including bonuses where applicable, associated with each position was provided by Osisko. An allowance for maintenance contractors was also included in the personnel cost which was estimated at an average cost of \$6.7 per year or \$6.82 per tonne milled.

Equipment Consumables, Spares and Maintenance

The replacement costs of major equipment consumables such as the SAG and ball mill liners and the jaw crusher fixed and movable liners were calculated based on recommended change-out schedules and budgetary quotations, and using BBA's internal database. The total cost for these items was estimated to average \$1.3M per year or \$1.15 per tonne milled.

The general maintenance of the process plant equipment was calculated by applying fixed percentages to the indicated capital cost of a given area. The processing areas and percentages applied to the mechanical, electrical and instrumentation equipment, as well as the piping materials in the process plant, are presented in Table 21-32.

Table 21-32: Process plant maintenance costs by area

Process plant equipment	Percentage of capital costs applied (%)
Mechanical	
▪ Crushing and conveying	9.5
▪ Grinding	8.0
▪ Gravity	5.0
▪ CIL, CND	3.0
▪ Other	3.0
Plant services	3.0
Piping	10.0
Electrical	2.0
Instrumentation	5.0

The average annual maintenance costs were calculated to be \$2.9M or \$2.63 per tonne milled, including an allowance for mobile equipment rental.



Grinding Media

The Windfall Lake process flowsheet includes two sizes of steel media for the SAG and ball mills. The consumption rates for the SAG mill (Ø127 mm) and ball mill (Ø51 mm) media were calculated using MolyCop tools and the Bond method respectively. The input data considered the average operating conditions for the SAG and ball mills, in terms of power draw, rotational speed and media loading. Budgetary quotations were obtained for each type of media used. The wear and annual media consumption rates for each type are presented in Table 21-33.

Table 21-33: Media wear and consumption rates

Area	Type	Size (mm)	Consumption (t/y)
SAG mill	Forged steel	127	543
Ball mill	Forged steel	51	958

The average annual cost of media for was estimated to be \$2.3M or \$2.13 per tonne milled, which represents 8% of the process plant operating costs.

Electricity

The annual power consumption for the processing facility was estimated to be 78.2 GWh excluding network losses.

The process plant energy consumption was calculated by first determining the requirements for the SAG, ball and regrind mills. Various factors (efficiency, load, and utilization) were applied to derive the power used versus installed and include network losses. The remaining process plant loads were factored assuming the grinding functions make-up 60% of the power consumption. Plant services and heating consumptions were estimated based on BBA's internal database of similar projects.

The specific energy (kWh/t) for both the SAG and ball mills was estimated from the testwork data. The specific energies were converted to an annual power demand (GWh) based on the annual tonnage processed through the mills.

The electrical power costs represent approximately 11% of the total process operating costs, at an average yearly cost of \$3.2M or \$2.97 per tonne milled. These are based on a unit price of \$0.0545 per kWh provided by BBA. As the cost of the 120 kV line has been added as pre-production capital cost, it is assumed that this \$7.5M would be recoverable by means of a deduction from the Hydro-Québec electrical bill amortized over a period of 5 years. This amount has been subtracted from the process plant electrical power cost during the first 5 years of operation.



Miscellaneous

The miscellaneous costs for the process plant include items such as special projects, R&D, rental of a cyanide control system. An allocation for external assays has also been included because the process plant will not include a chemical laboratory for analysis of the samples collected for metallurgical accounting, on-stream analyzer calibration or development testwork.

The samples collected include slurries from various stages of the flowsheet or the metallurgical laboratory; both high and low grade solution samples, carbon, bullion and slag. A quotation for unit assay costs for each type of sample was obtained from a local accredited laboratory. Based on the estimated sample collection frequency and the budget quote, an annual cost of \$0.7M, or \$0.60 per tonne milled, was calculated for external assay requirements.

Special Projects

An allowance of \$0.05M per year was made for special projects realized to enhance the metallurgical performance or maintainability of the processing facility. These include plant audits, circuit optimization work, reagent testing, wear material trials, etc.

21.2.6 Tailings, Water Treatment and Environment

The water treatment and environmental operating costs for the three sites were based on PEA level estimates provided by Golder and Osisko. The annual steady-state operating costs were determined to be \$3.9M per year or \$3.59 per tonne milled.

This area includes the following operating costs:

- Labour costs;
- Water treatment plant operations, maintenance and consumables;
- Tailings management facility operating costs;
- Environmental services group labour costs and associated expenses estimated such as:
 - Recycling and waste disposal fees;
 - Permitting costs;
 - Equipment rental;
 - Sampling and analytical fees;
 - Consulting and contract services.

A breakdown of the steady-state costs, without contingency, is presented in Table 21-34.



Table 21-34: Tailings, water treatment and environment operating cost summary

Cost Area	Annual Cost (\$M)	Cost per tonne milled (\$/t)	OPEX (%)
Labour	1.37	1.25	35.0
Water treatment plant operations	1.26	1.15	32.2
Waste and water management	0.63	0.58	16.1
Environmental services fees	0.66	0.60	16.8
Total	3.91	3.59	100.0

The labour for the Tailings, water treatment and environment Area includes five employees in the environmental services group and seven employees who will operate and maintain the tailings Management area at the Plant Site. The employee total for this area is 12.

21.2.7 General and Administration

General and Administrative (“G&A”) costs are expenses not directly related to the production of goods and encompass items not included in the mining, processing, refining, and transportation costs of the Project. These costs were developed based on the Osisko’s past project experience, similar sized operations, and BBA’s in-house database.

The G&A area includes the following items:

- Site administration and management labour;
- Human Resources, Information Technology (“IT”) and Health Services labour;
- Mine and Geology Technical Services labour;
- Office furniture and supplies;
- Computer hardware and software costs/license fees;
- Infrastructure electrical power and heating;
- Health and Safety supplies;
- Building Insurance (including loss of production);
- Security, maintenance, cafeteria, laundry, snow removal and janitorial service contracts;
- Warehouse administration and supplies;
- Waste collection and recycling services;
- Telecommunications and data service fees;
- Training;
- Municipal and school taxes.



The labour included in the General and Administration Area includes two management employees, 12 administration (Accounting, IT and Warehousing) employees, two employees in Human Resources, five employees in Health and Safety and 33 employees dedicated to Technical Services (Mine Engineering and Geology). The employee total for the Overall General and Administration services is 54.

In general, the management and administrative staff will work 40 hours per week on day shift. Warehousing personnel will work a 12-hour shift per day to support the 24 hours of required daily operations.

On an annual basis, the General and Administration costs are estimated to be \$19.5M/year or approximately \$158.7M over the mines planned 8 years of operations. The G&A cost on a per tonne milled basis is \$17.93/tonne milled (LOM).

The major costs broken down by item within the General and Administration category are shown in Table 21-35. The greatest cost within the G&A category is labour, representing approximately 33%, while contract services (Cafeteria, Laundry, Janitor and Security) is the second greatest cost accounting for approximately 20%. Road maintenance and snow removal represent approximately 13% of the G&A costs.

Table 21-35: Average general and administrative costs

Item	Annual Cost (\$M/Year)	Average LOM (\$/tonne milled)	OPEX (%)
Labour	6.39	5.86	32.7
Association, fees and sponsorships	0.15	0.14	0.8
Office furniture and supplies	0.06	0.06	0.3
IT/Communication supplies and service fees	1.34	1.23	6.8
Consultants	0.15	0.13	0.7
Employees transport	0.75	0.69	3.9
Insurance	0.92	0.85	4.7
Electricity and heating	0.82	0.75	4.2
Health and safety supplies and services	0.57	0.52	2.9
Other service and rental fees	0.49	0.45	2.5
Building maintenance	0.17	0.16	0.9
Cafeteria, laundry, janitorial and security services	3.82	3.50	19.5
Roads maintenance and snow removal	2.53	2.32	12.9
Taxes (municipal and school)	1.39	1.28	7.1
Total	19.54	17.93	100.0



21.3 Site Personnel Summary – All Areas

A total facility workforce of 330 employees is estimated for the Windfall Lake Project. A summary of labour in all areas is shown in Table 21-36. The Osborne-Bell mine will be operated on a contract basis and it is expected that approximately 47 personnel will be required. These contract employees are not included in the previously mentioned project work force total.

Table 21-36: Summary of personnel – All areas

Facility area	Role	Total
General & Administration	Management	2
	Administration	12
	Human Resources and Community Relations	2
	Health and Safety	5
	Technical Services (Mine and Geology)	36
	Subtotal	57
Underground mine	Staff and Supervision	28
	Operations	126
	Maintenance and Services	52
	Subtotal	206
Process plant	Staff and Supervision	19
	Operations	20
	Maintenance	16
	Subtotal	55
Tailings, water management and environment	Staff and Supervision	6
	Maintenance	6
	Subtotal	12
Windfall Lake Project	Total	330



22. ECONOMIC ANALYSIS

The economic/financial assessment of the Windfall Lake Project for Osisko Mining was carried out using a discounted cash flow approach on a pre-tax and after-tax basis, based on consensus equity research long-term commodity price projections (as at June 6, 2018) in United States currency and cost estimates in Canadian currency. An exchange rate of 0.78 USD per 1.00 CAD was assumed to convert USD market price projections and particular components of the capital cost estimates into Canadian Dollars ("CAD"). No provision was made for the effects of inflation. Current Canadian tax regulations were applied to assess the corporate tax liabilities, while the most recent provincial regulations were applied to assess the Québec mining tax liabilities.

The internal rate of return ("IRR") on total investment was calculated based on 100% equity financing, even though Osisko Mining may decide in the future to finance part of the Project with debt financing. The net present value ("NPV") was calculated from the cash flow generated by the Project, based on a discount rate of 5%. The payback period, based on the undiscounted annual cash flow of the Project, is also indicated as a financial measure. Furthermore, a sensitivity analysis has been performed for the after-tax base case to assess the impact of variations in the Project capital costs, USD:CAD exchange rate, price of gold, and operating costs.

The economic analysis presented in this section contains forward-looking information with regard to the mineral resource estimates, commodity prices, exchange rates, proposed mine production plan, projected recovery rates, operating costs, construction costs and project schedule. The results of the economic analysis are subject to a number of known and unknown risks, uncertainties and other factors that may cause actual results to differ materially from those presented here. The reader is cautioned that this PEA is preliminary in nature and includes the use of Inferred mineral resources that are considered too speculative geologically to have the economic considerations applied to them that would enable them to be categorized as mineral reserves and, as such, there is no certainty that the PEA economics will be realized.

22.1 Assumptions and Basis

The economic analysis was performed using the following assumptions and basis:

- The Project Executive Schedule developed in Chapter 24, taking into consideration key project milestones;
- Commercial production start-up is scheduled to begin in the third quarter ("Q3") of 2022. The first full year of production is therefore 2023. Operations are estimated to span a period of approximately eight years;
- The base case gold and silver prices are 1,300 USD/oz. and 17.00 USD/oz., respectively;



- The long term prices of gold and silver were estimated on the basis of discussions with experts, consensus analyst estimates and recently-published economic studies that were deemed to be credible (June 6, 2018). The forecasts used are meant to reflect the average metal price expectation over the life of the Project. No price inflation or escalation factors were taken into account. It is understood that commodity prices can be volatile and that there is the potential for deviation from the LOM forecasts;
- The United States to Canadian dollar exchange rate has been assumed to be 0.78 USD: 1.00 CAD over the life of mine (CAD:USD exchange rate of 1.28);
- All cost estimates are in constant Q2 2018 Canadian dollars with no inflation or escalation factors taken into account;
- All metal products are assumed sold in the same year they are produced;
- Cash flows are taken to occur at the end of each period;
- Working capital cash outflows and inflows are included in the model;
- Class specific Capital Cost Allowance rates are used for the purpose of determining the allowable taxable income;
- Final rehabilitation and closure costs will start in 2027 (Year 5) and be completely spent in 2031 (Year 9);
- Project revenue is derived from the sale of gold/silver doré into the international marketplace. No contractual arrangements for doré smelting or refining exist at this time.

This financial analysis was performed on both a pre-tax basis and after-tax basis with the assistance of an external tax consultant. The general assumptions used for this financial model, LOM plan tonnage and grade estimates are summarized in Table 22-1, and are outlined in Table 22-2.

Table 22-1: Financial model parameters

Description	Unit	Value
Long term gold price	USD/oz	1,300
Long term silver price	USD/oz	17.00
Exchange rate	USD:CAD	0.78
Discount rate	%	5
Mine life	year	8.1
Total mined and milled	Million tonnes	8.9
Gold grade	g/t	6.7
Silver grade ⁽¹⁾	g/t	2.8
Process plant gold recovery (Windfall Lake)	%	92.4
Process plant gold recovery (Osborne-Bell)	%	92.8
Process plant silver recovery (Windfall Lake)	%	69.2



Description	Unit	Value
Process plant silver recovery (Osborne-Bell) ⁽²⁾	%	0
Underground mining operating cost	\$/t milled	63.82
Processing operating cost	\$/t milled	26.89
Tailings and water management operating cost	\$/t milled	3.59
Mineralized material transportation operating cost	\$/t milled	14.26
General and administration operating cost	\$/t milled	17.93
Royalties (Windfall Lake only)	% NSR	2.5
Pre-production capital cost	\$M	397.3
Sustaining capital cost	\$M	371.1
Reclamation and closure cost	\$M	58.8
Salvage value (credit)	\$M	(18.3)

⁽¹⁾ As not all silver assays were analyzed and considered in the block model, all the data missing silver has been assigned a zero value. The silver grade reflects the use of only the blocks in the block model with silver grades but averaged on the overall tonnage mined.

⁽²⁾ It is assumed that the silver recovery is 0 due the assumption that Osborne-Bell has no silver bearing material.

22.2 Gold and Silver Production

Over the life of mine, a total of 1.77 Moz of gold (payable) (average annual: 218,000 oz) and a total of 0.56 Moz of silver (payable) (average annual: 69,000 oz) will be produced. Figure 22-1 provides a summary of the payable gold and silver production by year.

Metallurgical testwork and drill core assays have shown that the mineralization for both deposits, Windfall Lake and Osborne-Bell, contains silver. Silver assays were not conducted on a systematic basis. However, preliminary interpolations have been made for available Ag assays in the Windfall Lake deposit. No silver production was considered for the Osborne-Bell deposit.

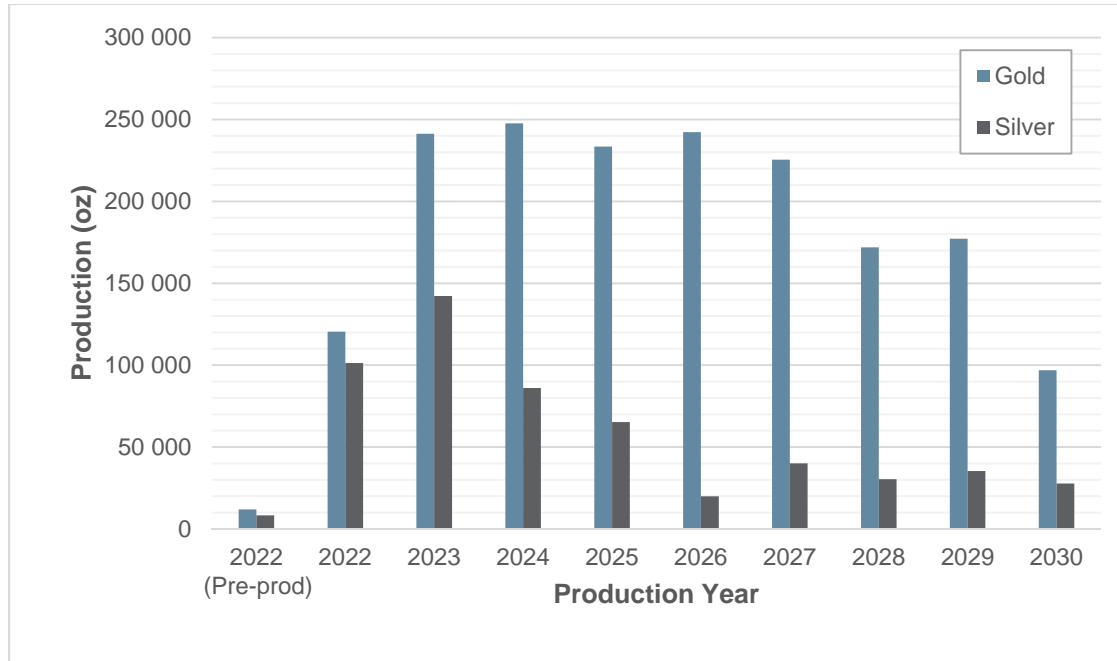


Figure 22-1: Annual payable gold and silver production (oz).

22.3 Pre-production and Sustaining Costs

All capital costs (pre-production, sustaining, reclamation and closure) for the Project have been distributed against the development schedule to support the economic cash flow model. Figure 22-2 presents the planned annual and cumulative LOM capital cost profile, excluding sunk costs.

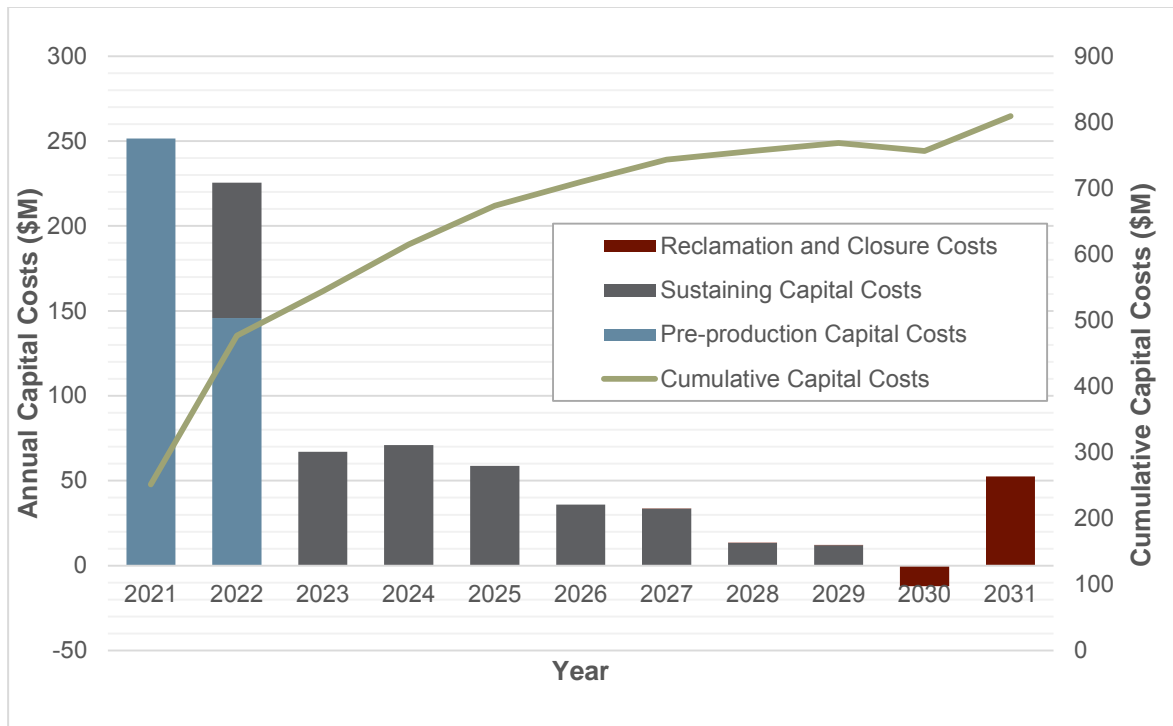


Figure 22-2: Overall Windfall Lake Project capital cost profile.

22.4 Royalties

Over the life of the Project, based on the various agreements in place, an overall 2.5% NSR royalty has been assumed for the Windfall Lake deposit. There are no royalties for the Osborne-Bell deposit. It is estimated that approximately \$65.1M in royalties is expected to be paid based on the base case metal prices and project assumptions.

22.5 Taxation

The Windfall Lake Project is subject to three levels of taxation, including federal income tax, provincial income tax, and provincial mining taxes. Osisko Mining compiled the taxation calculations for the Windfall Lake Project with assistance from third-party taxation experts; however, this information was not verified by Colin Hardie, QP.



The current Canadian tax system applicable to Mineral Resource Income was used to assess the annual tax liabilities for the Project. This consists of federal and provincial corporate taxes, as well as provincial mining taxes. The federal corporate tax currently applicable over the operating life of the Project is 15.0% of taxable income while the provincial corporate tax is 11.5%. The marginal tax rates applicable under the recently proposed mining tax regulations in Québec (Bill 55, December 2013) are 16%, 22% and 28% of taxable income and are dependent on the profit margin. It has been assumed that the 10% processing allowance rate associated with transformation of the mine product to a more advanced stage within the province would be applicable in this instance.

The tax calculations are underpinned by the following key assumptions:

- The Project is held 100% by a corporate entity and the after-tax analysis does not attempt to reflect any future changes in corporate structure or property ownership;
- Assumes 100% equity financing and therefore does not consider interest and financing expenses;
- Payments projected relating to NSR royalties are allowed as a deduction for federal and provincial income tax purposes, but are added back for provincial mining tax purposes;
- Actual taxes payable will be affected by corporate activities, and current and future tax benefits, with respect to these activities have not been considered.

The combined effect on the Project of the three levels of taxation, including the elements described above, is an approximate cumulative effective tax rate of 36%, based on project earnings (EBIT). It is anticipated, based on the Project assumptions, that Osisko Mining will pay approximately \$341M in tax payments over the life of the Project.

22.6 Financial Analysis Summary

A 5% discount rate was applied to the cash flow to derive the NPV for the Project on a pre-tax and after-tax basis. Cash flows have been discounted to Q3 2021 under the assumption that the project construction decision will be made and major project financing would be carried out at this time. The summary of the financial evaluation for the base case of the Project is presented in Table 22-2.



Table 22-2: Financial analysis summary (pre-tax and after-tax)

Description		Unit	Base case
Pre-tax	Net present value (0% disc)	\$M	954.2
	Net present value (5% disc)	\$M	625.4
	Internal rate of return	%	39.7%
	Simple payback period	Year	3.7
After-tax	Net present value (0% disc)	\$M	613.4
	Net present value (5% disc)	\$M	413.2
	Internal rate of return	%	32.7%
	Simple payback period	Year	3.9

The pre-tax base case financial model resulted in an internal rate of return of 39.7% and a NPV of \$625.4M with a discount rate of 5%. The simple pre-tax payback period is 3.7 years. On an after-tax basis, the base case financial model resulted in an internal rate of return of 32.7% and a NPV of \$413.2M with a discount rate of 5%. The simple after-tax payback period is 3.9 years.

The summary of the Windfall Lake Project discounted cash flow financial model (pre-tax and after-tax) is presented in Table 22-3.

Table 22-3: Windfall Lake Project financial model summary

Year	-2	-1	1	2	3	4	5	6	7	8	9	10	Total
	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	
Production Summary													
Total tonnes mined (kt)		71	567	1,165	1,176	1,165	1,178	1,153	960	961	518		8,914
Total tonnes milled (kt)			638	1,165	1,176	1,165	1,178	1,153	960	961	518		8,914
Mill head grade Au (g/t)			6.99	6.97	7.08	6.73	6.91	6.58	6.05	6.23	6.35		6.68
Mill head grade Ag (g/t)			7.76	5.52	3.31	2.53	0.76	1.57	1.43	1.66	2.42		2.82
Gold production (koz)			132.4	241.4	247.8	233.6	242.4	225.6	172.1	177.3	97.0		1,769.5
Silver production (koz)			110.1	143.0	86.5	65.6	20.0	40.3	30.6	35.6	27.9		559.5
Payable gold (koz)			132.3	241.3	247.7	233.5	242.3	225.5	172.0	177.2	96.9		1,768.7
Payable silver (koz)			109.6	142.2	86.1	65.3	19.9	40.1	30.4	35.4	27.7		556.7
Revenue													
Exchange rate (USD:CAD)	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78		0.78
Gross revenue (\$M)			223	405	415	391	404	377	287	296	162		2,961
Operating Expenditures													
Mining (\$M)			29.0	71.8	80.3	74.9	77.5	76.7	60.1	56.1	38.7		565.1
Material transport (\$M)			15.2	29.8	30.0	29.7	30.4	31.2	28.5	28.5	14.8		238.1
Processing (\$M)			1.9	3.8	4.0	4.0	4.0	3.8	3.5	3.5	3.3		31.8
Environment & Tailings (\$M)			8.5	16.7	16.3	16.2	16.4	16.2	14.1	14.1	7.7		126.2
General & Administration (\$M)			10.3	19.9	20.1	19.6	19.6	19.4	17.5	17.4	14.9		158.7
Operating Costs (\$M)			5.6	8.6	8.3	7.8	8.4	8.0	7.2	7.4	4.0		65.1
Royalty payments (\$M)			29.0	71.8	80.3	74.9	77.5	76.7	60.1	56.1	38.7		565.1
Capital Expenditures													
Pre-production (\$M)		251.5	145.9										397.3
Sustaining (\$M)			79.6	67.1	71.0	58.7	35.9	33.5	13.3	12.1	0.0		371.1
Reclamation and closure (\$M)				0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.5	58.1	58.8
Salvage value (\$M)											(12.7)	(5.6)	(18.3)
Total Capital Costs (\$M)		251.5	225.5	67.1	71.0	58.7	35.9	33.5	13.4	12.2	(12.2)	52.5	809.0
Changes in working capital (\$M) ⁽¹⁾		0.0	(3.3)	(2.0)	(0.4)	0.2	(0.1)	(0.2)	0.7	0.3	1.4	3.5	0.0
Pre-Tax Cash Flow													
Pre-tax cash flow (\$M)		(251.5)	(70.5)	188.1	183.4	177.9	210.5	186.5	141.3	155.6	88.8	(56.0)	954.2
Cumulative Pre-Tax Cash Flow (\$M)		(251.5)	(322.0)	(133.9)	49.5	227.4	437.9	624.4	765.7	921.4	1,010.2	954.2	

Year	-2	-1	1	2	3	4	5	6	7	8	9	10	Total
	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	
Taxes and Duties⁽²⁾													
Federal corporate income tax (\$M)		0.0	0.0	1.0	18.3	16.1	21.6	21.1	15.0	17.4	6.7	(7.9)	109.2
Provincial corporate income tax (\$M)		0.0	0.0	0.0	7.4	14.5	18.1	16.1	12.6	14.2	5.8	(6.0)	82.6
Québec mining duties (\$M)		(22.5)	(2.1)	17.2	22.8	21.3	30.2	29.0	19.1	23.0	11.0	0.0	149.0
Total Taxes and Duties (\$M)		(22.5)	(2.1)	18.2	48.5	51.9	69.8	66.2	46.8	54.6	23.5	(13.9)	340.8
After-Tax Cash Flow													
After-Tax Cash flow (\$M)		(229.0)	(65.0)	171.9	135.3	125.7	140.8	120.5	93.9	100.8	64.0	(45.6)	613.4
Cumulative After-Tax Cash Flow (\$M)		(229.0)	(294.0)	(122.0)	13.3	139.0	279.9	400.4	494.2	595.0	659.0	613.4	

⁽¹⁾ A negative value indicates a decrease in capital expenditures.

⁽²⁾ A negative value indicates taxes and duties reimbursement.



Figure 22-3 shows the cumulative cash flows for the Project projected for the life of the mine on a pre-tax and after-tax basis.

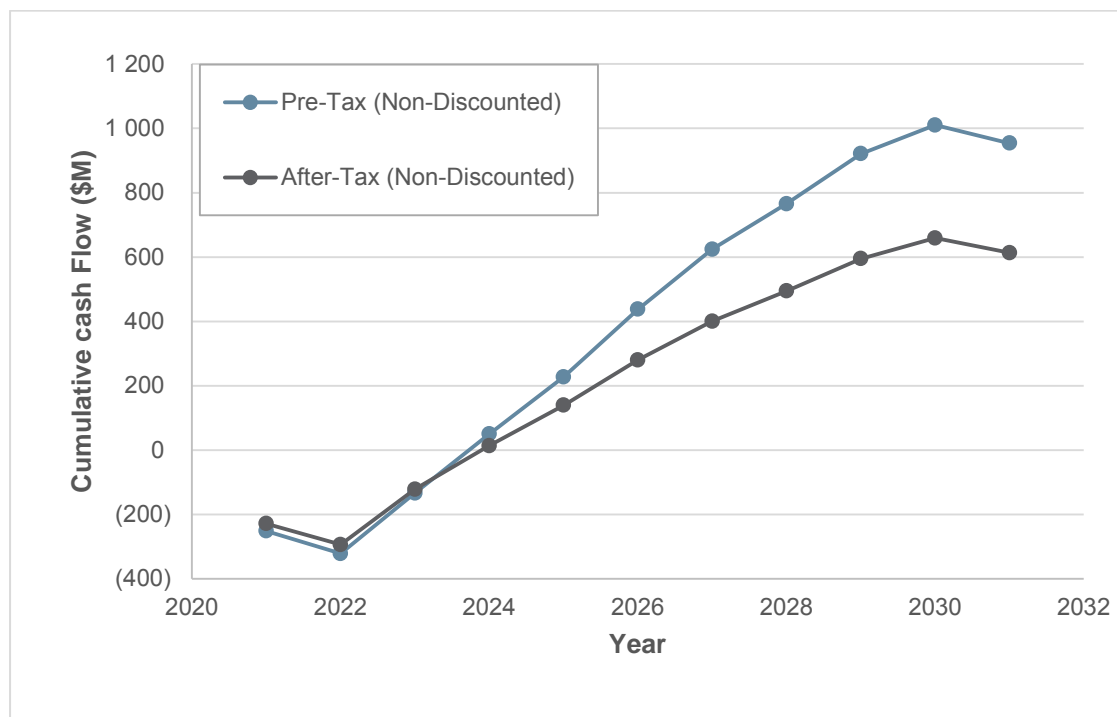


Figure 22-3: Life of mine cash flow projection (cumulative, pre-tax and after-tax).

22.7 Production Costs

A summary of the Project's production costs is provided in Table 22-4. All costs are in USD. Total cash costs are calculated per ounce on a payable basis using the costs of mining, material transport processing, tailings and water treatment, on-site G&A, refining and smelting, transport, and royalties. A credit for by-product silver revenues is then applied.

The LOM operating cash cost per ounce (Including by-product credits) is 522 USD/oz Au. The LOM cost all-in sustaining cost ("AISC"¹) per ounce is 704 USD/oz Au derived from the total cash costs plus sustaining capital, and closure costs. The operating margin over the LOM has been estimated to be 778 USD/oz Au based on a gold price of 1,300 USD/oz.

¹ All-in Sustaining Costs are presented as defined by the World Gold Council ("WGC") less Corporate G&A.



Table 22-4: Production cost summary

Description	Unit	LOM
Metal Production		
Gold	Moz	1.8
Silver	Moz	0.6
Costs, Royalties and Credits		
Mining	USD M	440.8
Material transport	USD M	98.5
Processing	USD M	185.7
General & administration	USD M	123.8
Environment & tailings	USD M	24.8
Refining and smelting	USD M	9.1
Royalties	USD M	50.8
By-product credit (Ag)	USD M	(9.4)
Total operating cost (after credit)	USD M	924.0
AISC Costs and Profit Margins (per oz payable)		
Gold price	USD/oz	1,300.0
Cash cost (operating)	USD/oz	522.4
Sustaining and closure costs (net of salvage value)	USD M	321.1
Total costs (operating and sustaining)	USD M	1,245.1
AISC costs ⁽¹⁾	USD/oz	704.0
Operating margin	USD/oz	777.6

⁽¹⁾ As defined by the World Gold Council less corporate G&A costs.

22.8 Sensitivity Analysis

A financial sensitivity analysis was conducted on the base case after-tax cash flow NPV and IRR of the Project, using the following variables: capital costs, operating costs, USD:CAD exchange rate, price of gold and discount rate. The after-tax results for the Project IRR and NPV based on the sensitivity analysis are summarized in Table 22-5 through Table 22-9.



Table 22-5: NPV sensitivity results (after-tax) for metal price and exchange rate variations

USD:CAD	Gold Price (USD/ounce)							
	1,000	1,100	1,200	1,250	1,300	1,400	1,500	1,600
0.90	(317.9)	(171.7)	(25.5)	47.6	120.7	266.9	413.1	559.3
0.85	(231.9)	(77.1)	77.7	155.1	232.5	387.3	542.1	696.9
0.80	(135.1)	29.4	193.9	276.1	358.4	522.8	687.3	851.8
0.78	(92.9)	75.8	244.5	328.9	413.2	581.9	750.6	919.3
0.70	100.0	288.0	476.0	569.9	663.9	851.9	1 039.9	1,227.8
0.65	244.7	447.1	649.5	750.8	852.0	1,054.4	1,256.8	1,459.3
0.60	413.4	632.7	852.0	961.7	1,071.4	1,290.7	1,510.0	1,729.3
0.55	612.9	852.1	1,091.4	1,211.0	1,330.6	1,569.9	1,809.1	2,048.3

Table 22-6: IRR sensitivity results (after-tax) for metal price and exchange rate variations

USD:CAD	Gold Price (USD/ounce)							
	1,000	1,100	1,200	1,250	1,300	1,400	1,500	1,600
0.90	-	(24.1)%	2.7%	8.9%	14.4%	24.0%	32.7%	40.8%
0.85	-	(2.5)%	11.3%	16.8%	21.9%	31.2%	39.9%	48.1%
0.80	(10.3)%	7.5%	19.4%	24.6%	29.6%	38.8%	47.6%	56.0%
0.78	(4.4)%	11.1%	22.6%	27.8%	32.7%	42.0%	50.9%	59.4%
0.70	12.9%	25.4%	36.3%	41.4%	46.4%	56.0%	65.3%	74.4%
0.65	22.7%	34.7%	45.7%	50.9%	56.1%	66.1%	75.8%	85.4%
0.60	32.8%	44.8%	56.1%	61.5%	66.9%	77.4%	87.8%	97.9%

Table 22-7: NPV sensitivity results (after-tax) for operating and capital cost variations

CAPEX	OPEX						
	-30%	-20%	-10%	0%	10%	20%	30%
-30%	875.3	791.0	706.7	622.3	538.0	453.7	369.4
-20%	805.6	721.3	636.9	552.6	468.3	384.0	299.6
-10%	735.9	651.6	567.2	482.9	398.6	314.3	229.9
0%	666.2	581.9	497.5	413.2	328.9	244.6	160.2
10%	596.5	512.1	427.8	343.5	259.2	174.8	90.5
20%	526.8	442.4	358.1	273.8	189.5	105.1	20.8
30%	457.1	372.7	288.4	204.1	119.8	35.4	(48.9)



Table 22-8: IRR sensitivity results (after-tax) for operating and capital cost variations

CAPEX	OPEX						
	-30%	-20%	-10%	0%	10%	20%	30%
-30%	81.2%	75.6%	69.8%	63.9%	57.9%	51.6%	44.9%
-20%	66.2%	61.2%	56.0%	50.8%	45.3%	39.6%	33.5%
-10%	54.7%	50.2%	45.5%	40.7%	35.7%	30.3%	24.6%
0%	45.7%	41.5%	37.2%	32.7%	28.0%	23.0%	17.5%
10%	38.4%	34.5%	30.4%	26.2%	21.7%	16.9%	11.6%
20%	32.3%	28.6%	24.7%	20.7%	16.4%	11.7%	6.4%
30%	27.1%	23.6%	19.9%	16.0%	11.7%	7.1%	1.8%

Table 22-9: NPV sensitivity results (after-tax) for discount rate

	Discount Rate						
	0%	3%	5%	7%	9%	11%	13%
NPV	613.4	484.4	413.2	351.7	298.3	252.0	211.6

The graphical representations of the financial sensitivity analysis are depicted below in Figure 22-4 for the Project's NPV and Figure 22-5 for the Project's IRR.

The sensitivity analysis reveals that the USD:CAD exchange rate has the most significant influence on both NPV and IRR compared to the other parameters, based on the range of values evaluated. After the USD:CAD exchange rates, NPV was most impacted by changes in the gold price and then to a lesser but equal extent by variations in operating costs and capital costs. It should be noted that the economic viability of the Project will not be significantly negatively impacted by variations in the capital cost, within the margins of error associated with the PEA capital cost estimate.

After the USD:CAD exchange rates, the Project's IRR was most impacted by variations in gold price, then capital cost and to a lesser extent by the operating cost.

Overall, the NPV and IRR of the Project are generally positive over the range of values used for the sensitivity analysis when analyzed individually. The only exception to this occurs at a gold price of \$1,000/oz, which results in a Project NPV of -92.9M and an IRR of -4.4%

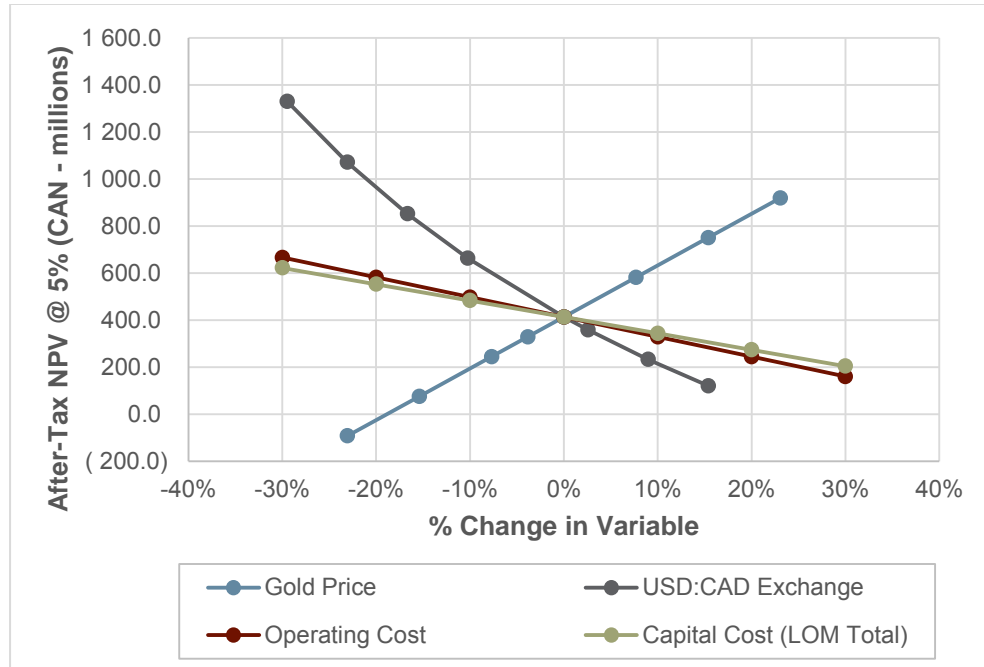


Figure 22-4: Sensitivity of the net present value (after-tax) to financial variables.

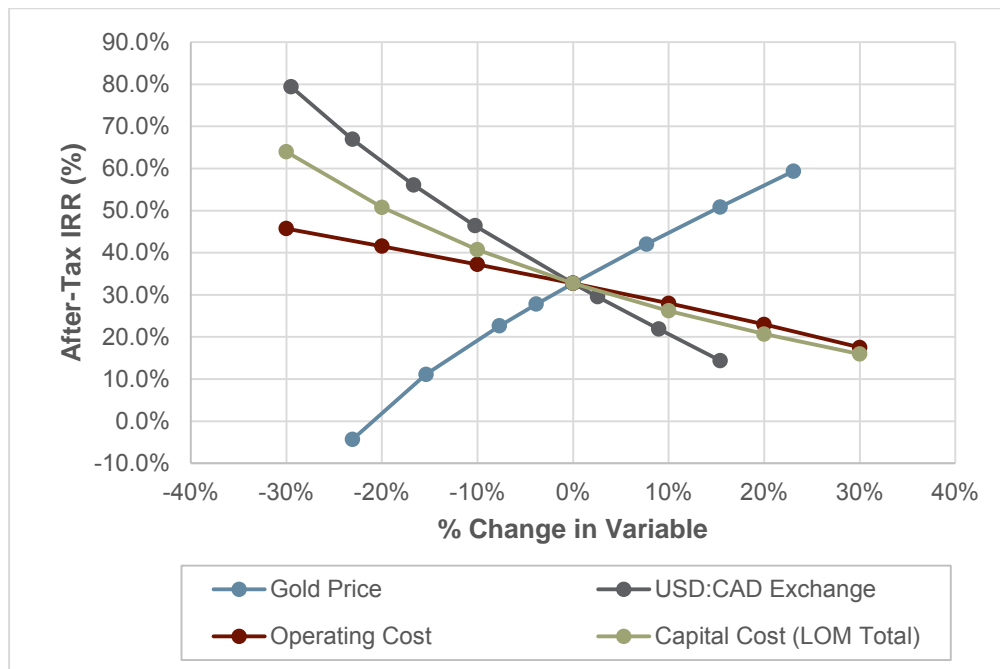


Figure 22-5: Sensitivity of the internal rate of return (after-tax) to financial variables.



23. ADJACENT PROPERTIES

23.1 Windfall Lake and Urban-Barry Properties

Exploration in the Urban-Barry greenstone belt has led to the discovery of numerous gold prospects, all within a 20 km radius surrounding the Windfall Lake deposit. Three properties holding promising gold deposits in adjacent properties are presented below and on Figure 23-1. The remainder of the tenements in the region principally consist of small land packages owned by junior exploration companies or prospectors. Recent exploration on adjacent properties by competitor companies and independent prospectors has focused on gold and base metals.

The authors did not verify the information from the adjacent properties, and the information is not necessarily indicative of the mineralization on the Windfall Lake and Urban-Barry properties.

23.1.1 Gladiator Gold Deposit – Bonterra Resources

Located approximately 10 km southeast of the Windfall Lake deposit, the Gladiator deposit contains Inferred mineral resources of 905,000 tonnes, grading 9.37 g/t Au (4 g/t cut-off grade) for 273,000 ounces of gold. The Mineral Resource Estimate (MRE) and technical report were completed by Snowden Mining Consultants (2012). The Gladiator deposit is described as highly altered mafic volcanics cross-cut by syenite and quartz porphyry intrusions. Mineralization is mainly hosted at the contact between the wall rocks and intrusions with smoky quartz veins (www.bonterraresources.com). At least five distinct mineral zones have been identified.

23.1.2 Barry Gold Deposit – Métanor Resources Inc.

The Barry Gold deposit is located approximately 10 km southwest of the Windfall Lake deposit. A NI 43-101 updated MRE carried out by GoldMinds Geoservices (2016) reported 8.4 Mt @ 1.13 g/t Au (305,400 ounces of gold) of Measured and Indicated resources; and Inferred of 31.92 Mt @ 1.02 g/t Au (1,046,000 ounces of gold). The mine has produced 43,970 ounces of gold between 2008 and 2010. Métanor Resources continues to advance the exploration at Barry with ongoing drilling to increase mineral resources below the pits and proceed with an underground bulk sample program in 2018 (www.metanor.ca).

Gold mineralization at the Barry deposit is located in silicified-carbonated basalts near the contacts with quartz-feldspar porphyry dikes and in albite-carbonate-quartz veins adjacent to altered wall rocks.

23.1.3 Lac Rouleau – Beaufield Resources Inc.

The Lac Rouleau Claim Block is located approximately 5 km from the Windfall Lake deposit and contains three main gold mineralized zones (Zones 14, 17, and 18) and six showings (1, 2, 3, 4, Quesnel, and Cominco showings) mainly surrounding the Rouleau Lake (www.beaufield.com). Mineralization is generally hosted in altered volcanic rocks adjacent to quartz-feldspar porphyry intrusions. Geologica Group-Conseil is producing a NI 43-101 Technical Report (2018); however, no Mineral Resource Estimate was carried out in the Lac Rouleau Claim Block.

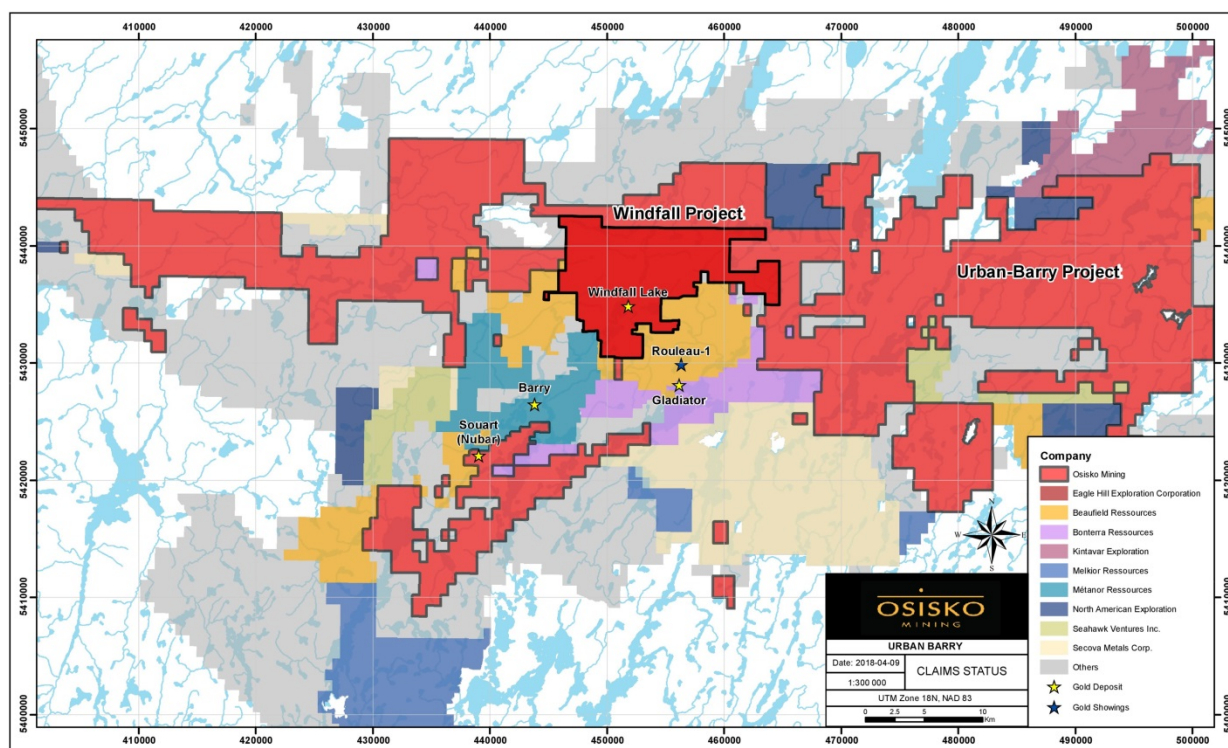


Figure 23-1: Properties and mineralization in the vicinity of the Windfall Lake and Urban-Barry properties as of May 2018.

23.2 Quévillon Property

According to the GESTIM database in February 2018, there are numerous mineral exploration properties in the region surrounding the Osborne-Bell deposit and Quévillon property, of which two host mines (the active Langlois mine and the past-producing Sleeping Giant mine) and another two have had significant potential and recent exploration activity (the Mousseau Project and the Laflamme property) (Figure 23-2). The remainder of the tenements in the region consist principally of small land packages owned by junior exploration companies or local prospectors.



Recent exploration on adjacent properties by competitor companies and independent prospectors has focused on gold and base metals.

The authors did not verify the information from the adjacent properties, and the information is not necessarily indicative of the mineralization on the Quévillon property.

Nyrstar operates the underground zinc, copper and silver Langlois mine located between the Central and Northeastern blocks (Figure 23-2). In August 2011, Langlois became the property of Nyrstar through the acquisition of Breakwater Resources Ltd. (www.nyrstar.com). Production of concentrates in 2017 amounted to 34,500 t Zn, 2,100 t Cu, 553,000 oz Ag and 1,900 oz Au (Nyrstar press release, February 22, 2018). The total mineral reserves in 2016 were 1.9Mt at 8.56% Zn, 0.65% Cu, 40.59 g/t Ag, and 0.06 g/t Au, Measured and Indicated mineral resources were 4.63Mt at 9.29% Zn, 0.6% Cu, 41.99 g/t Ag and 0.07 g/t Au, and Inferred mineral resources were 1.89Mt at 6.51% Zn, 0.38% Cu, 34.35 g/t Ag and 0.08 g/t Au (Nyrstar press release of May 18, 2017). The Langlois base metal mineralization is interpreted as a VMS deposit.

Abcourt Mines Inc. owns the closed Sleeping Giant gold mine since its purchase in June 2016. The property is located half-way between Western and Central Blocks and touch one Osisko claim (Figure 23-2). In 2013, Verschelden and Jourdain (2013) estimated in a 43-101 report that the Sleeping Giant deposit contained Measured resources of 2,000 t grading 6.9 g/t Au (450 oz Au), Indicated resources of 304,100 t grading 12.4 g/t Au (120,800 oz Au) and Inferred resources of 41,700 t grading 12.4 g/t Au (16,700 oz Au).

Adjacent to the eastern boundary of the Central Block lies the Mousseau Project of Vior Inc. (vior.ca). This project is considered prospective given the historical mineral inventory of 360,008 t at 3.22 g/t known as the Morono “M Zone” (cited in Simard, 1997) (Figure 23-2).

This mineral inventory is historical in nature and should not be relied upon. It is unlikely it complies with NI 43-101 requirements or follows CIM Definition Standards, and it has not been verified to determine its relevance or reliability. It is included in this section for illustrative purposes only and should not be disclosed out of context. InnovExplo did not review the databases, key assumptions, parameters or methods used for this estimate.

Gold mineralization at the Morono M Zone is associated with shear zones parallel to the NW-SE-trending stratigraphy at the nearby contact between the intrusive rocks of the Wilson Pluton and the volcanics of the Quévillon Group to the south. The mineralization occurs in quartz-sericite schists with disseminated pyrite and minor chalcopyrite along a continuous shear zone 950 m long by 5 m to 15 m thick. Visible gold has been noted with pyrite (Simard, 1997). All historical drill holes on the Morono M Zone have cut across the shear. The zone remains open at depth, with the deepest mineralized drill intercept at 270 m (4.42 g/t Au over 5.84 m true width, hole M4-88). Gold mineralization can be traced over a strike length of 3 km to the northwest through the adjacent Verneuil property of SOQUEM Inc., which is surrounded by the Quévillon property.



The Laflamme property, held by the joint venture between Midland Exploration Inc. (“Midland”) and Aurbec Mines Inc. (“Aurbec”) is of interest for its significant Ni-Cu-PGE±Au and Au drill intercepts (www.midlandexploration.com). Midland believes it has identified a new ultramafic sill complex directly north of the Quévillon property on strike with the NNE-trending volcanic sequence of the Hudson Zone.

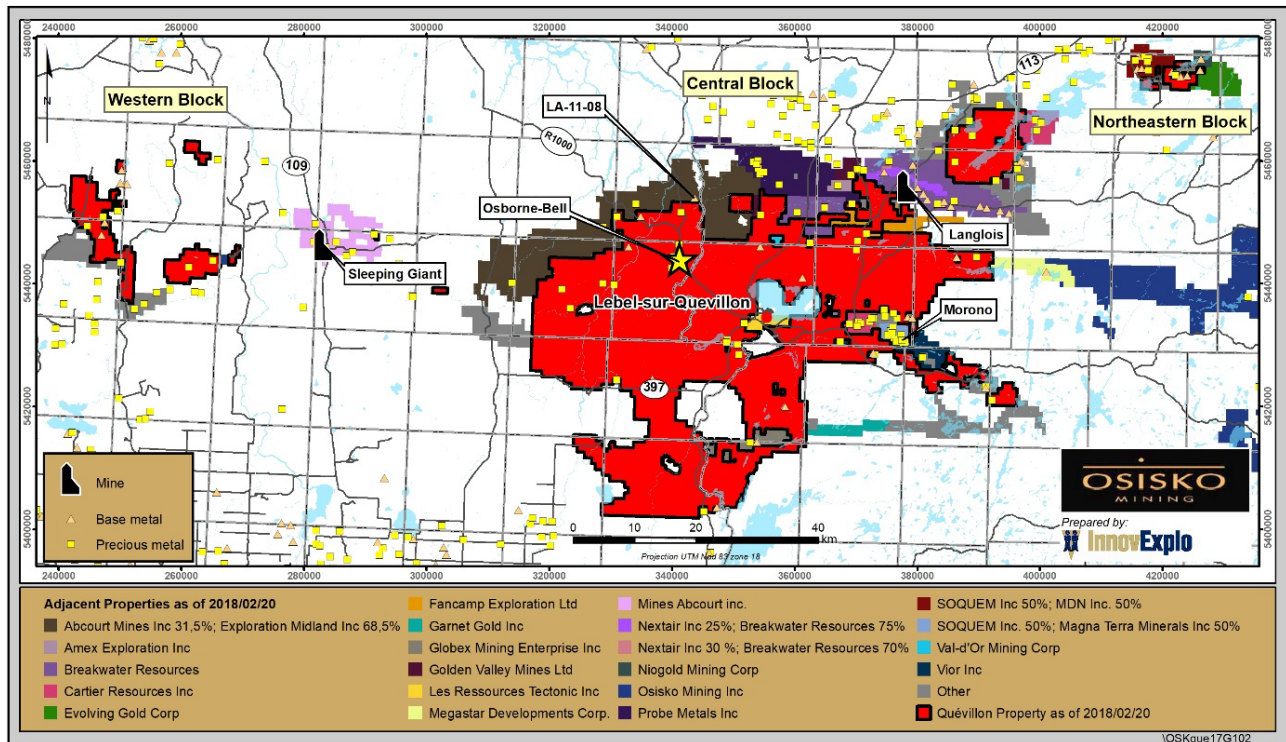


Figure 23-2: Properties and mineralization in the vicinity of the Quévillon property as of February 2018.



24. OTHER RELEVANT DATA AND INFORMATION

24.1 Project Execution Plan

The Windfall Lake Project is composed of the following three sites where development and construction activities will occur:

- Windfall Lake:
 - Mine;
 - Surface infrastructure;
- Osborne-Bell:
 - Mine;
 - Surface infrastructure;
- Lebel-sur-Quévillon:
 - Process plant;
 - Main electrical substation;
 - Tailings management facility;
 - General infrastructure;

The Project organisation and execution philosophy reflects this subdivision.

24.1.1 Project Organisation

Management

All Project phases including detailed engineering, procurement, pre-production and construction activities will be under the direction of the Osisko Vice-President, Engineering and Construction.

Permitting and project financing will be supported by Osisko Environmental and Financial teams respectively.

Osisko has an internal experienced mine project development team and will be in charge of the Project management functions for the Windfall Lake Project. The team consists of highly experienced individuals with knowledge of the local construction conditions and contractors. They have successfully managed projects in difficult conditions and remote environments from the engineering and planning stages through construction to commissioning and operations.



The Osisko technical and environmental groups will supervise the feasibility study, the environmental and social impact assessment study and eventually the project detailed engineering. The requirement for an early works program will be evaluated and planned during the FS phase. Specialized engineering firms will be selected for each portion of the Project to assemble a strong integrated design and execution team. They will be responsible for the following functions in the respective phases:

- Feasibility study:
 - Preliminary technical specification and scope of work documents;
 - Bid selection for FS;
 - 3D modelling, drawings production and material take-offs;
 - Cost estimating of direct cost components.
- Execution Phase:
 - Definite specification and scope of work documents;
 - Technical and economical evaluations;
 - Short list meetings;
 - Purchase order requisition preparation;
 - Drawing management and approval.

The Osisko technical team is responsible for the following activities in the respective phases:

- Feasibility study:
 - Budgetary/firm bid request;
 - Addenda;
 - Reception of bids;
 - Indirect cost estimate;
 - Project execution plan.
- Project execution:
 - Definite bid request
 - Addenda;
 - Bid reception;
 - Final negotiation;
 - Contract award;
 - Purchase order release;
 - Progressive payment;
 - Shop visits;
 - Site logistics.



Due to the complexity of major process equipment transportation, Osisko will retain the services of a specialized company to develop the project logistics plan during the feasibility study and for its implementation during the project execution phase.

24.1.2 Construction Management

In the feasibility study phase of the Windfall Lake Project, construction management will contribute to the project design with constructability reviews. In the project execution phase, Construction Management will be performed by Osisko with the support of third party construction and contract administration specialists under the supervision of the construction manager. The Construction Management Team (“CMT”) will include the following services:

- Constructability reviews
- Site supervision;
- Project cost control;
- Scheduling;
- Reporting;
- Health, safety and environment;
- Contract administration;
- Construction progress measurement.

It is recognized that an effective health and safety program during the Project is a necessity. The success of the construction safety program is contingent upon its enforcement at all stages of the Project, including design, construction planning, construction execution, and start-up and commissioning.

The CMT will also follow the Osisko procedures and work methods to ensure the protection of the environment. Furthermore, the CMT will work closely with each department of the operations group to ensure proper installation and functional results. During the construction phase, personnel from operations will be integrated into the construction team as coordinators and supervisors.

The Osisko operations group will support the CMT for the following services during the construction phase:

- Staff payroll;
- Accounting support;
- IT support;
- Site security;
- Public relations;
- Environmental and permitting;
- Medical and first aid;
- Site logistics.



24.2 Project Execution Schedule

The preliminary project execution schedule is developed to a pre-feasibility level and therefore conceptual in nature. The execution plan and schedule will be further developed and detailed during the feasibility study. The preliminary project execution schedule, developed in this PEA and described herein, covers the period from the end of the PEA (Q3 2018) up to the achievement of commercial operation in the third quarter (Q3) of 2022.

Major project milestones for the Project activities are shown in Table 24-1.

Table 24-1: Key milestones (preliminary)

Activity	Start Date	Completion Date
Complete PEA study		Q3 2018
Feasibility study		Q4 2019
Environmental impact study	Q1 2017	Q1 2020
Process plant detailed engineering	Q1 2020	Q2 2021
Public hearing (process plant only)	Q2 2020	Q2 2021
Project permit released		Q2 2021
Process plant construction	Q2 2021	Q2 2022
Pre-production mine development	Q1 2021	Q2 2022
End of process plant construction/plant commissioning		Q2 2022
Full production achieved in Mine		Q3 2022
Process plant fully operational (commercial production)		Q3 2022

The Project critical path runs through the feasibility study, the completion of the environmental impact study, the reception of the certificate of authorization (“CoA”), the detail engineering, and the procurement and construction of the process plant facility. The ongoing environmental baseline study will feed the environmental impact study to be presented at the “*Bureau des audiences Publiques sur l’Environnement*” (“BAPE”), which will guide the ministry’s recommendations and decision on issuing the CA for the process plant. This process is expected to be completed in the third quarter of 2021. Detail Engineering is expected to begin in the first quarter of 2020 and be completed over a 15-month period. Construction of the process plant will begin in the spring of 2021 and be completed in the second quarter of 2022.



Over the construction period, an average of 480 construction personnel, peaking at approximately 700, will be present on site. This personnel count includes direct construction labour force for both underground and surface facilities, contractor supervision, owner and seconded construction management team, third party testing technicians, vendor representatives for installation and commissioning support, and underground construction crews. Mine development activities at Osborne-Bell are expected to begin once commercial operation is achieved in Q3 2022.



25. INTERPRETATION AND CONCLUSIONS

25.1 Overview

BBA, InnovExplo, Golder, WSP and SNC-Lavalin were mandated by Osisko Mining to prepare a preliminary economic assessment conforming to NI 43-101 standards to demonstrate the economic viability of the Windfall Lake Project. The Project is based on the 2018 mineral resources estimate prepared for the Windfall Lake and Osborne-Bell deposits.

This NI 43-101 compliant technical report on Windfall Lake Project was prepared by experienced and competent independent consultants using accepted geologic and engineering methodologies and standards. It provides a summary of the results and findings from each major area of investigation including exploration, geological modelling, mineral resource, plant feed estimations, mine design, metallurgy, process design, infrastructure, environmental management, tailings and water management, capital and operating costs and economic analysis. The level of investigation for each of these areas is considered to be consistent or surpassing with that normally expected with a preliminary economic assessment for resource development projects.

The mutual conclusion of the QPs is that the Windfall Lake Project as summarized in this PEA contains adequate detail and information to support the positive preliminary economic outcome shown. The Windfall Lake Project contains substantial precious metal resources that can be mined by underground methods and recovered using conventional processing technologies. To date the Qualified Persons are not aware of any fatal flaws in the Windfall Lake Project and the results are considered sufficiently reliable to guide Osisko Mining management in a decision to further advance the Project. This would typically involve the preparation of a preliminary feasibility study or a feasibility study.

25.2 Data Verification and Mineral Resources

The main objective of the mandate was to prepare a mineral resource estimate for the Windfall Lake Project, including the Zone 27, Caribou, Lynx, Underdog, Mallard and F Zones mineralization corridors along with a mineral resource estimate for the Osborne-Bell gold deposit and to prepare a supporting Technical Report in compliance with NI 43-101 and Form 43 101F1. This report and the 2018 MRE herein meet this objective.

25.2.1 Windfall Lake Deposit

Data Verification

Prior to the resource estimation, Stéphane Faure, P.Geo., and Judith St-Laurent, P.Geo., from InnovExplo visited the Windfall Lake Project site where core logging and storage facilities were visited, and selected core intervals were examined. During this visit an independent resampling of



selected core intervals (28 samples) was performed to validate assay results and inspected several drill hole collars to confirm their location. Reviews of assaying procedures, QA/QC program, down hole survey methodologies, and descriptions of lithologies, alteration and structures were also performed during the site visits.

Following the acquisition of the drill hole database, a verification was performed of approximately 5% of the database including, but not limited to: cross-check routines between original historical logs and drill hole database; comparison of the survey data on original certificates provided by the surveyor companies; and comparison of assay results on original certificates provided by the laboratories.

The QPs are of the opinion that:

- The core logging, sampling and other related protocols in place are adequate;
- The differences between the drill hole location measurements and those recorded in the database are within the order of precision of the instrument used (GPSMAP 60CSx);
- The results of the resampling program conducted indicate reasonable grade reproducibility of the original samples;
- The final database is adequate and reliable for the purpose of this Technical Report.

Mineral Resources

The 2018 MRE reflects grade model changes from a broad mineralized domain approach to better defined, higher grade, vertical sub-domains to capture the nature of the gold bearing zones that follow the intrusive porphyry contacts. Newly defined mineralization corridors are also reported in the 2018 MRE, namely Lynx and Underdog areas. Changes were made to the approaches and assumptions published by the previous owners in 2015, most notably to the mineralized domain interpretation, the capping assumptions, the grade interpolation strategy, and the inclusion of post-mineralization barren dike units. In addition, the gold price, project costs and exchange rate assumptions were revised to reflect 2018 market conditions.

The 2018 resource area measures 3.0 km on strike and 1.5 km wide and is 1.4 km deep. The estimate was based on a compilation of historical and recent DDH. Wireframed mineralized zones were built by InnovExplo together with Osisko. The mineral resource estimation parameters and geological interpretation for the Windfall Lake Project was then established.

The mineral resources in the 2018 MRE are not mineral reserves as they do not have demonstrated economic viability. The estimate is categorized into Indicated and Inferred resources based on data density, search ellipse criteria, drill hole density and specific interpolation parameters. The effective date of the estimate is May 14, 2018 based on the compilation status and cut-off grade parameters.



The QPs consider the report and resource estimate to be reliable and thorough, based on quality data, reasonable hypotheses and parameters compliant with NI 43-101 criteria and CIM Definition Standards.

After conducting a detailed review of all pertinent information for the Windfall Lake Project and completing the 2018 MRE, the following conclusions have been drawn:

- Geological and grade continuity have been demonstrated for 124 gold-bearing zones in the Project;
- For an underground mining scenario, using a cut-off grade of 3.00 g/t Au, it is estimated that the Project contains 601,000 ounces of gold at an average of 7.85 g/t Au in the Indicated category and 2,284,000 ounces of gold at an average of 6.70 g/t Au in the Inferred category;
- It is likely that additional diamond drilling would upgrade some of the Inferred resources to Indicated resources.
- The potential is good for adding new resources to the Project along the lateral and at depth extensions of the zones in the Lynx and Underdog areas by following a plunge of approximately 30° to the northeast, through additional drilling.

25.2.2 Osborne-Bell Deposit

The 2018 Osborne-Bell Mineral Resource Estimate (the “2018 MRE”) was prepared by Pierre-Luc Richard, P.Geo., using all available information. It is different in many respects to the previous estimate of Carrier et al. (2012) (the “2012 MRE”). Changes were made to the approaches and assumptions of 2012, most notably to the mineralized domain interpretation, the capping assumptions, the grade interpolation strategy, and the approach to creating a late barren dike dilution model. In addition, the gold price, project costs and exchange rate assumptions were revised to reflect 2018 market conditions. The revised modelling strategy and parameters for the 2018 MRE resulted in significantly lower tonnage, grade and ounces compared to the 2012 MRE.

The resource area measures 1,800 m along strike, up to 400 m wide, and 750 m deep. The estimate was based on a compilation of historical and recent DDH. Wireframed mineralized zones were built by InnovExplo.

The mineral resources in the 2018 MRE are not mineral reserves as they do not have demonstrated economic viability. The estimate is categorized as Inferred resources based on data density, search ellipse criteria, drill hole density and specific interpolation parameters. The effective date of the estimate is March 2, 2018 based on the compilation status and cut-off grade parameters.

The QPs consider the 2018 MRE to be reliable and based on quality data, reasonable hypotheses and parameters that follow CIM Definition Standards.



After completing the 2018 MRE and a detailed review of all pertinent information, the following conclusions have been drawn:

- Geological and grade continuity have been demonstrated for nine gold-bearing zones in the Osborne-Bell deposit;
- Using a cut-off grade of 3.00 g/t Au, the Inferred resources amount to 2,587,000 t at an average grade of 6.13 g/t Au for 510,000 ounces of gold;
- No Indicated resources have been defined in the 2018 MRE;
- It is likely that additional diamond drilling would upgrade some of the Inferred resources to Indicated resources;
- It is likely that additional diamond drilling would identify more resources down-plunge or in the vicinity of known mineralized material-shoots.
- The Osborne-Bell deposit appears to be very sensitive to modelling methodology, capping strategy, the approach to constrain high-grade gold values, and drill spacing.

Exploration Potential

Following a detailed review of all pertinent information, including the MRE, the following conclusions have been made regarding exploration potential:

- The highest potential for adding additional resources to the Osborne-Bell deposit is by drilling the depth extension of the currently identified shoots that originate in the resource area;
- The potential is high for adding additional resources to the Osborne-Bell deposit by drilling the depth extension of subparallel mineralized zones in the vicinity of the currently identified zones;
- In light of recent and historical drilling data, the areas between the Osborne-Bell deposit and the Greer and Hudson showings should be reinterpreted in terms of stratigraphy and their potential for new mineralized zones;
- The exploration potential remains high at the property scale, justifying compilation and target generation programs. The Quévillon property hosts several other mineral occurrences: Greer, Cooper, Hudson and Comtois NW for gold; KC-86-2 for base metals; and numerous semi-massive to massive lenses of barren sulphides (potential for new discoveries). The winter 2012 drilling program at Comtois NW demonstrated the area's potential by confirming a new gold discovery 12 km northwest of the known Osborne-Bell resource area.



25.3 Mining Methods

The Windfall Lake Project will consist of the simultaneous exploitation of two separate deposits, Windfall Lake and Osborne-Bell. The overall strategy is to have production from Osborne-Bell complement the production from Windfall Lake to achieve a total production rate of 3,200 tpd. The Windfall Lake mine will be operated by Osisko while operations at Osborne-Bell will be contracted.

The Windfall Lake mine is located 115 km east of Lebel-sur-Quévillon, in the James Bay region of Québec. The mineral resources used in the mine plan are contained in three different zones (Lynx, Main and Underdog) over a length of 2,300 m and span from surface down to a depth of approximately 1,200 m. Each zone is characterized by multiple veins, which mainly trend ENE and plunge vertically to sub-vertically. Only underground mining has been evaluated. The mining method selected is long-hole with longitudinal retreat. Mineralized material will be extracted using a fleet of 14 t LHDs and 50 t haul trucks using a ramp at a rate of 2,600 tpd.

The Osborne-Bell mine is located 17 km northwest of Lebel-sur-Quévillon, in the James Bay region of Québec. The mineral resources used in the mine plan are contained in three zones (East, Centre and West) over a length of 1,300 m and span from surface down to a depth of approximately 520 m. Each zone is characterized by multiple veins, which mainly trend 15 to 25 degrees east to south and plunge vertically to sub-vertically. Only underground mining has been evaluated. The main mining method selected is long-hole with longitudinal retreat. Mineralized material will be extracted using a fleet of 7 t LHDs and 45 t haul trucks using a ramp at a rate of 600 tpd.

The mining plan separated by mineralized material resource category for both deposits is provided in Table 25-1.

Table 25-1: Mineralized material resource category for Windfall Lake Project mining plan

Site	Category	Tonnes	Grade
Windfall Lake	Indicated	1,705,548	7.2
	Inferred	6,204,189	6.5
	Total	7,909,737	6.7
Osborne-Bell	Indicated	0	0
	Inferred	1,004,312	6.9
	Total	1,004,312	6.9
Windfall Lake and Osborne-Bell	Indicated	1,705,548	7.2
	Inferred	7,208,501	6.6
	Total	8,914,049	6.7



25.3.1 Windfall Lake Deposit

25.3.1.1 Mine Design

The Windfall Lake deposit is composed of three principal mining areas: Lynx, Main and Underdog. The Main zone is the amalgamation of the Caribou and Zone 27 zones for planning purposes. The Lynx and Main zones are located from surface to depths of approximately 900 m and 600 m respectively whereas the Underdog Zone is located below the Red Dog dike between depths of 500 m and 1,200 m. Each zone trends ENE and dips vertically between 85° and 90°. Underdog is situated below the Main Zone whereas the Lynx Zone is located approximately 1,200 m to the east.

The zones are accessed by two ramps, with one exit dedicated to material haulage. One ramp is already being developed for a bulk sample. The ramps are 5.2 m high by 5.5 m wide to allow the use of 50 t haulage trucks. Three bypasses between Lynx and the other zones are planned. These bypasses will allow one ramp to always be dedicated to haulage with autonomous trucks and the other to serve as a service ramp that can reach almost all locations at the same time. Two ventilation raises are also present, one over Lynx and the other one over the Main Zone. A total of 108,668 m of lateral development is scheduled in Windfall Lake, production from stopes is expected to be 6,635,113 t for a grand total of 7,909,737 t.

25.3.1.2 Stope Design

The Deswik Stope Optimizer module (D.SO) has been used to design the stopes. An external dilution of 0.25 m on both the hanging wall and footwall was applied. It was determined that a stope height of 20 m floor-to-floor gave more tonnage and better grade than 25 m and 30 m heights due to a better selectivity in all zones. It was also found that the average stope width for Lynx was 3.4 m while it was around 4.2 m for the other zones. It was thus decided to use a long hole mining method with a minimal mining width of 3.5 m for Lynx and to use smaller equipment to lower internal dilution. For the other zones, a 4.0 m minimal width was used, which allowed the use of larger and more productive mining equipment. Based on the preliminary costs, a 3.5 g/t cut-off grade has been used. All stopes inside the 30 m crown pillar have been removed from the mining plan. A 95% mining recovery has been considered for regular stopes and 85.5% for stopes drilled up where pillars need to remain in place when no backfill can be used.



25.3.1.3 Development Schedule

The overall development schedule for Windfall Lake has been established using performances of 300 m of lateral development per month per crew when enough work places are available and 150 m per month per crew when only one face is available, such as for main ramp development. It is assumed that crews from contractors will be used during pre-production with a changeover to mine crews in mid-2022. Up to four crews will be needed during the life of the Project, with one being dedicated to development in mineralized material in Lynx where smaller equipment will be used.

25.3.1.4 Ventilation Infrastructure and Network

A fresh air requirement has been established for Windfall Lake so as to meet the Québec Regulation Respecting Occupational Health and Safety in Mines (RROHS (English) / RSSTM (French)). According to the certified CANMET-MMSL approved diesel engines dilution rate and to the equipment list, the maximum fresh air demand at Windfall Lake is estimated at 417 kcfm (197 m³/s).

The Windfall Lake ventilation system consists of two independent air intakes for the two zones: Main and Lynx. Each zone is supplied with fresh air through a raise breaking through each of the active levels. Both zones share the same central return air ramp.

The network has been created to meet the total fresh air requirement at all times but above all, to accommodate 60% of the total requirements in the Lynx area and 90% of the total flow in the Main area. This measure ensures that the development and production peaks will be met by zone and provides a greater flexibility to the ventilation system. Surface fans will be equipped with variable speed drives.

25.3.1.5 Production Schedule

Production rate has been established for the different zones based on the LHD capacity, cycle times and average distances. It has been calculated that the average productivity for the Lynx Zone is in the range of 900 tpd and 1,500 tpd for the Main and Underdog zones. Based on this productivity, a stope cycle time was calculated including slot raise drilling, production drilling, blasting, mucking, backfilling and curing. For Lynx, the cycle time is 23 days and 19 days for the Main and Underdog zones. To achieve this daily production on a monthly basis, three domains must be in production for Lynx and four for Main and Underdog zones.

The production plan is based on the calculated productivity from each centre of production with the mining sequence and mineralized material extracted from development. Pre-production starts in early-2021 from where the exploration program is scheduled to be developed. It will take 18 months to complete the primary ventilation raise and gain access to



enough mining domains to commence full production. Production starts in June 2022 and reaches an average total rate of 2,600 tpd after a 3-month ramp up. Of the production, approximately 200 tpd comes from development and 2,400 tpd from stopes. Material below the 3.5 g/t cut-off but above 2.5 g/t extracted during pre-production will be considered marginal and added to the mineralized material total to build a stockpile for the start-up of the mill. Once the mill has started, all material below the cut-off grade will be considered as waste material. Windfall Lake is projected to yield a total of 4.7 Mt of waste material in total, of which 4.46 Mt may be returned underground as backfill material. 1.28 Mt of mineralized material will be recovered through development and 6.64 Mt will be mined using the long-hole stoping method for a LOM total of 7.91 Mt at 6.66 g/t.

25.3.1.6 Underground Mine Equipment

Mining equipment has been selected to ensure the highest productivity at the lowest operating cost. For this reason, 14 t capacity LHDs have been selected as the primary loading equipment. These LHDs will be used for production and development. Teleoperation and automation will be implemented on production equipment to allow increased operating hours with the ability to work in between shifts. Development LHDs could also be equipped with the appropriate hardware for teleoperation to decrease cycle times if there is a need. It could also serve as a backup for production equipment. In the Lynx Zone, smaller LHDs will be used for stopes and development of mineralized material to lower external dilution. The production LHDs will also be equipped with automation and teleoperation capabilities.

Haulage for production and development will be accomplished using 50t trucks. These trucks are a perfect match for the 14 t LHDs but will require more time to be loaded if 7 t LHDs are used, and a small ramp will be needed to ensure proper height to dump into the truck bed. It should not pose a problem as the only time 7 t LHDs will be used with 50t trucks, a loading bay with a ramp located at the entry of the level will be in place. Trucks associated with the production fleet will be equipped with automation capabilities.

25.3.1.7 Working Hours and Equipment Performance Table

The working schedule for the production and development crews is two shifts per day, at 12 h/shift, 365 d/year. As the Windfall Lake Project will be a highly mechanized and efficient operation, an 85% average availability rate and 80% average utilization rate was assumed for the majority of the equipment selection. These averages are based on industry standards and reflect the expected operating hours.

Mucking and hauling will be automated using a tele-operated system that will allow operators to control multiple equipment simultaneously from the control room. This will increase equipment operation hours by eliminating the time required for re-entry after blasting, lunch breaks and the time to access the working area by personnel.



25.3.1.8 Mine Equipment List

This study is based on new equipment that will be acquired for the Windfall Lake Project. The development equipment will be purchased for the start of mine production. Equipment provided by the mining contractor will be used in the pre-production period. A system of cassette will be used for service equipment to allow using the same carrier to do multiple tasks and thus reducing the number of equipment needed. A total of 59 units of mobile equipment will be required for the Project.

25.3.1.9 Mine Personnel

The mine will operate seven days per week, night and day (24/7). This schedule is equivalent to 365 days per year of operation.

- Development and production crews will be on a schedule of 7 days working / 7 days off, for 12 h/shift, night and day;
- The maintenance crew will also be on a schedule of 7 working days / 7 days off, for 12 h/shift, night and day or days only.

A total of 28 staff and 178 hourly personnel is estimated for the life of the Project for mine and maintenance.

25.3.2 Osborne-Bell Deposit

25.3.2.1 Mine Design

The Osborne-Bell deposit has been separated into three main production areas: West, Centre and East. The West Zone is subdivided into 9 levels (Level 140 to Level 200), the Centre Zone has 24 levels (Level 060 to Level 520), and the East Zone has 7 levels (Level 380 to Level 500).

Underground access will be developed by a central ramp from the surface portal to a depth of 520 m below surface (Level 520). This central ramp provides access to the West Zone and the upper portion of the Centre Zone. A secondary ramp will access the lower parts of the Centre Zone with connections at levels 100 and 280. Both the West and East zones have internal ramps in between the levels. A total of 18,109 m of lateral development is scheduled in Osborne-Bell and production from stopes is expected to be 845,496 t.

25.3.2.2 Stope Design

The same methodology for stope design at Windfall Lake has been used at Osborne-Bell, except the cut-off grade was established at 4.0 g/t and the stopes were limited to 30 m long.



25.3.2.3 Development Schedule

The Osborne-Bell site development will start in mid-2021. It will require 50 months of development, for a total amount of 18,109 m of lateral development. The number of development crews required will change over time depending on the number of faces available but will never exceed two.

25.3.2.4 Ventilation Infrastructure and Network

A fresh air requirement has been established for the Osborne-Bell mine so as to meet the Québec RROHS.

According to the certified CANMET-MMSL approved diesel engines dilution rate and to the equipment list, the maximum fresh air demand at Osborne-Bell is estimated at 222 kcfm (105 m³/s).

The Osborne-Bell mine ventilation system is based on the same assumption as Windfall Lake. A fan system is installed in parallel (2 x 5400-VAX-2700-Howden - 300 HP or equivalent model) on the top of the main air intake raise. The raise will break through all levels from surface down to elevation 70 m where the fresh air uses the ramp to be transferred to an internal raise network to provide a deeper area with fresh air. The ramp is used as a return airway.

25.3.2.5 Production Schedule

The cycle time for long-hole mining with longitudinal retreat at the Osborne-Bell mine is expected to be approximately 33 days per stope. The average stope contains 7,200 t of recoverable material and requires a total of 5,500 t of backfill material assuming a swell factor of 40%. In order to maintain a constant production rate of 600 tpd, a minimum of three stopes must be available in separate mining domains at all times.

The LOM production schedule was generated for the Osborne-Bell mine based on a two-team development rate of 450 m per month and 600 tpd of mineralized material throughout production. The duration of pre-production will last 12 months in order to complete the primary ventilation raise and gain access to enough mining domains to commence full production. The LOM will last 5 years at an annual production rate of 219 kt including a 3-month ramp-up period at 60% of full production. It is estimated that 158,816 t of mineralized material will be recovered through development and 845,496 t will be mined using the long-hole stoping method for a LOM total of 1,004,312 t at 6.9 g/t.



25.3.2.6 Underground Mine Equipment

As the mine development and operation will be contracted, the performance, the requirement for ventilation purposes and the drift sizes have been evaluated based on an equipment list provided by the contractor. 1 LHD Sandvik LH514 and 2 LHDs SandvikLH307 will be used as loading equipment for production and development. Haulage for production and development will be accomplished using 4 40t trucks.

25.3.2.7 Working Hours and Equipment Performance Table

The working schedule for the production and development crews is two shifts per day, at 12 h/shift, 365 d/year. As the Osborne-Bell site, an 85% average availability rate and 80% average utilization rate was assumed for the majority of the contractor equipment. These averages are based on industry standards and reflect the expected operating hours.

Mucking and hauling will be performed by contractors.

25.3.2.8 Mine Equipment List

An equipment list has been provided by the contractor as mine development and operation will be contracted.

25.3.2.9 Mine Personnel

The mine will operate seven days per week, night and day (24/7). This schedule is equivalent to 365 days per year of operation.

- Development and production crews will be on a schedule of 7 days working / 7 days off, for 12 h/shift, night and day;
- The maintenance crew will also be on a schedule of 7 working days / 7 days off, for 12 h/shift, night and day or days only.

A total of 47 personnel from contractor is estimated for the life of the Project for mine and maintenance.

25.4 Metallurgy and Processing

25.4.1 Windfall Lake Deposit

The philosophy behind the testwork program design was to test each mineralized material body (Caribou, Zone 27, Lynx) based on the following parameters: most significant lithologies (I1p, I2p, V1, V2), depth (shallow and deep), and ranges of grades (low, medium or LOM, and high).



Based on the geological knowledge as well as the sample availability at the beginning of testwork in June 2017, it was decided to divide the testwork program into two phases. Due to sample availability, Phase 1 was performed mostly on Caribou and Zone 27. During Phase 1, limited WRL testwork was performed due to lower precious metal recovery and strong association of gold with sulphur mineral (pyrite). Variability testwork was then tailored for a flotation recovery followed by regrind, leaching and CIP gold recovery for the sulphur concentrate and leaching of the tailings. Comminution (SMC), flotation (rougher and variability kinetic), leaching of concentrate, and flotation tail testwork were performed. Rheology and settling testwork was performed on a blend of reground pyrite concentrate with flotation tail. During this phase, Lynx material was not available.

Phase 2 has originally been planned to test comminution (full drop weight, BWi, RWi, Ai and SMC) and use the recoverable remaining material to perform gravity testwork, flotation and leaching testwork from gravity tail, generate the material necessary to perform signature testwork, rheology and settling testwork, oxygen uptake test, and cyanide destruction testwork. However, as the trade-off between flotation-regrind-leaching/CIP of the concentrate/tail and WRL is more favourable for the latter process circuit (refer to paragraph below), the Phase 2 program will aim for WRL optimization and will not include flotation. Phase 2 is ongoing.

Testwork named "PEA composite" was put forward in priority of Phase 2 to evaluate the gravimetry/flotation-regrind-leaching/CIP of the concentrate/tail recovery with a projected LOM grade of each mineralized material body for Caribou, Zone 27 and Lynx zones. Gravimetry followed by flotation testwork was performed. Flotation concentrate was collected and used to perform signature plot test. The result from the signature test revealed the regrind energy required to achieve 12 μm . The high regrind intensity needed, which is much more than initially anticipated, will introduce a very high amount of heat in the slurry. A cooling system on the slurry will then have to be introduced in the process to avoid the detrimental effect of heat on reagent consumption (cyanide and oxygen)/precious metal recovery. Economic analysis was evaluated on the flotation-regrind-leaching/CIP of the concentrate/tail versus a WRL/CIL flowsheet. The result was favourable for WRL, decision has then be taken to change the process flowsheet to WRL/CIL and then manage less risk with a simpler flowsheet, which gives almost the same recovery. Recovery was slightly sacrificed at the profit of lower capital and operating cost. Lynx mineralized material has been tested WRL/CIL after gravity recovery but the grind size was coarser (105 μm) than expected (45 μm).

In the new resource published, the Underdog zone comes out with more important proportion of ounces than expected. The Underdog zone was not tested in the metallurgical program; consequently, due to the mineralization similarity of Underdog with Caribou and Zone 27, the recovery forecast assigned was the average of Caribou and Zone 27. Underdog will have to be tested for comminution to allow a proper statistical analysis of the data and proper definition of the design mineralized material to be used for establishing the power demand of the grinding circuit and mill sizing. Recovery testwork will also have to be performed on Underdog to assign the proper recovery on the precious metal ounce from this mineralized body.



The metallurgical projection was established using gravity recovery achieved on Caribou, Zone 27 and Lynx zones in the “PEA” test program. The WRL/CIL recovery from Phase 1 was at 45 μm for Caribou and Zone 27. Lynx WRL/CIL recovery was forecasted using a linear regression from the recovery obtained at $P_{80} = 105 \mu\text{m}$ and extrapolated to $P_{80} = 45 \mu\text{m}$. Due to the limited WRL/CIL testwork performed on Caribou and Zone 27, additional tests must be done to validate gold recovery and other parameters involved. Lynx will have to be tested at the selected grind size of $P_{80} = 45 \mu\text{m}$.

25.4.2 Osborne-Bell Deposit

No additional test has been done on Osborne-Bell since the latest tests performed in 2012. Recovery testwork will also have to be performed on Osborne-Bell to validate the recovery on the precious metal ounce from this mineralized body based on the selected flowsheet. Osborne-Bell will have to be tested for comminution to allow a proper statistical analysis of the data and proper definition of the design mineralized material to be used for establishing the power demand of the grinding circuit and mill sizing.

The Phase 2 testwork program has been modified in order to include WRL optimization as well as variability on Caribou, Zone 27, Lynx, Underdog and Osborne-Bell. SMC and BWi with the proper targeted P_{80} will be performed on Underdog and Osborne-Bell.

25.4.3 Process Flowsheet

The process plant will have an average daily capacity of 3,200 tpd at 95% availability with a target grind size of 45 μm . Design gold and silver recovery is estimated to be 92.4% and 69.2% respectively based on the LOM and metallurgical testwork. Gold production will average 218,000 oz/y based on the LOM plan. It is expected that a ramp up period of three months will be required to reach the design throughput.

The process flowsheet for the Windfall Lake Project was established on the basis of laboratory-scale testwork performed at the SGS Québec laboratory and on historical testwork performed by SGS Lakefield for the Osborne Bell deposit. The metallurgical testwork programs were carried out using composites prepared from drill core intervals representing both deposits.

The process plant consists of a jaw crusher, mineralized material reclaim system and storage (2,100 t live capacity), a primary SAG mill (22' x 11') and a secondary Ball Mill (15' x 27') in close circuit with cyclones producing a product of $P_{80} = 45$ microns. A portion of the cyclone underflow will be fed to the gravity circuit with intensive leach. Cyclone overflow will be fed to an eight tanks carbon-in-leach (“CIL”) circuit (40 hr retention time), followed by cyanide destruction (“CND”) circuit that treats the thickened CIL residue slurry at 65% (w/w) solids. Cyanide destruction will be performed using the Inco SO_2 /Air process. The treated tails are subsequently pumped to the tailings management facility (“TMF”).



A 6 t carbon per day processing adsorption-desorption-recovery (“ADR”) circuit and gold room will be used to recover the gold and produce doré. The payable metal recovery is estimated to average 92.4% for gold and 68.9% for silver over the LOM. The plant also includes a reagent preparation area and two process water circuits (cyanide bearing and cyanide-free) to service the entire plant.

The connected load for the plant was estimated at 13.4 MW with an annual power consumption of 84.7 GWh.

A total of 55 workers are required in the process plant, including 19 salaried workers and 36 hourly workers divided into management, technical services, operations and maintenance departments. An allowance for contractors was also included for OPEX calculations.

25.4.4 Metal Recovery Projections

Based on the proposed flowsheet, the overall projected metallurgical recovery values for Au and Ag from the Windfall Lake and Osborne-Bell deposits are presented in Table 25-2. Note that due to a lack of systematic silver assaying of the Osborne-Bell deposit, no silver recovery has been assumed.

Table 25-2: Projected metallurgical recoveries values for Au and Ag

Deposit	Zone	Au (%)	Ag (%)
Windfall Lake	Caribou	90.9	69.2
	Zone 27	92.5	69.2
	Lynx	93.8	69.2
	Underdog	91.7	69.2
Osborne-Bell	Osborne-Bell	92.8	-

25.5 Infrastructure

Infrastructure requirements for the Windfall Lake Project span over 3 sites: Windfall Lake Mine, Osborne-Bell Mine and the Process Plant Site (including TMF).

25.5.1 Windfall Lake

The Windfall Lake Mine Site is divided into two main areas: the mining infrastructure area and the camp complex area.



Mining Infrastructure Area

The mining infrastructure area will include the following:

- Mine portal – Exploration (existing);
- Mine portal – Production (new);
- Fuel storage and distribution (to be upgraded);
- Service megadome (existing);
- Offices trailers (existing);
- Mining material storage area (existing, to be upgraded);
- Fresh water well (existing);
- Mineralized material discharge station, conveyor, and storage silo (new);
- Waste stockpiles (new and existing, to be upgraded);
- Mineralized material stockpile;
- Contact water ditches, sedimentation and polishing pond with treatment (new and existing);
- Overburden stockpile (existing);
- Explosive storage (existing, but not required for production phase);
- Exploration ventilation raise (will be installed during exploration phase);
- Zone 27 ventilation raise (new);
- Lynx zone ventilation raise (new);
- Power generation plant (existing, to be upgraded);
- Gatehouse (existing);
- Employee parking (to be upgraded);
- Remote controlled gatehouses (new);
- Helipad (existing).

Camp Complex Area

The camp complex area will include the following:

- Camp complex (new), including:
 - Administrative offices;
 - Infirmary and mine rescue room;
 - Dry;
 - Community hall and fitness room;
 - Cafeteria with kitchen;
 - Conference rooms;



- Rooms with individual bathroom;
- Storage rooms;
- Laundry rooms.
- Drinking water wells (existing);
- Waste water treatment systems (existing);
- Cultural centre (new)
- Employee parking (to be upgraded);
- Quarantine rooms building (relocated module);
- Environmental megadome (existing);
- Maintenance megadome (existing);
- Fuel storage and distribution (existing);
- Core shack and core storage (existing).

25.5.2 Osborne-Bell

Most of the infrastructure required for the mine development and operation will be supplied and maintained by the mining contractor. The site's new infrastructure, which will be located in an industrial zone selected to avoid soft soil and intensive drilling activities, will include the following:

- Gatehouse and parking;
- Service truck shop;
- Offices trailers;
- Dry trailer;
- Mining material cold shed and storage area;
- Fuel storage and distribution;
- Main electrical substation (25 kV);
- Mine portal;
- Explosives and magazines storage area;
- Ventilation raise;
- Mineralized material discharge area with mineralized material stockpile;
- Waste stockpile;
- Contact water ditches, sedimentation and polishing pond;
- Effluent water treatment;
- Overburden stockpile;
- Fresh water well and drinking water treatment;
- Waste water treatment.



25.5.3 Plant Site (Lebel-sur-Quévillon)

The Windfall Lake Project plans the construction of an operating facility as well as new infrastructure located at Lebel-sur-Quévillon.

The Plant Site's new infrastructure will include the following:

- Gatehouse and parking;
- Administrative building;
- Main electrical substation (120 kV);
- Emergency power generators;
- Process plant;
- Service building and warehouse;
- Fuel storage and distribution;
- Potable and fresh water facility;
- Sewage treatment;
- Mineralized material stockpile (temporary);
- Overburden stockpile;
- Contact water ditches, sedimentation and polishing pond;
- Waste water treatment;
- Tailings management facility.

Tailings Management Facility

A TMF design was developed for a capacity of 10 Mt. The facility is located directly south of the mineralized material process plant in Lebel-sur-Quévillon.

Geochemical characterization indicates that the mineralized material is potentially acid generating and leachable for metals. The same is assumed for tailings. Tailings will be detoxified with respect to cyanide. Considering these characteristics, design of the facility includes a geosynthetic liner as a mitigation measure to limit losses of potentially contaminated water to the underlying aquifers.

The facility will be developed in three phases with downstream raising of the main dam. Thickened tailings will be deposited from the dam crest at 65% solids. Bleed water and contact water will be managed in the facility. Under normal climate conditions, the water stored in the facility will be recirculated to the mineralized material process plant. Excess storm-water runoff during large flood events will be evacuated through the treatment plant.



Water Treatment Plant

Water treatment will be required at the Plant Site in order to meet mining effluent discharge criteria (Provincial *Directive 019 sur l'industrie minière* and Federal Metal Mine Effluent Regulations - MMER).

Water treatment technology selection is based on results from leaching tests carried out on the mineralized material and waste rock. These results are used to evaluate the presence or absence of constituents of potential concern ("COPC"), however these tests do not help to estimate their concentration in mine contact water, relative to typical effluent water quality target criteria. Two sets of COPC have been identified in the leach test results, the first set represents COPCs that can be treated with conventional precipitation treatment, and the second represents COPCs that may require an additional level of treatment. More work is required to refine the prediction of COPCs for the Project.

25.6 Environmental Studies and Sites Restoration

During the period spanning 2007-2015, several environmental studies, analyses, and reports, have been completed at the Windfall Lake Mine Site. After Osisko acquired the Project, additional baseline studies were carried out in 2015, 2016 and 2017 at the Windfall Lake Mine Site to obtain up-to-date data as well as get an accurate picture of existing baseline conditions the Project's impacts for the EIA.

Some baseline studies were initiated in 2017 at the Plant Site area and several additional field inventories are planned to be carried out in 2018. As for the Osborne-Bell Mine, a baseline study was conducted in 2011 and 2012 by Roche Ltd on the Comtois property for Maudore. Inventories are planned in 2018 and will continue in 2019 to update the information.

Studies that will be carried out at the Plant Site and at Osborne-Bell Mine will allow collecting data from the receiving environment and obtaining the baseline information required to assess the Project's impacts for the EIA.

Consultation and information among stakeholders in both Aboriginal and regional communities will continue throughout the Project by Osisko. A good relationship is established. Several meetings have taken place and will continue to take place. The concerns raised during the discussions will particularly be considered in the EIA.

In accordance with provincial law, a rehabilitation and restoration plan has to be prepared and approved by the MERN before the mining lease can be issued. The objective of the mine rehabilitation and restoration plan is to ensure that the site doesn't present unacceptable risks to the health and the safety of people, to return the site to an acceptable condition, ensuring that the environment will eventually be able to take back its course and that future generations will be able to use the site.



Total guarantee for the Windfall Lake Project is evaluated at approximately \$58.8M. This cost includes the direct and indirect costs of site rehabilitation and restoration as well as post restoration monitoring. The main elements of rehabilitation and restoration include blocking all openings and dismantling of buildings and infrastructure. The tailings management facility and all waste rock piles remaining on surface will be restored to prevent impact on surface and groundwater. The sludge in water management ponds will be characterized before its disposal underground. The membranes in the ponds will be disposed of and the ponds will be backfilled to re-establish natural drainage.

25.7 Capital and Operating Costs

The total capital costs (pre-production and sustaining) for the Windfall Lake Project were estimated at \$809M. The pre-production costs were calculated at \$397.3M, including a \$51.8M contingency. The sustaining costs were calculated at \$429.9M including \$58.8M required for site restoration and salvage value of \$18.3M.

The overall capital cost estimate developed in this study meets the AACE class 4 requirements and has an accuracy range of –30% and +30%. Items such as sales taxes, permitting, licensing, and financing costs are not included in the cost estimate. The project capital cost summary is outlined in Table 25-3.

Table 25-3: Project capital costs

Cost area	Pre-production capital cost (\$M)	Sustaining capital cost (\$M)	Total cost (\$M)
General administration (Owner's costs)	27.6	-	27.6
Underground mine	72.7	309.0	381.6
Mine surface facilities	23.5	24.5	47.9
Plant site infrastructure	19.2	2.1	21.3
Process plant	107.6	-	107.6
Tailings and water management	48.9	35.5	84.4
Indirects	46.0	-	46.0
Contingency	51.8	-	51.8
Total	397.3	371.1	768.4
Site Reclamation and closure	-	58.8	58.8
Salvage value	-	(18.3)	(18.3)
Total - Forecast to Spend	397.3	411.7	809.0



The average operating cost over the 8.1-year mine life is estimated to be \$126.47/tonne. Table 25-4 presents the breakdown of the projected per-tonne operating costs for the Windfall Lake Project.

Table 25-4: Project operating costs

Cost area description	LOM total (\$M)	Average LOM (\$M/Year)	Average LOM (\$/tonne milled)
Underground mining	565.1	69.6	63.82
Mineralized material transport	126.2	15.5	14.26
Process plant	238.1	29.3	26.89
Tailings and water management	31.8	3.9	3.59
General and administration	158.7	19.5	17.93
Total	1,119.9	137.9	126.47

It is anticipated that 330 employees (staff and labour) will be required for operations.

25.8 Indicative Economic Results

The financial analysis performed as part of this preliminary economic assessment using the base case assumptions results in an after-tax NPV 5% of \$413.2 million and an internal rate of return of 32.7% (base case exchange rate of 0.78 CAD for 1.00 USD). The cumulative cash flow for the Project (after-tax) is \$809 million and the payback period is 3.9 years over the planned mine life of 8.1 years.

The PEA plant feed is partly based on Inferred Mineral Resources that are considered too speculative geologically to have the economic considerations applied to them that would enable them to be categorized as Mineral Reserves, and there is no certainty that the preliminary economic assessment based on these Mineral Resources will be realized.

25.9 Project Risks and Opportunities

As with most mining projects, there are risks that could affect the economic viability of the Project. Many of these risks are based on a lack of detailed knowledge and can be managed as more sampling, testing, design, and engineering are conducted at the next study stages. Table 25-5 identifies what are currently deemed to be the most significant internal project risks, potential impacts, and possible mitigation approaches that could affect the technical feasibility, and economic outcome of the Project.



External risks are, to a certain extent, beyond the control of the project proponents and are much more difficult to anticipate and mitigate, although, in many instances, some risk reduction can be achieved. External risks are things such as the political situation in the Project's region, metal prices, exchange rates and government legislation. These external risks are generally applicable to all mining projects. Negative variance to these items from the assumptions made in the economic model would reduce the profitability of the mine and the mineral resource estimates.

There are significant opportunities that could improve the economics, timing, and/or permitting potential of the Project. The major opportunities that have been identified at this time are summarized in Table 25-6 excluding those typical to all mining projects, such as changes in metal prices, exchange rates, etc. Further information and assessments are needed before these opportunities should be included in the project economics.



Table 25-5: Project risks (preliminary risk assessment)

Area	Risk Description and Potential Impact	Mitigation Approach
<p>Geology and Mineral Resources</p>	<p><u>Windfall Lake deposit</u></p> <ol style="list-style-type: none"> 1. Gold grades estimated inside the mineralization panels could vary due to the presence of a nugget effect in the gold distribution of the deposit. 2. Despite a clear association between the mineralization and the dikes, the variable geometry of the dikes is complex to model, as is the modelling of the mineralization zones. The mineralization zones could be of slightly variable shapes. 3. The litho-structural model is not entirely integrated and is still ongoing. The shape and geometry of the mineralization zones could be impacted by the further refinements of the litho-structural model. 	<p><u>Windfall Lake deposit</u></p> <ol style="list-style-type: none"> 1. Surface and underground definition drilling will increase the definition of the gold grade distribution. The beneficiation plant includes a gravity recovery circuit for coarse gold. 2. Underground mapping and definition drilling will help define the shapes of the zones and confirm the geological and grade continuities of the zones. 3. Complete the litho-structural study and update the litho-structural and mineralization models based on the conclusions of the study
	<p><u>Osborne-Bell deposit</u></p> <ol style="list-style-type: none"> 4. Gold grades estimated inside the high grade zones could vary due to the presence of a nugget effect in the gold distribution of the deposit. 5. The dyke dilution model crosscutting mineralization is currently based on a statistical model. Although assumed realistic and adequate for the purpose of the resource estimate, it could in practice yield significant local discrepancies; 6. The litho-structural model is based on drilling only and the shape and geometry of the mineralization zones could be impacted by the further refinements of the litho-structural model. 	<p><u>Osborne-Bell deposit</u></p> <ol style="list-style-type: none"> 4. Surface and underground definition drilling will increase the definition of the gold grade distribution. A bulk sample could provide additional information in regards to the high grade treatment in the block model. 5. Underground mapping and definition drilling will help define the shapes of the dykes and perhaps allows for more refined modeling of the individual dykes; 6. Complete the litho-structural study and update the litho-structural and mineralization model.



Area	Risk Description and Potential Impact	Mitigation Approach
Underground Mine	<ol style="list-style-type: none"> 1. Changes to currently established geotechnical parameters could affect stope dimensions, pillar recovery, ground support, mining and development sequences, and dilution and recovery, all of which could negatively affect the project economics. 2. Inability to achieve production target with new technologies leading to higher operating costs. 3. Difficulty to hire specialized workforce 	<ol style="list-style-type: none"> 1. Additional mine design, geotechnical investigations, and simulation work. 2. Gain better knowledge on suitable proven technologies via site visits and technology transfers. 3. Hire local unspecialized personnel and train them.
Geotechnical and Hydrogeology	<ol style="list-style-type: none"> 1. Considering the presence of lakes and permeable overburden, there is a potential of significant groundwater inflow if a permeable fault intersects mine workings. This could lead to higher pumping and treatment costs. 2. Only empirical stability assessments were performed for crown pillar and stope stability. 3. Geotechnical data is limited to three boreholes. There is a risk that mining zones and large infrastructure locations not intercepted by the boreholes will display different characteristics. 	<ol style="list-style-type: none"> 1. Conduct more hydraulic tests to assess the hydraulic conductivity of the other faults identified on site 2. Collect more data to refine properties and numerical modelling. 3. Collect data at large infrastructure locations and in zones that were not intersected by geotechnical boreholes.
Mine Site Infrastructure	<ol style="list-style-type: none"> 1. Limited geotechnical data available at Windfall Lake and no geotechnical data available at Osborne-Bell to assess infrastructure stability. Poorer conditions than estimated may result in higher foundation preparation costs. 2. Possible modifications to the mining plan could significantly alter the surface infrastructure defined at this stage. 3. Windfall Lake Mine Site exploration camp electrical distribution documentation and cable identification seems incomplete, therefore dismantling will require thorough validation and strict security procedures to avoid electrical hazard to workers and employees. 	<ol style="list-style-type: none"> 1. Carry out geotechnical investigation to define foundation conditions under planned infrastructure. 2. Work in collaboration with mining disciplines and modify design accordingly. 3. During dismantling step, perform thorough validation and implement strict security procedures.



Area	Risk Description and Potential Impact	Mitigation Approach
<p>Mineral Processing and Metallurgy</p>	<ol style="list-style-type: none"> 1. Lack of preliminary testwork (cyanide detoxification, thickening, Chris Fleming’s CIP testwork modelling to assess Au and Ag impact on C loading). Impact on equipment sizing. 2. Possible pebbles generation, addition of pebble crusher, conveyors and SAG mill sizing. 3. Determine sensitivity of recovery to grind size. This information will impact size of P₈₀ to leach feed circuit. 4. No testwork performed on Underdog Zone that could lead to lower Au/Ag recovery. 5. Lynx recovery could be lower than expected as limited testwork was performed on material from this zone according to whole mineralized material leach-CIL flowsheet. 	<ol style="list-style-type: none"> 1. Complete testwork. 2. More testwork and validation of sizing by an alternate approach. 3. Additional testwork required with P₈₀ variation. 4. Perform testwork on material from the Underdog Zone. 5. Perform variability testwork on material from the Lynx Zone.
<p>Process Plant</p>	<ol style="list-style-type: none"> 1. High tailings slurry density that will impact pumping technology (piston pump vs centrifugal pump) and possibility increase cost. 	<ol style="list-style-type: none"> 1. Rheology testing required.
<p>Plant Site Infrastructure</p>	<ol style="list-style-type: none"> 1. No geotechnical data available to assess infrastructure stability. Poorer conditions than estimated may result in higher foundation preparation costs. 2. The presence of impacted soils or groundwater from historical use of the site is possible and not completely defined. This may result in higher cost for the disposal of the soils that could not be managed on site and potential delays and negotiations. 3. Train track relocation has not been fully evaluated and may lead to higher CAPEX. 4. Dependant on CN for rail line as the rail line located on the Plant Site is managed by CN. 5. Lake Quévillon water quality unknown. May require treatment increasing CAPEX and OPEX. 	<ol style="list-style-type: none"> 1. Carry out geotechnical investigation to define foundation conditions under planned infrastructure. 2. Investigate the potential presence of impacted soils or groundwater under the infrastructure. 3. Complete a trade-off study to determine the best routing 4. Seek CN approbation. 5. Test Lake Quévillon water quality.



Area	Risk Description and Potential Impact	Mitigation Approach
<p>Water Treatment</p>	<ol style="list-style-type: none"> 1. Underestimation of water volume to be treated may lead to underestimating water treatment unit size (CAPEX) and treatment costs (OPEX). 2. Underestimation of concentration of contaminants to be treated may lead to underestimating water treatment unit size (CAPEX) and treatment costs (OPEX). 3. Discovery of an unidentified contaminant that cannot be treated by the chosen mine water treatment systems (complex of contaminants) may lead to additional treatment increasing costs. 4. Selenium and/or antimony treatment may be required following further geochemical data acquisition and modelling; these COPCs typically require separate stages of treatment and would increase costs. 5. More stringent discharge criteria for selenium or other contaminants may results in exceeding discharge criteria. 6. Presence of SAD-CN in the feed water. Strong acid dissociable (SAD) cyanide complexes, such as ferrocyanide, can form during mineralized material processing and contribute to total cyanide in process water. Thus the management of SAD cyanide is required where process water is a component of discharges to the environment. 7. Increase concentration of Nitrate (NO₃) after ammonia biological treatment may require treatment. Not considered at this stage. 	<ol style="list-style-type: none"> 1. Refine estimates using a site water balance as the Project proceeds. The selected treatment capacity is comparable to similar projects. A higher volume of water could be treated under the allocated capital expense estimate through refinement of the process and reduction of the costs. For example, evaluate less costly option for water treatment physico-chemical steps, such as lamellar clarifier, or pond settling instead of ballasted floc clarifier; Trade-off between TMF basins sizes and peak flow considerations for treatment designs in the next project phases; 2. Selected two stages treatment process at the Mine sites is considered to be conservative compared to comparable sites, and is flexible to adapt to higher concentrations of selected parameters, with the exception of selenium and antimony (see item 4). For the Mine sites, evaluate the potential for eliminating the last treatment stage for ammonia, by using natural degradation in existing ponds; Reduce extent of ammonia and cyanide treatment following further geochemical data acquisition and modification to the mineralized material process. 3. The selected physio-chemical treatment process is flexible for treatment of a variety of trace metals, and has known limitations. If new COPCs are identified, then additional treatment stages may be required. 4. Selenium and/or antimony treatment could be mitigated through source control, or the addition of a new treatment process. 5. See item 4 6. Some SAD-CN treatment can be contemplated through copper salt addition to the cyanide destruction process, if necessary, or through a modification to the iron co-precipitation process selected for metals removal, and through natural attenuation in the TMF basin through UV light exposure in summer. 7. Refer to item 2.



Area	Risk Description and Potential Impact	Mitigation Approach
<p>Mineralized material, Waste, and Water Management</p>	<ol style="list-style-type: none"> 1. No geotechnical data available to assess foundation of stockpiles and water pond. Poorer conditions than estimated may result in a higher CAPEX. 2. Existing water management infrastructure at Windfall Lake has not been evaluated and may not be adequate for the project requirements. If not adequate, there may be overflow and unintentional discharge. 3. Potential borrow sources at Windfall Lake, Osborne-Bell and Plant Site have been identified but not characterized. Material sourcing and preparation may differ or change in design may need to be adjusted which could result in higher CAPEX. 4. Stability of stockpile configuration has not been assessed. Configuration may require adjustments to ensure stability of stockpiles and water management infrastructure. 5. May be dependent on city for potable water, leading to higher CAPEX in order to connect to the system. 	<ol style="list-style-type: none"> 1. Carry out geotechnical investigation to define foundation conditions under planned infrastructure. 2. Assess existing water management infrastructure and upgrade where necessary. 3. Carry out borrow source investigation to estimate quantities and define material characteristics. 4. Configuration of stockpiles and water management infrastructure used for PEA cost estimate are considered prudent at this stage considering available information. Once material characteristics are defined, carry out stability assessments and adjust design if required. 5. Conduct a third party review of the waste and water management concept developed and associated costs.
<p>Tailings Management Facility</p>	<ol style="list-style-type: none"> 1. No geotechnical data available to assess foundation of TMF dam. Poorer conditions than estimated may result in a higher CAPEX. 2. Stability of the TMF configuration has not been assessed. Configuration may require adjustments to ensure stability of stockpiles and water management infrastructure. 3. Tests on tailings thickening potential and physical properties are not completed. TMF capacity and water management could be affected if % solids is not attainable, deposition slope is not achieved and/or consolidation is lower than estimated. Different tailings behaviour at deposition than estimated may result in higher CAPEX. 4. Potential borrow sources for granular material at the Plant Site have been identified but not characterized. Material sourcing and preparation may differ or change in design may need to be adjusted which could result in higher CAPEX. 	<ol style="list-style-type: none"> 1. Carry out geotechnical investigation to define foundation conditions under planned infrastructure. 2. Once material characteristics are defined, carry out stability assessments and adjust design. 3. Complete tailings characterization and adjust tailings and water management plan as well as TMF capacity requirements. 4. Carry out borrow source investigation to estimate quantities and define material characteristics.



Area	Risk Description and Potential Impact	Mitigation Approach
	<ol style="list-style-type: none"> 5. Limited information on surface water courses near the planned infrastructure. Water course characteristics during storm event may affect dam stability and water collection pond at the toe of the dam. 6. The presence of impacted soils or groundwater from historical use of the site is possible and not completely defined. This may result in higher cost for the disposal of the soils that could not be managed on site and potential delays and negotiations. 7. Compatibility of geosynthetic liner with process water is unknown. Underperformance of liner may allow exfiltrations. 	<ol style="list-style-type: none"> 5. Collect information on water courses that run both sides of the TMF. Delineate high waters for design event and plan mitigation measures for dam stability if required and water management. 6. Investigate the potential presence of impacted soils or groundwater under the TMF. 7. Test liner compatibility with process water. Adjust design if needed.
Construction (Costs and Schedule)	<ol style="list-style-type: none"> 1. No geotechnical studies have been performed which could lead to significant cost increases (e.g., additional concrete). 2. Labour availability could increase construction cost and schedule. 	<ol style="list-style-type: none"> 1. Complete geotechnical study. 2. Develop a human and resource plan.
Environmental, Permitting and Social License	<ol style="list-style-type: none"> 1. Project delayed due to changes in regulations/government representatives as a result of elections. 2. Inadequate design prompts request for major modifications from one or both levels of government resulting in delays, increased costs. 3. Project cannot proceed if not accepted by local communities due to lack of communication with local authorities. 4. Authorizations and permits from both levels of government could take longer than expected: Project delayed. 5. Major modifications to the Project requested from one or both government levels: Project delayed, more costs incurred. 6. Encroachment in fish habitat by tailings or waste rock disposal: alternative assessment for mine waste disposal (Schedule 2) – Federal requirement leading to major delay (1-year minimum). 	<ol style="list-style-type: none"> 1. Setting a realistic project schedule. Maintaining close contact with authorities throughout the process. 2. Include technologies and practices widely accepted in the mining industry. 3. Keep regular contact with stakeholders and multiply consultation. 4. Develop and maintain a realistic schedule, keep close contact with the authorities throughout the process. 5. Share project information with governments early during the environmental assessment. Include technologies and practices well accepted in the mining industry. 6. Stick with the current plan and avoid encroachment in fish habitat.



Area	Risk Description and Potential Impact	Mitigation Approach
	<ol style="list-style-type: none"> 7. Based on current knowledge of the regulation to come (EQA, Chapter Q-2), no compensation has been included. However, this regulation has not been adopted; there may be changes in the event of any amendments to the Act and Regulations. 8. Tailings properties are only based on mineralized material test results. There is a risk that certain parameters would be problematic only for tailings and have not been identified as part of this study. Examples of such parameters include thiosalts and suspended solids. Similarly, there is a risk that some parameters will not be identified in the tailings generated by the pilot-scale metallurgical test, since no large-scale process plant-produced tailings or process water will be available 9. As a result of recycling process water at the mineral treatment plant, an accumulation of certain parameters may occur (e.g., nitrate, ammonia) which may result in increased water treatment costs. 10. Weathering and metal leaching rates may be underestimated during geochemical characterization; metals may also behave in unexpected ways. This may have an impact on planned water treatment approaches. 11. A limited number of waste rock samples (4) has been analyzed for the Underdog mineralized zone, and these may not be representative of the overall waste rock for this area. 	<ol style="list-style-type: none"> 7. Stay alert to the changes of law enforcement, discuss regularly with government officials. 8. Carry out a geochemical characterization of the tailings generated by the pilot-scale metallurgical test and update results with large-scale process plant samples when available. 9. The accumulation of these species in solution may be identified through modelling. Re-evaluate during process plant testing, conduct recirculation testing, test during start-up/operations and make process adjustments. 10. Reassess geochemical behaviour at every stage of the Project (e.g. waste pile and tailing storage facility monitoring). 11. Collect additional targeted waste rock samples for the Underdog mineralized zone.
<p>Rehabilitation and Closure</p>	<ol style="list-style-type: none"> 1. Delay of mining lease issue due to delays in getting the closure plan approval. 	<ol style="list-style-type: none"> 1. Develop a detailed closure plan with proper mine layout and assumptions.



Table 25-6: Project opportunities

Area	Opportunity Explanation	Benefit
<p>Geology and Mineral Resources</p>	<p><u>Windfall Lake deposit</u></p> <ol style="list-style-type: none"> 1. As the deposit remains open at depth and in the vicinity of the Windfall Lake Project, additional exploration drilling could increase resources. 2. Reducing the drill spacing by adding infill drilling could potentially upgrade some Inferred resources to the Indicated category. 3. Underground mapping in the exploration ramp could increase the understanding in the organization of the dikes and mineralization corridors geometry. 4. Underground definition drilling could increase the confidence in the mineralization distribution. 5. Integrating the ongoing litho-structural model could continue to increase the confidence in the geometry and shapes of the mineralization zones. 6. Add Ag assay in the block model. <p><u>Osborne-Bell deposit</u></p> <ol style="list-style-type: none"> 7. Geological interpretation could still be challenged and revised, which could potentially lead to the delineation of additional high-grade shoots. 8. Potential for additional discoveries at depth and around the Osborne-Bell deposit by drilling. 	<p><u>Windfall Lake deposit</u></p> <ol style="list-style-type: none"> 1. Potential to increase resources. 2. Potential to convert Inferred resources to the Indicated category. 3. Better understanding and definition of the litho-structural and mineralization models. 4. Potential to upgrade some Inferred resources to the Indicated category. 5. Potential to capture gold that was not included in the mineralization zones and increase resources. 6. Increase revenue estimation and will lead to better estimate of carbon requirement in the leaching circuit. <p><u>Osborne-Bell deposit</u></p> <ol style="list-style-type: none"> 7. Potential for better understanding of mineralization and higher confidence in geological and grade continuities. 8. Potential to increase resources.
	<p>Underground Mine</p>	<ol style="list-style-type: none"> 1. Improved utilization rates for equipment and reduction in manpower and maintenance costs. 2. Optimize the development and mining sequence to account for all constraints by modelling the mining and development sequence. 3. Further detailed mine planning work. 4. Optimizing the location of the infrastructure.



Area	Opportunity Explanation	Benefit
	<ol style="list-style-type: none"> 5. Evaluate the possibility of using ventilation on demand and scoop automatization for Osborne-Bell. 6. Optimize the waste management underground 	<ol style="list-style-type: none"> 5. Potential reduction on the OPEX. 6. Decrease the amount of waste to send to surface which lead to a decrease in OPEX and CAPEX as surface waste pile would be smaller.
Geotechnical and Hydrogeology	<ol style="list-style-type: none"> 1. Collection of additional geotechnical data. 2. Collection of additional hydrogeological data will support refinement to the hydrogeological model for Windfall Lake and Osborne-Bell to estimate groundwater inflow. 	<ol style="list-style-type: none"> 1. Refine stope and pillar dimensions to optimize mine design. 2. Better understanding of hydrogeological conditions and model refinements will decrease the uncertainty on OPEX for dewatering.
Mine Site Infrastructure	<ol style="list-style-type: none"> 1. Following a thorough inspection of the access road to Windfall Lake site, the road capacity could be increased at a lower cost than previously estimated, thus allowing the use of larger trucks. 2. With the constant evolution of the exploration camp to meet the actual needs, some equipment added after PEA could be recovered for the mine camp. 3. Enter into a strategic agreement with local companies for advantageous lumber supply for buildings construction. 4. Osborne-Bell portal relocation to southeastern naturally steep facade. 	<ol style="list-style-type: none"> 1. Operational costs reduced with use of larger truck and environmental / social impact reduced with less road traffic. 2. Cost savings and construction time reduced. 3. Capital cost reduction for buildings construction. 4. Reduce portal construction cost and mineralized material / waste haulage costs.
Mineral Processing and Metallurgy	<ol style="list-style-type: none"> 1. Depending on optimal process conditions, change to process from CIL to CIP. 2. Leaching process optimization (P_{80}, leach time, pre-treatment). 3. Consider overall Ag recovery. 	<ol style="list-style-type: none"> 1. Lower CAPEX / OPEX cost with same gold recovery. 2. Reduction in CAPEX / OPEX cost. Optimization of grind size may reduce mill size and thus CAPEX and less power consumption for OPEX. Reducing leaching retention time may improve OPEX by lowering reagent consumption. Oxidation of sulphides would reduce CN consumption which would in turn reduce reagents in CN destruction. 3. Higher revenue.
Process Plant	<ol style="list-style-type: none"> 1. Buy used equipment 2. Prefabricated modular offices 3. Optimize cooling loop 	<ol style="list-style-type: none"> 1. Lower CAPEX cost. 2. Lower CAPEX cost. 3. Higher reliability of equipment.



Area	Opportunity Explanation	Benefit
Plant Site Infrastructure	<ol style="list-style-type: none"> 1. With the eventual development of the Plan Nord, connecting the Mine Site to the Hydro-Québec grid, via a nearby future substation or with a new high voltage line with installation costs shared among emerging projects 2. With the participation of the Plan Nord, costs for connecting high speed internet from the Plant Site to the Windfall Lake Mine Site via tower may be alleviate. 	<ol style="list-style-type: none"> 1. CAPEX and OPEX savings. 2. CAPEX savings.
Water Treatment	<ol style="list-style-type: none"> 1. Potential flow reduction following additional water management study and fieldwork. Reduction in treatment requirements following additional geochemistry work. 	<ol style="list-style-type: none"> 1. Lower costs for water treatment. Cost reduction and simpler water treatment system.
Mineralized material, Waste, and Water Management	<ol style="list-style-type: none"> 1. Review geomembrane requirements according to usage, foundation conditions, borrow source material characteristics and loading conditions. 2. Review yearly waste rock stockpile capacity requirements and evaluate potential for construction phasing. 3. Define groundwater conditions at Osborne-Bell and evaluate requirements for the drainage layers of the waste rock stockpile. 4. Evaluate the effect of the location of the mineralized material stockpile on watershed limits and volume of water sent to treatment plant. 	<ol style="list-style-type: none"> 1. Potential savings on geomembrane product selected for construction. 2. Potential for displacing part of CAPEX to sustainable CAPEX. 3. Potential savings on CAPEX for drainage layers of waste rock stockpile at Osborne-Bell. 4. Potential savings on water treatment OPEX.
Tailings Management Facility	<ol style="list-style-type: none"> 1. The need for a geosynthetic liner should be reviewed once the foundation conditions are defined. Hydrogeological fieldwork to be completed in the next phases of the project development, could allow the identification of low permeability materials which could serve as an adequate groundwater protection. 2. Review tailings and water management plan according to tailings physical properties once they are known. 	<ol style="list-style-type: none"> 1. Potential savings on CAPEX if soil conditions can provide adequate groundwater protection. 2. Potential savings on CAPEX for infrastructure construction and OPEX for water treatment.
Construction (Costs and Schedule)	<ol style="list-style-type: none"> 1. Osisko could start some early works as earthwork, foundation and structure conditional to LSQ municipality construction permit approval for the process plant. 	<ol style="list-style-type: none"> 1. Mitigate the risk related to construction schedule.



Area	Opportunity Explanation	Benefit
<p>Environmental, Permitting and Social License</p>	<ol style="list-style-type: none"> 1. Pursuing kinetic tests on waste rock would provide a better understanding of metal leaching and acid generation potential. 2. Development of a water quality model would improve understanding of constituents that need to be treated, as well as their expected concentrations. For example, selenium has been identified as a parameter of interest based on static geochemical tests and this could be further verified or dismissed through modelling. 	<ol style="list-style-type: none"> 1. Understanding waste rock behaviour under conditions that are relevant to natural environments would help define appropriate waste management options. 2. The model outcome would support adequate water treatment requirements.
<p>Rehabilitation and Closure</p>	<ol style="list-style-type: none"> 1. Rehabilitation cost of the waste rock stockpile (west) is over evaluated. 3D Modeling was done for the maximum size at year 2027. 	<ol style="list-style-type: none"> 1. Prepare 3D Model of the stockpile (west) at end of the mine life and re-evaluate rehabilitation costs.



26. RECOMMENDATIONS

This NI 43-101 compliant technical report on Osisko's Windfall Lake Project was prepared by experienced and competent independent consultants using accepted engineering methodologies and standards. It provides a summary of the results and findings from each major area of investigation including exploration, geological modelling, mineral resource, mine design, metallurgy, process design, infrastructure, environmental management, tailings and water management, capital and operating costs and economic analysis. The level of investigation for each of these areas is considered to be consistent or surpassing with that normally expected with a Preliminary Economic Analysis.

The mutual conclusion of the QPs is that the Windfall Lake Project as summarized in this PEA contains adequate detail and information to support the positive economic outcome shown. The results of this study indicate that the Windfall Lake Project is technically feasible and has financial merit at the base case assumptions considered.

In summary, the QPs recommend that the Project proceed to the feasibility study phase. It is also recommended that environmental and permitting continue as needed to support Osisko's development plans and project schedule.

An extensive work program including additional exploration drilling (2 phases) and the feasibility study has been developed based on QP recommendations. The work program is estimated to cost approximately \$95M including a \$12.2M contingency. A breakdown of this budget is summarized in Table 26-1.

Table 26-1: Work program budget

Work Program	Cost (\$M)
Drilling and Geology - Phase 1	40.0
Drilling and Geology - Phase 2	32.3
Underground Mining	2.0
Metallurgical Testing and Process Plant	2.0
Tailings, Waste and Water Management	2.6
Plant Site Infrastructure	0.9
Environment and Permitting	2.4
Contingency	12.2
Total	94.6

Analysis of the results and findings from each major area of investigation completed as part of this preliminary economic assessment suggests numerous recommendations for further investigations to mitigate risks and/or improve the base case designs. Sections 26.1 to 26.6 provide additional details to support the recommended work program outlined in Table 26-1.



26.1 Drilling and Geology

26.1.1 Windfall Lake Deposit

Based on the results of the 2018 MRE, it is recommended that the Windfall Lake deposit be advanced to the next phase. Additional exploration/delineation drilling and further geological and structural interpretation are recommended to gain a better understanding of the deposit. Following a positive Phase 1 and Phase 2, a feasibility study would then be recommended.

Phase 1

In Phase 1, the following technical aspects should be addressed:

- Refinement of the litho-structural interpretation: In this kind of deposit, structural features have a significant impact on the mineralization. Therefore, it is important to improve the understanding of all the impacts. In the Windfall Lake deposit, the timing between the mineralization, the schistosity and their relationship with different phases of deformation should be evaluated. That could also support the identification of additional targets on the property. The Red Dog (I2F) and the I13 post-mineralization dikes are units cross-cutting the mineralization zones present in many areas of the deposit. Detailed logging descriptions of the post-mineralization units and further refinement of the geology model will continue to increase the confidence in the resource estimate;
- Conversion drilling: It is recommended on the Project in order to upgrade Inferred resources to the Indicated category. A drill spacing of 25 m is recommended. Additional drilling to evaluate the extension of the zones along the trend and at depth is also recommended. Approximately 150,000 m should be dedicated to this purpose;
- Exploration drilling: The objective of the exploration drilling would be to continue investigating untested gold targets along the entire Windfall Lake Project and any potential lateral and depth extensions. Positive results would potentially add Inferred resources. Approximately 20,000 m should be dedicated to this purpose.

Phase 2

In Phase 2, the following technical aspects should be addressed (contingent upon the success of Phase 1):

- Bulk sampling: Completion of underground bulk sampling in Zone 27 and Caribou is already underway with additional underground bulk sampling recommended in Lynx and Underdog mineralized corridors. Bulk sampling will test and validate the geological and resource models, and reconcile the latter with grades. It will also validate different mining and metallurgical assumptions as well as improving the litho-structural model using underground mapping;



- Update of the litho-structural and mineralization models on the Project: Based on the conclusions structural study proposed in Phase 1 and on additional information gathered on the un-mineralized dikes, InnovExplo recommends updating the litho-structural and mineralization models at the scale of the Windfall Lake Project;
- NI 43-101 MRE update on the Windfall Lake Project and feasibility study: It is recommended to update the MRE after completing the drilling program, the update to the litho-structural and the mineralization models. This update should be used to support the FS.

26.1.2 Osborne-Bell Deposit

Based on the results of the 2018 MRE, additional exploration/delineation drilling and further geological interpretations are recommended to gain a better understanding of the deposit before updating the current mineral resource estimate.

Phase 1

In Phase 1, the following technical aspects should be addressed:

- Delineation drilling on the Osborne-Bell deposit: The objective of the delineation drilling would be to continue investigating untested gold targets along the entire Osborne-Bell trend and any potential lateral and depth extensions. It is recommended to prioritize deep delineation drilling to detect higher-grade subzones. Positive results would potentially add Inferred resources. Approximately 10,000 m should be dedicated to this purpose;
- Exploration drilling: Several targets (structures, geochemical anomalies, IP anomalies and EM conductors) remain untested in the immediate area of the Osborne-Bell deposit and over the entire Quévillon property. Exploration drilling on identified targets can potentially add new resources. Approximately 32,000 m should be dedicated as follows: 10,000 m on Comtois NW, 9,000 m on Hudson, 4,000 m on Mafic North, 1,500 m on the Comtois-Hudson Trend, 1,750 m on Greer, 500 m on Cooper, and 5,250 m on additional isolated targets.

Phase 2

In Phase 2, the following technical aspects should be addressed (contingent upon the success of Phase 1):

- Update of litho-structural and mineralization models on Osborne-Bell deposit: Depending on the conclusions of the geological study in the test area proposed in Phase 1, it is recommended to update the litho-structural and mineralization models at the scale of the Osborne-Bell deposit;
- Engineering Studies: Such as rock mechanics, on currently available drill core and new geotechnical drill core (approximately 5 holes). Such studies should provide sufficient information to address open pit slope angles (if applicable) as well as stope and pillar dimensions;



- Additional exploration drilling: Assuming a positive outcome for the Phase 1 Exploration drilling program, a provision of approximately 40,000 m of delineation drilling should be considered. The objective would be to continue investigating any potential lateral and depth extensions of identified mineralized material zones;
- NI 43-101 MRE update on the Osborne-Bell deposit: It is recommended to update the MRE after completing the drilling program and the update to the litho-structural/ mineralization models;
- Bulk sampling: Bulk sampling will test and validate the geological and resource models, and reconcile the latter with grades. It will also validate different mining and metallurgical assumptions as well as improving the litho-structural model using underground mapping.

26.2 Underground Mining

26.2.1 Windfall Lake Deposit

For rock engineering, it is recommended to:

- Collect additional geotechnical data to improve rock mass characterization in large infrastructure locations and in areas where no geotechnical logging was carried out, including additional geotechnical core logging and laboratory intact rock strength testing. On site stress assumptions should also be validated once underground.
- Reassess crown pillar and ground support requirements and perform numerical modelling assessments, once the mine layout is finalized.

Regarding the mine hydrogeology aspects, it is recommended to consider the presence of lakes and permeable overburden. There is a potential of significant groundwater inflow if a permeable fault intersects the mine workings. For this reason, it is recommended to conduct additional hydraulic tests to assess the hydraulic conductivity of the other faults identified at the site.

For the feasibility study, it is recommended that the following activities be initiated to support the mine design:

- Complete additional engineering work to optimize mine design and production schedule;
- Complete additional engineering work to detail the CAPEX and OPEX of the underground mine;
- Detailed engineering for the material handling in lower level to address uncertainties and ensure proper performances;
- Detailed engineering for underground electrical network, construction and mine pumping network;
- Pursue discussions with various suppliers to negotiate agreements or precise submissions;
- Continue to work on general permitting for the Project.



Furthermore, it is recommended to complete ongoing underground bulk sampling program on Main and Lynx zones with additional underground bulk sampling recommended for Underdog mineralized corridors. Since new technologies will be implemented, it will be important to:

- Train personnel to maximize efficiency;
- Benchmark on automation technologies to ensure best possible integration and performances.

To minimize ventilation requirements and heat sources, it is recommended to switch to electrical equipment as much as possible. If new mineral resources justified mining at lower levels and/or increased the productivity, InnovExplo recommends to analyze a shaft scenario to increase the profitability of the mine lower sectors.

26.2.2 Osborne-Bell Deposit

For rock engineering, it is recommended to:

- Investigate the area and define rock mass parameters specific to Osborne-Bell deposit as no geotechnical data was collected in this zone. This data will provide a basis for optimization of pillars and stope dimensions. This investigation includes geotechnical logging of core samples and laboratory intact rock strength testing;
- Reassess crown pillar and ground support requirements and perform numerical modelling assessments, once the mine layout is finalized.

Regarding the mine hydrogeology aspects, in absence of in situ hydraulic conductivity data, the potential spatial variability of the hydrogeological parameters is not represented in its full extent by the modelling work. It is recommended to perform a hydrogeological investigation and update the model to obtain a more realistic ground water inflow estimation. The hydrogeological investigation should include hydraulic conductivity testing of overburden (especially in the ice-contact sediments) and bedrock, and the implementation of an observation wells network.

For the feasibility study it is recommended that the following activities be initiated to support the mine design:

- Complete additional engineering work to optimize mine design and production schedule;
- Complete additional engineering work to detail the CAPEX and OPEX of the underground mine;
- Detailed engineering for underground electrical network, construction and mine pumping network;
- Pursue discussions with various suppliers to negotiate agreements or precise submissions;
- Continue to work on general permitting for the Project.



It is also recommended to complete underground bulk sampling on mineralized corridors. To minimize ventilation requirements and heat sources, it is recommended to switch to electrical equipment as much as possible.

26.3 Metallurgical Testing and Process Plant

26.3.1 Metallurgical Testing

Additional metallurgical testwork on Osborne-Bell and Windfall Lake representative composites is necessary to better define the gravity and leaching Au and Ag performance. The following tests are recommended for all the major zones included in the life of mine, Caribou, Zone 27, Lynx, Underdog and Osborne-Bell:

- Head analysis characterization per mineralized material zone;
- Comminution testwork on representative samples of each mineralized material zone:
 - DWT, SMC, RWI, BWI and Ai;
- Variability and optimization testwork per mineralized material zone and master composite:
 - Gravity testwork e-GRG and batch GRG;
- Leaching testwork:
 - CIL Modelling;
 - Leaching testwork: Oxygen versus Air;
 - Leaching testwork: Lead nitrate: Y/N;
 - Influence of particle size on leaching;
- Settling testwork (static and dynamic);
- Cyanide destruction.

Extra comminution testwork is recommended to better characterize the mineralized material hardness variability.

Additional gravity and leaching testwork are required to study the Au and Ag variability for the different mineralized material zones. For example, modelling of gravity testwork will help on design of the gravity testwork configuration.

The final design of the carbon adsorption, desorption and reactivation plant will depend on the results of the modelling of the CIL testwork .

Optimization testwork is recommended to explore reduction in leaching time (reduction in CAPEX) and reduction in cyanide and lead nitrate consumption (OPEX). A design of experiments approach is recommended to study variables such as particle size (P_{80}), leach time, NaCN concentration, lead nitrate concentrate, etc.



Dynamic settling testwork is recommended to estimate future flocculant consumption testwork and help on thickeners sizing.

Cyanide destruction is necessary to evaluate the reagents consumption and properly size the cyanide destruction circuit.

26.3.2 Process Plant (Lebel-sur-Quévillon)

Recommended activities include:

- Validate the grinding circuit configuration:
 - Study the impact of pebbles generation;
- Hire an independent auditor to review the design of the grinding circuit;
- Explore the grinding circuit potential by using JKSimMet simulations;
- Size the gravity circuit under the propose mill configuration with gravity modelling;
- Optimize reagents consumption in leaching and cyanide destruction;
- Perform trade-off studies evaluating different cyanide destruction approaches: SO₂-air versus Caro acid or Combinox.

26.4 Tailings, Waste and Water Management

Geotechnical investigations are required at all three sites to characterize foundation conditions under planned infrastructure in order to assess soil conditions such as soil stratigraphy, depth to bedrock, groundwater levels and soil properties. The investigations should include an extensive laboratory and in situ testing program. A site selection study to identify the location for the surface TMF is ongoing. Geotechnical investigation and studies for the TMF should be carried once the site selection study has been completed and TMF site location is confirmed.

Borrow source identification and assessment for material properties and borrow source quantities should be undertaken to define available materials for the construction of the TMF infrastructure, waste and mineralized material pads and related water management infrastructure.

A laboratory testing program should be carried out on tailings to define their physical properties, including hydrogeological and geotechnical characterization, settling and thickening, and rheological properties. Testing program could potentially include flume deposition testing to better define deposition angles. Testing for defining the bleed water quality should also be completed. All new metallurgical samples should also be submitted to geochemical testing.

For the next stage of the Project, design studies should be carried out to address the following:

- Foundation liquefaction potential assessment;
- Dam stability analysis;



- Stockpile stability analysis;
- Review of liner requirements and selection, assess liner geotechnical properties and geochemical compatibility with process water;
- Deposition planning integrating pond water management;
- Refined climate data analysis and water balance;
- Instrumentation plan to monitor foundation behaviour and infrastructure performance during operation and at closure;
- Design of waste and water management infrastructure for feasibility;
- Feasibility level cost estimate;
- The most appropriate closure scenario should be defined including identification of the most appropriate low-permeability cover system and borrow sources;
- Preliminary assessment of climate change effects on infrastructure as part of closure scenario evaluation.

The recommendations regarding water treatment planned at the Mines (Windfall and Osborne) and Plant sites are:

- Review water quality prediction for all three sites based on additional geochemistry testing and modeling;
- Based on the water quality prediction review, upgrade the water treatment sequence requirements at the three sites;
- Refine the water balance as the Project progresses.

26.5 Plant Site Infrastructure

Additional activities are recommended to complete the next phase for the Plant Site area:

- Survey of the following infrastructure:
 - Plant Site;
 - Pump house site and water pipeline;
 - Tailing access road and railway;
- Water intake bathymetry and Quévillon Lake water analysis;
- Plant Site and tailings access road geotechnical analysis.



26.6 Environment and Permitting

Additional environmental activities are required to complete the baseline study (field work and assessment) for the Plant Site (Quévillon property) area and to prepare the EIA. Below is the information that will be verified and validated for the Plant Site area through inventories and which will complete the baseline study for the EIA:

- Vegetation and wetlands;
- Fauna;
- Avifauna;
- Aquatic fauna;
- Water and sediments;
- Hydrology;
- Hydrogeology;
- Noise;
- Air quality
- Archeological potential site.

The next step will be to complete the EIA, which must meet the requirements of the MDDELCC and the CEAA Guidelines. The EIA should contain the Project description and its variants, a description of the receiving environment (natural and social), the environmental and social impacts, the mitigation measures, a technological risk assessment accompanied by a preliminary emergency response plan, as well as a monitoring and follow-up management plan.

Once the EIA is submitted to the authorities, the questions or comments answered to obtain clarification on the Project, and the public's comment period are done, the provincial and federal will review the EIS and prepare their EA report for the Minister. This EA process, once completed, will allow going ahead with the permit applications required for the Project, which can then move forward.

It is recommended to continue discussions throughout the Project and align the different phases of the Project with the Aborigines and regional communities to understand and consider their concerns in the Project.

26.6.1 Windfall Lake Deposit

The recommendations for the hydrogeological assessment are:

- Groundwater baseline and protection aspects: Field work and sampling should be continued and finalized at the Windfall Lake site to define the baseline groundwater quality.

The recommendations for the geochemical assessment are:

- Geochemical characterization of tailings and process water will be needed to further define management measures;



- Additional work including long-term kinetic tests will be required. Results from ongoing testing and long-term kinetic tests will be used to develop appropriate mineralized material and tailings ARD/ML mitigation strategies as necessary;
- Additional Underdog waste rock samples will need to be analyzed to ensure that possible geochemical variability has been captured. Additional work including long-term kinetic tests will be required. Results from ongoing testing and long-term kinetic tests will be used to develop appropriate waste rock ARD/ML mitigation strategies as necessary.

26.6.2 Osborne-Bell Deposit

The recommendations for the hydrogeological assessment are:

- Groundwater baseline and protection aspects: Field work and sampling should be continued and finalized at the Osborne-Bell site to define the baseline groundwater quality;
- Surface water baseline: Additional analysis should be completed on the surface water quality at Osborne-Bell site to define the baseline surface water quality for water treatment discharge objectives.

The recommendations for the geochemical assessment are:

- Further work is required, including the characterization of a representative series of mineralized material samples by means of static leach tests (SPLP and CTEU-9 in addition to TCLP), and leachate analysis at lower DL;
- Geochemical characterization of tailings and process water will be needed to further define management measures;
- Long-term kinetic tests are also required to assess potential environmental risks associated with the handling and management of mineralized material according to Directive 019 guidelines. A more thorough characterization may be especially relevant for the intermediate intrusive dike lithology, which was classified as non-PAG and shows a weak metal leachability potential based on the analysis of one sample only;
- Additional work including kinetic tests is also required to confirm leachable elements from the waste rock in the long term, to assess potential environmental risks associated with the handling and management of waste rock, and to define the environmental parameters to be used in waste management plans according to Directive 019 guidelines.



26.6.3 Plant Site (Lebel-sur-Quévillon)

The recommendations for the hydrogeological assessment are:

- Groundwater baseline and protection aspects: Field work and sampling should be performed at the Windfall Lake site to define the baseline groundwater quality and studies, and modelling should be performed in order to determine groundwater protection conditions for the TMF;
- Surface water baseline: Additional analysis should be completed on the surface water quality at the TMF site to define the baseline surface water quality for water treatment discharge objectives.



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Appendix A: List of Windfall Lake and Urban-Barry
Properties Mining Titles According to
GESTIM (April 9, 2018)

Windfall Lake Property

Item	Title	NTS	Area (ha)	Type	Status	Staking Date	Expiration Date	Owner (according to GESTIM)
1	2611	32G04	56.38	CDC	Active	9/25/2003	9/24/2019	Eagle Hill Exploration Corporation
2	2612	32G04	56.38	CDC	Active	9/25/2003	9/24/2019	Eagle Hill Exploration Corporation
3	2613	32G04	56.37	CDC	Active	9/25/2003	9/24/2019	Eagle Hill Exploration Corporation
4	2614	32G04	56.37	CDC	Active	9/25/2003	9/24/2019	Eagle Hill Exploration Corporation
5	2615	32G04	56.37	CDC	Active	9/25/2003	9/24/2019	Eagle Hill Exploration Corporation
6	2616	32G04	56.37	CDC	Active	9/25/2003	9/24/2019	Eagle Hill Exploration Corporation
7	2619	32G04	56.36	CDC	Active	9/25/2003	9/24/2019	Eagle Hill Exploration Corporation
8	2620	32G04	56.36	CDC	Active	9/25/2003	9/24/2019	Eagle Hill Exploration Corporation
9	2621	32G04	56.36	CDC	Active	9/25/2003	9/24/2019	Eagle Hill Exploration Corporation
10	2622	32G04	56.36	CDC	Active	9/25/2003	9/24/2019	Eagle Hill Exploration Corporation
11	2623	32G04	56.36	CDC	Active	9/25/2003	9/24/2019	Eagle Hill Exploration Corporation
12	2624	32G04	56.36	CDC	Active	9/25/2003	9/24/2019	Eagle Hill Exploration Corporation
13	2625	32G04	56.36	CDC	Active	9/25/2003	9/24/2019	Eagle Hill Exploration Corporation
14	1106259	32G04	56.37	CDC	Active	12/6/2002	12/5/2018	Eagle Hill Exploration Corporation
15	1106260	32G04	56.36	CDC	Active	12/6/2002	12/5/2018	Eagle Hill Exploration Corporation
16	1106261	32G04	56.36	CDC	Active	12/6/2002	12/5/2018	Eagle Hill Exploration Corporation
17	1106262	32G04	56.35	CDC	Active	12/6/2002	12/5/2018	Eagle Hill Exploration Corporation
18	1106263	32G04	56.35	CDC	Active	12/6/2002	12/5/2018	Eagle Hill Exploration Corporation
19	1106264	32G04	56.34	CDC	Active	12/6/2002	12/5/2018	Eagle Hill Exploration Corporation
20	1107033	32G04	56.35	CDC	Active	12/11/2002	12/10/2018	Eagle Hill Exploration Corporation
21	1107034	32G04	56.35	CDC	Active	12/11/2002	12/10/2018	Eagle Hill Exploration Corporation
22	1107035	32G04	56.35	CDC	Active	12/11/2002	12/10/2018	Eagle Hill Exploration Corporation
23	1107036	32G04	56.35	CDC	Active	12/11/2002	12/10/2018	Eagle Hill Exploration Corporation
24	1107037	32G04	56.35	CDC	Active	12/11/2002	12/10/2018	Eagle Hill Exploration Corporation
25	1107038	32G04	56.35	CDC	Active	12/11/2002	12/10/2018	Eagle Hill Exploration Corporation
26	1107039	32G04	56.35	CDC	Active	12/11/2002	12/10/2018	Eagle Hill Exploration Corporation
27	1107040	32G04	56.35	CDC	Active	12/11/2002	12/10/2018	Eagle Hill Exploration Corporation
28	1107041	32G04	56.34	CDC	Active	12/11/2002	12/10/2018	Eagle Hill Exploration Corporation
29	1107042	32G04	56.34	CDC	Active	12/11/2002	12/10/2018	Eagle Hill Exploration Corporation
30	1107043	32G04	56.34	CDC	Active	12/11/2002	12/10/2018	Eagle Hill Exploration Corporation
31	1107044	32G04	56.34	CDC	Active	12/11/2002	12/10/2018	Eagle Hill Exploration Corporation
32	1107045	32G04	56.34	CDC	Active	12/11/2002	12/10/2018	Eagle Hill Exploration Corporation
33	1107046	32G04	56.34	CDC	Active	12/11/2002	12/10/2018	Eagle Hill Exploration Corporation
34	1107047	32G04	56.34	CDC	Active	12/11/2002	12/10/2018	Eagle Hill Exploration Corporation
35	1107048	32G04	56.34	CDC	Active	12/11/2002	12/10/2018	Eagle Hill Exploration Corporation
36	1107049	32G04	56.34	CDC	Active	12/11/2002	12/10/2018	Eagle Hill Exploration Corporation
37	1107050	32G04	56.34	CDC	Active	12/11/2002	12/10/2018	Eagle Hill Exploration Corporation
38	1107051	32G04	56.34	CDC	Active	12/11/2002	12/10/2018	Eagle Hill Exploration Corporation
39	1107052	32G04	56.33	CDC	Active	12/11/2002	12/10/2018	Eagle Hill Exploration Corporation
40	1107053	32G04	56.33	CDC	Active	12/11/2002	12/10/2018	Eagle Hill Exploration Corporation

Item	Title	NTS	Area (ha)	Type	Status	Staking Date	Expiration Date	Owner (according to GESTIM)
41	1107054	32G04	56.33	CDC	Active	12/11/2002	12/10/2018	Eagle Hill Exploration Corporation
42	1107055	32G04	56.33	CDC	Active	12/11/2002	12/10/2018	Eagle Hill Exploration Corporation
43	1107056	32G04	56.33	CDC	Active	12/11/2002	12/10/2018	Eagle Hill Exploration Corporation
44	1107057	32G04	56.33	CDC	Active	12/11/2002	12/10/2018	Eagle Hill Exploration Corporation
45	1107058	32G04	56.33	CDC	Active	12/11/2002	12/10/2018	Eagle Hill Exploration Corporation
46	1107059	32G04	56.33	CDC	Active	12/11/2002	12/10/2018	Eagle Hill Exploration Corporation
47	1107060	32G04	56.33	CDC	Active	12/11/2002	12/10/2018	Eagle Hill Exploration Corporation
48	1107061	32G04	56.33	CDC	Active	12/11/2002	12/10/2018	Eagle Hill Exploration Corporation
49	1107062	32G04	56.33	CDC	Active	12/11/2002	12/10/2018	Eagle Hill Exploration Corporation
50	1107063	32G04	56.33	CDC	Active	12/11/2002	12/10/2018	Eagle Hill Exploration Corporation
51	1107064	32G04	56.33	CDC	Active	12/11/2002	12/10/2018	Eagle Hill Exploration Corporation
52	1107065	32G04	56.33	CDC	Active	12/11/2002	12/10/2018	Eagle Hill Exploration Corporation
53	1107066	32G04	56.33	CDC	Active	12/11/2002	12/10/2018	Eagle Hill Exploration Corporation
54	1107067	32G04	56.32	CDC	Active	12/11/2002	12/10/2018	Eagle Hill Exploration Corporation
55	1107068	32G04	56.32	CDC	Active	12/11/2002	12/10/2018	Eagle Hill Exploration Corporation
56	1107069	32G04	56.32	CDC	Active	12/11/2002	12/10/2018	Eagle Hill Exploration Corporation
57	1107070	32G04	56.32	CDC	Active	12/11/2002	12/10/2018	Eagle Hill Exploration Corporation
58	1107071	32G04	56.32	CDC	Active	12/11/2002	12/10/2018	Eagle Hill Exploration Corporation
59	1107072	32G04	56.32	CDC	Active	12/11/2002	12/10/2018	Eagle Hill Exploration Corporation
60	1119376	32G04	10.67	CDC	Active	5/23/2003	3/5/2019	Eagle Hill Exploration Corporation
61	1119377	32G04	11.15	CDC	Active	5/23/2003	3/5/2019	Eagle Hill Exploration Corporation
62	1119378	32G04	3.29	CDC	Active	5/23/2003	3/5/2019	Eagle Hill Exploration Corporation
63	1119379	32G04	56.39	CDC	Active	5/23/2003	3/5/2019	Eagle Hill Exploration Corporation
64	1119380	32G04	56.39	CDC	Active	5/23/2003	3/5/2019	Eagle Hill Exploration Corporation
65	1119381	32G04	45.66	CDC	Active	5/23/2003	3/5/2019	Eagle Hill Exploration Corporation
66	1119386	32G04	56.38	CDC	Active	5/23/2003	3/5/2019	Eagle Hill Exploration Corporation
67	1119387	32G04	55.18	CDC	Active	5/23/2003	3/5/2019	Eagle Hill Exploration Corporation
68	1119388	32G04	27.07	CDC	Active	5/23/2003	3/5/2019	Eagle Hill Exploration Corporation
69	1119389	32G04	27.33	CDC	Active	5/23/2003	3/5/2019	Eagle Hill Exploration Corporation
70	1119390	32G04	27.63	CDC	Active	5/23/2003	3/5/2019	Eagle Hill Exploration Corporation
71	1119391	32G04	41.61	CDC	Active	5/23/2003	3/5/2019	Eagle Hill Exploration Corporation
72	1119392	32G04	56.38	CDC	Active	5/23/2003	3/5/2019	Eagle Hill Exploration Corporation
73	1119393	32G04	54.73	CDC	Active	5/23/2003	3/5/2019	Eagle Hill Exploration Corporation
74	1119394	32G04	46.55	CDC	Active	5/23/2003	3/5/2019	Eagle Hill Exploration Corporation
75	1119395	32G04	46.83	CDC	Active	5/23/2003	3/5/2019	Eagle Hill Exploration Corporation
76	1119396	32G04	46.86	CDC	Active	5/23/2003	3/5/2019	Eagle Hill Exploration Corporation
77	1119397	32G04	41.71	CDC	Active	5/23/2003	3/5/2019	Eagle Hill Exploration Corporation
78	1119398	32G04	56.37	CDC	Active	5/23/2003	3/5/2019	Eagle Hill Exploration Corporation
79	1119399	32G04	56.37	CDC	Active	5/23/2003	3/5/2019	Eagle Hill Exploration Corporation
80	1119400	32G04	56.37	CDC	Active	5/23/2003	3/5/2019	Eagle Hill Exploration Corporation
81	1119401	32G04	56.37	CDC	Active	5/23/2003	3/5/2019	Eagle Hill Exploration Corporation
82	1119402	32G04	56.37	CDC	Active	5/23/2003	3/5/2019	Eagle Hill Exploration Corporation
83	1119403	32G04	56.37	CDC	Active	5/23/2003	3/5/2019	Eagle Hill Exploration Corporation

Item	Title	NTS	Area (ha)	Type	Status	Staking Date	Expiration Date	Owner (according to GESTIM)
84	1119404	32G04	56.37	CDC	Active	5/23/2003	3/5/2019	Eagle Hill Exploration Corporation
85	1119405	32G04	56.37	CDC	Active	5/23/2003	3/5/2019	Eagle Hill Exploration Corporation
86	1119406	32G04	56.37	CDC	Active	5/23/2003	3/5/2019	Eagle Hill Exploration Corporation
87	1119407	32G04	56.37	CDC	Active	5/23/2003	3/5/2019	Eagle Hill Exploration Corporation
88	1119408	32G04	56.27	CDC	Active	5/23/2003	3/5/2019	Eagle Hill Exploration Corporation
89	1119409	32G04	56.18	CDC	Active	5/23/2003	3/5/2019	Eagle Hill Exploration Corporation
90	1119410	32G04	56.37	CDC	Active	5/23/2003	3/5/2019	Eagle Hill Exploration Corporation
91	1119411	32G04	56.36	CDC	Active	5/23/2003	3/5/2019	Eagle Hill Exploration Corporation
92	1119412	32G04	56.36	CDC	Active	5/23/2003	3/5/2019	Eagle Hill Exploration Corporation
93	1119413	32G04	56.36	CDC	Active	5/23/2003	3/5/2019	Eagle Hill Exploration Corporation
94	1119414	32G04	56.36	CDC	Active	5/23/2003	3/5/2019	Eagle Hill Exploration Corporation
95	1119415	32G04	56.36	CDC	Active	5/23/2003	3/5/2019	Eagle Hill Exploration Corporation
96	1119416	32G04	56.36	CDC	Active	5/23/2003	3/5/2019	Eagle Hill Exploration Corporation
97	1119417	32G04	56.36	CDC	Active	5/23/2003	3/5/2019	Eagle Hill Exploration Corporation
98	1119418	32G04	56.36	CDC	Active	5/23/2003	3/5/2019	Eagle Hill Exploration Corporation
99	1119419	32G04	56.36	CDC	Active	5/23/2003	3/5/2019	Eagle Hill Exploration Corporation
100	1119420	32G04	56.35	CDC	Active	5/23/2003	3/5/2019	Eagle Hill Exploration Corporation
101	1119421	32G04	56.35	CDC	Active	5/23/2003	3/5/2019	Eagle Hill Exploration Corporation
102	1119422	32G04	56.35	CDC	Active	5/23/2003	3/5/2019	Eagle Hill Exploration Corporation
103	1119423	32G04	56.35	CDC	Active	5/23/2003	3/5/2019	Eagle Hill Exploration Corporation
104	1119424	32G04	56.35	CDC	Active	5/23/2003	3/5/2019	Eagle Hill Exploration Corporation
105	1119425	32G04	56.35	CDC	Active	5/23/2003	3/5/2019	Eagle Hill Exploration Corporation
106	1119426	32G04	56.35	CDC	Active	5/23/2003	3/5/2019	Eagle Hill Exploration Corporation
107	1119427	32G04	56.34	CDC	Active	5/23/2003	3/5/2019	Eagle Hill Exploration Corporation
108	1119428	32G04	56.34	CDC	Active	5/23/2003	3/5/2019	Eagle Hill Exploration Corporation
109	1119429	32G04	56.34	CDC	Active	5/23/2003	3/5/2019	Eagle Hill Exploration Corporation
110	1119430	32G04	56.34	CDC	Active	5/23/2003	3/5/2019	Eagle Hill Exploration Corporation
111	1125116	32G04	22.76	CDC	Active	7/2/2003	12/4/2018	Eagle Hill Exploration Corporation
112	1125117	32G04	56.39	CDC	Active	7/2/2003	12/4/2018	Eagle Hill Exploration Corporation
113	1125118	32G04	56.39	CDC	Active	7/2/2003	12/4/2018	Eagle Hill Exploration Corporation
114	1125120	32G04	56.38	CDC	Active	7/2/2003	12/4/2018	Eagle Hill Exploration Corporation
115	1125121	32G04	56.38	CDC	Active	7/2/2003	12/4/2018	Eagle Hill Exploration Corporation
116	1125122	32G04	56.38	CDC	Active	7/2/2003	12/4/2018	Eagle Hill Exploration Corporation
117	1125124	32G04	56.37	CDC	Active	7/2/2003	12/4/2018	Eagle Hill Exploration Corporation
118	1126615	32G04	56.37	CDC	Active	6/11/2003	6/10/2019	Eagle Hill Exploration Corporation
119	1126616	32G04	56.37	CDC	Active	6/11/2003	6/10/2019	Eagle Hill Exploration Corporation
120	1126617	32G04	56.37	CDC	Active	6/11/2003	6/10/2019	Eagle Hill Exploration Corporation
121	1126618	32G04	56.36	CDC	Active	6/11/2003	6/10/2019	Eagle Hill Exploration Corporation
122	1126619	32G04	56.36	CDC	Active	6/11/2003	6/10/2019	Eagle Hill Exploration Corporation
123	1126620	32G04	56.36	CDC	Active	6/11/2003	6/10/2019	Eagle Hill Exploration Corporation
124	1126621	32G04	56.36	CDC	Active	6/11/2003	6/10/2019	Eagle Hill Exploration Corporation
125	1126622	32G04	56.36	CDC	Active	6/11/2003	6/10/2019	Eagle Hill Exploration Corporation
126	1126623	32G04	56.35	CDC	Active	6/11/2003	6/10/2019	Eagle Hill Exploration Corporation

Item	Title	NTS	Area (ha)	Type	Status	Staking Date	Expiration Date	Owner (according to GESTIM)
127	1126624	32G04	56.35	CDC	Active	6/11/2003	6/10/2019	Eagle Hill Exploration Corporation
128	1126625	32G04	56.35	CDC	Active	6/11/2003	6/10/2019	Eagle Hill Exploration Corporation
129	1126626	32G04	56.35	CDC	Active	6/11/2003	6/10/2019	Eagle Hill Exploration Corporation
130	1126627	32G04	56.35	CDC	Active	6/11/2003	6/10/2019	Eagle Hill Exploration Corporation
131	1126628	32G04	56.35	CDC	Active	6/11/2003	6/10/2019	Eagle Hill Exploration Corporation
132	1126629	32G04	56.34	CDC	Active	6/11/2003	6/10/2019	Eagle Hill Exploration Corporation
133	1126630	32G04	56.34	CDC	Active	6/11/2003	6/10/2019	Eagle Hill Exploration Corporation
134	1126631	32G04	56.34	CDC	Active	6/11/2003	6/10/2019	Eagle Hill Exploration Corporation
135	1126632	32G04	56.34	CDC	Active	6/11/2003	6/10/2019	Eagle Hill Exploration Corporation
136	1126633	32G04	56.34	CDC	Active	6/11/2003	6/10/2019	Eagle Hill Exploration Corporation
137	1126634	32G04	56.34	CDC	Active	6/11/2003	6/10/2019	Eagle Hill Exploration Corporation
138	1126635	32G04	56.34	CDC	Active	6/11/2003	6/10/2019	Eagle Hill Exploration Corporation
139	1126636	32G04	56.33	CDC	Active	6/11/2003	6/10/2019	Eagle Hill Exploration Corporation
140	1126637	32G04	56.33	CDC	Active	6/11/2003	6/10/2019	Eagle Hill Exploration Corporation
141	1126638	32G04	56.33	CDC	Active	6/11/2003	6/10/2019	Eagle Hill Exploration Corporation
142	1126639	32G04	56.33	CDC	Active	6/11/2003	6/10/2019	Eagle Hill Exploration Corporation
143	1126640	32G04	56.33	CDC	Active	6/11/2003	6/10/2019	Eagle Hill Exploration Corporation
144	1126641	32G04	56.33	CDC	Active	6/11/2003	6/10/2019	Eagle Hill Exploration Corporation
145	1126642	32G04	56.33	CDC	Active	6/11/2003	6/10/2019	Eagle Hill Exploration Corporation
146	1126643	32G04	56.33	CDC	Active	6/11/2003	6/10/2019	Eagle Hill Exploration Corporation
147	1133001	32G04	56.38	CDC	Active	7/11/2005	3/5/2019	Eagle Hill Exploration Corporation
148	2225915	32G03	56.39	CDC	Active	5/3/2010	5/2/2020	Eagle Hill Exploration Corporation
149	2225916	32G03	56.39	CDC	Active	5/3/2010	5/2/2020	Eagle Hill Exploration Corporation
150	2225917	32G03	56.38	CDC	Active	5/3/2010	5/2/2020	Eagle Hill Exploration Corporation
151	2225918	32G03	56.38	CDC	Active	5/3/2010	5/2/2020	Eagle Hill Exploration Corporation
152	2225919	32G03	56.37	CDC	Active	5/3/2010	5/2/2020	Eagle Hill Exploration Corporation
153	2225920	32G03	56.37	CDC	Active	5/3/2010	5/2/2020	Eagle Hill Exploration Corporation
154	2225921	32G03	56.36	CDC	Active	5/3/2010	5/2/2020	Eagle Hill Exploration Corporation
155	2225922	32G03	56.36	CDC	Active	5/3/2010	5/2/2020	Eagle Hill Exploration Corporation
156	2225923	32G04	56.38	CDC	Active	5/3/2010	5/2/2020	Eagle Hill Exploration Corporation
157	2225924	32G04	56.37	CDC	Active	5/3/2010	5/2/2020	Eagle Hill Exploration Corporation
158	2225925	32G04	56.36	CDC	Active	5/3/2010	5/2/2020	Eagle Hill Exploration Corporation
159	2226346	32G04	56.38	CDC	Active	5/4/2010	5/3/2020	Eagle Hill Exploration Corporation
160	2226347	32G04	56.38	CDC	Active	5/4/2010	5/3/2020	Eagle Hill Exploration Corporation
161	2226348	32G04	56.37	CDC	Active	5/4/2010	5/3/2020	Eagle Hill Exploration Corporation
162	2226349	32G04	56.37	CDC	Active	5/4/2010	5/3/2020	Eagle Hill Exploration Corporation
163	2226350	32G04	56.37	CDC	Active	5/4/2010	5/3/2020	Eagle Hill Exploration Corporation
164	2226351	32G04	56.37	CDC	Active	5/4/2010	5/3/2020	Eagle Hill Exploration Corporation
165	2226352	32G04	56.37	CDC	Active	5/4/2010	5/3/2020	Eagle Hill Exploration Corporation
166	2360634	32G04	56.33	CDC	Active	8/15/2012	8/14/2018	Eagle Hill Exploration Corporation
167	2360635	32G04	56.33	CDC	Active	8/15/2012	8/14/2018	Eagle Hill Exploration Corporation
168	2360636	32G04	56.33	CDC	Active	8/15/2012	8/14/2018	Eagle Hill Exploration Corporation
169	2360637	32G04	56.33	CDC	Active	8/15/2012	8/14/2018	Eagle Hill Exploration Corporation

Item	Title	NTS	Area (ha)	Type	Status	Staking Date	Expiration Date	Owner (according to GESTIM)
170	2360638	32G04	56.33	CDC	Active	8/15/2012	8/14/2018	Eagle Hill Exploration Corporation
171	2371957	32G04	6.05	CDC	Active	1/21/2013	8/2/2018	Eagle Hill Exploration Corporation
172	2371958	32G04	11.17	CDC	Active	1/21/2013	8/2/2018	Eagle Hill Exploration Corporation
173	2371959	32G04	3.75	CDC	Active	1/21/2013	8/2/2018	Eagle Hill Exploration Corporation
174	2371960	32G04	5.22	CDC	Active	1/21/2013	8/2/2018	Eagle Hill Exploration Corporation
175	2372910	32G04	28.34	CDC	Active	1/21/2013	8/2/2018	Eagle Hill Exploration Corporation
176	2372911	32G04	3.72	CDC	Active	1/21/2013	8/2/2018	Eagle Hill Exploration Corporation
177	2372912	32G04	3.36	CDC	Active	1/21/2013	8/2/2018	Eagle Hill Exploration Corporation
178	2372913	32G04	3.00	CDC	Active	1/21/2013	8/2/2018	Eagle Hill Exploration Corporation
179	2372914	32G04	1.60	CDC	Active	1/21/2013	8/2/2018	Eagle Hill Exploration Corporation
180	2376794	32G04	12.38	CDC	Active	3/4/2013	8/2/2018	Eagle Hill Exploration Corporation
181	2376795	32G04	47.15	CDC	Active	3/4/2013	8/2/2018	Eagle Hill Exploration Corporation
182	2376796	32G04	6.88	CDC	Active	3/4/2013	8/2/2018	Eagle Hill Exploration Corporation
183	2376797	32G04	15.53	CDC	Active	3/4/2013	8/2/2018	Eagle Hill Exploration Corporation
184	2376841	32G04	9.08	CDC	Active	3/11/2013	1/22/2020	Eagle Hill Exploration Corporation
185	2376842	32G04	15.06	CDC	Active	3/11/2013	1/22/2020	Eagle Hill Exploration Corporation
186	2376843	32G04	21.71	CDC	Active	3/11/2013	1/22/2020	Eagle Hill Exploration Corporation
187	2376844	32G04	27.22	CDC	Active	3/11/2013	1/22/2020	Eagle Hill Exploration Corporation
188	2376845	32G04	1.51	CDC	Active	3/11/2013	1/22/2020	Eagle Hill Exploration Corporation
189	2376846	32G04	1.90	CDC	Active	3/11/2013	1/22/2020	Eagle Hill Exploration Corporation
190	2376847	32G04	56.44	CDC	Active	3/11/2013	9/25/2018	Eagle Hill Exploration Corporation
191	2376848	32G04	56.44	CDC	Active	3/11/2013	9/25/2018	Eagle Hill Exploration Corporation
192	2376849	32G04	56.43	CDC	Active	3/11/2013	9/25/2018	Eagle Hill Exploration Corporation
193	2376850	32G04	56.43	CDC	Active	3/11/2013	9/25/2018	Eagle Hill Exploration Corporation
194	2376851	32G04	56.43	CDC	Active	3/11/2013	9/25/2018	Eagle Hill Exploration Corporation
195	2376852	32G04	56.43	CDC	Active	3/11/2013	9/25/2018	Eagle Hill Exploration Corporation
196	2376853	32G04	56.42	CDC	Active	3/11/2013	9/25/2018	Eagle Hill Exploration Corporation
197	2376854	32G04	56.42	CDC	Active	3/11/2013	9/25/2018	Eagle Hill Exploration Corporation
198	2376855	32G04	56.42	CDC	Active	3/11/2013	9/25/2018	Eagle Hill Exploration Corporation
199	2376856	32G04	56.42	CDC	Active	3/11/2013	9/25/2018	Eagle Hill Exploration Corporation
200	2376857	32G04	56.41	CDC	Active	3/11/2013	9/25/2018	Eagle Hill Exploration Corporation
201	2376858	32G04	56.41	CDC	Active	3/11/2013	9/25/2018	Eagle Hill Exploration Corporation
202	2376859	32G04	56.41	CDC	Active	3/11/2013	9/25/2018	Eagle Hill Exploration Corporation
203	2376860	32G04	56.41	CDC	Active	3/11/2013	9/25/2018	Eagle Hill Exploration Corporation
204	2376861	32G04	56.40	CDC	Active	3/11/2013	9/25/2018	Eagle Hill Exploration Corporation
205	2376862	32G04	56.40	CDC	Active	3/11/2013	9/25/2018	Eagle Hill Exploration Corporation
206	2376863	32G04	56.40	CDC	Active	3/11/2013	9/25/2018	Eagle Hill Exploration Corporation
207	2376864	32G04	56.40	CDC	Active	3/11/2013	9/25/2018	Eagle Hill Exploration Corporation
208	2376865	32G04	56.44	CDC	Active	3/11/2013	9/25/2018	Eagle Hill Exploration Corporation
209	2376866	32G04	56.40	CDC	Active	3/11/2013	9/25/2018	Eagle Hill Exploration Corporation
210	2376867	32G04	0.01	CDC	Active	3/11/2013	9/25/2018	Eagle Hill Exploration Corporation
211	2376868	32G04	9.56	CDC	Active	3/11/2013	9/25/2018	Eagle Hill Exploration Corporation
212	2376869	32G04	34.34	CDC	Active	3/11/2013	9/25/2018	Eagle Hill Exploration Corporation

Item	Title	NTS	Area (ha)	Type	Status	Staking Date	Expiration Date	Owner (according to GESTIM)
213	2376870	32G04	44.73	CDC	Active	3/11/2013	9/25/2018	Eagle Hill Exploration Corporation
214	2376871	32G04	5.93	CDC	Active	3/11/2013	9/25/2018	Eagle Hill Exploration Corporation
215	2376872	32G04	30.09	CDC	Active	3/11/2013	9/25/2018	Eagle Hill Exploration Corporation
216	2376873	32G04	51.10	CDC	Active	3/11/2013	9/25/2018	Eagle Hill Exploration Corporation
217	2376874	32G04	24.57	CDC	Active	3/11/2013	9/25/2018	Eagle Hill Exploration Corporation
218	2376875	32G04	6.49	CDC	Active	3/11/2013	9/25/2018	Eagle Hill Exploration Corporation
219	2376876	32G04	51.45	CDC	Active	3/11/2013	9/25/2018	Eagle Hill Exploration Corporation
220	2376877	32G04	6.15	CDC	Active	3/11/2013	9/25/2018	Eagle Hill Exploration Corporation
221	2376878	32G04	23.36	CDC	Active	3/11/2013	9/25/2018	Eagle Hill Exploration Corporation
222	2376879	32G04	4.55	CDC	Active	3/11/2013	9/25/2018	Eagle Hill Exploration Corporation
223	2376880	32G04	22.22	CDC	Active	3/11/2013	9/25/2018	Eagle Hill Exploration Corporation
224	2376881	32G04	43.10	CDC	Active	3/11/2013	9/25/2018	Eagle Hill Exploration Corporation
225	2376882	32G04	55.34	CDC	Active	3/11/2013	9/25/2018	Eagle Hill Exploration Corporation
226	2376883	32G04	13.53	CDC	Active	3/11/2013	9/25/2018	Eagle Hill Exploration Corporation
227	2376884	32G04	51.13	CDC	Active	3/11/2013	9/25/2018	Eagle Hill Exploration Corporation
228	2376885	32G04	51.60	CDC	Active	3/11/2013	9/25/2018	Eagle Hill Exploration Corporation
229	2376886	32G04	1.57	CDC	Active	3/11/2013	9/25/2018	Eagle Hill Exploration Corporation
230	2376887	32G04	47.91	CDC	Active	3/11/2013	9/25/2018	Eagle Hill Exploration Corporation
231	2376888	32G04	9.53	CDC	Active	3/11/2013	9/25/2018	Eagle Hill Exploration Corporation
232	2376889	32G04	1.60	CDC	Active	3/11/2013	9/25/2018	Eagle Hill Exploration Corporation
233	2376890	32G04	31.91	CDC	Active	3/11/2013	9/25/2018	Eagle Hill Exploration Corporation
234	2376891	32G04	4.21	CDC	Active	3/11/2013	9/25/2018	Eagle Hill Exploration Corporation
235	2376892	32G04	8.15	CDC	Active	3/11/2013	9/25/2018	Eagle Hill Exploration Corporation
236	2376893	32G04	5.86	CDC	Active	3/11/2013	9/25/2018	Eagle Hill Exploration Corporation
237	2376894	32G04	3.56	CDC	Active	3/11/2013	9/25/2018	Eagle Hill Exploration Corporation
238	2376895	32G04	20.80	CDC	Active	3/11/2013	9/25/2018	Eagle Hill Exploration Corporation
239	2376896	32G04	1.83	CDC	Active	3/11/2013	9/25/2018	Eagle Hill Exploration Corporation
240	2379285	32G04	56.40	CDC	Active	3/25/2013	12/4/2018	Eagle Hill Exploration Corporation
241	2379286	32G04	56.40	CDC	Active	3/25/2013	12/4/2018	Eagle Hill Exploration Corporation
242	2379287	32G04	10.28	CDC	Active	3/25/2013	12/4/2018	Eagle Hill Exploration Corporation
243	2379288	32G04	21.50	CDC	Active	3/25/2013	12/4/2018	Eagle Hill Exploration Corporation
244	2379289	32G04	28.59	CDC	Active	3/25/2013	12/4/2018	Eagle Hill Exploration Corporation
245	2379290	32G04	29.19	CDC	Active	3/25/2013	12/4/2018	Eagle Hill Exploration Corporation
246	2379291	32G04	6.03	CDC	Active	3/25/2013	12/4/2018	Eagle Hill Exploration Corporation
247	2379292	32G04	9.41	CDC	Active	3/25/2013	12/4/2018	Eagle Hill Exploration Corporation
248	2379293	32G04	15.90	CDC	Active	3/25/2013	3/20/2019	Eagle Hill Exploration Corporation
249	2379294	32G04	34.77	CDC	Active	3/25/2013	3/20/2019	Eagle Hill Exploration Corporation
250	2379295	32G04	48.16	CDC	Active	3/25/2013	3/20/2019	Eagle Hill Exploration Corporation
251	2379296	32G04	35.65	CDC	Active	3/25/2013	3/20/2019	Eagle Hill Exploration Corporation
252	2379297	32G04	33.48	CDC	Active	3/25/2013	3/20/2019	Eagle Hill Exploration Corporation
253	2379298	32G04	35.68	CDC	Active	3/25/2013	3/20/2019	Eagle Hill Exploration Corporation
254	2379299	32G04	25.16	CDC	Active	3/25/2013	3/20/2019	Eagle Hill Exploration Corporation
255	2379300	32G04	19.83	CDC	Active	3/25/2013	3/20/2019	Eagle Hill Exploration Corporation

Item	Title	NTS	Area (ha)	Type	Status	Staking Date	Expiration Date	Owner (according to GESTIM)
256	2379301	32G04	25.43	CDC	Active	3/25/2013	3/20/2019	Eagle Hill Exploration Corporation
257	2379355	32G04	10.73	CDC	Active	3/25/2013	3/10/2019	Eagle Hill Exploration Corporation
258	2379356	32G04	1.20	CDC	Active	3/25/2013	3/10/2019	Eagle Hill Exploration Corporation
259	2379357	32G04	29.31	CDC	Active	3/25/2013	3/10/2019	Eagle Hill Exploration Corporation
260	2379358	32G04	29.05	CDC	Active	3/25/2013	3/10/2019	Eagle Hill Exploration Corporation
261	2379359	32G04	28.75	CDC	Active	3/25/2013	3/10/2019	Eagle Hill Exploration Corporation
262	2379360	32G04	14.77	CDC	Active	3/25/2013	3/10/2019	Eagle Hill Exploration Corporation
263	2379361	32G04	1.65	CDC	Active	3/25/2013	3/10/2019	Eagle Hill Exploration Corporation
264	2379362	32G04	9.83	CDC	Active	3/25/2013	3/10/2019	Eagle Hill Exploration Corporation
265	2379363	32G04	9.55	CDC	Active	3/25/2013	3/10/2019	Eagle Hill Exploration Corporation
266	2379364	32G04	9.52	CDC	Active	3/25/2013	3/10/2019	Eagle Hill Exploration Corporation
267	2379365	32G04	14.67	CDC	Active	3/25/2013	3/10/2019	Eagle Hill Exploration Corporation
268	2379366	32G04	0.10	CDC	Active	3/25/2013	3/10/2019	Eagle Hill Exploration Corporation
269	2379367	32G04	30.39	CDC	Active	3/25/2013	3/10/2019	Eagle Hill Exploration Corporation
270	2379368	32G04	38.76	CDC	Active	3/25/2013	3/10/2019	Eagle Hill Exploration Corporation
271	2379369	32G04	46.96	CDC	Active	3/25/2013	3/10/2019	Eagle Hill Exploration Corporation
272	2379370	32G04	33.04	CDC	Active	3/25/2013	3/10/2019	Eagle Hill Exploration Corporation
273	2379371	32G04	51.84	CDC	Active	3/25/2013	3/10/2019	Eagle Hill Exploration Corporation
274	2379372	32G04	34.17	CDC	Active	3/25/2013	3/10/2019	Eagle Hill Exploration Corporation
275	2379373	32G04	42.85	CDC	Active	3/25/2013	3/10/2019	Eagle Hill Exploration Corporation
276	2379374	32G04	54.79	CDC	Active	3/25/2013	3/10/2019	Eagle Hill Exploration Corporation
277	2379375	32G04	52.18	CDC	Active	3/25/2013	3/10/2019	Eagle Hill Exploration Corporation
278	2379376	32G04	50.53	CDC	Active	3/25/2013	3/10/2019	Eagle Hill Exploration Corporation
279	2379377	32G04	37.09	CDC	Active	3/25/2013	3/10/2019	Eagle Hill Exploration Corporation
280	2379378	32G04	26.00	CDC	Active	3/25/2013	3/10/2019	Eagle Hill Exploration Corporation
281	2379379	32G04	25.99	CDC	Active	3/25/2013	3/10/2019	Eagle Hill Exploration Corporation
282	2379380	32G04	16.99	CDC	Active	3/25/2013	3/10/2019	Eagle Hill Exploration Corporation
283	2379381	32G04	2.33	CDC	Active	3/25/2013	3/10/2019	Eagle Hill Exploration Corporation
284	2379382	32G04	9.23	CDC	Active	3/25/2013	3/10/2019	Eagle Hill Exploration Corporation
285	2379383	32G04	0.19	CDC	Active	3/25/2013	3/10/2019	Eagle Hill Exploration Corporation

Windfall Lake Claim List on April 9, 2018; 285 Claims for 12,467 ha

Urban-Barry Property

Item	Title	NTS	Area (ha)	Type	Status	Staking Date	Expiration Date	Owner (according to GESTIM)
1	2364938	32B13	56.53	CDC	Active	10/23/2012	7/30/2019	Minière Osisko inc.
2	2364939	32B13	56.53	CDC	Active	10/23/2012	7/30/2019	Minière Osisko inc.
3	2364940	32B13	56.52	CDC	Active	10/23/2012	7/30/2019	Minière Osisko inc.
4	2364941	32B13	56.52	CDC	Active	10/23/2012	7/30/2019	Minière Osisko inc.
5	2364942	32B13	56.51	CDC	Active	10/23/2012	7/30/2019	Minière Osisko inc.
6	2364943	32B13	51.77	CDC	Active	10/23/2012	7/30/2019	Minière Osisko inc.
7	2364944	32B13	4.97	CDC	Active	10/23/2012	7/30/2019	Minière Osisko inc.
8	2364945	32B13	1.10	CDC	Active	10/23/2012	7/30/2019	Minière Osisko inc.
9	2364946	32B13	23.98	CDC	Active	10/23/2012	7/30/2019	Minière Osisko inc.
10	2364947	32B13	2.09	CDC	Active	10/23/2012	7/30/2019	Minière Osisko inc.
11	2364948	32B13	56.54	CDC	Active	10/23/2012	7/30/2019	Minière Osisko inc.
12	2364949	32B13	16.65	CDC	Active	10/23/2012	7/30/2019	Minière Osisko inc.
13	2364950	32B13	56.54	CDC	Active	10/23/2012	7/30/2019	Minière Osisko inc.
14	2364951	32B13	56.53	CDC	Active	10/23/2012	7/30/2019	Minière Osisko inc.
15	2364952	32B13	33.04	CDC	Active	10/23/2012	7/30/2019	Minière Osisko inc.
16	2364953	32B13	3.63	CDC	Active	10/23/2012	7/30/2019	Minière Osisko inc.
17	2364954	32B13	56.53	CDC	Active	10/23/2012	7/30/2019	Minière Osisko inc.
18	2364955	32B13	14.78	CDC	Active	10/23/2012	7/30/2019	Minière Osisko inc.
19	2364956	32B13	56.53	CDC	Active	10/23/2012	7/30/2019	Minière Osisko inc.
20	2364957	32B13	18.35	CDC	Active	10/23/2012	7/30/2019	Minière Osisko inc.
21	2364958	32B13	56.53	CDC	Active	10/23/2012	7/30/2019	Minière Osisko inc.
22	2364959	32B13	56.52	CDC	Active	10/23/2012	7/30/2019	Minière Osisko inc.
23	2364960	32B13	48.02	CDC	Active	10/23/2012	7/30/2019	Minière Osisko inc.
24	2364961	32B13	2.91	CDC	Active	10/23/2012	7/30/2019	Minière Osisko inc.
25	2364962	32B13	56.52	CDC	Active	10/23/2012	7/30/2019	Minière Osisko inc.
26	2364963	32B13	9.72	CDC	Active	10/23/2012	7/30/2019	Minière Osisko inc.
27	2364964	32B13	56.52	CDC	Active	10/23/2012	7/30/2019	Minière Osisko inc.
28	2364965	32B13	56.51	CDC	Active	10/23/2012	7/30/2019	Minière Osisko inc.
29	2364966	32B13	30.69	CDC	Active	10/23/2012	7/30/2019	Minière Osisko inc.
30	2364967	32B13	33.19	CDC	Active	10/23/2012	7/30/2019	Minière Osisko inc.
31	2364968	32B13	49.76	CDC	Active	10/23/2012	7/30/2019	Minière Osisko inc.
32	2364969	32B13	49.48	CDC	Active	10/23/2012	7/30/2019	Minière Osisko inc.
33	2364970	32B13	44.42	CDC	Active	10/23/2012	7/30/2019	Minière Osisko inc.
34	2417076	32G03	56.46	CDC	Active	11/25/2014	11/24/2018	Minière Osisko inc.
35	2417077	32G03	56.46	CDC	Active	11/25/2014	11/24/2018	Minière Osisko inc.
36	2417078	32G03	56.46	CDC	Active	11/25/2014	11/24/2018	Minière Osisko inc.
37	2417079	32G03	56.45	CDC	Active	11/25/2014	11/24/2018	Minière Osisko inc.
38	2417080	32G03	56.45	CDC	Active	11/25/2014	11/24/2018	Minière Osisko inc.
39	2417081	32G03	56.45	CDC	Active	11/25/2014	11/24/2018	Minière Osisko inc.
40	2417082	32G03	56.45	CDC	Active	11/25/2014	11/24/2018	Minière Osisko inc.

Item	Title	NTS	Area (ha)	Type	Status	Staking Date	Expiration Date	Owner (according to GESTIM)
41	2417083	32G03	56.44	CDC	Active	11/25/2014	11/24/2018	Minière Osisko inc.
42	2417084	32G03	56.44	CDC	Active	11/25/2014	11/24/2018	Minière Osisko inc.
43	2417085	32G03	56.44	CDC	Active	11/25/2014	11/24/2018	Minière Osisko inc.
44	2417086	32G03	56.44	CDC	Active	11/25/2014	11/24/2018	Minière Osisko inc.
45	2417087	32G03	56.44	CDC	Active	11/25/2014	11/24/2018	Minière Osisko inc.
46	2417088	32G03	56.43	CDC	Active	11/25/2014	11/24/2018	Minière Osisko inc.
47	2417089	32G03	56.43	CDC	Active	11/25/2014	11/24/2018	Minière Osisko inc.
48	2417090	32G03	56.43	CDC	Active	11/25/2014	11/24/2018	Minière Osisko inc.
49	2417091	32G03	56.43	CDC	Active	11/25/2014	11/24/2018	Minière Osisko inc.
50	2417092	32G03	56.43	CDC	Active	11/25/2014	11/24/2018	Minière Osisko inc.
51	2417093	32G03	56.43	CDC	Active	11/25/2014	11/24/2018	Minière Osisko inc.
52	2417094	32G03	56.42	CDC	Active	11/25/2014	11/24/2018	Minière Osisko inc.
53	2417095	32G03	56.42	CDC	Active	11/25/2014	11/24/2018	Minière Osisko inc.
54	2417096	32G03	56.42	CDC	Active	11/25/2014	11/24/2018	Minière Osisko inc.
55	2417097	32G03	56.42	CDC	Active	11/25/2014	11/24/2018	Minière Osisko inc.
56	2417098	32G03	56.42	CDC	Active	11/25/2014	11/24/2018	Minière Osisko inc.
57	2417099	32G03	56.42	CDC	Active	11/25/2014	11/24/2018	Minière Osisko inc.
58	2417100	32G03	56.42	CDC	Active	11/25/2014	11/24/2018	Minière Osisko inc.
59	2417101	32G03	56.42	CDC	Active	11/25/2014	11/24/2018	Minière Osisko inc.
60	2417102	32G03	56.41	CDC	Active	11/25/2014	11/24/2018	Minière Osisko inc.
61	2417103	32G03	56.41	CDC	Active	11/25/2014	11/24/2018	Minière Osisko inc.
62	2417104	32G03	56.41	CDC	Active	11/25/2014	11/24/2018	Minière Osisko inc.
63	2417105	32G03	56.41	CDC	Active	11/25/2014	11/24/2018	Minière Osisko inc.
64	2417106	32G03	56.41	CDC	Active	11/25/2014	11/24/2018	Minière Osisko inc.
65	2417107	32G03	56.41	CDC	Active	11/25/2014	11/24/2018	Minière Osisko inc.
66	2417108	32G03	56.41	CDC	Active	11/25/2014	11/24/2018	Minière Osisko inc.
67	2417109	32G03	56.41	CDC	Active	11/25/2014	11/24/2018	Minière Osisko inc.
68	2417110	32G03	56.41	CDC	Active	11/25/2014	11/24/2018	Minière Osisko inc.
69	2417111	32G03	56.41	CDC	Active	11/25/2014	11/24/2018	Minière Osisko inc.
70	2417112	32G03	56.40	CDC	Active	11/25/2014	11/24/2018	Minière Osisko inc.
71	2417113	32G03	56.40	CDC	Active	11/25/2014	11/24/2018	Minière Osisko inc.
72	2417114	32G03	56.40	CDC	Active	11/25/2014	11/24/2018	Minière Osisko inc.
73	2417115	32G03	56.40	CDC	Active	11/25/2014	11/24/2018	Minière Osisko inc.
74	2417116	32G03	56.43	CDC	Active	11/25/2014	11/24/2018	Minière Osisko inc.
75	2417117	32G03	56.43	CDC	Active	11/25/2014	11/24/2018	Minière Osisko inc.
76	2417118	32G03	56.42	CDC	Active	11/25/2014	11/24/2018	Minière Osisko inc.
77	2417119	32G03	56.41	CDC	Active	11/25/2014	11/24/2018	Minière Osisko inc.
78	2417120	32G03	56.40	CDC	Active	11/25/2014	11/24/2018	Minière Osisko inc.
79	2417121	32G03	56.40	CDC	Active	11/25/2014	11/24/2018	Minière Osisko inc.
80	2417122	32G03	56.40	CDC	Active	11/25/2014	11/24/2018	Minière Osisko inc.
81	2417123	32G03	56.40	CDC	Active	11/25/2014	11/24/2018	Minière Osisko inc.
82	2417124	32G03	56.40	CDC	Active	11/25/2014	11/24/2018	Minière Osisko inc.

Item	Title	NTS	Area (ha)	Type	Status	Staking Date	Expiration Date	Owner (according to GESTIM)
83	2417125	32G03	56.40	CDC	Active	11/25/2014	11/24/2018	Minière Osisko inc.
84	2417126	32G03	56.40	CDC	Active	11/25/2014	11/24/2018	Minière Osisko inc.
85	2417127	32G03	56.40	CDC	Active	11/25/2014	11/24/2018	Minière Osisko inc.
86	2417128	32G03	56.40	CDC	Active	11/25/2014	11/24/2018	Minière Osisko inc.
87	2417129	32G03	56.40	CDC	Active	11/25/2014	11/24/2018	Minière Osisko inc.
88	2417130	32G03	56.40	CDC	Active	11/25/2014	11/24/2018	Minière Osisko inc.
89	2417131	32G03	56.40	CDC	Active	11/25/2014	11/24/2018	Minière Osisko inc.
90	2417132	32G03	56.40	CDC	Active	11/25/2014	11/24/2018	Minière Osisko inc.
91	2417133	32G03	56.40	CDC	Active	11/25/2014	11/24/2018	Minière Osisko inc.
92	2417134	32G03	56.40	CDC	Active	11/25/2014	11/24/2018	Minière Osisko inc.
93	2417135	32G03	56.39	CDC	Active	11/25/2014	11/24/2018	Minière Osisko inc.
94	2417136	32G03	56.39	CDC	Active	11/25/2014	11/24/2018	Minière Osisko inc.
95	2417137	32G03	56.39	CDC	Active	11/25/2014	11/24/2018	Minière Osisko inc.
96	2417138	32G03	56.39	CDC	Active	11/25/2014	11/24/2018	Minière Osisko inc.
97	2417139	32G03	56.39	CDC	Active	11/25/2014	11/24/2018	Minière Osisko inc.
98	2417140	32G03	56.39	CDC	Active	11/25/2014	11/24/2018	Minière Osisko inc.
99	2417141	32G03	56.39	CDC	Active	11/25/2014	11/24/2018	Minière Osisko inc.
100	2417142	32G03	56.39	CDC	Active	11/25/2014	11/24/2018	Minière Osisko inc.
101	2417143	32G03	56.39	CDC	Active	11/25/2014	11/24/2018	Minière Osisko inc.
102	2417144	32G03	56.39	CDC	Active	11/25/2014	11/24/2018	Minière Osisko inc.
103	2417145	32G03	56.39	CDC	Active	11/25/2014	11/24/2018	Minière Osisko inc.
104	2417146	32G03	56.39	CDC	Active	11/25/2014	11/24/2018	Minière Osisko inc.
105	2417147	32G03	56.39	CDC	Active	11/25/2014	11/24/2018	Minière Osisko inc.
106	2417220	32G03	56.38	CDC	Active	11/26/2014	11/25/2018	Minière Osisko inc.
107	2417221	32G03	56.37	CDC	Active	11/26/2014	11/25/2018	Minière Osisko inc.
108	2417222	32G03	56.36	CDC	Active	11/26/2014	11/25/2018	Minière Osisko inc.
109	2417223	32G03	56.35	CDC	Active	11/26/2014	11/25/2018	Minière Osisko inc.
110	2417224	32G03	56.35	CDC	Active	11/26/2014	11/25/2018	Minière Osisko inc.
111	2417225	32G03	56.35	CDC	Active	11/26/2014	11/25/2018	Minière Osisko inc.
112	2417226	32G03	56.35	CDC	Active	11/26/2014	11/25/2018	Minière Osisko inc.
113	2417227	32G03	56.35	CDC	Active	11/26/2014	11/25/2018	Minière Osisko inc.
114	2417228	32G03	56.35	CDC	Active	11/26/2014	11/25/2018	Minière Osisko inc.
115	2417229	32G03	56.35	CDC	Active	11/26/2014	11/25/2018	Minière Osisko inc.
116	2417230	32G03	56.35	CDC	Active	11/26/2014	11/25/2018	Minière Osisko inc.
117	2417231	32G03	56.35	CDC	Active	11/26/2014	11/25/2018	Minière Osisko inc.
118	2417232	32G03	56.35	CDC	Active	11/26/2014	11/25/2018	Minière Osisko inc.
119	2417233	32G03	56.35	CDC	Active	11/26/2014	11/25/2018	Minière Osisko inc.
120	2417234	32G03	56.35	CDC	Active	11/26/2014	11/25/2018	Minière Osisko inc.
121	2417235	32G03	56.35	CDC	Active	11/26/2014	11/25/2018	Minière Osisko inc.
122	2417236	32G03	56.35	CDC	Active	11/26/2014	11/25/2018	Minière Osisko inc.
123	2417237	32G03	56.35	CDC	Active	11/26/2014	11/25/2018	Minière Osisko inc.
124	2417238	32G03	56.34	CDC	Active	11/26/2014	11/25/2018	Minière Osisko inc.

Item	Title	NTS	Area (ha)	Type	Status	Staking Date	Expiration Date	Owner (according to GESTIM)
125	2417239	32G03	56.34	CDC	Active	11/26/2014	11/25/2018	Minière Osisko inc.
126	2417240	32G03	56.34	CDC	Active	11/26/2014	11/25/2018	Minière Osisko inc.
127	2417241	32G03	56.34	CDC	Active	11/26/2014	11/25/2018	Minière Osisko inc.
128	2417242	32G03	56.34	CDC	Active	11/26/2014	11/25/2018	Minière Osisko inc.
129	2417243	32G03	56.34	CDC	Active	11/26/2014	11/25/2018	Minière Osisko inc.
130	2417244	32G03	56.34	CDC	Active	11/26/2014	11/25/2018	Minière Osisko inc.
131	2417245	32G03	56.34	CDC	Active	11/26/2014	11/25/2018	Minière Osisko inc.
132	2417246	32G03	56.34	CDC	Active	11/26/2014	11/25/2018	Minière Osisko inc.
133	2417247	32G03	56.34	CDC	Active	11/26/2014	11/25/2018	Minière Osisko inc.
134	2417248	32G03	56.34	CDC	Active	11/26/2014	11/25/2018	Minière Osisko inc.
135	2417249	32G03	56.34	CDC	Active	11/26/2014	11/25/2018	Minière Osisko inc.
136	2417250	32G03	56.34	CDC	Active	11/26/2014	11/25/2018	Minière Osisko inc.
137	2417251	32G03	56.33	CDC	Active	11/26/2014	11/25/2018	Minière Osisko inc.
138	2417252	32G03	56.33	CDC	Active	11/26/2014	11/25/2018	Minière Osisko inc.
139	2417253	32G03	56.33	CDC	Active	11/26/2014	11/25/2018	Minière Osisko inc.
140	2417254	32G03	56.33	CDC	Active	11/26/2014	11/25/2018	Minière Osisko inc.
141	2417255	32G03	56.33	CDC	Active	11/26/2014	11/25/2018	Minière Osisko inc.
142	2417256	32G03	56.33	CDC	Active	11/26/2014	11/25/2018	Minière Osisko inc.
143	2417257	32G03	56.33	CDC	Active	11/26/2014	11/25/2018	Minière Osisko inc.
144	2417258	32G03	56.33	CDC	Active	11/26/2014	11/25/2018	Minière Osisko inc.
145	2417259	32G03	56.33	CDC	Active	11/26/2014	11/25/2018	Minière Osisko inc.
146	2417260	32G03	56.33	CDC	Active	11/26/2014	11/25/2018	Minière Osisko inc.
147	2417261	32G03	56.33	CDC	Active	11/26/2014	11/25/2018	Minière Osisko inc.
148	2417382	32G03	56.40	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
149	2417383	32G03	56.40	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
150	2417384	32G03	56.40	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
151	2417385	32G03	56.39	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
152	2417386	32G03	56.39	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
153	2417387	32G03	56.39	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
154	2417388	32G03	56.39	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
155	2417389	32G03	56.39	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
156	2417390	32G03	56.39	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
157	2417391	32G03	56.39	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
158	2417392	32G03	56.39	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
159	2417393	32G03	56.39	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
160	2417394	32G03	56.39	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
161	2417395	32G03	56.38	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
162	2417396	32G03	56.38	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
163	2417397	32G03	56.38	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
164	2417398	32G03	56.38	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
165	2417399	32G03	56.38	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
166	2417400	32G03	56.38	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.

Item	Title	NTS	Area (ha)	Type	Status	Staking Date	Expiration Date	Owner (according to GESTIM)
167	2417401	32G03	56.38	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
168	2417402	32G03	56.37	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
169	2417403	32G03	56.37	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
170	2417404	32G03	56.37	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
171	2417405	32G03	56.37	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
172	2417406	32G03	56.36	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
173	2417407	32G03	56.36	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
174	2417408	32G03	56.36	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
175	2417409	32G03	56.36	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
176	2417410	32G03	56.36	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
177	2417411	32G03	56.36	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
178	2417412	32G03	56.35	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
179	2417413	32G03	56.35	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
180	2417414	32G03	56.34	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
181	2417415	32G03	56.34	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
182	2417416	32G03	56.34	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
183	2417417	32G03	56.34	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
184	2417418	32G03	56.34	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
185	2417419	32G03	56.40	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
186	2417420	32G03	56.39	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
187	2417421	32G03	56.39	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
188	2417422	32G03	56.39	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
189	2417423	32G03	56.39	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
190	2417424	32G03	56.38	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
191	2417425	32G03	56.38	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
192	2417426	32G03	56.38	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
193	2417427	32G03	56.38	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
194	2417428	32G03	56.38	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
195	2417429	32G03	56.38	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
196	2417430	32G03	56.38	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
197	2417431	32G03	56.38	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
198	2417432	32G03	56.38	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
199	2417433	32G03	56.37	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
200	2417434	32G03	56.37	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
201	2417435	32G03	56.37	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
202	2417436	32G03	56.37	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
203	2417437	32G03	56.37	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
204	2417438	32G03	56.37	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
205	2417439	32G03	56.37	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
206	2417440	32G03	56.37	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
207	2417441	32G03	56.37	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
208	2417442	32G03	56.37	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.

Item	Title	NTS	Area (ha)	Type	Status	Staking Date	Expiration Date	Owner (according to GESTIM)
209	2417443	32G03	56.36	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
210	2417444	32G03	56.36	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
211	2417445	32G03	56.36	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
212	2417446	32G03	56.36	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
213	2417447	32G03	56.36	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
214	2417448	32G03	56.36	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
215	2417449	32G03	56.36	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
216	2417450	32G03	56.36	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
217	2417451	32G03	56.35	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
218	2417452	32G03	56.35	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
219	2417453	32G03	56.35	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
220	2417454	32G03	56.35	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
221	2417455	32G03	56.34	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
222	2417456	32G03	56.34	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
223	2417457	32G03	56.34	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
224	2417458	32G03	56.34	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
225	2417537	32B13	56.60	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
226	2417538	32B13	56.60	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
227	2417539	32B13	56.60	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
228	2417540	32B13	56.60	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
229	2417541	32B13	56.60	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
230	2417542	32B13	56.60	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
231	2417543	32B13	56.59	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
232	2417544	32B13	56.59	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
233	2417545	32B13	56.59	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
234	2417546	32B13	56.59	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
235	2417547	32B13	56.59	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
236	2417548	32B13	56.59	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
237	2417549	32B13	56.59	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
238	2417550	32B13	56.59	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
239	2417551	32B13	56.58	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
240	2417552	32B13	56.58	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
241	2417553	32B13	56.58	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
242	2417554	32B13	56.58	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
243	2417555	32B13	56.56	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
244	2417556	32B13	56.56	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
245	2417557	32B13	56.56	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
246	2417558	32B13	56.56	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
247	2417559	32B13	56.56	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
248	2417560	32B13	56.56	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
249	2417561	32B13	56.56	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
250	2417562	32B13	56.56	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.

Item	Title	NTS	Area (ha)	Type	Status	Staking Date	Expiration Date	Owner (according to GESTIM)
251	2417563	32B13	56.55	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
252	2417564	32B13	56.55	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
253	2417565	32B13	56.55	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
254	2417566	32B13	56.55	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
255	2417567	32B13	56.55	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
256	2417568	32B13	56.55	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
257	2417569	32B13	56.55	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
258	2417570	32B13	56.55	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
259	2417571	32B13	56.54	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
260	2417572	32B13	56.54	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
261	2417573	32B13	56.54	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
262	2417574	32B13	56.54	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
263	2417575	32B13	56.54	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
264	2417576	32B13	56.54	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
265	2417577	32B13	56.54	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
266	2417578	32B13	56.54	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
267	2417579	32B13	56.50	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
268	2417580	32G03	56.46	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
269	2417581	32G03	56.46	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
270	2417582	32G03	56.46	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
271	2417583	32G03	56.46	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
272	2417584	32G03	56.46	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
273	2417585	32G03	56.46	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
274	2417586	32G03	56.45	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
275	2417587	32G03	56.45	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
276	2417588	32G03	56.45	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
277	2417589	32G03	56.45	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
278	2417590	32G03	56.45	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
279	2417591	32G03	56.44	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
280	2417592	32G03	56.44	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
281	2417593	32G03	56.44	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
282	2417594	32G03	56.44	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
283	2417595	32G03	56.44	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
284	2417596	32G03	56.44	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
285	2417597	32G03	56.43	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
286	2417598	32G03	56.43	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
287	2417599	32G03	56.43	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
288	2417600	32G03	56.42	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
289	2417601	32G03	56.42	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
290	2417602	32G03	56.42	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
291	2417603	32G03	56.37	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
292	2417604	32G03	56.37	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.

Item	Title	NTS	Area (ha)	Type	Status	Staking Date	Expiration Date	Owner (according to GESTIM)
293	2417605	32G03	56.37	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
294	2417606	32G03	56.37	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
295	2417607	32G03	56.37	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
296	2417608	32G03	56.36	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
297	2417609	32G03	56.36	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
298	2417610	32G03	56.36	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
299	2417611	32G03	56.36	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
300	2417612	32G03	56.36	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
301	2417613	32G03	56.35	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
302	2417614	32G03	56.35	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
303	2417615	32G03	56.35	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
304	2417616	32G03	56.34	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
305	2417617	32G03	56.34	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
306	2417618	32G04	56.36	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
307	2417619	32G04	56.36	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
308	2417620	32G04	56.36	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
309	2417621	32G04	56.36	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
310	2417622	32G04	56.35	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
311	2417623	32G04	56.35	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
312	2417624	32G04	56.35	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
313	2417625	32G04	56.35	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
314	2417626	32G04	56.35	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
315	2417627	32G04	56.34	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
316	2417628	32G04	56.34	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
317	2417629	32G04	56.34	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
318	2417630	32G04	56.34	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
319	2417631	32G04	56.34	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
320	2417632	32G04	56.32	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
321	2417633	32G04	56.32	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
322	2417634	32G04	56.32	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
323	2417635	32G04	56.32	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
324	2417636	32G04	56.32	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
325	2417637	32G04	56.32	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
326	2417638	32G04	56.32	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
327	2417639	32G04	56.32	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
328	2417640	32G04	56.32	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
329	2417641	32G04	56.32	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
330	2417642	32G04	56.32	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
331	2417643	32G04	56.32	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
332	2417644	32G04	56.32	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
333	2417645	32G04	56.31	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
334	2417646	32G04	56.31	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.

Item	Title	NTS	Area (ha)	Type	Status	Staking Date	Expiration Date	Owner (according to GESTIM)
335	2417647	32G04	56.31	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
336	2417648	32G04	56.31	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
337	2417649	32G04	56.31	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
338	2417650	32G04	56.31	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
339	2417651	32G04	56.31	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
340	2417652	32G04	56.30	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
341	2417653	32G04	56.30	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
342	2417654	32G04	56.30	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
343	2417655	32G03	56.40	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
344	2417656	32G03	56.40	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
345	2417657	32G03	56.40	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
346	2417658	32G03	56.40	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
347	2417659	32G03	56.40	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
348	2417660	32G03	56.40	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
349	2417661	32G03	56.39	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
350	2417662	32G03	56.39	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
351	2417663	32G03	56.39	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
352	2417664	32G03	56.39	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
353	2417665	32G03	56.39	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
354	2417666	32G03	56.39	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
355	2417667	32G03	56.39	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
356	2417668	32G03	56.39	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
357	2417669	32G03	56.39	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
358	2417670	32G03	56.39	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
359	2417671	32G03	56.39	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
360	2417672	32G03	56.39	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
361	2417673	32G03	56.38	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
362	2417674	32G03	56.38	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
363	2417675	32G03	56.38	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
364	2417676	32G03	56.38	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
365	2417677	32G03	56.38	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
366	2417678	32G03	56.37	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
367	2417679	32G03	56.37	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
368	2417680	32G03	56.37	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
369	2417681	32G03	56.37	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
370	2417682	32G03	56.37	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
371	2417683	32G03	56.37	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
372	2417684	32G03	56.36	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
373	2417685	32G03	56.36	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
374	2417686	32G03	56.36	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
375	2417687	32G03	56.36	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
376	2417688	32G03	56.36	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.

Item	Title	NTS	Area (ha)	Type	Status	Staking Date	Expiration Date	Owner (according to GESTIM)
377	2417689	32G03	56.35	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
378	2417690	32G03	56.35	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
379	2417691	32G03	56.35	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
380	2417692	32G03	56.35	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
381	2417693	32G03	56.35	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
382	2417694	32G03	56.34	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
383	2417695	32G04	56.32	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
384	2417696	32G04	56.32	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
385	2417697	32G04	56.32	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
386	2417698	32G04	56.32	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
387	2417699	32G04	56.31	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
388	2417700	32G04	56.31	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
389	2417701	32G04	56.31	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
390	2417702	32G04	56.31	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
391	2417703	32G04	56.31	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
392	2417704	32G04	56.31	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
393	2417705	32G04	56.31	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
394	2417706	32G04	56.31	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
395	2417707	32G04	56.31	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
396	2417708	32G04	56.31	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
397	2417709	32G04	56.31	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
398	2417710	32G04	56.31	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
399	2417711	32G04	56.31	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
400	2417712	32G04	56.30	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
401	2417713	32G04	56.30	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
402	2417714	32G04	56.30	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
403	2417715	32G04	56.30	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
404	2417716	32G04	56.30	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
405	2417717	32G04	56.30	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
406	2417718	32G04	56.29	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
407	2417719	32G04	56.29	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
408	2417720	32G04	56.29	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
409	2417721	32G04	56.29	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
410	2417722	32G04	56.29	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
411	2417723	32G04	56.29	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
412	2417724	32G04	56.29	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
413	2417725	32G04	56.29	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
414	2417726	32G04	56.28	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
415	2417727	32G04	56.28	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
416	2417728	32G04	56.28	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
417	2417729	32G04	56.28	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
418	2417730	32G04	56.28	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.

Item	Title	NTS	Area (ha)	Type	Status	Staking Date	Expiration Date	Owner (according to GESTIM)
419	2417731	32G04	56.28	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
420	2417732	32G04	56.28	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
421	2417733	32G04	56.28	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
422	2417734	32G04	56.27	CDC	Active	12/1/2014	11/30/2018	Minière Osisko inc.
423	2418096	32G03	56.40	CDC	Active	12/2/2014	12/1/2018	Minière Osisko inc.
424	2418097	32G03	56.40	CDC	Active	12/2/2014	12/1/2018	Minière Osisko inc.
425	2418098	32G03	56.40	CDC	Active	12/2/2014	12/1/2018	Minière Osisko inc.
426	2418099	32G03	56.40	CDC	Active	12/2/2014	12/1/2018	Minière Osisko inc.
427	2418100	32G03	56.40	CDC	Active	12/2/2014	12/1/2018	Minière Osisko inc.
428	2418101	32G03	56.40	CDC	Active	12/2/2014	12/1/2018	Minière Osisko inc.
429	2418102	32G03	56.40	CDC	Active	12/2/2014	12/1/2018	Minière Osisko inc.
430	2418103	32G03	56.39	CDC	Active	12/2/2014	12/1/2018	Minière Osisko inc.
431	2418104	32G03	56.39	CDC	Active	12/2/2014	12/1/2018	Minière Osisko inc.
432	2418105	32G03	56.39	CDC	Active	12/2/2014	12/1/2018	Minière Osisko inc.
433	2418106	32G03	56.39	CDC	Active	12/2/2014	12/1/2018	Minière Osisko inc.
434	2418107	32G03	56.39	CDC	Active	12/2/2014	12/1/2018	Minière Osisko inc.
435	2418108	32G03	56.39	CDC	Active	12/2/2014	12/1/2018	Minière Osisko inc.
436	2418109	32G03	56.39	CDC	Active	12/2/2014	12/1/2018	Minière Osisko inc.
437	2418110	32G03	56.39	CDC	Active	12/2/2014	12/1/2018	Minière Osisko inc.
438	2418111	32G03	56.39	CDC	Active	12/2/2014	12/1/2018	Minière Osisko inc.
439	2418112	32G03	56.39	CDC	Active	12/2/2014	12/1/2018	Minière Osisko inc.
440	2418113	32G03	56.39	CDC	Active	12/2/2014	12/1/2018	Minière Osisko inc.
441	2418114	32G03	56.39	CDC	Active	12/2/2014	12/1/2018	Minière Osisko inc.
442	2418115	32G03	56.39	CDC	Active	12/2/2014	12/1/2018	Minière Osisko inc.
443	2418116	32G03	56.39	CDC	Active	12/2/2014	12/1/2018	Minière Osisko inc.
444	2418117	32G03	56.38	CDC	Active	12/2/2014	12/1/2018	Minière Osisko inc.
445	2418118	32G03	56.38	CDC	Active	12/2/2014	12/1/2018	Minière Osisko inc.
446	2418119	32G03	56.38	CDC	Active	12/2/2014	12/1/2018	Minière Osisko inc.
447	2418120	32G03	56.38	CDC	Active	12/2/2014	12/1/2018	Minière Osisko inc.
448	2418121	32G03	56.38	CDC	Active	12/2/2014	12/1/2018	Minière Osisko inc.
449	2418122	32G03	56.38	CDC	Active	12/2/2014	12/1/2018	Minière Osisko inc.
450	2418123	32G03	56.38	CDC	Active	12/2/2014	12/1/2018	Minière Osisko inc.
451	2418124	32G03	56.38	CDC	Active	12/2/2014	12/1/2018	Minière Osisko inc.
452	2418125	32G03	56.37	CDC	Active	12/2/2014	12/1/2018	Minière Osisko inc.
453	2418126	32G03	56.37	CDC	Active	12/2/2014	12/1/2018	Minière Osisko inc.
454	2418127	32G03	56.37	CDC	Active	12/2/2014	12/1/2018	Minière Osisko inc.
455	2418128	32G03	56.37	CDC	Active	12/2/2014	12/1/2018	Minière Osisko inc.
456	2418129	32G03	56.37	CDC	Active	12/2/2014	12/1/2018	Minière Osisko inc.
457	2418130	32G03	56.37	CDC	Active	12/2/2014	12/1/2018	Minière Osisko inc.
458	2418131	32G03	56.36	CDC	Active	12/2/2014	12/1/2018	Minière Osisko inc.
459	2418132	32G03	56.46	CDC	Active	12/2/2014	12/1/2018	Minière Osisko inc.
460	2418133	32G03	56.45	CDC	Active	12/2/2014	12/1/2018	Minière Osisko inc.

Item	Title	NTS	Area (ha)	Type	Status	Staking Date	Expiration Date	Owner (according to GESTIM)
461	2418134	32G03	56.43	CDC	Active	12/2/2014	12/1/2018	Minière Osisko inc.
462	2418135	32G03	56.41	CDC	Active	12/2/2014	12/1/2018	Minière Osisko inc.
463	2418136	32G03	56.40	CDC	Active	12/2/2014	12/1/2018	Minière Osisko inc.
464	2418137	32G03	56.40	CDC	Active	12/2/2014	12/1/2018	Minière Osisko inc.
465	2418138	32G03	56.38	CDC	Active	12/2/2014	12/1/2018	Minière Osisko inc.
466	2418139	32G03	56.38	CDC	Active	12/2/2014	12/1/2018	Minière Osisko inc.
467	2418140	32G03	56.38	CDC	Active	12/2/2014	12/1/2018	Minière Osisko inc.
468	2418141	32G03	56.37	CDC	Active	12/2/2014	12/1/2018	Minière Osisko inc.
469	2418142	32G03	56.37	CDC	Active	12/2/2014	12/1/2018	Minière Osisko inc.
470	2418143	32G03	56.37	CDC	Active	12/2/2014	12/1/2018	Minière Osisko inc.
471	2418144	32G03	56.37	CDC	Active	12/2/2014	12/1/2018	Minière Osisko inc.
472	2418145	32G03	56.36	CDC	Active	12/2/2014	12/1/2018	Minière Osisko inc.
473	2418146	32G03	56.36	CDC	Active	12/2/2014	12/1/2018	Minière Osisko inc.
474	2418147	32G03	56.36	CDC	Active	12/2/2014	12/1/2018	Minière Osisko inc.
475	2418148	32G03	56.36	CDC	Active	12/2/2014	12/1/2018	Minière Osisko inc.
476	2418149	32G03	56.36	CDC	Active	12/2/2014	12/1/2018	Minière Osisko inc.
477	2418150	32G03	56.36	CDC	Active	12/2/2014	12/1/2018	Minière Osisko inc.
478	2418151	32G03	56.36	CDC	Active	12/2/2014	12/1/2018	Minière Osisko inc.
479	2418152	32G03	56.36	CDC	Active	12/2/2014	12/1/2018	Minière Osisko inc.
480	2418153	32G03	56.36	CDC	Active	12/2/2014	12/1/2018	Minière Osisko inc.
481	2418154	32G03	56.36	CDC	Active	12/2/2014	12/1/2018	Minière Osisko inc.
482	2418155	32G03	56.36	CDC	Active	12/2/2014	12/1/2018	Minière Osisko inc.
483	2418156	32G03	56.35	CDC	Active	12/2/2014	12/1/2018	Minière Osisko inc.
484	2418157	32G03	56.35	CDC	Active	12/2/2014	12/1/2018	Minière Osisko inc.
485	2418158	32G03	56.35	CDC	Active	12/2/2014	12/1/2018	Minière Osisko inc.
486	2418159	32G03	56.35	CDC	Active	12/2/2014	12/1/2018	Minière Osisko inc.
487	2418160	32G03	56.35	CDC	Active	12/2/2014	12/1/2018	Minière Osisko inc.
488	2418161	32G03	56.35	CDC	Active	12/2/2014	12/1/2018	Minière Osisko inc.
489	2418162	32G03	56.35	CDC	Active	12/2/2014	12/1/2018	Minière Osisko inc.
490	2418163	32G03	56.35	CDC	Active	12/2/2014	12/1/2018	Minière Osisko inc.
491	2418164	32G03	56.35	CDC	Active	12/2/2014	12/1/2018	Minière Osisko inc.
492	2418165	32G03	56.35	CDC	Active	12/2/2014	12/1/2018	Minière Osisko inc.
493	2418166	32G03	56.35	CDC	Active	12/2/2014	12/1/2018	Minière Osisko inc.
494	2418167	32G03	56.35	CDC	Active	12/2/2014	12/1/2018	Minière Osisko inc.
495	2418168	32G03	56.35	CDC	Active	12/2/2014	12/1/2018	Minière Osisko inc.
496	2418169	32G03	56.35	CDC	Active	12/2/2014	12/1/2018	Minière Osisko inc.
497	2418170	32G03	56.35	CDC	Active	12/2/2014	12/1/2018	Minière Osisko inc.
498	2418190	32B14	56.50	CDC	Active	12/2/2014	12/1/2018	Minière Osisko inc.
499	2418191	32B14	56.50	CDC	Active	12/2/2014	12/1/2018	Minière Osisko inc.
500	2418192	32B14	56.50	CDC	Active	12/2/2014	12/1/2018	Minière Osisko inc.
501	2418193	32B14	56.50	CDC	Active	12/2/2014	12/1/2018	Minière Osisko inc.
502	2418194	32B14	56.50	CDC	Active	12/2/2014	12/1/2018	Minière Osisko inc.

Item	Title	NTS	Area (ha)	Type	Status	Staking Date	Expiration Date	Owner (according to GESTIM)
503	2418195	32B14	56.50	CDC	Active	12/2/2014	12/1/2018	Minière Osisko inc.
504	2418196	32B14	56.50	CDC	Active	12/2/2014	12/1/2018	Minière Osisko inc.
505	2418197	32B14	56.50	CDC	Active	12/2/2014	12/1/2018	Minière Osisko inc.
506	2418198	32B14	56.50	CDC	Active	12/2/2014	12/1/2018	Minière Osisko inc.
507	2418199	32B14	56.49	CDC	Active	12/2/2014	12/1/2018	Minière Osisko inc.
508	2418200	32B14	56.49	CDC	Active	12/2/2014	12/1/2018	Minière Osisko inc.
509	2418201	32B14	56.49	CDC	Active	12/2/2014	12/1/2018	Minière Osisko inc.
510	2418202	32B14	56.49	CDC	Active	12/2/2014	12/1/2018	Minière Osisko inc.
511	2418203	32B14	56.49	CDC	Active	12/2/2014	12/1/2018	Minière Osisko inc.
512	2418204	32B14	56.49	CDC	Active	12/2/2014	12/1/2018	Minière Osisko inc.
513	2418205	32B14	56.49	CDC	Active	12/2/2014	12/1/2018	Minière Osisko inc.
514	2418206	32B14	56.49	CDC	Active	12/2/2014	12/1/2018	Minière Osisko inc.
515	2418207	32B14	56.49	CDC	Active	12/2/2014	12/1/2018	Minière Osisko inc.
516	2418208	32B14	56.49	CDC	Active	12/2/2014	12/1/2018	Minière Osisko inc.
517	2418209	32B14	56.48	CDC	Active	12/2/2014	12/1/2018	Minière Osisko inc.
518	2418210	32B14	56.48	CDC	Active	12/2/2014	12/1/2018	Minière Osisko inc.
519	2418211	32B14	56.48	CDC	Active	12/2/2014	12/1/2018	Minière Osisko inc.
520	2418212	32B14	56.48	CDC	Active	12/2/2014	12/1/2018	Minière Osisko inc.
521	2418213	32B14	56.48	CDC	Active	12/2/2014	12/1/2018	Minière Osisko inc.
522	2418214	32B14	56.48	CDC	Active	12/2/2014	12/1/2018	Minière Osisko inc.
523	2418215	32B14	56.48	CDC	Active	12/2/2014	12/1/2018	Minière Osisko inc.
524	2418216	32B14	56.48	CDC	Active	12/2/2014	12/1/2018	Minière Osisko inc.
525	2418217	32B14	56.48	CDC	Active	12/2/2014	12/1/2018	Minière Osisko inc.
526	2418218	32B14	56.48	CDC	Active	12/2/2014	12/1/2018	Minière Osisko inc.
527	2418219	32B14	56.47	CDC	Active	12/2/2014	12/1/2018	Minière Osisko inc.
528	2418220	32B14	56.47	CDC	Active	12/2/2014	12/1/2018	Minière Osisko inc.
529	2418221	32B14	56.47	CDC	Active	12/2/2014	12/1/2018	Minière Osisko inc.
530	2418222	32B14	56.47	CDC	Active	12/2/2014	12/1/2018	Minière Osisko inc.
531	2418223	32B14	56.47	CDC	Active	12/2/2014	12/1/2018	Minière Osisko inc.
532	2418224	32B14	56.47	CDC	Active	12/2/2014	12/1/2018	Minière Osisko inc.
533	2418225	32B14	56.47	CDC	Active	12/2/2014	12/1/2018	Minière Osisko inc.
534	2418226	32B14	56.47	CDC	Active	12/2/2014	12/1/2018	Minière Osisko inc.
535	2418227	32B14	56.47	CDC	Active	12/2/2014	12/1/2018	Minière Osisko inc.
536	2418228	32B14	56.47	CDC	Active	12/2/2014	12/1/2018	Minière Osisko inc.
537	2418229	32B14	56.47	CDC	Active	12/2/2014	12/1/2018	Minière Osisko inc.
538	2418370	32G03	56.41	CDC	Active	12/3/2014	12/2/2018	Minière Osisko inc.
539	2418371	32G03	56.40	CDC	Active	12/3/2014	12/2/2018	Minière Osisko inc.
540	2418372	32G03	56.40	CDC	Active	12/3/2014	12/2/2018	Minière Osisko inc.
541	2418373	32G03	56.40	CDC	Active	12/3/2014	12/2/2018	Minière Osisko inc.
542	2418374	32G03	56.40	CDC	Active	12/3/2014	12/2/2018	Minière Osisko inc.
543	2418375	32G03	56.38	CDC	Active	12/3/2014	12/2/2018	Minière Osisko inc.
544	2418376	32G03	56.37	CDC	Active	12/3/2014	12/2/2018	Minière Osisko inc.

Item	Title	NTS	Area (ha)	Type	Status	Staking Date	Expiration Date	Owner (according to GESTIM)
545	2418377	32G03	56.37	CDC	Active	12/3/2014	12/2/2018	Minière Osisko inc.
546	2418378	32G03	56.34	CDC	Active	12/3/2014	12/2/2018	Minière Osisko inc.
547	2418379	32G03	56.34	CDC	Active	12/3/2014	12/2/2018	Minière Osisko inc.
548	2418380	32G03	56.34	CDC	Active	12/3/2014	12/2/2018	Minière Osisko inc.
549	2418381	32G03	56.34	CDC	Active	12/3/2014	12/2/2018	Minière Osisko inc.
550	2418382	32G03	56.34	CDC	Active	12/3/2014	12/2/2018	Minière Osisko inc.
551	2418383	32G03	56.34	CDC	Active	12/3/2014	12/2/2018	Minière Osisko inc.
552	2418384	32G03	56.34	CDC	Active	12/3/2014	12/2/2018	Minière Osisko inc.
553	2418385	32G03	56.34	CDC	Active	12/3/2014	12/2/2018	Minière Osisko inc.
554	2418386	32G03	56.33	CDC	Active	12/3/2014	12/2/2018	Minière Osisko inc.
555	2418387	32G03	56.33	CDC	Active	12/3/2014	12/2/2018	Minière Osisko inc.
556	2418388	32G03	56.33	CDC	Active	12/3/2014	12/2/2018	Minière Osisko inc.
557	2418389	32G03	56.33	CDC	Active	12/3/2014	12/2/2018	Minière Osisko inc.
558	2418390	32G03	56.33	CDC	Active	12/3/2014	12/2/2018	Minière Osisko inc.
559	2418391	32G03	56.32	CDC	Active	12/3/2014	12/2/2018	Minière Osisko inc.
560	2418392	32G03	56.32	CDC	Active	12/3/2014	12/2/2018	Minière Osisko inc.
561	2418393	32G03	56.32	CDC	Active	12/3/2014	12/2/2018	Minière Osisko inc.
562	2418394	32G03	56.32	CDC	Active	12/3/2014	12/2/2018	Minière Osisko inc.
563	2418395	32G03	56.32	CDC	Active	12/3/2014	12/2/2018	Minière Osisko inc.
564	2418396	32G03	56.32	CDC	Active	12/3/2014	12/2/2018	Minière Osisko inc.
565	2418397	32G03	56.32	CDC	Active	12/3/2014	12/2/2018	Minière Osisko inc.
566	2418398	32G03	56.32	CDC	Active	12/3/2014	12/2/2018	Minière Osisko inc.
567	2418399	32G03	56.32	CDC	Active	12/3/2014	12/2/2018	Minière Osisko inc.
568	2418400	32G03	56.32	CDC	Active	12/3/2014	12/2/2018	Minière Osisko inc.
569	2418401	32G03	56.31	CDC	Active	12/3/2014	12/2/2018	Minière Osisko inc.
570	2418402	32G03	56.31	CDC	Active	12/3/2014	12/2/2018	Minière Osisko inc.
571	2418403	32G03	56.31	CDC	Active	12/3/2014	12/2/2018	Minière Osisko inc.
572	2418404	32G03	56.31	CDC	Active	12/3/2014	12/2/2018	Minière Osisko inc.
573	2418405	32G03	56.31	CDC	Active	12/3/2014	12/2/2018	Minière Osisko inc.
574	2418406	32G03	56.31	CDC	Active	12/3/2014	12/2/2018	Minière Osisko inc.
575	2418407	32G03	56.31	CDC	Active	12/3/2014	12/2/2018	Minière Osisko inc.
576	2418408	32G03	56.31	CDC	Active	12/3/2014	12/2/2018	Minière Osisko inc.
577	2418409	32G03	56.31	CDC	Active	12/3/2014	12/2/2018	Minière Osisko inc.
578	2418410	32G03	56.46	CDC	Active	12/3/2014	12/2/2018	Minière Osisko inc.
579	2418411	32G03	56.46	CDC	Active	12/3/2014	12/2/2018	Minière Osisko inc.
580	2418412	32G03	56.46	CDC	Active	12/3/2014	12/2/2018	Minière Osisko inc.
581	2418413	32G03	56.46	CDC	Active	12/3/2014	12/2/2018	Minière Osisko inc.
582	2418414	32G03	56.46	CDC	Active	12/3/2014	12/2/2018	Minière Osisko inc.
583	2418415	32G03	56.46	CDC	Active	12/3/2014	12/2/2018	Minière Osisko inc.
584	2418416	32G03	56.46	CDC	Active	12/3/2014	12/2/2018	Minière Osisko inc.
585	2418417	32G03	56.46	CDC	Active	12/3/2014	12/2/2018	Minière Osisko inc.
586	2418418	32G03	56.46	CDC	Active	12/3/2014	12/2/2018	Minière Osisko inc.

Item	Title	NTS	Area (ha)	Type	Status	Staking Date	Expiration Date	Owner (according to GESTIM)
587	2418419	32G03	56.46	CDC	Active	12/3/2014	12/2/2018	Minière Osisko inc.
588	2418420	32G03	56.46	CDC	Active	12/3/2014	12/2/2018	Minière Osisko inc.
589	2418421	32G03	56.46	CDC	Active	12/3/2014	12/2/2018	Minière Osisko inc.
590	2418422	32G03	56.46	CDC	Active	12/3/2014	12/2/2018	Minière Osisko inc.
591	2418423	32G03	56.45	CDC	Active	12/3/2014	12/2/2018	Minière Osisko inc.
592	2418424	32G03	56.45	CDC	Active	12/3/2014	12/2/2018	Minière Osisko inc.
593	2418425	32G03	56.45	CDC	Active	12/3/2014	12/2/2018	Minière Osisko inc.
594	2418426	32G03	56.45	CDC	Active	12/3/2014	12/2/2018	Minière Osisko inc.
595	2418427	32G03	56.45	CDC	Active	12/3/2014	12/2/2018	Minière Osisko inc.
596	2418428	32G03	56.45	CDC	Active	12/3/2014	12/2/2018	Minière Osisko inc.
597	2418429	32G03	56.45	CDC	Active	12/3/2014	12/2/2018	Minière Osisko inc.
598	2418430	32G03	56.45	CDC	Active	12/3/2014	12/2/2018	Minière Osisko inc.
599	2418431	32G03	56.45	CDC	Active	12/3/2014	12/2/2018	Minière Osisko inc.
600	2418432	32G03	56.45	CDC	Active	12/3/2014	12/2/2018	Minière Osisko inc.
601	2418433	32G03	56.43	CDC	Active	12/3/2014	12/2/2018	Minière Osisko inc.
602	2418434	32G03	56.42	CDC	Active	12/3/2014	12/2/2018	Minière Osisko inc.
603	2418435	32G03	56.42	CDC	Active	12/3/2014	12/2/2018	Minière Osisko inc.
604	2418436	32G03	56.39	CDC	Active	12/3/2014	12/2/2018	Minière Osisko inc.
605	2418437	32G03	56.39	CDC	Active	12/3/2014	12/2/2018	Minière Osisko inc.
606	2418438	32G03	56.39	CDC	Active	12/3/2014	12/2/2018	Minière Osisko inc.
607	2418439	32G03	56.35	CDC	Active	12/3/2014	12/2/2018	Minière Osisko inc.
608	2418440	32G03	56.35	CDC	Active	12/3/2014	12/2/2018	Minière Osisko inc.
609	2418441	32G03	56.35	CDC	Active	12/3/2014	12/2/2018	Minière Osisko inc.
610	2418442	32G03	56.35	CDC	Active	12/3/2014	12/2/2018	Minière Osisko inc.
611	2418443	32G03	56.35	CDC	Active	12/3/2014	12/2/2018	Minière Osisko inc.
612	2418444	32G03	56.34	CDC	Active	12/3/2014	12/2/2018	Minière Osisko inc.
613	2418445	32G03	56.34	CDC	Active	12/3/2014	12/2/2018	Minière Osisko inc.
614	2418446	32G03	56.34	CDC	Active	12/3/2014	12/2/2018	Minière Osisko inc.
615	2418447	32G03	56.34	CDC	Active	12/3/2014	12/2/2018	Minière Osisko inc.
616	2418448	32G03	56.34	CDC	Active	12/3/2014	12/2/2018	Minière Osisko inc.
617	2418449	32G03	56.34	CDC	Active	12/3/2014	12/2/2018	Minière Osisko inc.
618	2418450	32G03	56.42	CDC	Active	12/3/2014	12/2/2018	Minière Osisko inc.
619	2418451	32G03	56.41	CDC	Active	12/3/2014	12/2/2018	Minière Osisko inc.
620	2418452	32G03	56.41	CDC	Active	12/3/2014	12/2/2018	Minière Osisko inc.
621	2418453	32G03	56.38	CDC	Active	12/3/2014	12/2/2018	Minière Osisko inc.
622	2418454	32G03	56.38	CDC	Active	12/3/2014	12/2/2018	Minière Osisko inc.
623	2418455	32G03	56.37	CDC	Active	12/3/2014	12/2/2018	Minière Osisko inc.
624	2418456	32G03	56.37	CDC	Active	12/3/2014	12/2/2018	Minière Osisko inc.
625	2418457	32G03	56.37	CDC	Active	12/3/2014	12/2/2018	Minière Osisko inc.
626	2418458	32G03	56.36	CDC	Active	12/3/2014	12/2/2018	Minière Osisko inc.
627	2418459	32G03	56.36	CDC	Active	12/3/2014	12/2/2018	Minière Osisko inc.
628	2418460	32G03	56.36	CDC	Active	12/3/2014	12/2/2018	Minière Osisko inc.

Item	Title	NTS	Area (ha)	Type	Status	Staking Date	Expiration Date	Owner (according to GESTIM)
629	2418461	32G03	56.35	CDC	Active	12/3/2014	12/2/2018	Minière Osisko inc.
630	2418462	32G03	56.35	CDC	Active	12/3/2014	12/2/2018	Minière Osisko inc.
631	2418463	32G03	56.35	CDC	Active	12/3/2014	12/2/2018	Minière Osisko inc.
632	2418464	32G03	56.35	CDC	Active	12/3/2014	12/2/2018	Minière Osisko inc.
633	2418465	32G03	56.35	CDC	Active	12/3/2014	12/2/2018	Minière Osisko inc.
634	2418466	32G03	56.35	CDC	Active	12/3/2014	12/2/2018	Minière Osisko inc.
635	2418467	32G03	56.34	CDC	Active	12/3/2014	12/2/2018	Minière Osisko inc.
636	2418468	32G03	56.34	CDC	Active	12/3/2014	12/2/2018	Minière Osisko inc.
637	2418469	32G03	56.34	CDC	Active	12/3/2014	12/2/2018	Minière Osisko inc.
638	2418470	32G03	56.34	CDC	Active	12/3/2014	12/2/2018	Minière Osisko inc.
639	2418471	32G03	56.34	CDC	Active	12/3/2014	12/2/2018	Minière Osisko inc.
640	2418472	32G03	56.34	CDC	Active	12/3/2014	12/2/2018	Minière Osisko inc.
641	2418473	32G03	56.34	CDC	Active	12/3/2014	12/2/2018	Minière Osisko inc.
642	2418474	32G03	56.34	CDC	Active	12/3/2014	12/2/2018	Minière Osisko inc.
643	2418475	32G03	56.34	CDC	Active	12/3/2014	12/2/2018	Minière Osisko inc.
644	2418476	32G03	56.34	CDC	Active	12/3/2014	12/2/2018	Minière Osisko inc.
645	2418477	32G03	56.34	CDC	Active	12/3/2014	12/2/2018	Minière Osisko inc.
646	2418478	32G03	56.33	CDC	Active	12/3/2014	12/2/2018	Minière Osisko inc.
647	2418479	32G03	56.33	CDC	Active	12/3/2014	12/2/2018	Minière Osisko inc.
648	2418480	32G03	56.33	CDC	Active	12/3/2014	12/2/2018	Minière Osisko inc.
649	2418481	32G03	56.33	CDC	Active	12/3/2014	12/2/2018	Minière Osisko inc.
650	2418482	32G03	56.33	CDC	Active	12/3/2014	12/2/2018	Minière Osisko inc.
651	2418483	32G03	56.33	CDC	Active	12/3/2014	12/2/2018	Minière Osisko inc.
652	2418484	32G03	56.33	CDC	Active	12/3/2014	12/2/2018	Minière Osisko inc.
653	2418485	32G03	56.33	CDC	Active	12/3/2014	12/2/2018	Minière Osisko inc.
654	2418486	32G03	56.33	CDC	Active	12/3/2014	12/2/2018	Minière Osisko inc.
655	2418487	32G03	56.33	CDC	Active	12/3/2014	12/2/2018	Minière Osisko inc.
656	2418488	32G03	56.33	CDC	Active	12/3/2014	12/2/2018	Minière Osisko inc.
657	2418540	32G03	56.46	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
658	2418541	32G03	56.46	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
659	2418542	32G03	56.46	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
660	2418543	32G03	56.45	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
661	2418544	32G03	56.45	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
662	2418545	32G03	56.44	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
663	2418546	32G03	56.44	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
664	2418547	32G03	56.44	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
665	2418548	32G03	56.44	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
666	2418549	32G03	56.44	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
667	2418550	32G03	56.42	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
668	2418551	32G03	56.42	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
669	2418552	32G03	56.42	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
670	2418553	32G03	56.42	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.

Item	Title	NTS	Area (ha)	Type	Status	Staking Date	Expiration Date	Owner (according to GESTIM)
671	2418554	32G03	56.41	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
672	2418555	32G03	56.40	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
673	2418556	32G03	56.40	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
674	2418557	32G03	56.40	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
675	2418558	32G03	56.40	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
676	2418559	32G03	56.40	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
677	2418560	32G03	56.40	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
678	2418561	32G03	56.39	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
679	2418562	32G03	56.39	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
680	2418563	32G03	56.38	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
681	2418564	32G03	56.37	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
682	2418565	32G03	56.36	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
683	2418566	32G03	56.35	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
684	2418567	32G03	56.33	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
685	2418568	32G03	56.33	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
686	2418569	32G03	56.33	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
687	2418570	32G03	56.33	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
688	2418571	32G03	56.33	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
689	2418572	32G03	56.33	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
690	2418573	32G03	56.33	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
691	2418574	32G03	56.33	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
692	2418575	32G03	56.33	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
693	2418576	32G03	56.33	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
694	2418577	32G03	56.33	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
695	2418578	32G04	56.32	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
696	2418579	32G04	56.32	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
697	2418580	32G04	56.32	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
698	2418581	32G04	56.32	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
699	2418582	32G04	56.32	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
700	2418583	32G04	56.31	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
701	2418584	32G04	56.31	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
702	2418585	32G04	56.31	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
703	2418586	32G04	56.31	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
704	2418587	32G04	56.31	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
705	2418588	32G04	56.31	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
706	2418589	32G04	56.30	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
707	2418590	32G04	56.30	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
708	2418591	32G04	56.30	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
709	2418592	32G04	56.30	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
710	2418593	32G04	56.30	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
711	2418594	32G04	56.30	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
712	2418595	32G04	56.30	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.

Item	Title	NTS	Area (ha)	Type	Status	Staking Date	Expiration Date	Owner (according to GESTIM)
713	2418596	32G04	56.30	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
714	2418597	32G04	56.29	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
715	2418598	32G04	56.29	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
716	2418599	32G04	56.29	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
717	2418600	32G04	56.29	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
718	2418601	32G04	56.29	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
719	2418602	32G04	56.29	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
720	2418603	32G04	56.29	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
721	2418604	32G04	56.29	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
722	2418605	32G04	56.28	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
723	2418606	32G04	56.28	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
724	2418607	32G04	56.28	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
725	2418608	32G04	56.28	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
726	2418609	32G04	56.28	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
727	2418610	32G04	56.28	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
728	2418611	32G04	56.28	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
729	2418612	32G04	56.28	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
730	2418613	32G04	56.28	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
731	2418614	32G04	56.28	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
732	2418615	32G04	56.28	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
733	2418616	32G04	56.27	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
734	2418617	32G04	56.27	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
735	2418618	32B13	56.62	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
736	2418619	32B13	56.62	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
737	2418620	32B13	56.62	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
738	2418621	32B13	56.62	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
739	2418622	32B13	56.62	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
740	2418623	32B13	56.62	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
741	2418624	32B13	56.61	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
742	2418625	32B13	56.61	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
743	2418626	32B13	56.61	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
744	2418627	32B13	56.61	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
745	2418628	32B13	56.61	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
746	2418629	32B13	56.61	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
747	2418630	32B13	56.61	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
748	2418631	32B13	56.61	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
749	2418632	32B13	56.61	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
750	2418633	32B13	56.61	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
751	2418634	32B13	56.61	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
752	2418635	32B13	56.61	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
753	2418636	32B13	56.61	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
754	2418637	32B13	56.61	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.

Item	Title	NTS	Area (ha)	Type	Status	Staking Date	Expiration Date	Owner (according to GESTIM)
755	2418638	32B13	56.61	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
756	2418639	32B13	56.61	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
757	2418640	32B13	56.60	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
758	2418641	32B13	56.60	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
759	2418642	32B13	56.60	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
760	2418643	32B13	56.60	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
761	2418644	32B13	56.60	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
762	2418645	32B13	56.59	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
763	2418646	32B13	56.58	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
764	2418647	32B13	56.58	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
765	2418648	32B13	56.58	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
766	2418649	32B13	56.57	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
767	2418650	32B13	56.57	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
768	2418651	32B13	56.57	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
769	2418652	32B13	56.57	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
770	2418653	32B13	56.57	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
771	2418654	32B13	56.57	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
772	2418655	32B13	56.56	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
773	2418656	32B13	56.56	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
774	2418657	32B13	56.56	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
775	2418658	32B13	56.56	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
776	2418659	32B13	56.56	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
777	2418660	32B13	56.55	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
778	2418661	32B13	56.55	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
779	2418662	32B13	56.55	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
780	2418663	32B13	56.55	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
781	2418664	32B13	56.53	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
782	2418665	32B13	56.53	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
783	2418666	32B13	56.53	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
784	2418667	32B13	56.53	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
785	2418668	32F01	56.44	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
786	2418669	32F01	56.44	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
787	2418670	32F01	56.43	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
788	2418671	32F01	56.43	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
789	2418672	32F01	56.43	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
790	2418673	32F01	56.42	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
791	2418674	32F01	56.42	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
792	2418675	32F01	56.42	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
793	2418676	32F01	56.42	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
794	2418677	32F01	56.42	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
795	2418678	32F01	56.42	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
796	2418679	32F01	56.40	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.

Item	Title	NTS	Area (ha)	Type	Status	Staking Date	Expiration Date	Owner (according to GESTIM)
797	2418680	32F01	56.39	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
798	2418681	32F01	56.39	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
799	2418682	32F01	56.39	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
800	2418683	32F01	56.39	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
801	2418684	32F01	56.38	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
802	2418685	32F01	56.38	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
803	2418686	32F01	56.38	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
804	2418687	32F01	56.38	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
805	2418688	32F01	56.38	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
806	2418689	32F01	56.37	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
807	2418690	32F01	56.37	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
808	2418691	32F01	56.37	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
809	2418692	32F01	56.37	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
810	2418693	32F01	56.37	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
811	2418694	32F01	56.37	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
812	2418695	32F01	56.37	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
813	2418696	32F01	56.37	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
814	2418697	32F01	56.36	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
815	2418698	32F01	56.36	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
816	2418699	32F01	56.36	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
817	2418700	32F01	56.36	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
818	2418701	32F01	56.36	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
819	2418702	32F01	56.36	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
820	2418703	32F01	56.36	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
821	2418704	32F01	56.36	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
822	2418705	32F01	56.36	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
823	2418706	32F01	56.36	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
824	2418707	32F01	56.32	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
825	2418708	32G03	56.41	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
826	2418709	32G03	56.41	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
827	2418710	32G03	56.40	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
828	2418711	32G03	56.38	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
829	2418712	32G03	56.36	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
830	2418713	32G03	56.36	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
831	2418714	32G03	56.34	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
832	2418715	32G03	56.33	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
833	2418716	32G03	56.33	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
834	2418717	32G03	56.33	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
835	2418718	32G03	56.33	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
836	2418719	32G03	56.33	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
837	2418720	32G03	56.32	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
838	2418721	32G03	56.32	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.

Item	Title	NTS	Area (ha)	Type	Status	Staking Date	Expiration Date	Owner (according to GESTIM)
839	2418722	32G03	56.32	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
840	2418723	32G03	56.32	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
841	2418724	32G03	56.31	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
842	2418725	32G03	56.31	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
843	2418726	32G03	56.31	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
844	2418727	32G03	56.31	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
845	2418728	32G03	56.31	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
846	2418729	32G03	56.31	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
847	2418730	32G03	56.31	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
848	2418731	32G03	56.31	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
849	2418732	32G03	56.31	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
850	2418733	32G03	56.30	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
851	2418734	32G03	56.30	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
852	2418735	32G03	56.30	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
853	2418736	32G03	56.30	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
854	2418737	32G03	56.30	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
855	2418738	32G03	56.30	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
856	2418739	32G03	56.29	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
857	2418740	32G03	56.29	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
858	2418741	32G03	56.29	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
859	2418742	32G03	56.29	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
860	2418743	32G03	56.29	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
861	2418744	32G03	56.28	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
862	2418745	32G03	56.28	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
863	2418746	32G03	56.27	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
864	2418747	32G03	56.27	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
865	2418748	32G03	56.38	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
866	2418749	32G03	56.34	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
867	2418750	32G03	56.34	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
868	2418751	32G03	56.34	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
869	2418752	32G03	56.34	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
870	2418753	32G03	56.34	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
871	2418754	32G03	56.34	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
872	2418755	32G03	56.34	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
873	2418756	32G03	56.33	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
874	2418757	32G03	56.33	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
875	2418758	32G03	56.33	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
876	2418759	32G03	56.32	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
877	2418760	32G03	56.32	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
878	2418761	32G03	56.32	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
879	2418762	32G03	56.32	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
880	2418763	32G03	56.32	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.

Item	Title	NTS	Area (ha)	Type	Status	Staking Date	Expiration Date	Owner (according to GESTIM)
881	2418764	32G03	56.32	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
882	2418765	32G03	56.31	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
883	2418766	32G03	56.31	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
884	2418767	32G03	56.31	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
885	2418768	32G03	56.31	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
886	2418769	32G03	56.31	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
887	2418770	32G03	56.30	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
888	2418771	32G03	56.30	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
889	2418772	32G03	56.30	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
890	2418773	32G03	56.30	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
891	2418774	32G03	56.30	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
892	2418775	32G03	56.29	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
893	2418776	32G03	56.29	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
894	2418777	32G03	56.29	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
895	2418778	32G03	56.28	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
896	2418779	32G03	56.28	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
897	2418780	32G03	56.28	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
898	2418781	32G03	56.27	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
899	2418782	32G03	56.27	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
900	2418783	32G03	56.27	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
901	2418784	32G03	56.26	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
902	2418785	32G03	56.26	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
903	2418786	32G03	56.26	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
904	2418787	32G04	56.44	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
905	2418789	32G04	56.45	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
906	2418790	32G04	56.45	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
907	2418791	32G04	56.45	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
908	2418792	32G04	56.44	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
909	2418793	32G04	56.44	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
910	2418794	32G04	56.44	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
911	2418795	32G04	56.43	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
912	2418796	32G04	56.43	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
913	2418797	32G04	56.43	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
914	2418798	32G04	56.40	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
915	2418799	32G04	56.39	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
916	2418800	32G04	56.39	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
917	2418801	32G04	56.39	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
918	2418802	32G04	56.39	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
919	2418803	32G04	56.39	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
920	2418804	32G04	56.39	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
921	2418805	32G04	56.39	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
922	2418806	32G04	56.39	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.

Item	Title	NTS	Area (ha)	Type	Status	Staking Date	Expiration Date	Owner (according to GESTIM)
923	2418807	32G04	56.39	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
924	2418808	32G04	56.38	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
925	2418809	32G04	56.38	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
926	2418810	32G04	56.38	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
927	2418811	32G04	56.38	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
928	2418812	32G04	56.38	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
929	2418813	32G04	56.38	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
930	2418814	32G04	56.38	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
931	2418815	32G04	56.38	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
932	2418816	32G04	56.38	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
933	2418817	32G04	56.38	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
934	2418818	32G04	56.38	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
935	2418819	32G04	56.38	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
936	2418820	32G04	56.37	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
937	2418821	32G04	56.37	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
938	2418822	32G04	56.37	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
939	2418823	32G04	56.37	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
940	2418824	32G04	56.37	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
941	2418825	32G04	56.37	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
942	2418826	32G04	56.37	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
943	2418827	32G04	56.37	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
944	2418828	32G04	56.37	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
945	2418829	32G04	56.37	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
946	2418830	32G04	56.37	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
947	2418831	32G04	56.37	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
948	2418832	32G04	56.37	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
949	2418833	32G04	56.37	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
950	2418834	32G04	56.37	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
951	2418835	32G04	56.37	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
952	2418836	32G04	56.37	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
953	2418837	32G04	56.36	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
954	2418838	32G04	56.36	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
955	2418839	32G04	56.36	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
956	2418840	32G04	56.36	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
957	2418841	32G04	56.36	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
958	2418842	32G04	56.36	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
959	2418843	32G04	56.36	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
960	2418844	32G04	56.36	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
961	2418845	32G04	56.36	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
962	2418846	32G04	56.36	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
963	2418847	32G04	56.36	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
964	2418848	32G04	56.36	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.

Item	Title	NTS	Area (ha)	Type	Status	Staking Date	Expiration Date	Owner (according to GESTIM)
965	2418849	32G04	56.35	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
966	2418850	32G04	56.35	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
967	2418851	32G04	56.32	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
968	2418852	32G04	56.31	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
969	2418853	32G04	56.31	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
970	2418854	32G04	56.31	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
971	2418855	32G04	56.31	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
972	2418856	32G04	56.31	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
973	2418857	32G04	56.31	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
974	2418858	32G04	56.30	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
975	2418859	32G04	56.30	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
976	2418860	32G04	56.30	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
977	2418861	32G04	56.28	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
978	2418862	32G04	56.28	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
979	2418863	32G04	56.36	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
980	2418864	32G04	56.36	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
981	2418865	32G04	56.35	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
982	2418866	32G04	56.35	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
983	2418867	32G04	56.35	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
984	2418868	32G04	56.35	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
985	2418869	32G04	56.35	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
986	2418870	32G04	56.35	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
987	2418871	32G04	56.35	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
988	2418872	32G04	56.35	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
989	2418873	32G04	56.35	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
990	2418874	32G04	56.35	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
991	2418875	32G04	56.35	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
992	2418876	32G04	56.35	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
993	2418877	32G04	56.35	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
994	2418878	32G04	56.35	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
995	2418879	32G04	56.35	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
996	2418880	32G04	56.35	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
997	2418881	32G04	56.34	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
998	2418882	32G04	56.34	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
999	2418883	32G04	56.34	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
1000	2418884	32G04	56.34	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
1001	2418885	32G04	56.34	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
1002	2418886	32G04	56.34	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
1003	2418887	32G04	56.34	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
1004	2418888	32G04	56.34	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
1005	2418889	32G04	56.34	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
1006	2418890	32G04	56.34	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.

Item	Title	NTS	Area (ha)	Type	Status	Staking Date	Expiration Date	Owner (according to GESTIM)
1007	2418891	32G04	56.34	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
1008	2418892	32G04	56.34	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
1009	2418893	32G04	56.34	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
1010	2418894	32G04	56.34	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
1011	2418895	32G04	56.34	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
1012	2418896	32G04	56.34	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
1013	2418897	32G04	56.34	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
1014	2418898	32G04	56.33	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
1015	2418899	32G04	56.33	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
1016	2418900	32G04	56.33	CDC	Active	12/4/2014	12/3/2018	Minière Osisko inc.
1017	2418912	32G03	56.44	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1018	2418913	32G03	56.44	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1019	2418914	32G03	56.44	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1020	2418915	32G03	56.43	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1021	2418916	32G03	56.43	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1022	2418917	32G03	56.43	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1023	2418918	32G03	56.43	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1024	2418919	32G03	56.43	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1025	2418920	32G03	56.43	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1026	2418921	32G03	56.43	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1027	2418922	32G03	56.43	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1028	2418923	32G03	56.42	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1029	2418924	32G03	56.42	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1030	2418925	32G03	56.42	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1031	2418926	32G03	56.42	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1032	2418927	32G03	56.42	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1033	2418928	32G03	56.42	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1034	2418929	32G03	56.42	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1035	2418930	32G03	56.42	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1036	2418931	32G03	56.42	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1037	2418932	32G03	56.42	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1038	2418933	32G03	56.41	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1039	2418934	32G03	56.41	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1040	2418935	32G03	56.41	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1041	2418936	32G03	56.41	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1042	2418937	32G03	56.41	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1043	2418938	32G03	56.41	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1044	2418939	32G03	56.41	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1045	2418940	32G03	56.41	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1046	2418941	32G03	56.40	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1047	2418942	32G03	56.40	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1048	2418943	32G03	56.40	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.

Item	Title	NTS	Area (ha)	Type	Status	Staking Date	Expiration Date	Owner (according to GESTIM)
1049	2418944	32G03	56.40	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1050	2418945	32G03	56.40	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1051	2418946	32G03	56.40	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1052	2418947	32G03	56.40	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1053	2418948	32G03	56.40	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1054	2418949	32G03	56.39	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1055	2418950	32G03	56.39	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1056	2418951	32G03	56.39	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1057	2418953	32B13	56.61	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1058	2418955	32B13	56.60	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1059	2418956	32B13	56.60	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1060	2418957	32B13	56.60	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1061	2418958	32B13	56.60	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1062	2418959	32B13	56.60	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1063	2418962	32B13	56.59	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1064	2418963	32B13	56.59	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1065	2418964	32B13	56.59	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1066	2418965	32B13	56.59	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1067	2418966	32B13	56.59	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1068	2418970	32B13	56.58	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1069	2418971	32B13	56.58	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1070	2418972	32B13	56.58	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1071	2418973	32B13	56.58	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1072	2418974	32B13	56.58	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1073	2418978	32B13	56.57	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1074	2418979	32B13	56.57	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1075	2418980	32B13	56.57	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1076	2418981	32B13	56.57	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1077	2418982	32B13	56.57	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1078	2418986	32B13	56.56	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1079	2418987	32B13	56.56	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1080	2418988	32B13	56.56	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1081	2418989	32B13	56.56	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1082	2418990	32B13	56.56	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1083	2418991	32B13	56.56	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1084	2418992	32G03	56.46	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1085	2418993	32G03	56.46	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1086	2418994	32G03	56.46	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1087	2418995	32G03	56.46	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1088	2418996	32G03	56.46	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1089	2418997	32G03	56.46	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1090	2418998	32G03	56.46	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.

Item	Title	NTS	Area (ha)	Type	Status	Staking Date	Expiration Date	Owner (according to GESTIM)
1091	2418999	32G03	56.46	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1092	2419000	32G03	56.45	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1093	2419001	32G03	56.45	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1094	2419002	32G03	56.45	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1095	2419003	32G03	56.45	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1096	2419004	32G03	56.45	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1097	2419005	32G03	56.45	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1098	2419006	32G03	56.45	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1099	2419007	32G03	56.45	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1100	2419008	32G03	56.45	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1101	2419009	32G03	56.45	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1102	2419010	32G03	56.45	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1103	2419011	32G03	56.45	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1104	2419012	32G03	56.45	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1105	2419013	32G03	56.44	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1106	2419014	32G03	56.44	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1107	2419015	32G03	56.44	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1108	2419016	32G03	56.43	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1109	2419017	32G03	56.43	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1110	2419018	32G03	56.43	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1111	2419019	32G03	56.42	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1112	2419020	32G03	56.42	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1113	2419021	32G03	56.42	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1114	2419022	32G03	56.42	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1115	2419023	32G03	56.41	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1116	2419024	32G03	56.41	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1117	2419025	32G03	56.41	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1118	2419026	32G03	56.40	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1119	2419027	32G03	56.40	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1120	2419028	32G03	56.40	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1121	2419029	32G03	56.39	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1122	2419030	32G03	56.39	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1123	2419031	32G03	56.35	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1124	2419032	32B14	56.54	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1125	2419033	32B14	56.54	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1126	2419034	32B14	56.54	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1127	2419035	32B14	56.54	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1128	2419036	32B14	56.54	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1129	2419037	32B14	56.54	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1130	2419038	32B14	56.54	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1131	2419039	32B14	56.54	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1132	2419040	32B14	56.54	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.

Item	Title	NTS	Area (ha)	Type	Status	Staking Date	Expiration Date	Owner (according to GESTIM)
1133	2419041	32B14	56.54	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1134	2419042	32B14	56.54	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1135	2419043	32B14	56.54	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1136	2419044	32B14	56.53	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1137	2419045	32B14	56.53	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1138	2419046	32B14	56.53	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1139	2419047	32B14	56.53	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1140	2419048	32B14	56.53	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1141	2419049	32B14	56.53	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1142	2419050	32B14	56.53	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1143	2419051	32B14	56.53	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1144	2419052	32B14	56.53	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1145	2419053	32B14	56.53	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1146	2419054	32B14	56.53	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1147	2419055	32B14	56.53	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1148	2419056	32B14	56.53	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1149	2419057	32B14	56.52	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1150	2419058	32B14	56.51	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1151	2419059	32B14	56.51	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1152	2419060	32B14	56.51	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1153	2419061	32B14	56.51	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1154	2419062	32B14	56.51	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1155	2419063	32B14	56.50	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1156	2419064	32B14	56.50	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1157	2419065	32B14	56.50	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1158	2419066	32B14	56.49	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1159	2419067	32B14	56.49	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1160	2419068	32B14	56.48	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1161	2419069	32B14	56.48	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1162	2419070	32B14	56.48	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1163	2419071	32B14	56.47	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1164	2419072	32B14	56.47	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1165	2419073	32B14	56.47	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1166	2419074	32B14	56.47	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1167	2419075	32B14	56.47	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1168	2419076	32G02	56.29	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1169	2419077	32G02	56.28	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1170	2419078	32G02	56.27	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1171	2419079	32G03	56.33	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1172	2419082	32F01	56.43	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1173	2419083	32F01	56.43	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1174	2419084	32F01	56.43	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.

Item	Title	NTS	Area (ha)	Type	Status	Staking Date	Expiration Date	Owner (according to GESTIM)
1175	2419085	32F01	56.43	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1176	2419086	32F01	56.42	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1177	2419087	32F01	56.42	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1178	2419088	32F01	56.42	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1179	2419089	32F01	56.42	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1180	2419090	32F01	56.41	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1181	2419091	32F01	56.41	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1182	2419092	32F01	56.41	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1183	2419093	32F01	56.41	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1184	2419094	32F01	56.40	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1185	2419095	32F01	56.40	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1186	2419096	32F01	56.40	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1187	2419097	32F01	56.40	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1188	2419109	32G04	56.40	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1189	2419110	32G04	56.40	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1190	2419111	32G04	56.40	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1191	2419112	32G04	56.40	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1192	2419113	32G04	56.39	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1193	2419114	32G04	56.39	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1194	2419115	32G04	56.39	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1195	2419116	32G04	56.39	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1196	2419117	32G04	56.39	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1197	2419118	32G04	56.39	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1198	2419119	32G04	56.38	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1199	2419120	32G04	56.38	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1200	2419121	32G04	56.38	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1201	2419122	32G04	56.38	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1202	2419123	32G04	56.38	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1203	2419124	32G04	56.38	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1204	2419125	32G04	56.38	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1205	2419126	32G04	56.38	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1206	2419127	32G04	56.37	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1207	2419128	32G04	56.37	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1208	2419129	32G04	56.37	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1209	2419130	32G04	56.37	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1210	2419131	32G04	56.37	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1211	2419132	32G04	56.36	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1212	2419133	32G04	56.36	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1213	2419134	32G04	56.36	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1214	2419135	32G04	56.36	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1215	2419136	32G04	56.36	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1216	2419137	32G04	56.36	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.

Item	Title	NTS	Area (ha)	Type	Status	Staking Date	Expiration Date	Owner (according to GESTIM)
1217	2419138	32G04	56.36	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1218	2419139	32G04	56.36	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1219	2419140	32G04	56.36	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1220	2419141	32G04	56.35	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1221	2419142	32G04	56.35	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1222	2419143	32G04	56.35	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1223	2419144	32G04	56.35	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1224	2419145	32G04	56.35	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1225	2419146	32G04	56.35	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1226	2419147	32G04	56.35	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1227	2419148	32G04	56.35	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1228	2419149	32G04	56.35	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1229	2419150	32B13	56.65	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1230	2419151	32B13	56.64	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1231	2419152	32B13	56.64	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1232	2419153	32B13	56.64	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1233	2419154	32B13	56.63	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1234	2419155	32B13	56.63	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1235	2419156	32B13	56.63	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1236	2419157	32B13	56.61	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1237	2419158	32B13	56.60	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1238	2419159	32B13	56.60	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1239	2419160	32B13	56.59	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1240	2419161	32B13	56.57	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1241	2419169	32B13	56.52	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1242	2419170	32B13	56.51	CDC	Active	12/5/2014	12/4/2018	Minière Osisko inc.
1243	2420621	32B13	56.63	CDC	Active	12/30/2014	12/29/2018	Minière Osisko inc.
1244	2420622	32B13	56.62	CDC	Active	12/30/2014	12/29/2018	Minière Osisko inc.
1245	2420623	32B13	56.62	CDC	Active	12/30/2014	12/29/2018	Minière Osisko inc.
1246	2420624	32B13	56.62	CDC	Active	12/30/2014	12/29/2018	Minière Osisko inc.
1247	2420625	32B13	56.62	CDC	Active	12/30/2014	12/29/2018	Minière Osisko inc.
1248	2420626	32B13	56.62	CDC	Active	12/30/2014	12/29/2018	Minière Osisko inc.
1249	2420627	32B13	56.62	CDC	Active	12/30/2014	12/29/2018	Minière Osisko inc.
1250	2420628	32B13	56.62	CDC	Active	12/30/2014	12/29/2018	Minière Osisko inc.
1251	2420629	32B13	56.62	CDC	Active	12/30/2014	12/29/2018	Minière Osisko inc.
1252	2420630	32B13	56.62	CDC	Active	12/30/2014	12/29/2018	Minière Osisko inc.
1253	2420631	32B13	56.62	CDC	Active	12/30/2014	12/29/2018	Minière Osisko inc.
1254	2420632	32B13	56.62	CDC	Active	12/30/2014	12/29/2018	Minière Osisko inc.
1255	2420633	32B13	56.56	CDC	Active	12/30/2014	12/29/2018	Minière Osisko inc.
1256	2420634	32B13	56.56	CDC	Active	12/30/2014	12/29/2018	Minière Osisko inc.
1257	2420636	32B13	56.55	CDC	Active	12/30/2014	12/29/2018	Minière Osisko inc.
1258	2420637	32B13	56.55	CDC	Active	12/30/2014	12/29/2018	Minière Osisko inc.

Item	Title	NTS	Area (ha)	Type	Status	Staking Date	Expiration Date	Owner (according to GESTIM)
1259	2420639	32B13	56.54	CDC	Active	12/30/2014	12/29/2018	Minière Osisko inc.
1260	2420640	32B13	56.54	CDC	Active	12/30/2014	12/29/2018	Minière Osisko inc.
1261	2420641	32B13	56.53	CDC	Active	12/30/2014	12/29/2018	Minière Osisko inc.
1262	2420642	32B13	56.53	CDC	Active	12/30/2014	12/29/2018	Minière Osisko inc.
1263	2420643	32B13	56.53	CDC	Active	12/30/2014	12/29/2018	Minière Osisko inc.
1264	2420646	32B13	56.52	CDC	Active	12/30/2014	12/29/2018	Minière Osisko inc.
1265	2420647	32B13	56.52	CDC	Active	12/30/2014	12/29/2018	Minière Osisko inc.
1266	2420648	32B13	56.52	CDC	Active	12/30/2014	12/29/2018	Minière Osisko inc.
1267	2420649	32B13	56.52	CDC	Active	12/30/2014	12/29/2018	Minière Osisko inc.
1268	2420650	32B13	56.52	CDC	Active	12/30/2014	12/29/2018	Minière Osisko inc.
1269	2420653	32B13	56.51	CDC	Active	12/30/2014	12/29/2018	Minière Osisko inc.
1270	2420654	32B13	56.51	CDC	Active	12/30/2014	12/29/2018	Minière Osisko inc.
1271	2420655	32B13	56.51	CDC	Active	12/30/2014	12/29/2018	Minière Osisko inc.
1272	2420656	32B13	56.51	CDC	Active	12/30/2014	12/29/2018	Minière Osisko inc.
1273	2420657	32B13	56.51	CDC	Active	12/30/2014	12/29/2018	Minière Osisko inc.
1274	2420662	32F01	56.39	CDC	Active	12/30/2014	12/29/2018	Minière Osisko inc.
1275	2420663	32F01	56.38	CDC	Active	12/30/2014	12/29/2018	Minière Osisko inc.
1276	2420664	32G03	56.32	CDC	Active	12/30/2014	12/29/2018	Minière Osisko inc.
1277	2420665	32G03	56.32	CDC	Active	12/30/2014	12/29/2018	Minière Osisko inc.
1278	2420672	32G04	56.42	CDC	Active	12/30/2014	12/29/2018	Minière Osisko inc.
1279	2420673	32G04	56.41	CDC	Active	12/30/2014	12/29/2018	Minière Osisko inc.
1280	2420674	32G04	56.34	CDC	Active	12/30/2014	12/29/2018	Minière Osisko inc.
1281	2420675	32G04	56.34	CDC	Active	12/30/2014	12/29/2018	Minière Osisko inc.
1282	2420676	32G04	56.34	CDC	Active	12/30/2014	12/29/2018	Minière Osisko inc.
1283	2420677	32G04	56.33	CDC	Active	12/30/2014	12/29/2018	Minière Osisko inc.
1284	2420678	32G04	56.33	CDC	Active	12/30/2014	12/29/2018	Minière Osisko inc.
1285	2420679	32G04	56.33	CDC	Active	12/30/2014	12/29/2018	Minière Osisko inc.
1286	2420680	32G04	56.33	CDC	Active	12/30/2014	12/29/2018	Minière Osisko inc.
1287	2420681	32G04	56.33	CDC	Active	12/30/2014	12/29/2018	Minière Osisko inc.
1288	2420682	32G04	56.32	CDC	Active	12/30/2014	12/29/2018	Minière Osisko inc.
1289	2420683	32G04	56.32	CDC	Active	12/30/2014	12/29/2018	Minière Osisko inc.
1290	2420684	32G04	56.31	CDC	Active	12/30/2014	12/29/2018	Minière Osisko inc.
1291	2420685	32G04	56.31	CDC	Active	12/30/2014	12/29/2018	Minière Osisko inc.
1292	2420686	32G04	56.31	CDC	Active	12/30/2014	12/29/2018	Minière Osisko inc.
1293	2420687	32G04	56.31	CDC	Active	12/30/2014	12/29/2018	Minière Osisko inc.
1294	2420688	32G04	56.31	CDC	Active	12/30/2014	12/29/2018	Minière Osisko inc.
1295	2420689	32G04	56.30	CDC	Active	12/30/2014	12/29/2018	Minière Osisko inc.
1296	2420690	32G04	56.30	CDC	Active	12/30/2014	12/29/2018	Minière Osisko inc.
1297	2420691	32G04	56.30	CDC	Active	12/30/2014	12/29/2018	Minière Osisko inc.
1298	2420692	32G04	56.30	CDC	Active	12/30/2014	12/29/2018	Minière Osisko inc.
1299	2420693	32G04	56.30	CDC	Active	12/30/2014	12/29/2018	Minière Osisko inc.
1300	2420694	32G04	56.30	CDC	Active	12/30/2014	12/29/2018	Minière Osisko inc.

Item	Title	NTS	Area (ha)	Type	Status	Staking Date	Expiration Date	Owner (according to GESTIM)
1301	2420695	32G04	56.30	CDC	Active	12/30/2014	12/29/2018	Minière Osisko inc.
1302	2420834	32G03	55.97	CDC	Active	12/30/2014	12/29/2018	Minière Osisko inc.
1303	2421803	32G04	52.32	CDC	Active	1/22/2015	1/21/2019	Minière Osisko inc.
1304	2427494	32G04	56.36	CDC	Active	5/11/2015	5/10/2019	Minière Osisko inc.
1305	2427495	32G04	56.36	CDC	Active	5/11/2015	5/10/2019	Minière Osisko inc.
1306	2427776	32G04	56.35	CDC	Active	5/19/2015	5/18/2019	Minière Osisko inc.
1307	2432474	32G03	56.38	CDC	Active	8/21/2015	8/20/2019	Minière Osisko inc.
1308	2432475	32G03	56.38	CDC	Active	8/21/2015	8/20/2019	Minière Osisko inc.
1309	2440496	32G03	56.44	CDC	Active	4/8/2016	4/7/2020	Minière Osisko inc.
1310	2440497	32G03	56.44	CDC	Active	4/8/2016	4/7/2020	Minière Osisko inc.
1311	2440498	32G03	56.44	CDC	Active	4/8/2016	4/7/2020	Minière Osisko inc.
1312	2440499	32G03	56.44	CDC	Active	4/8/2016	4/7/2020	Minière Osisko inc.
1313	2440500	32G03	56.44	CDC	Active	4/8/2016	4/7/2020	Minière Osisko inc.
1314	2440501	32G03	56.43	CDC	Active	4/8/2016	4/7/2020	Minière Osisko inc.
1315	2440502	32G03	56.43	CDC	Active	4/8/2016	4/7/2020	Minière Osisko inc.
1316	2440503	32G03	56.43	CDC	Active	4/8/2016	4/7/2020	Minière Osisko inc.
1317	2440504	32G03	56.43	CDC	Active	4/8/2016	4/7/2020	Minière Osisko inc.
1318	2440505	32G03	56.43	CDC	Active	4/8/2016	4/7/2020	Minière Osisko inc.
1319	2440506	32G03	56.42	CDC	Active	4/8/2016	4/7/2020	Minière Osisko inc.
1320	2440507	32G03	56.42	CDC	Active	4/8/2016	4/7/2020	Minière Osisko inc.
1321	2440508	32G03	56.41	CDC	Active	4/8/2016	4/7/2020	Minière Osisko inc.
1322	2440509	32G03	56.41	CDC	Active	4/8/2016	4/7/2020	Minière Osisko inc.
1323	2440510	32G03	56.40	CDC	Active	4/8/2016	4/7/2020	Minière Osisko inc.
1324	2440511	32G03	56.40	CDC	Active	4/8/2016	4/7/2020	Minière Osisko inc.
1325	2440512	32G03	56.39	CDC	Active	4/8/2016	4/7/2020	Minière Osisko inc.
1326	2440513	32G03	56.39	CDC	Active	4/8/2016	4/7/2020	Minière Osisko inc.
1327	2440514	32G03	56.39	CDC	Active	4/8/2016	4/7/2020	Minière Osisko inc.
1328	2440515	32G03	56.39	CDC	Active	4/8/2016	4/7/2020	Minière Osisko inc.
1329	2440516	32G03	56.42	CDC	Active	4/8/2016	4/7/2020	Minière Osisko inc.
1330	2440517	32G03	56.42	CDC	Active	4/8/2016	4/7/2020	Minière Osisko inc.
1331	2440518	32G03	56.41	CDC	Active	4/8/2016	4/7/2020	Minière Osisko inc.
1332	2440519	32G03	56.41	CDC	Active	4/8/2016	4/7/2020	Minière Osisko inc.
1333	2440520	32G03	56.41	CDC	Active	4/8/2016	4/7/2020	Minière Osisko inc.
1334	2440521	32G03	56.40	CDC	Active	4/8/2016	4/7/2020	Minière Osisko inc.
1335	2440522	32G03	56.40	CDC	Active	4/8/2016	4/7/2020	Minière Osisko inc.
1336	2440523	32G03	56.40	CDC	Active	4/8/2016	4/7/2020	Minière Osisko inc.
1337	2440524	32G03	56.39	CDC	Active	4/8/2016	4/7/2020	Minière Osisko inc.
1338	2440525	32G03	56.39	CDC	Active	4/8/2016	4/7/2020	Minière Osisko inc.
1339	2440526	32G03	56.39	CDC	Active	4/8/2016	4/7/2020	Minière Osisko inc.
1340	2440527	32G03	56.39	CDC	Active	4/8/2016	4/7/2020	Minière Osisko inc.
1341	2440528	32G03	56.39	CDC	Active	4/8/2016	4/7/2020	Minière Osisko inc.
1342	2440725	32G03	56.38	CDC	Active	4/12/2016	4/11/2020	Minière Osisko inc.

Item	Title	NTS	Area (ha)	Type	Status	Staking Date	Expiration Date	Owner (according to GESTIM)
1343	2443381	32G03	56.32	CDC	Active	4/26/2016	4/25/2020	Minière Osisko inc.
1344	2443382	32G03	56.32	CDC	Active	4/26/2016	4/25/2020	Minière Osisko inc.
1345	2443383	32G03	56.32	CDC	Active	4/26/2016	4/25/2020	Minière Osisko inc.
1346	2443384	32G03	56.32	CDC	Active	4/26/2016	4/25/2020	Minière Osisko inc.
1347	2443385	32G03	56.32	CDC	Active	4/26/2016	4/25/2020	Minière Osisko inc.
1348	2443386	32G03	56.31	CDC	Active	4/26/2016	4/25/2020	Minière Osisko inc.
1349	2443387	32G03	56.31	CDC	Active	4/26/2016	4/25/2020	Minière Osisko inc.
1350	2443388	32G03	56.31	CDC	Active	4/26/2016	4/25/2020	Minière Osisko inc.
1351	2443389	32G03	56.31	CDC	Active	4/26/2016	4/25/2020	Minière Osisko inc.
1352	2443390	32G03	56.31	CDC	Active	4/26/2016	4/25/2020	Minière Osisko inc.
1353	2443391	32G03	56.30	CDC	Active	4/26/2016	4/25/2020	Minière Osisko inc.
1354	2443392	32G03	56.30	CDC	Active	4/26/2016	4/25/2020	Minière Osisko inc.
1355	2443393	32G03	56.30	CDC	Active	4/26/2016	4/25/2020	Minière Osisko inc.
1356	2443394	32G03	56.30	CDC	Active	4/26/2016	4/25/2020	Minière Osisko inc.
1357	2443395	32G03	56.30	CDC	Active	4/26/2016	4/25/2018	Minière Osisko inc.
1358	2443396	32G03	56.29	CDC	Active	4/26/2016	4/25/2020	Minière Osisko inc.
1359	2443397	32G03	56.29	CDC	Active	4/26/2016	4/25/2020	Minière Osisko inc.
1360	2443398	32G03	56.29	CDC	Active	4/26/2016	4/25/2020	Minière Osisko inc.
1361	2443399	32G03	56.29	CDC	Active	4/26/2016	4/25/2018	Minière Osisko inc.
1362	2443400	32G03	56.29	CDC	Active	4/26/2016	4/25/2018	Minière Osisko inc.
1363	2443401	32G03	56.29	CDC	Active	4/26/2016	4/25/2020	Minière Osisko inc.
1364	2443402	32G03	56.29	CDC	Active	4/26/2016	4/25/2018	Minière Osisko inc.
1365	2443403	32G03	56.29	CDC	Active	4/26/2016	4/25/2018	Minière Osisko inc.
1366	2443404	32G03	56.29	CDC	Active	4/26/2016	4/25/2020	Minière Osisko inc.
1367	2443405	32G03	56.29	CDC	Active	4/26/2016	4/25/2020	Minière Osisko inc.
1368	2443406	32G03	56.29	CDC	Active	4/26/2016	4/25/2020	Minière Osisko inc.
1369	2443407	32G03	56.29	CDC	Active	4/26/2016	4/25/2020	Minière Osisko inc.
1370	2443408	32G03	56.28	CDC	Active	4/26/2016	4/25/2018	Minière Osisko inc.
1371	2443409	32G03	56.28	CDC	Active	4/26/2016	4/25/2018	Minière Osisko inc.
1372	2443410	32G03	56.28	CDC	Active	4/26/2016	4/25/2018	Minière Osisko inc.
1373	2443411	32G03	56.28	CDC	Active	4/26/2016	4/25/2018	Minière Osisko inc.
1374	2443412	32G03	56.28	CDC	Active	4/26/2016	4/25/2018	Minière Osisko inc.
1375	2443413	32G03	56.28	CDC	Active	4/26/2016	4/25/2018	Minière Osisko inc.
1376	2443414	32G03	56.28	CDC	Active	4/26/2016	4/25/2018	Minière Osisko inc.
1377	2443415	32G03	56.28	CDC	Active	4/26/2016	4/25/2018	Minière Osisko inc.
1378	2443416	32G03	56.28	CDC	Active	4/26/2016	4/25/2018	Minière Osisko inc.
1379	2443417	32G03	56.28	CDC	Active	4/26/2016	4/25/2020	Minière Osisko inc.
1380	2443418	32G03	56.28	CDC	Active	4/26/2016	4/25/2020	Minière Osisko inc.
1381	2443419	32G03	56.27	CDC	Active	4/26/2016	4/25/2020	Minière Osisko inc.
1382	2443420	32G03	56.27	CDC	Active	4/26/2016	4/25/2018	Minière Osisko inc.
1383	2443421	32G03	56.32	CDC	Active	4/26/2016	4/25/2020	Minière Osisko inc.
1384	2443422	32G03	56.32	CDC	Active	4/26/2016	4/25/2020	Minière Osisko inc.

Item	Title	NTS	Area (ha)	Type	Status	Staking Date	Expiration Date	Owner (according to GESTIM)
1385	2443423	32G03	56.32	CDC	Active	4/26/2016	4/25/2020	Minière Osisko inc.
1386	2443424	32G03	56.32	CDC	Active	4/26/2016	4/25/2020	Minière Osisko inc.
1387	2443425	32G03	56.32	CDC	Active	4/26/2016	4/25/2020	Minière Osisko inc.
1388	2443426	32G03	56.32	CDC	Active	4/26/2016	4/25/2020	Minière Osisko inc.
1389	2443427	32G03	56.32	CDC	Active	4/26/2016	4/25/2020	Minière Osisko inc.
1390	2443428	32G03	56.31	CDC	Active	4/26/2016	4/25/2020	Minière Osisko inc.
1391	2443429	32G03	56.31	CDC	Active	4/26/2016	4/25/2020	Minière Osisko inc.
1392	2443430	32G03	56.30	CDC	Active	4/26/2016	4/25/2018	Minière Osisko inc.
1393	2443431	32G03	56.30	CDC	Active	4/26/2016	4/25/2018	Minière Osisko inc.
1394	2443432	32G03	56.30	CDC	Active	4/26/2016	4/25/2018	Minière Osisko inc.
1395	2443433	32G03	56.30	CDC	Active	4/26/2016	4/25/2018	Minière Osisko inc.
1396	2443434	32G03	56.30	CDC	Active	4/26/2016	4/25/2018	Minière Osisko inc.
1397	2443435	32G03	56.30	CDC	Active	4/26/2016	4/25/2018	Minière Osisko inc.
1398	2443436	32G03	56.30	CDC	Active	4/26/2016	4/25/2020	Minière Osisko inc.
1399	2443437	32G03	56.30	CDC	Active	4/26/2016	4/25/2020	Minière Osisko inc.
1400	2443438	32G03	56.30	CDC	Active	4/26/2016	4/25/2018	Minière Osisko inc.
1401	2443439	32G03	56.29	CDC	Active	4/26/2016	4/25/2018	Minière Osisko inc.
1402	2443440	32G03	56.29	CDC	Active	4/26/2016	4/25/2018	Minière Osisko inc.
1403	2443441	32G03	56.29	CDC	Active	4/26/2016	4/25/2018	Minière Osisko inc.
1404	2443442	32G03	56.29	CDC	Active	4/26/2016	4/25/2018	Minière Osisko inc.
1405	2443443	32G03	56.29	CDC	Active	4/26/2016	4/25/2018	Minière Osisko inc.
1406	2443444	32G03	56.29	CDC	Active	4/26/2016	4/25/2018	Minière Osisko inc.
1407	2443445	32G03	56.29	CDC	Active	4/26/2016	4/25/2018	Minière Osisko inc.
1408	2443446	32G03	56.28	CDC	Active	4/26/2016	4/25/2018	Minière Osisko inc.
1409	2443447	32G03	56.28	CDC	Active	4/26/2016	4/25/2018	Minière Osisko inc.
1410	2443448	32G03	56.28	CDC	Active	4/26/2016	4/25/2018	Minière Osisko inc.
1411	2443449	32G03	56.28	CDC	Active	4/26/2016	4/25/2018	Minière Osisko inc.
1412	2443450	32G03	56.28	CDC	Active	4/26/2016	4/25/2018	Minière Osisko inc.
1413	2443451	32G03	56.28	CDC	Active	4/26/2016	4/25/2018	Minière Osisko inc.
1414	2443452	32G03	56.28	CDC	Active	4/26/2016	4/25/2018	Minière Osisko inc.
1415	2443453	32G03	56.27	CDC	Active	4/26/2016	4/25/2018	Minière Osisko inc.
1416	2443454	32G03	56.27	CDC	Active	4/26/2016	4/25/2018	Minière Osisko inc.
1417	2443455	32G03	56.27	CDC	Active	4/26/2016	4/25/2018	Minière Osisko inc.
1418	2443456	32G03	56.27	CDC	Active	4/26/2016	4/25/2018	Minière Osisko inc.
1419	2443457	32G03	56.27	CDC	Active	4/26/2016	4/25/2018	Minière Osisko inc.
1420	2443458	32G03	56.26	CDC	Active	4/26/2016	4/25/2018	Minière Osisko inc.
1421	2443459	32G03	56.26	CDC	Active	4/26/2016	4/25/2018	Minière Osisko inc.
1422	2443460	32G03	56.26	CDC	Active	4/26/2016	4/25/2018	Minière Osisko inc.
1423	2443468	32G03	56.29	CDC	Active	4/26/2016	4/25/2018	Minière Osisko inc.
1424	2443469	32G03	56.29	CDC	Active	4/26/2016	4/25/2018	Minière Osisko inc.
1425	2443470	32G03	56.28	CDC	Active	4/26/2016	4/25/2018	Minière Osisko inc.
1426	2450641	32G03	43.81	CDC	Active	6/22/2016	6/21/2018	Minière Osisko inc.

Item	Title	NTS	Area (ha)	Type	Status	Staking Date	Expiration Date	Owner (according to GESTIM)
1427	2450960	32G03	51.35	CDC	Active	6/23/2016	6/22/2018	Minière Osisko inc.
1428	2450961	32G03	54.66	CDC	Active	6/23/2016	6/22/2018	Minière Osisko inc.
1429	2450962	32G03	7.80	CDC	Active	6/23/2016	6/22/2018	Minière Osisko inc.
1430	2450963	32G03	43.56	CDC	Active	6/23/2016	6/22/2018	Minière Osisko inc.
1431	2450964	32G03	47.50	CDC	Active	6/23/2016	6/22/2018	Minière Osisko inc.
1432	2450965	32G03	24.03	CDC	Active	6/23/2016	6/22/2018	Minière Osisko inc.
1433	2450966	32G03	2.27	CDC	Active	6/23/2016	6/22/2018	Minière Osisko inc.
1434	2450967	32G03	0.50	CDC	Active	6/23/2016	6/22/2018	Minière Osisko inc.
1435	2450968	32G03	0.11	CDC	Active	6/23/2016	6/22/2018	Minière Osisko inc.
1436	2450969	32G03	13.30	CDC	Active	6/23/2016	6/22/2018	Minière Osisko inc.
1437	2450970	32G03	7.59	CDC	Active	6/23/2016	6/22/2018	Minière Osisko inc.
1438	2454299	32G03	0.04	CDC	Active	7/22/2016	7/21/2018	Minière Osisko inc.
1439	2454300	32G03	2.62	CDC	Active	7/22/2016	7/21/2018	Minière Osisko inc.
1440	2454301	32G03	54.46	CDC	Active	7/22/2016	7/21/2018	Minière Osisko inc.
1441	2454302	32G03	31.71	CDC	Active	7/22/2016	7/21/2018	Minière Osisko inc.
1442	2457563	32B14	56.49	CDC	Active	8/15/2016	8/14/2018	Minière Osisko inc.
1443	2457564	32B14	56.49	CDC	Active	8/15/2016	8/14/2018	Minière Osisko inc.
1444	2457565	32B14	56.49	CDC	Active	8/15/2016	8/14/2018	Minière Osisko inc.
1445	2457566	32B14	56.49	CDC	Active	8/15/2016	8/14/2018	Minière Osisko inc.
1446	2457567	32B14	56.49	CDC	Active	8/15/2016	8/14/2018	Minière Osisko inc.
1447	2457568	32B14	56.48	CDC	Active	8/15/2016	8/14/2018	Minière Osisko inc.
1448	2457569	32B14	56.48	CDC	Active	8/15/2016	8/14/2018	Minière Osisko inc.
1449	2457570	32B14	56.48	CDC	Active	8/15/2016	8/14/2018	Minière Osisko inc.
1450	2457571	32B14	56.48	CDC	Active	8/15/2016	8/14/2018	Minière Osisko inc.
1451	2457572	32B14	56.48	CDC	Active	8/15/2016	8/14/2018	Minière Osisko inc.
1452	2459947	32F01	56.38	CDC	Active	8/31/2016	8/30/2018	Minière Osisko inc.
1453	2459948	32F01	56.38	CDC	Active	8/31/2016	8/30/2018	Minière Osisko inc.
1454	2459949	32F01	56.38	CDC	Active	8/31/2016	8/30/2018	Minière Osisko inc.
1455	2459950	32F01	56.38	CDC	Active	8/31/2016	8/30/2018	Minière Osisko inc.
1456	2459951	32F01	56.38	CDC	Active	8/31/2016	8/30/2018	Minière Osisko inc.
1457	2459952	32F01	56.38	CDC	Active	8/31/2016	8/30/2018	Minière Osisko inc.
1458	2459953	32F01	56.38	CDC	Active	8/31/2016	8/30/2018	Minière Osisko inc.
1459	2459954	32F01	56.38	CDC	Active	8/31/2016	8/30/2018	Minière Osisko inc.
1460	2459955	32F01	56.38	CDC	Active	8/31/2016	8/30/2018	Minière Osisko inc.
1461	2459956	32F01	56.38	CDC	Active	8/31/2016	8/30/2018	Minière Osisko inc.
1462	2459957	32F01	56.38	CDC	Active	8/31/2016	8/30/2018	Minière Osisko inc.
1463	2459958	32F01	56.38	CDC	Active	8/31/2016	8/30/2018	Minière Osisko inc.
1464	2459959	32F01	56.38	CDC	Active	8/31/2016	8/30/2018	Minière Osisko inc.
1465	2459960	32F01	56.38	CDC	Active	8/31/2016	8/30/2018	Minière Osisko inc.
1466	2459961	32F01	56.38	CDC	Active	8/31/2016	8/30/2018	Minière Osisko inc.
1467	2459962	32F01	56.37	CDC	Active	8/31/2016	8/30/2018	Minière Osisko inc.
1468	2459963	32F01	56.37	CDC	Active	8/31/2016	8/30/2018	Minière Osisko inc.

Item	Title	NTS	Area (ha)	Type	Status	Staking Date	Expiration Date	Owner (according to GESTIM)
1469	2459964	32F01	56.37	CDC	Active	8/31/2016	8/30/2018	Minière Osisko inc.
1470	2459965	32F01	56.37	CDC	Active	8/31/2016	8/30/2018	Minière Osisko inc.
1471	2459966	32F01	56.37	CDC	Active	8/31/2016	8/30/2018	Minière Osisko inc.
1472	2459967	32F01	56.37	CDC	Active	8/31/2016	8/30/2018	Minière Osisko inc.
1473	2459968	32F01	56.37	CDC	Active	8/31/2016	8/30/2018	Minière Osisko inc.
1474	2459969	32F01	56.37	CDC	Active	8/31/2016	8/30/2018	Minière Osisko inc.
1475	2459970	32F01	56.37	CDC	Active	8/31/2016	8/30/2018	Minière Osisko inc.
1476	2459971	32F01	56.37	CDC	Active	8/31/2016	8/30/2018	Minière Osisko inc.
1477	2459972	32F01	56.37	CDC	Active	8/31/2016	8/30/2018	Minière Osisko inc.
1478	2459973	32F01	56.37	CDC	Active	8/31/2016	8/30/2018	Minière Osisko inc.
1479	2459974	32F01	56.37	CDC	Active	8/31/2016	8/30/2018	Minière Osisko inc.
1480	2459975	32F01	56.37	CDC	Active	8/31/2016	8/30/2018	Minière Osisko inc.
1481	2459976	32F01	56.37	CDC	Active	8/31/2016	8/30/2018	Minière Osisko inc.
1482	2459977	32F01	56.37	CDC	Active	8/31/2016	8/30/2018	Minière Osisko inc.
1483	2459978	32F01	56.37	CDC	Active	8/31/2016	8/30/2018	Minière Osisko inc.
1484	2459979	32F01	56.37	CDC	Active	8/31/2016	8/30/2018	Minière Osisko inc.
1485	2459980	32F01	56.37	CDC	Active	8/31/2016	8/30/2018	Minière Osisko inc.
1486	2459981	32F01	56.37	CDC	Active	8/31/2016	8/30/2018	Minière Osisko inc.
1487	2459982	32F01	56.37	CDC	Active	8/31/2016	8/30/2018	Minière Osisko inc.
1488	2459983	32F01	56.37	CDC	Active	8/31/2016	8/30/2018	Minière Osisko inc.
1489	2459984	32F01	56.37	CDC	Active	8/31/2016	8/30/2018	Minière Osisko inc.
1490	2459985	32F01	56.37	CDC	Active	8/31/2016	8/30/2018	Minière Osisko inc.
1491	2459986	32F01	56.37	CDC	Active	8/31/2016	8/30/2018	Minière Osisko inc.
1492	2459987	32F01	56.37	CDC	Active	8/31/2016	8/30/2018	Minière Osisko inc.
1493	2459988	32F01	56.36	CDC	Active	8/31/2016	8/30/2018	Minière Osisko inc.
1494	2459989	32F01	56.36	CDC	Active	8/31/2016	8/30/2018	Minière Osisko inc.
1495	2459990	32F01	56.36	CDC	Active	8/31/2016	8/30/2018	Minière Osisko inc.
1496	2459991	32F01	56.36	CDC	Active	8/31/2016	8/30/2018	Minière Osisko inc.
1497	2459992	32F01	56.36	CDC	Active	8/31/2016	8/30/2018	Minière Osisko inc.
1498	2459993	32F01	56.36	CDC	Active	8/31/2016	8/30/2018	Minière Osisko inc.
1499	2459994	32F01	56.36	CDC	Active	8/31/2016	8/30/2018	Minière Osisko inc.
1500	2459995	32F01	56.36	CDC	Active	8/31/2016	8/30/2018	Minière Osisko inc.
1501	2459996	32F01	56.36	CDC	Active	8/31/2016	8/30/2018	Minière Osisko inc.
1502	2459997	32F01	56.36	CDC	Active	8/31/2016	8/30/2018	Minière Osisko inc.
1503	2459998	32F01	56.36	CDC	Active	8/31/2016	8/30/2018	Minière Osisko inc.
1504	2459999	32F01	56.36	CDC	Active	8/31/2016	8/30/2018	Minière Osisko inc.
1505	2460000	32F01	56.36	CDC	Active	8/31/2016	8/30/2018	Minière Osisko inc.
1506	2460001	32F01	56.36	CDC	Active	8/31/2016	8/30/2018	Minière Osisko inc.
1507	2460002	32F01	56.36	CDC	Active	8/31/2016	8/30/2018	Minière Osisko inc.
1508	2460003	32F01	56.36	CDC	Active	8/31/2016	8/30/2018	Minière Osisko inc.
1509	2460004	32F01	56.36	CDC	Active	8/31/2016	8/30/2018	Minière Osisko inc.
1510	2460005	32F01	56.36	CDC	Active	8/31/2016	8/30/2018	Minière Osisko inc.

Item	Title	NTS	Area (ha)	Type	Status	Staking Date	Expiration Date	Owner (according to GESTIM)
1511	2460006	32F01	56.36	CDC	Active	8/31/2016	8/30/2018	Minière Osisko inc.
1512	2460007	32F01	56.36	CDC	Active	8/31/2016	8/30/2018	Minière Osisko inc.
1513	2460008	32F01	56.35	CDC	Active	8/31/2016	8/30/2018	Minière Osisko inc.
1514	2460009	32F01	56.35	CDC	Active	8/31/2016	8/30/2018	Minière Osisko inc.
1515	2460010	32F01	56.35	CDC	Active	8/31/2016	8/30/2018	Minière Osisko inc.
1516	2460011	32F01	56.35	CDC	Active	8/31/2016	8/30/2018	Minière Osisko inc.
1517	2460012	32F01	56.35	CDC	Active	8/31/2016	8/30/2018	Minière Osisko inc.
1518	2460013	32F01	56.35	CDC	Active	8/31/2016	8/30/2018	Minière Osisko inc.
1519	2460014	32F01	56.35	CDC	Active	8/31/2016	8/30/2018	Minière Osisko inc.
1520	2460015	32F01	56.35	CDC	Active	8/31/2016	8/30/2018	Minière Osisko inc.
1521	2460016	32F01	56.35	CDC	Active	8/31/2016	8/30/2018	Minière Osisko inc.
1522	2460017	32F01	56.35	CDC	Active	8/31/2016	8/30/2018	Minière Osisko inc.
1523	2460018	32F01	56.35	CDC	Active	8/31/2016	8/30/2018	Minière Osisko inc.
1524	2460019	32F01	56.35	CDC	Active	8/31/2016	8/30/2018	Minière Osisko inc.
1525	2460020	32F01	56.35	CDC	Active	8/31/2016	8/30/2018	Minière Osisko inc.
1526	2460021	32F01	56.35	CDC	Active	8/31/2016	8/30/2018	Minière Osisko inc.
1527	2460022	32F01	56.35	CDC	Active	8/31/2016	8/30/2018	Minière Osisko inc.
1528	2460023	32F01	56.35	CDC	Active	8/31/2016	8/30/2018	Minière Osisko inc.
1529	2460024	32F01	56.35	CDC	Active	8/31/2016	8/30/2018	Minière Osisko inc.
1530	2460025	32F01	56.35	CDC	Active	8/31/2016	8/30/2018	Minière Osisko inc.
1531	2460026	32F01	56.35	CDC	Active	8/31/2016	8/30/2018	Minière Osisko inc.
1532	2460305	32F01	56.37	CDC	Active	8/31/2016	8/30/2018	Minière Osisko inc.
1533	2460306	32F01	56.36	CDC	Active	8/31/2016	8/30/2018	Minière Osisko inc.
1534	2460307	32F01	56.36	CDC	Active	8/31/2016	8/30/2018	Minière Osisko inc.
1535	2460308	32F01	56.36	CDC	Active	8/31/2016	8/30/2018	Minière Osisko inc.
1536	2460309	32F01	56.36	CDC	Active	8/31/2016	8/30/2018	Minière Osisko inc.
1537	2460310	32F01	56.35	CDC	Active	8/31/2016	8/30/2018	Minière Osisko inc.
1538	2460311	32F01	56.35	CDC	Active	8/31/2016	8/30/2018	Minière Osisko inc.
1539	2460312	32F01	56.35	CDC	Active	8/31/2016	8/30/2018	Minière Osisko inc.
1540	2460313	32F01	56.35	CDC	Active	8/31/2016	8/30/2018	Minière Osisko inc.
1541	2460314	32F01	56.35	CDC	Active	8/31/2016	8/30/2018	Minière Osisko inc.
1542	2460315	32F01	56.35	CDC	Active	8/31/2016	8/30/2018	Minière Osisko inc.
1543	2460316	32F01	56.35	CDC	Active	8/31/2016	8/30/2018	Minière Osisko inc.
1544	2460317	32F01	56.35	CDC	Active	8/31/2016	8/30/2018	Minière Osisko inc.
1545	2460318	32F01	56.34	CDC	Active	8/31/2016	8/30/2018	Minière Osisko inc.
1546	2460319	32F01	56.34	CDC	Active	8/31/2016	8/30/2018	Minière Osisko inc.
1547	2460320	32F01	56.34	CDC	Active	8/31/2016	8/30/2018	Minière Osisko inc.
1548	2460321	32F01	56.34	CDC	Active	8/31/2016	8/30/2018	Minière Osisko inc.
1549	2460322	32F01	56.34	CDC	Active	8/31/2016	8/30/2018	Minière Osisko inc.
1550	2460323	32F01	56.34	CDC	Active	8/31/2016	8/30/2018	Minière Osisko inc.
1551	2460324	32F01	56.34	CDC	Active	8/31/2016	8/30/2018	Minière Osisko inc.
1552	2460325	32F01	56.34	CDC	Active	8/31/2016	8/30/2018	Minière Osisko inc.

Item	Title	NTS	Area (ha)	Type	Status	Staking Date	Expiration Date	Owner (according to GESTIM)
1553	2460326	32F01	56.33	CDC	Active	8/31/2016	8/30/2018	Minière Osisko inc.
1554	2460327	32F01	56.33	CDC	Active	8/31/2016	8/30/2018	Minière Osisko inc.
1555	2460328	32F01	56.33	CDC	Active	8/31/2016	8/30/2018	Minière Osisko inc.
1556	2460329	32F01	56.33	CDC	Active	8/31/2016	8/30/2018	Minière Osisko inc.
1557	2460330	32F01	56.33	CDC	Active	8/31/2016	8/30/2018	Minière Osisko inc.
1558	2460331	32F01	56.33	CDC	Active	8/31/2016	8/30/2018	Minière Osisko inc.
1559	2460332	32F01	56.33	CDC	Active	8/31/2016	8/30/2018	Minière Osisko inc.
1560	2460333	32F01	56.33	CDC	Active	8/31/2016	8/30/2018	Minière Osisko inc.
1561	2460334	32F01	56.33	CDC	Active	8/31/2016	8/30/2018	Minière Osisko inc.
1562	2460335	32F01	56.32	CDC	Active	8/31/2016	8/30/2018	Minière Osisko inc.
1563	2460336	32F01	56.32	CDC	Active	8/31/2016	8/30/2018	Minière Osisko inc.
1564	2460337	32F01	56.32	CDC	Active	8/31/2016	8/30/2018	Minière Osisko inc.
1565	2460338	32F01	56.32	CDC	Active	8/31/2016	8/30/2018	Minière Osisko inc.
1566	2460339	32F01	56.32	CDC	Active	8/31/2016	8/30/2018	Minière Osisko inc.
1567	2460340	32F01	56.32	CDC	Active	8/31/2016	8/30/2018	Minière Osisko inc.
1568	2460341	32F01	56.32	CDC	Active	8/31/2016	8/30/2018	Minière Osisko inc.
1569	2460342	32F01	56.32	CDC	Active	8/31/2016	8/30/2018	Minière Osisko inc.
1570	2460343	32F01	56.32	CDC	Active	8/31/2016	8/30/2018	Minière Osisko inc.
1571	2460344	32F01	56.32	CDC	Active	8/31/2016	8/30/2018	Minière Osisko inc.
1572	2460355	32F01	56.34	CDC	Active	8/31/2016	8/30/2018	Minière Osisko inc.
1573	2460356	32F01	56.34	CDC	Active	8/31/2016	8/30/2018	Minière Osisko inc.
1574	2460357	32F01	56.34	CDC	Active	8/31/2016	8/30/2018	Minière Osisko inc.
1575	2460358	32F01	56.34	CDC	Active	8/31/2016	8/30/2018	Minière Osisko inc.
1576	2460359	32F01	56.34	CDC	Active	8/31/2016	8/30/2018	Minière Osisko inc.
1577	2460360	32F01	56.34	CDC	Active	8/31/2016	8/30/2018	Minière Osisko inc.
1578	2460361	32F01	56.34	CDC	Active	8/31/2016	8/30/2018	Minière Osisko inc.
1579	2460362	32F01	56.34	CDC	Active	8/31/2016	8/30/2018	Minière Osisko inc.
1580	2460363	32F01	56.34	CDC	Active	8/31/2016	8/30/2018	Minière Osisko inc.
1581	2460364	32F01	56.34	CDC	Active	8/31/2016	8/30/2018	Minière Osisko inc.
1582	2460365	32F01	56.34	CDC	Active	8/31/2016	8/30/2018	Minière Osisko inc.
1583	2460366	32F01	56.34	CDC	Active	8/31/2016	8/30/2018	Minière Osisko inc.
1584	2460367	32F01	56.34	CDC	Active	8/31/2016	8/30/2018	Minière Osisko inc.
1585	2460368	32F01	56.34	CDC	Active	8/31/2016	8/30/2018	Minière Osisko inc.
1586	2460369	32F01	56.34	CDC	Active	8/31/2016	8/30/2018	Minière Osisko inc.
1587	2460370	32F01	56.34	CDC	Active	8/31/2016	8/30/2018	Minière Osisko inc.
1588	2460371	32F01	56.34	CDC	Active	8/31/2016	8/30/2018	Minière Osisko inc.
1589	2460372	32F01	56.34	CDC	Active	8/31/2016	8/30/2018	Minière Osisko inc.
1590	2460373	32F01	56.34	CDC	Active	8/31/2016	8/30/2018	Minière Osisko inc.
1591	2460374	32F01	56.34	CDC	Active	8/31/2016	8/30/2018	Minière Osisko inc.
1592	2460375	32F01	56.33	CDC	Active	8/31/2016	8/30/2018	Minière Osisko inc.
1593	2460376	32F01	56.33	CDC	Active	8/31/2016	8/30/2018	Minière Osisko inc.
1594	2460377	32F01	56.33	CDC	Active	8/31/2016	8/30/2018	Minière Osisko inc.

Item	Title	NTS	Area (ha)	Type	Status	Staking Date	Expiration Date	Owner (according to GESTIM)
1595	2460378	32F01	56.33	CDC	Active	8/31/2016	8/30/2018	Minière Osisko inc.
1596	2460379	32F01	56.33	CDC	Active	8/31/2016	8/30/2018	Minière Osisko inc.
1597	2460380	32F01	56.33	CDC	Active	8/31/2016	8/30/2018	Minière Osisko inc.
1598	2460381	32F01	56.33	CDC	Active	8/31/2016	8/30/2018	Minière Osisko inc.
1599	2460382	32F01	56.33	CDC	Active	8/31/2016	8/30/2018	Minière Osisko inc.
1600	2460383	32F01	56.33	CDC	Active	8/31/2016	8/30/2018	Minière Osisko inc.
1601	2460384	32F01	56.33	CDC	Active	8/31/2016	8/30/2018	Minière Osisko inc.
1602	2460385	32F01	56.33	CDC	Active	8/31/2016	8/30/2018	Minière Osisko inc.
1603	2460386	32F01	56.33	CDC	Active	8/31/2016	8/30/2018	Minière Osisko inc.
1604	2460387	32F01	56.33	CDC	Active	8/31/2016	8/30/2018	Minière Osisko inc.
1605	2460388	32F01	56.33	CDC	Active	8/31/2016	8/30/2018	Minière Osisko inc.
1606	2460389	32F01	56.33	CDC	Active	8/31/2016	8/30/2018	Minière Osisko inc.
1607	2460390	32F01	56.33	CDC	Active	8/31/2016	8/30/2018	Minière Osisko inc.
1608	2460391	32F01	56.33	CDC	Active	8/31/2016	8/30/2018	Minière Osisko inc.
1609	2460392	32F01	56.33	CDC	Active	8/31/2016	8/30/2018	Minière Osisko inc.
1610	2460393	32F01	56.33	CDC	Active	8/31/2016	8/30/2018	Minière Osisko inc.
1611	2460394	32F01	56.33	CDC	Active	8/31/2016	8/30/2018	Minière Osisko inc.
1612	2460395	32F01	56.32	CDC	Active	8/31/2016	8/30/2018	Minière Osisko inc.
1613	2460396	32F01	56.32	CDC	Active	8/31/2016	8/30/2018	Minière Osisko inc.
1614	2460397	32F01	56.32	CDC	Active	8/31/2016	8/30/2018	Minière Osisko inc.
1615	2460398	32F01	56.32	CDC	Active	8/31/2016	8/30/2018	Minière Osisko inc.
1616	2460399	32F01	56.32	CDC	Active	8/31/2016	8/30/2018	Minière Osisko inc.
1617	2460400	32F01	56.32	CDC	Active	8/31/2016	8/30/2018	Minière Osisko inc.
1618	2460404	32F01	56.39	CDC	Active	8/31/2016	8/30/2018	Minière Osisko inc.
1619	2460405	32F01	56.39	CDC	Active	8/31/2016	8/30/2018	Minière Osisko inc.
1620	2460406	32F01	56.39	CDC	Active	8/31/2016	8/30/2018	Minière Osisko inc.
1621	2460407	32F01	56.38	CDC	Active	8/31/2016	8/30/2018	Minière Osisko inc.
1622	2460408	32F01	56.38	CDC	Active	8/31/2016	8/30/2018	Minière Osisko inc.
1623	2460409	32F01	56.38	CDC	Active	8/31/2016	8/30/2018	Minière Osisko inc.
1624	2460410	32F01	56.38	CDC	Active	8/31/2016	8/30/2018	Minière Osisko inc.
1625	2460411	32F01	56.38	CDC	Active	8/31/2016	8/30/2018	Minière Osisko inc.
1626	2460412	32F01	56.38	CDC	Active	8/31/2016	8/30/2018	Minière Osisko inc.
1627	2460413	32F01	56.38	CDC	Active	8/31/2016	8/30/2018	Minière Osisko inc.
1628	2460414	32F01	56.38	CDC	Active	8/31/2016	8/30/2018	Minière Osisko inc.
1629	2460415	32F01	56.38	CDC	Active	8/31/2016	8/30/2018	Minière Osisko inc.
1630	2460416	32F01	56.38	CDC	Active	8/31/2016	8/30/2018	Minière Osisko inc.
1631	2460417	32F01	56.38	CDC	Active	8/31/2016	8/30/2018	Minière Osisko inc.
1632	2460418	32F01	56.38	CDC	Active	8/31/2016	8/30/2018	Minière Osisko inc.
1633	2460419	32G04	56.39	CDC	Active	8/31/2016	8/30/2018	Minière Osisko inc.
1634	2460420	32G04	56.39	CDC	Active	8/31/2016	8/30/2018	Minière Osisko inc.
1635	2460421	32G04	56.38	CDC	Active	8/31/2016	8/30/2018	Minière Osisko inc.
1636	2460422	32G04	56.38	CDC	Active	8/31/2016	8/30/2018	Minière Osisko inc.

Item	Title	NTS	Area (ha)	Type	Status	Staking Date	Expiration Date	Owner (according to GESTIM)
1637	2460423	32G04	56.38	CDC	Active	8/31/2016	8/30/2018	Minière Osisko inc.
1638	2467259	32G03	56.31	CDC	Active	10/27/2016	10/26/2018	Minière Osisko inc.
1639	2467260	32G03	56.30	CDC	Active	10/27/2016	10/26/2018	Minière Osisko inc.
1640	2467261	32G03	56.30	CDC	Active	10/27/2016	10/26/2018	Minière Osisko inc.
1641	2467262	32G03	56.30	CDC	Active	10/27/2016	10/26/2018	Minière Osisko inc.
1642	2467263	32G03	56.30	CDC	Active	10/27/2016	10/26/2018	Minière Osisko inc.
1643	2467264	32G03	56.30	CDC	Active	10/27/2016	10/26/2018	Minière Osisko inc.
1644	2467265	32G03	56.29	CDC	Active	10/27/2016	10/26/2018	Minière Osisko inc.
1645	2467266	32G03	56.29	CDC	Active	10/27/2016	10/26/2018	Minière Osisko inc.
1646	2467267	32G03	56.29	CDC	Active	10/27/2016	10/26/2018	Minière Osisko inc.
1647	2467268	32G03	56.29	CDC	Active	10/27/2016	10/26/2018	Minière Osisko inc.
1648	2467269	32G03	56.28	CDC	Active	10/27/2016	10/26/2018	Minière Osisko inc.
1649	2467270	32G03	56.28	CDC	Active	10/27/2016	10/26/2018	Minière Osisko inc.
1650	2467271	32G03	56.28	CDC	Active	10/27/2016	10/26/2018	Minière Osisko inc.
1651	2467272	32G03	56.28	CDC	Active	10/27/2016	10/26/2018	Minière Osisko inc.
1652	2471661	32B13	56.66	CDC	Active	1/5/2017	1/4/2019	Minière Osisko inc.
1653	2471662	32B13	56.66	CDC	Active	1/5/2017	1/4/2019	Minière Osisko inc.
1654	2471663	32B13	56.65	CDC	Active	1/5/2017	1/4/2019	Minière Osisko inc.
1655	2471664	32B13	56.65	CDC	Active	1/5/2017	1/4/2019	Minière Osisko inc.
1656	2471665	32B13	56.65	CDC	Active	1/5/2017	1/4/2019	Minière Osisko inc.
1657	2471666	32B13	56.65	CDC	Active	1/5/2017	1/4/2019	Minière Osisko inc.
1658	2471667	32B13	56.64	CDC	Active	1/5/2017	1/4/2019	Minière Osisko inc.
1659	2471668	32B13	56.64	CDC	Active	1/5/2017	1/4/2019	Minière Osisko inc.
1660	2471669	32B13	56.64	CDC	Active	1/5/2017	1/4/2019	Minière Osisko inc.
1661	2471670	32B13	56.64	CDC	Active	1/5/2017	1/4/2019	Minière Osisko inc.
1662	2471671	32B13	56.63	CDC	Active	1/5/2017	1/4/2019	Minière Osisko inc.
1663	2471672	32B13	56.63	CDC	Active	1/5/2017	1/4/2019	Minière Osisko inc.
1664	2471673	32B13	56.63	CDC	Active	1/5/2017	1/4/2019	Minière Osisko inc.
1665	2471674	32B13	56.63	CDC	Active	1/5/2017	1/4/2019	Minière Osisko inc.
1666	2471675	32B13	56.63	CDC	Active	1/5/2017	1/4/2019	Minière Osisko inc.
1667	2472079	32G04	56.33	CDC	Active	1/9/2017	1/8/2019	Minière Osisko inc.
1668	2472080	32G04	56.33	CDC	Active	1/9/2017	1/8/2019	Minière Osisko inc.
1669	2472081	32G04	56.33	CDC	Active	1/9/2017	1/8/2019	Minière Osisko inc.
1670	2472082	32G04	56.33	CDC	Active	1/9/2017	1/8/2019	Minière Osisko inc.
1671	2472083	32G04	56.33	CDC	Active	1/9/2017	1/8/2019	Minière Osisko inc.
1672	2472084	32G04	56.33	CDC	Active	1/9/2017	1/8/2019	Minière Osisko inc.
1673	2472085	32G04	56.33	CDC	Active	1/9/2017	1/8/2019	Minière Osisko inc.
1674	2472086	32G04	56.32	CDC	Active	1/9/2017	1/8/2019	Minière Osisko inc.
1675	2472087	32G04	56.32	CDC	Active	1/9/2017	1/8/2019	Minière Osisko inc.
1676	2472088	32G04	56.32	CDC	Active	1/9/2017	1/8/2019	Minière Osisko inc.
1677	2472089	32G04	56.32	CDC	Active	1/9/2017	1/8/2019	Minière Osisko inc.
1678	2472090	32G04	56.32	CDC	Active	1/9/2017	1/8/2019	Minière Osisko inc.

Item	Title	NTS	Area (ha)	Type	Status	Staking Date	Expiration Date	Owner (according to GESTIM)
1679	2472091	32G04	56.32	CDC	Active	1/9/2017	1/8/2019	Minière Osisko inc.
1680	2472092	32G04	56.32	CDC	Active	1/9/2017	1/8/2019	Minière Osisko inc.
1681	2472093	32G04	56.31	CDC	Active	1/9/2017	1/8/2019	Minière Osisko inc.
1682	2472094	32G04	56.31	CDC	Active	1/9/2017	1/8/2019	Minière Osisko inc.
1683	2472095	32G04	56.31	CDC	Active	1/9/2017	1/8/2019	Minière Osisko inc.
1684	2472096	32G04	56.31	CDC	Active	1/9/2017	1/8/2019	Minière Osisko inc.
1685	2472097	32G04	56.31	CDC	Active	1/9/2017	1/8/2019	Minière Osisko inc.
1686	2472098	32G04	56.31	CDC	Active	1/9/2017	1/8/2019	Minière Osisko inc.
1687	2472099	32G04	56.31	CDC	Active	1/9/2017	1/8/2019	Minière Osisko inc.
1688	2472100	32G04	56.30	CDC	Active	1/9/2017	1/8/2019	Minière Osisko inc.
1689	2472101	32G04	56.30	CDC	Active	1/9/2017	1/8/2019	Minière Osisko inc.
1690	2472102	32G04	56.30	CDC	Active	1/9/2017	1/8/2019	Minière Osisko inc.
1691	2472103	32G04	56.30	CDC	Active	1/9/2017	1/8/2019	Minière Osisko inc.
1692	2472104	32G04	56.30	CDC	Active	1/9/2017	1/8/2019	Minière Osisko inc.
1693	2472105	32G04	56.30	CDC	Active	1/9/2017	1/8/2019	Minière Osisko inc.
1694	2472106	32G04	56.29	CDC	Active	1/9/2017	1/8/2019	Minière Osisko inc.
1695	2472107	32G04	56.29	CDC	Active	1/9/2017	1/8/2019	Minière Osisko inc.
1696	2472108	32G04	56.29	CDC	Active	1/9/2017	1/8/2019	Minière Osisko inc.
1697	2472109	32G04	56.29	CDC	Active	1/9/2017	1/8/2019	Minière Osisko inc.
1698	2472110	32G04	56.29	CDC	Active	1/9/2017	1/8/2019	Minière Osisko inc.
1699	2472111	32G04	56.29	CDC	Active	1/9/2017	1/8/2019	Minière Osisko inc.
1700	2472112	32G04	56.29	CDC	Active	1/9/2017	1/8/2019	Minière Osisko inc.
1701	2472113	32G04	56.28	CDC	Active	1/9/2017	1/8/2019	Minière Osisko inc.
1702	2472114	32G04	56.28	CDC	Active	1/9/2017	1/8/2019	Minière Osisko inc.
1703	2472115	32G04	56.28	CDC	Active	1/9/2017	1/8/2019	Minière Osisko inc.
1704	2472116	32G04	56.28	CDC	Active	1/9/2017	1/8/2019	Minière Osisko inc.
1705	2472117	32G04	56.28	CDC	Active	1/9/2017	1/8/2019	Minière Osisko inc.
1706	2472118	32G04	56.28	CDC	Active	1/9/2017	1/8/2019	Minière Osisko inc.
1707	2472119	32G02	56.41	CDC	Active	1/9/2017	1/8/2019	Minière Osisko inc.
1708	2472120	32G02	56.41	CDC	Active	1/9/2017	1/8/2019	Minière Osisko inc.
1709	2472121	32G02	56.41	CDC	Active	1/9/2017	1/8/2019	Minière Osisko inc.
1710	2472122	32G02	56.40	CDC	Active	1/9/2017	1/8/2019	Minière Osisko inc.
1711	2472123	32G02	56.40	CDC	Active	1/9/2017	1/8/2019	Minière Osisko inc.
1712	2472124	32G02	56.40	CDC	Active	1/9/2017	1/8/2019	Minière Osisko inc.
1713	2472125	32G02	56.39	CDC	Active	1/9/2017	1/8/2019	Minière Osisko inc.
1714	2472126	32G02	56.39	CDC	Active	1/9/2017	1/8/2019	Minière Osisko inc.
1715	2472127	32G02	56.39	CDC	Active	1/9/2017	1/8/2019	Minière Osisko inc.
1716	2472128	32G03	56.41	CDC	Active	1/9/2017	1/8/2019	Minière Osisko inc.
1717	2472129	32G03	56.41	CDC	Active	1/9/2017	1/8/2019	Minière Osisko inc.
1718	2472130	32G03	56.41	CDC	Active	1/9/2017	1/8/2019	Minière Osisko inc.
1719	2472131	32G03	56.40	CDC	Active	1/9/2017	1/8/2019	Minière Osisko inc.
1720	2472132	32G03	56.40	CDC	Active	1/9/2017	1/8/2019	Minière Osisko inc.

Item	Title	NTS	Area (ha)	Type	Status	Staking Date	Expiration Date	Owner (according to GESTIM)
1721	2472133	32G03	56.39	CDC	Active	1/9/2017	1/8/2019	Minière Osisko inc.
1722	2472134	32G03	56.39	CDC	Active	1/9/2017	1/8/2019	Minière Osisko inc.
1723	2472135	32G03	56.39	CDC	Active	1/9/2017	1/8/2019	Minière Osisko inc.
1724	2472136	32G03	56.39	CDC	Active	1/9/2017	1/8/2019	Minière Osisko inc.
1725	2472137	32G03	56.39	CDC	Active	1/9/2017	1/8/2019	Minière Osisko inc.
1726	2472138	32G03	56.38	CDC	Active	1/9/2017	1/8/2019	Minière Osisko inc.
1727	2472139	32G03	56.38	CDC	Active	1/9/2017	1/8/2019	Minière Osisko inc.
1728	2472140	32G03	56.38	CDC	Active	1/9/2017	1/8/2019	Minière Osisko inc.
1729	2472141	32G03	56.38	CDC	Active	1/9/2017	1/8/2019	Minière Osisko inc.
1730	2472142	32G03	56.38	CDC	Active	1/9/2017	1/8/2019	Minière Osisko inc.
1731	2472143	32G03	56.37	CDC	Active	1/9/2017	1/8/2019	Minière Osisko inc.
1732	2472144	32G03	56.37	CDC	Active	1/9/2017	1/8/2019	Minière Osisko inc.
1733	2472145	32G03	56.37	CDC	Active	1/9/2017	1/8/2019	Minière Osisko inc.
1734	2472146	32G03	56.37	CDC	Active	1/9/2017	1/8/2019	Minière Osisko inc.
1735	2472147	32G03	56.37	CDC	Active	1/9/2017	1/8/2019	Minière Osisko inc.
1736	2472148	32G03	56.36	CDC	Active	1/9/2017	1/8/2019	Minière Osisko inc.
1737	2472149	32G03	56.36	CDC	Active	1/9/2017	1/8/2019	Minière Osisko inc.
1738	2472150	32G03	56.36	CDC	Active	1/9/2017	1/8/2019	Minière Osisko inc.
1739	2472151	32G03	56.36	CDC	Active	1/9/2017	1/8/2019	Minière Osisko inc.
1740	2472152	32G03	56.33	CDC	Active	1/9/2017	1/8/2019	Minière Osisko inc.
1741	2472153	32G03	56.33	CDC	Active	1/9/2017	1/8/2019	Minière Osisko inc.
1742	2472157	32G04	56.30	CDC	Active	1/9/2017	1/8/2019	Minière Osisko inc.
1743	2472158	32G04	56.30	CDC	Active	1/9/2017	1/8/2019	Minière Osisko inc.
1744	2472159	32G04	56.30	CDC	Active	1/9/2017	1/8/2019	Minière Osisko inc.
1745	2472160	32G04	56.29	CDC	Active	1/9/2017	1/8/2019	Minière Osisko inc.
1746	2472161	32G04	56.29	CDC	Active	1/9/2017	1/8/2019	Minière Osisko inc.
1747	2472162	32G04	56.29	CDC	Active	1/9/2017	1/8/2019	Minière Osisko inc.
1748	2472163	32G04	56.29	CDC	Active	1/9/2017	1/8/2019	Minière Osisko inc.
1749	2472164	32G04	56.29	CDC	Active	1/9/2017	1/8/2019	Minière Osisko inc.
1750	2472165	32G04	56.29	CDC	Active	1/9/2017	1/8/2019	Minière Osisko inc.
1751	2472166	32G04	56.28	CDC	Active	1/9/2017	1/8/2019	Minière Osisko inc.
1752	2472167	32G04	56.28	CDC	Active	1/9/2017	1/8/2019	Minière Osisko inc.
1753	2472168	32G04	56.28	CDC	Active	1/9/2017	1/8/2019	Minière Osisko inc.
1754	2472169	32G04	56.28	CDC	Active	1/9/2017	1/8/2019	Minière Osisko inc.
1755	2472170	32G04	56.28	CDC	Active	1/9/2017	1/8/2019	Minière Osisko inc.
1756	2472171	32G04	56.28	CDC	Active	1/9/2017	1/8/2019	Minière Osisko inc.
1757	2472172	32G04	56.28	CDC	Active	1/9/2017	1/8/2019	Minière Osisko inc.
1758	2472173	32G04	56.27	CDC	Active	1/9/2017	1/8/2019	Minière Osisko inc.
1759	2472174	32G04	56.27	CDC	Active	1/9/2017	1/8/2019	Minière Osisko inc.
1760	2472175	32G04	56.27	CDC	Active	1/9/2017	1/8/2019	Minière Osisko inc.
1761	2472176	32G04	56.27	CDC	Active	1/9/2017	1/8/2019	Minière Osisko inc.
1762	2472177	32G04	56.27	CDC	Active	1/9/2017	1/8/2019	Minière Osisko inc.

Item	Title	NTS	Area (ha)	Type	Status	Staking Date	Expiration Date	Owner (according to GESTIM)
1763	2472178	32G04	56.27	CDC	Active	1/9/2017	1/8/2019	Minière Osisko inc.
1764	2472179	32G04	56.27	CDC	Active	1/9/2017	1/8/2019	Minière Osisko inc.
1765	2472180	32G04	56.27	CDC	Active	1/9/2017	1/8/2019	Minière Osisko inc.
1766	2472181	32G04	56.27	CDC	Active	1/9/2017	1/8/2019	Minière Osisko inc.
1767	2472182	32G04	56.27	CDC	Active	1/9/2017	1/8/2019	Minière Osisko inc.
1768	2472183	32G04	56.27	CDC	Active	1/9/2017	1/8/2019	Minière Osisko inc.
1769	2472184	32G04	56.27	CDC	Active	1/9/2017	1/8/2019	Minière Osisko inc.
1770	2472185	32G04	56.26	CDC	Active	1/9/2017	1/8/2019	Minière Osisko inc.
1771	2472186	32G04	56.26	CDC	Active	1/9/2017	1/8/2019	Minière Osisko inc.
1772	2472187	32G04	56.26	CDC	Active	1/9/2017	1/8/2019	Minière Osisko inc.
1773	2472188	32G04	56.26	CDC	Active	1/9/2017	1/8/2019	Minière Osisko inc.
1774	2472189	32G04	56.26	CDC	Active	1/9/2017	1/8/2019	Minière Osisko inc.
1775	2472190	32G04	56.26	CDC	Active	1/9/2017	1/8/2019	Minière Osisko inc.
1776	2472191	32G04	56.26	CDC	Active	1/9/2017	1/8/2019	Minière Osisko inc.
1777	2472192	32G04	56.26	CDC	Active	1/9/2017	1/8/2019	Minière Osisko inc.
1778	2472193	32G04	56.26	CDC	Active	1/9/2017	1/8/2019	Minière Osisko inc.
1779	2472194	32G04	56.26	CDC	Active	1/9/2017	1/8/2019	Minière Osisko inc.
1780	2472195	32G04	56.26	CDC	Active	1/9/2017	1/8/2019	Minière Osisko inc.
1781	2472196	32G04	56.26	CDC	Active	1/9/2017	1/8/2019	Minière Osisko inc.
1782	2472197	32G02	56.43	CDC	Active	1/9/2017	1/8/2019	Minière Osisko inc.
1783	2472198	32G02	56.43	CDC	Active	1/9/2017	1/8/2019	Minière Osisko inc.
1784	2472199	32G02	56.43	CDC	Active	1/9/2017	1/8/2019	Minière Osisko inc.
1785	2472200	32G02	56.42	CDC	Active	1/9/2017	1/8/2019	Minière Osisko inc.
1786	2472201	32G02	56.42	CDC	Active	1/9/2017	1/8/2019	Minière Osisko inc.
1787	2472202	32G02	56.42	CDC	Active	1/9/2017	1/8/2019	Minière Osisko inc.
1788	2472203	32G03	56.46	CDC	Active	1/9/2017	1/8/2019	Minière Osisko inc.
1789	2472204	32G03	56.46	CDC	Active	1/9/2017	1/8/2019	Minière Osisko inc.
1790	2472205	32G03	56.46	CDC	Active	1/9/2017	1/8/2019	Minière Osisko inc.
1791	2472206	32G03	56.46	CDC	Active	1/9/2017	1/8/2019	Minière Osisko inc.
1792	2472207	32G03	56.46	CDC	Active	1/9/2017	1/8/2019	Minière Osisko inc.
1793	2472208	32G03	56.45	CDC	Active	1/9/2017	1/8/2019	Minière Osisko inc.
1794	2472209	32G03	56.45	CDC	Active	1/9/2017	1/8/2019	Minière Osisko inc.
1795	2472210	32G03	56.45	CDC	Active	1/9/2017	1/8/2019	Minière Osisko inc.
1796	2472211	32G03	56.45	CDC	Active	1/9/2017	1/8/2019	Minière Osisko inc.
1797	2472212	32G03	56.45	CDC	Active	1/9/2017	1/8/2019	Minière Osisko inc.
1798	2472213	32G03	56.44	CDC	Active	1/9/2017	1/8/2019	Minière Osisko inc.
1799	2472214	32G03	56.44	CDC	Active	1/9/2017	1/8/2019	Minière Osisko inc.
1800	2472215	32G03	56.44	CDC	Active	1/9/2017	1/8/2019	Minière Osisko inc.
1801	2472216	32G03	56.44	CDC	Active	1/9/2017	1/8/2019	Minière Osisko inc.
1802	2472217	32G03	56.43	CDC	Active	1/9/2017	1/8/2019	Minière Osisko inc.
1803	2472218	32G03	56.43	CDC	Active	1/9/2017	1/8/2019	Minière Osisko inc.
1804	2472219	32G03	56.43	CDC	Active	1/9/2017	1/8/2019	Minière Osisko inc.

Item	Title	NTS	Area (ha)	Type	Status	Staking Date	Expiration Date	Owner (according to GESTIM)
1805	2472220	32G03	56.43	CDC	Active	1/9/2017	1/8/2019	Minière Osisko inc.
1806	2472221	32G03	56.42	CDC	Active	1/9/2017	1/8/2019	Minière Osisko inc.
1807	2472222	32G03	56.42	CDC	Active	1/9/2017	1/8/2019	Minière Osisko inc.
1808	2472223	32G03	56.42	CDC	Active	1/9/2017	1/8/2019	Minière Osisko inc.
1809	2472224	32G03	56.42	CDC	Active	1/9/2017	1/8/2019	Minière Osisko inc.
1810	2472225	32G03	56.42	CDC	Active	1/9/2017	1/8/2019	Minière Osisko inc.
1811	2472287	32G04	56.33	CDC	Active	1/9/2017	1/8/2019	Minière Osisko inc.
1812	2472288	32G04	56.33	CDC	Active	1/9/2017	1/8/2019	Minière Osisko inc.
1813	2472289	32G04	56.33	CDC	Active	1/9/2017	1/8/2019	Minière Osisko inc.
1814	2472290	32G04	56.33	CDC	Active	1/9/2017	1/8/2019	Minière Osisko inc.
1815	2472291	32G04	56.32	CDC	Active	1/9/2017	1/8/2019	Minière Osisko inc.
1816	2472292	32G04	56.32	CDC	Active	1/9/2017	1/8/2019	Minière Osisko inc.
1817	2472293	32G04	56.32	CDC	Active	1/9/2017	1/8/2019	Minière Osisko inc.
1818	2472294	32G04	56.32	CDC	Active	1/9/2017	1/8/2019	Minière Osisko inc.
1819	2472295	32G04	56.31	CDC	Active	1/9/2017	1/8/2019	Minière Osisko inc.
1820	2472296	32G04	56.31	CDC	Active	1/9/2017	1/8/2019	Minière Osisko inc.
1821	2472297	32G04	56.31	CDC	Active	1/9/2017	1/8/2019	Minière Osisko inc.
1822	2472298	32G04	56.31	CDC	Active	1/9/2017	1/8/2019	Minière Osisko inc.
1823	2472299	32G04	56.31	CDC	Active	1/9/2017	1/8/2019	Minière Osisko inc.
1824	2472300	32G04	56.30	CDC	Active	1/9/2017	1/8/2019	Minière Osisko inc.
1825	2472301	32G04	56.30	CDC	Active	1/9/2017	1/8/2019	Minière Osisko inc.
1826	2472302	32G04	56.30	CDC	Active	1/9/2017	1/8/2019	Minière Osisko inc.
1827	2472303	32G04	56.30	CDC	Active	1/9/2017	1/8/2019	Minière Osisko inc.
1828	2472304	32G04	56.30	CDC	Active	1/9/2017	1/8/2019	Minière Osisko inc.
1829	2472305	32G04	56.30	CDC	Active	1/9/2017	1/8/2019	Minière Osisko inc.
1830	2472306	32G04	56.29	CDC	Active	1/9/2017	1/8/2019	Minière Osisko inc.
1831	2472307	32G04	56.29	CDC	Active	1/9/2017	1/8/2019	Minière Osisko inc.
1832	2472308	32G04	56.29	CDC	Active	1/9/2017	1/8/2019	Minière Osisko inc.
1833	2472309	32G04	56.29	CDC	Active	1/9/2017	1/8/2019	Minière Osisko inc.
1834	2472310	32G04	56.29	CDC	Active	1/9/2017	1/8/2019	Minière Osisko inc.
1835	2472311	32G04	56.29	CDC	Active	1/9/2017	1/8/2019	Minière Osisko inc.
1836	2472312	32G04	56.28	CDC	Active	1/9/2017	1/8/2019	Minière Osisko inc.
1837	2472313	32G04	56.28	CDC	Active	1/9/2017	1/8/2019	Minière Osisko inc.
1838	2472314	32G04	56.28	CDC	Active	1/9/2017	1/8/2019	Minière Osisko inc.
1839	2472315	32G04	56.28	CDC	Active	1/9/2017	1/8/2019	Minière Osisko inc.
1840	2472316	32G04	56.28	CDC	Active	1/9/2017	1/8/2019	Minière Osisko inc.
1841	2472317	32G04	56.28	CDC	Active	1/9/2017	1/8/2019	Minière Osisko inc.
1842	2472318	32G04	56.27	CDC	Active	1/9/2017	1/8/2019	Minière Osisko inc.
1843	2472319	32G04	56.27	CDC	Active	1/9/2017	1/8/2019	Minière Osisko inc.
1844	2472320	32G04	56.27	CDC	Active	1/9/2017	1/8/2019	Minière Osisko inc.
1845	2472321	32G04	56.27	CDC	Active	1/9/2017	1/8/2019	Minière Osisko inc.
1846	2472322	32G04	56.27	CDC	Active	1/9/2017	1/8/2019	Minière Osisko inc.

Item	Title	NTS	Area (ha)	Type	Status	Staking Date	Expiration Date	Owner (according to GESTIM)
1847	2472323	32G04	56.27	CDC	Active	1/9/2017	1/8/2019	Minière Osisko inc.
1848	2472324	32G04	56.26	CDC	Active	1/9/2017	1/8/2019	Minière Osisko inc.
1849	2472325	32G04	56.26	CDC	Active	1/9/2017	1/8/2019	Minière Osisko inc.
1850	2472326	32G04	56.26	CDC	Active	1/9/2017	1/8/2019	Minière Osisko inc.
1851	2472369	32G04	56.27	CDC	Active	1/9/2017	1/8/2019	Minière Osisko inc.
1852	2472370	32G04	56.26	CDC	Active	1/9/2017	1/8/2019	Minière Osisko inc.
1853	2472371	32G04	56.26	CDC	Active	1/9/2017	1/8/2019	Minière Osisko inc.
1854	2472372	32G04	56.26	CDC	Active	1/9/2017	1/8/2019	Minière Osisko inc.
1855	2472373	32G04	56.26	CDC	Active	1/9/2017	1/8/2019	Minière Osisko inc.
1856	2472465	32G03	56.28	CDC	Active	1/12/2017	1/11/2019	Minière Osisko inc.
1857	2472466	32G03	56.28	CDC	Active	1/12/2017	1/11/2019	Minière Osisko inc.
1858	2473065	32G03	56.38	CDC	Active	1/20/2017	1/19/2019	Minière Osisko inc.
1859	2473066	32G03	55.58	CDC	Active	1/20/2017	1/19/2019	Minière Osisko inc.
1860	2473067	32G03	46.94	CDC	Active	1/20/2017	1/19/2019	Minière Osisko inc.
1861	2473068	32G03	49.92	CDC	Active	1/20/2017	1/19/2019	Minière Osisko inc.
1862	2473069	32G03	46.63	CDC	Active	1/20/2017	1/19/2019	Minière Osisko inc.
1863	2473070	32G03	0.88	CDC	Active	1/20/2017	1/19/2019	Minière Osisko inc.
1864	2473071	32G03	1.71	CDC	Active	1/20/2017	1/19/2019	Minière Osisko inc.
1865	2473072	32G03	0.23	CDC	Active	1/20/2017	1/19/2019	Minière Osisko inc.
1866	2473073	32G03	0.15	CDC	Active	1/20/2017	1/19/2019	Minière Osisko inc.
1867	2473074	32G03	3.42	CDC	Active	1/20/2017	1/19/2019	Minière Osisko inc.
1868	2473075	32G03	0.35	CDC	Active	1/20/2017	1/19/2019	Minière Osisko inc.
1869	2473076	32G03	0.23	CDC	Active	1/20/2017	1/19/2019	Minière Osisko inc.
1870	2473077	32G03	39.67	CDC	Active	1/23/2017	1/22/2019	Minière Osisko inc.
1871	2473078	32G03	27.19	CDC	Active	1/23/2017	1/22/2019	Minière Osisko inc.
1872	2473079	32G03	22.40	CDC	Active	1/23/2017	1/22/2019	Minière Osisko inc.
1873	2473080	32G03	32.66	CDC	Active	1/23/2017	1/22/2019	Minière Osisko inc.
1874	2473081	32G03	45.08	CDC	Active	1/23/2017	1/22/2019	Minière Osisko inc.
1875	2473082	32G03	56.16	CDC	Active	1/23/2017	1/22/2019	Minière Osisko inc.
1876	2473815	32B14	56.53	CDC	Active	1/30/2017	1/29/2019	Minière Osisko inc.
1877	2473816	32B14	56.53	CDC	Active	1/30/2017	1/29/2019	Minière Osisko inc.
1878	2473817	32B14	56.53	CDC	Active	1/30/2017	1/29/2019	Minière Osisko inc.
1879	2473818	32B14	56.53	CDC	Active	1/30/2017	1/29/2019	Minière Osisko inc.
1880	2473819	32B14	56.53	CDC	Active	1/30/2017	1/29/2019	Minière Osisko inc.
1881	2473820	32B14	56.53	CDC	Active	1/30/2017	1/29/2019	Minière Osisko inc.
1882	2473821	32B14	56.52	CDC	Active	1/30/2017	1/29/2019	Minière Osisko inc.
1883	2473822	32B14	56.52	CDC	Active	1/30/2017	1/29/2019	Minière Osisko inc.
1884	2473823	32B14	56.52	CDC	Active	1/30/2017	1/29/2019	Minière Osisko inc.
1885	2473824	32B14	56.52	CDC	Active	1/30/2017	1/29/2019	Minière Osisko inc.
1886	2473825	32B14	56.52	CDC	Active	1/30/2017	1/29/2019	Minière Osisko inc.
1887	2473826	32B14	56.52	CDC	Active	1/30/2017	1/29/2019	Minière Osisko inc.
1888	2473827	32B14	56.52	CDC	Active	1/30/2017	1/29/2019	Minière Osisko inc.

Item	Title	NTS	Area (ha)	Type	Status	Staking Date	Expiration Date	Owner (according to GESTIM)
1889	2473828	32B14	56.52	CDC	Active	1/30/2017	1/29/2019	Minière Osisko inc.
1890	2473829	32B14	56.52	CDC	Active	1/30/2017	1/29/2019	Minière Osisko inc.
1891	2473830	32B14	56.51	CDC	Active	1/30/2017	1/29/2019	Minière Osisko inc.
1892	2473831	32B14	56.51	CDC	Active	1/30/2017	1/29/2019	Minière Osisko inc.
1893	2473832	32B14	56.51	CDC	Active	1/30/2017	1/29/2019	Minière Osisko inc.
1894	2473833	32B14	56.51	CDC	Active	1/30/2017	1/29/2019	Minière Osisko inc.
1895	2473834	32B14	56.51	CDC	Active	1/30/2017	1/29/2019	Minière Osisko inc.
1896	2473835	32B14	56.51	CDC	Active	1/30/2017	1/29/2019	Minière Osisko inc.
1897	2473836	32B14	56.51	CDC	Active	1/30/2017	1/29/2019	Minière Osisko inc.
1898	2473837	32B14	56.51	CDC	Active	1/30/2017	1/29/2019	Minière Osisko inc.
1899	2473838	32B14	56.51	CDC	Active	1/30/2017	1/29/2019	Minière Osisko inc.
1900	2473839	32B14	56.50	CDC	Active	1/30/2017	1/29/2019	Minière Osisko inc.
1901	2473840	32B14	56.50	CDC	Active	1/30/2017	1/29/2019	Minière Osisko inc.
1902	2473841	32B14	56.50	CDC	Active	1/30/2017	1/29/2019	Minière Osisko inc.
1903	2473842	32B14	56.50	CDC	Active	1/30/2017	1/29/2019	Minière Osisko inc.
1904	2473843	32B14	56.50	CDC	Active	1/30/2017	1/29/2019	Minière Osisko inc.
1905	2473844	32B14	56.50	CDC	Active	1/30/2017	1/29/2019	Minière Osisko inc.
1906	2473845	32B14	56.50	CDC	Active	1/30/2017	1/29/2019	Minière Osisko inc.
1907	2473846	32B14	56.50	CDC	Active	1/30/2017	1/29/2019	Minière Osisko inc.
1908	2473847	32B14	56.49	CDC	Active	1/30/2017	1/29/2019	Minière Osisko inc.
1909	2473848	32B14	56.49	CDC	Active	1/30/2017	1/29/2019	Minière Osisko inc.
1910	2473849	32B14	56.49	CDC	Active	1/30/2017	1/29/2019	Minière Osisko inc.
1911	2473850	32B14	56.48	CDC	Active	1/30/2017	1/29/2019	Minière Osisko inc.
1912	2473851	32B14	56.48	CDC	Active	1/30/2017	1/29/2019	Minière Osisko inc.
1913	2473852	32B14	56.48	CDC	Active	1/30/2017	1/29/2019	Minière Osisko inc.
1914	2473909	32B14	56.54	CDC	Active	1/30/2017	1/29/2019	Minière Osisko inc.
1915	2473910	32B14	56.54	CDC	Active	1/30/2017	1/29/2019	Minière Osisko inc.
1916	2473911	32B14	56.54	CDC	Active	1/30/2017	1/29/2019	Minière Osisko inc.
1917	2473912	32B14	56.54	CDC	Active	1/30/2017	1/29/2019	Minière Osisko inc.
1918	2473913	32B14	56.54	CDC	Active	1/30/2017	1/29/2019	Minière Osisko inc.
1919	2473914	32B14	56.54	CDC	Active	1/30/2017	1/29/2019	Minière Osisko inc.
1920	2473915	32B14	56.54	CDC	Active	1/30/2017	1/29/2019	Minière Osisko inc.
1921	2473916	32B14	56.54	CDC	Active	1/30/2017	1/29/2019	Minière Osisko inc.
1922	2473917	32B14	56.54	CDC	Active	1/30/2017	1/29/2019	Minière Osisko inc.
1923	2473918	32B14	56.54	CDC	Active	1/30/2017	1/29/2019	Minière Osisko inc.
1924	2473919	32B14	56.54	CDC	Active	1/30/2017	1/29/2019	Minière Osisko inc.
1925	2473920	32B14	56.54	CDC	Active	1/30/2017	1/29/2019	Minière Osisko inc.
1926	2473921	32B14	56.54	CDC	Active	1/30/2017	1/29/2019	Minière Osisko inc.
1927	2473922	32B14	56.54	CDC	Active	1/30/2017	1/29/2019	Minière Osisko inc.
1928	2473923	32B14	56.53	CDC	Active	1/30/2017	1/29/2019	Minière Osisko inc.
1929	2473924	32B14	56.53	CDC	Active	1/30/2017	1/29/2019	Minière Osisko inc.
1930	2473925	32B14	56.53	CDC	Active	1/30/2017	1/29/2019	Minière Osisko inc.

Item	Title	NTS	Area (ha)	Type	Status	Staking Date	Expiration Date	Owner (according to GESTIM)
1931	2473926	32B14	56.53	CDC	Active	1/30/2017	1/29/2019	Minière Osisko inc.
1932	2473927	32B14	56.52	CDC	Active	1/30/2017	1/29/2019	Minière Osisko inc.
1933	2473928	32B14	56.52	CDC	Active	1/30/2017	1/29/2019	Minière Osisko inc.
1934	2473929	32B14	56.52	CDC	Active	1/30/2017	1/29/2019	Minière Osisko inc.
1935	2473930	32B14	56.52	CDC	Active	1/30/2017	1/29/2019	Minière Osisko inc.
1936	2473931	32B14	56.52	CDC	Active	1/30/2017	1/29/2019	Minière Osisko inc.
1937	2473932	32B14	56.51	CDC	Active	1/30/2017	1/29/2019	Minière Osisko inc.
1938	2473933	32B14	56.51	CDC	Active	1/30/2017	1/29/2019	Minière Osisko inc.
1939	2473934	32B14	56.50	CDC	Active	1/30/2017	1/29/2019	Minière Osisko inc.
1940	2473935	32B14	56.50	CDC	Active	1/30/2017	1/29/2019	Minière Osisko inc.
1941	2473936	32B14	56.49	CDC	Active	1/30/2017	1/29/2019	Minière Osisko inc.
1942	2473937	32B14	56.48	CDC	Active	1/30/2017	1/29/2019	Minière Osisko inc.
1943	2473938	32B14	56.48	CDC	Active	1/30/2017	1/29/2019	Minière Osisko inc.
1944	2473939	32B14	56.48	CDC	Active	1/30/2017	1/29/2019	Minière Osisko inc.
1945	2473950	32B14	56.56	CDC	Active	1/30/2017	1/29/2019	Minière Osisko inc.
1946	2473951	32B14	56.56	CDC	Active	1/30/2017	1/29/2019	Minière Osisko inc.
1947	2473952	32B14	56.56	CDC	Active	1/30/2017	1/29/2019	Minière Osisko inc.
1948	2473953	32B14	56.56	CDC	Active	1/30/2017	1/29/2019	Minière Osisko inc.
1949	2473954	32B14	56.56	CDC	Active	1/30/2017	1/29/2019	Minière Osisko inc.
1950	2473955	32B14	56.55	CDC	Active	1/30/2017	1/29/2019	Minière Osisko inc.
1951	2473956	32B14	56.55	CDC	Active	1/30/2017	1/29/2019	Minière Osisko inc.
1952	2473957	32B14	56.55	CDC	Active	1/30/2017	1/29/2019	Minière Osisko inc.
1953	2473958	32B14	56.55	CDC	Active	1/30/2017	1/29/2019	Minière Osisko inc.
1954	2473959	32B14	56.55	CDC	Active	1/30/2017	1/29/2019	Minière Osisko inc.
1955	2473960	32B14	56.55	CDC	Active	1/30/2017	1/29/2019	Minière Osisko inc.
1956	2475585	32G02	56.33	CDC	Active	1/31/2017	1/30/2019	Minière Osisko inc.
1957	2475586	32G03	56.44	CDC	Active	1/31/2017	1/30/2019	Minière Osisko inc.
1958	2475587	32G03	56.38	CDC	Active	1/31/2017	1/30/2019	Minière Osisko inc.
1959	2475588	32G03	56.37	CDC	Active	1/31/2017	1/30/2019	Minière Osisko inc.
1960	2475589	32G03	56.36	CDC	Active	1/31/2017	1/30/2019	Minière Osisko inc.
1961	2475590	32G03	56.33	CDC	Active	1/31/2017	1/30/2019	Minière Osisko inc.
1962	2475591	32G03	56.32	CDC	Active	1/31/2017	1/30/2019	Minière Osisko inc.
1963	2484527	32B14	55.32	CDC	Active	3/16/2017	3/15/2019	Minière Osisko inc.
1964	2484528	32B14	23.02	CDC	Active	3/16/2017	3/15/2019	Minière Osisko inc.
1965	2484529	32B14	52.42	CDC	Active	3/16/2017	3/15/2019	Minière Osisko inc.
1966	2484530	32B14	20.09	CDC	Active	3/16/2017	3/15/2019	Minière Osisko inc.
1967	2484531	32B14	21.23	CDC	Active	3/16/2017	3/15/2019	Minière Osisko inc.
1968	2484532	32B14	53.54	CDC	Active	3/16/2017	3/15/2019	Minière Osisko inc.
1969	2484533	32B14	30.55	CDC	Active	3/16/2017	3/15/2019	Minière Osisko inc.
1970	2484534	32B14	55.91	CDC	Active	3/16/2017	3/15/2019	Minière Osisko inc.
1971	2484535	32B14	8.01	CDC	Active	3/16/2017	3/15/2019	Minière Osisko inc.
1972	2484536	32B14	1.19	CDC	Active	3/16/2017	3/15/2019	Minière Osisko inc.

Item	Title	NTS	Area (ha)	Type	Status	Staking Date	Expiration Date	Owner (according to GESTIM)
1973	2491612	32B13	56.56	CDC	Active	5/5/2017	5/4/2019	Minière Osisko inc.
1974	2491613	32B13	56.55	CDC	Active	5/5/2017	5/4/2019	Minière Osisko inc.
1975	2492749	32G04	56.42	CDC	Active	5/24/2017	5/23/2019	Minière Osisko inc.
1976	2493123	32B14	56.49	CDC	Active	5/24/2017	5/23/2019	Minière Osisko inc.
1977	2493124	32B14	56.49	CDC	Active	5/24/2017	5/23/2019	Minière Osisko inc.
1978	2493125	32B14	56.47	CDC	Active	5/24/2017	5/23/2019	Minière Osisko inc.
1979	2493126	32B14	56.47	CDC	Active	5/24/2017	5/23/2019	Minière Osisko inc.
1980	2493127	32B14	56.47	CDC	Active	5/24/2017	5/23/2019	Minière Osisko inc.
1981	2495061	32B13	56.59	CDC	Active	6/9/2017	6/8/2019	Minière Osisko inc.
1982	2495062	32B13	56.59	CDC	Active	6/9/2017	6/8/2019	Minière Osisko inc.
1983	2495063	32B13	56.58	CDC	Active	6/9/2017	6/8/2019	Minière Osisko inc.
1984	2495064	32B13	56.58	CDC	Active	6/9/2017	6/8/2019	Minière Osisko inc.
1985	2499645	32G04	56.41	CDC	Active	8/11/2017	8/10/2019	Minière Osisko inc.
1986	2499653	32G04	56.40	CDC	Active	8/11/2017	8/10/2019	Minière Osisko inc.
1987	2499654	32G04	56.38	CDC	Active	8/11/2017	8/10/2019	Minière Osisko inc.
1988	2499655	32G04	56.45	CDC	Active	8/11/2017	8/10/2019	Minière Osisko inc.
1989	2499656	32G04	56.44	CDC	Active	8/11/2017	8/10/2019	Minière Osisko inc.
1990	2499658	32G03	56.27	CDC	Active	8/11/2017	8/10/2019	Minière Osisko inc.
1991	2499659	32G03	56.27	CDC	Active	8/11/2017	8/10/2019	Minière Osisko inc.
1992	2499660	32G03	56.35	CDC	Active	8/11/2017	8/10/2019	Minière Osisko inc.
1993	2499661	32G03	56.35	CDC	Active	8/11/2017	8/10/2019	Minière Osisko inc.
1994	2499684	32G04	56.43	CDC	Active	8/11/2017	8/10/2019	Minière Osisko inc.
1995	2505919	32G03	56.39	CDC	Active	11/21/2017	11/20/2019	Minière Osisko inc.
1996	2505921	32G03	56.40	CDC	Active	11/21/2017	11/20/2019	Minière Osisko inc.
1997	2505922	32G03	56.39	CDC	Active	11/21/2017	11/20/2019	Minière Osisko inc.
Urban-Barry Claim List on April 9, 2018; 1,997 Claims for 110,748.44 ha								

Appendix B: List of Quévillon Property Mining
Titles According to GESTIM
(February 20, 2018)

Title	NTS	Area (ha)	Type	Status	Staking Date	Expiration Date	Owner (according to GESTIM)
2138514	32F03	42,33	CDC	Active	10-déc-07	09-déc-19	100% Minière Osisko inc. (96006)
2138515	32F03	42,78	CDC	Active	10-déc-07	09-déc-19	100% Minière Osisko inc. (96006)
2138516	32F03	41,98	CDC	Active	10-déc-07	09-déc-19	100% Minière Osisko inc. (96006)
2138517	32F03	27,14	CDC	Active	10-déc-07	09-déc-19	100% Minière Osisko inc. (96006)
2138518	32F03	41,62	CDC	Active	10-déc-07	09-déc-19	100% Minière Osisko inc. (96006)
2138519	32F03	40,29	CDC	Active	10-déc-07	09-déc-19	100% Minière Osisko inc. (96006)
2138520	32F03	42,45	CDC	Active	10-déc-07	09-déc-19	100% Minière Osisko inc. (96006)
2138521	32F03	39,43	CDC	Active	10-déc-07	09-déc-19	100% Minière Osisko inc. (96006)
2138522	32F03	41,12	CDC	Active	10-déc-07	09-déc-19	100% Minière Osisko inc. (96006)
2138523	32F03	42,1	CDC	Active	10-déc-07	09-déc-19	100% Minière Osisko inc. (96006)
2138524	32F03	43,56	CDC	Active	10-déc-07	09-déc-19	100% Minière Osisko inc. (96006)
2138525	32F03	43,6	CDC	Active	10-déc-07	09-déc-19	100% Minière Osisko inc. (96006)
2138526	32F03	27,81	CDC	Active	10-déc-07	09-déc-19	100% Minière Osisko inc. (96006)
2138527	32F03	42,65	CDC	Active	10-déc-07	09-déc-19	100% Minière Osisko inc. (96006)
2138528	32F03	42,45	CDC	Active	10-déc-07	09-déc-19	100% Minière Osisko inc. (96006)
2138529	32F03	43,11	CDC	Active	10-déc-07	09-déc-19	100% Minière Osisko inc. (96006)
2138530	32F03	40,61	CDC	Active	10-déc-07	09-déc-19	100% Minière Osisko inc. (96006)
2138531	32F03	42,23	CDC	Active	10-déc-07	09-déc-19	100% Minière Osisko inc. (96006)
2138532	32F03	43,21	CDC	Active	10-déc-07	09-déc-19	100% Minière Osisko inc. (96006)
2138533	32F03	28,01	CDC	Active	10-déc-07	09-déc-19	100% Minière Osisko inc. (96006)
2138534	32F03	42,45	CDC	Active	10-déc-07	09-déc-19	100% Minière Osisko inc. (96006)
2138535	32F03	42,91	CDC	Active	10-déc-07	09-déc-19	100% Minière Osisko inc. (96006)
2138536	32F03	27,37	CDC	Active	10-déc-07	09-déc-19	100% Minière Osisko inc. (96006)
2138537	32F03	41,57	CDC	Active	10-déc-07	09-déc-19	100% Minière Osisko inc. (96006)
2138538	32F03	41,84	CDC	Active	10-déc-07	09-déc-19	100% Minière Osisko inc. (96006)
2138539	32F03	42,66	CDC	Active	10-déc-07	09-déc-19	100% Minière Osisko inc. (96006)
2138540	32F03	39,92	CDC	Active	10-déc-07	09-déc-19	100% Minière Osisko inc. (96006)
2138541	32F03	42,01	CDC	Active	10-déc-07	09-déc-19	100% Minière Osisko inc. (96006)
2138588	32F03	29,82	CDC	Active	10-déc-07	09-déc-19	100% Minière Osisko inc. (96006)
2138589	32F03	42,49	CDC	Active	10-déc-07	09-déc-19	100% Minière Osisko inc. (96006)
2138590	32F03	42,49	CDC	Active	10-déc-07	09-déc-19	100% Minière Osisko inc. (96006)
2138591	32F03	42,48	CDC	Active	10-déc-07	09-déc-19	100% Minière Osisko inc. (96006)
2138592	32F03	42,45	CDC	Active	10-déc-07	09-déc-19	100% Minière Osisko inc. (96006)
2138593	32F03	42,43	CDC	Active	10-déc-07	09-déc-19	100% Minière Osisko inc. (96006)
2138594	32F03	42,43	CDC	Active	10-déc-07	09-déc-19	100% Minière Osisko inc. (96006)
2138595	32F03	42,42	CDC	Active	10-déc-07	09-déc-19	100% Minière Osisko inc. (96006)
2138596	32F03	42,41	CDC	Active	10-déc-07	09-déc-19	100% Minière Osisko inc. (96006)
2138597	32F03	42,4	CDC	Active	10-déc-07	09-déc-19	100% Minière Osisko inc. (96006)
2138598	32F03	42,39	CDC	Active	10-déc-07	09-déc-19	100% Minière Osisko inc. (96006)
2138599	32F03	42,4	CDC	Active	10-déc-07	09-déc-19	100% Minière Osisko inc. (96006)
2138600	32F03	42,36	CDC	Active	10-déc-07	09-déc-19	100% Minière Osisko inc. (96006)
2138601	32F03	42,36	CDC	Active	10-déc-07	09-déc-19	100% Minière Osisko inc. (96006)
2138602	32F03	42,35	CDC	Active	10-déc-07	09-déc-19	100% Minière Osisko inc. (96006)
2138603	32F03	28,41	CDC	Active	10-déc-07	09-déc-19	100% Minière Osisko inc. (96006)
2138604	32F03	42,73	CDC	Active	10-déc-07	09-déc-19	100% Minière Osisko inc. (96006)
2138605	32F03	43,13	CDC	Active	10-déc-07	09-déc-19	100% Minière Osisko inc. (96006)
2138606	32F03	42,35	CDC	Active	10-déc-07	09-déc-19	100% Minière Osisko inc. (96006)
2138607	32F03	42,73	CDC	Active	10-déc-07	09-déc-19	100% Minière Osisko inc. (96006)
2138608	32F03	42,73	CDC	Active	10-déc-07	09-déc-19	100% Minière Osisko inc. (96006)
2138609	32F03	42,73	CDC	Active	10-déc-07	09-déc-19	100% Minière Osisko inc. (96006)
2138610	32F03	42,75	CDC	Active	10-déc-07	09-déc-19	100% Minière Osisko inc. (96006)

Title	NTS	Area (ha)	Type	Status	Staking Date	Expiration Date	Owner (according to GESTIM)
2138611	32F03	42,77	CDC	Active	10-déc-07	09-déc-19	100% Minière Osisko inc. (96006)
2138612	32F03	43,19	CDC	Active	10-déc-07	09-déc-19	100% Minière Osisko inc. (96006)
2138613	32F03	42,71	CDC	Active	10-déc-07	09-déc-19	100% Minière Osisko inc. (96006)
2138614	32F03	42,72	CDC	Active	10-déc-07	09-déc-19	100% Minière Osisko inc. (96006)
2138615	32F03	42,75	CDC	Active	10-déc-07	09-déc-19	100% Minière Osisko inc. (96006)
2138616	32F03	42,76	CDC	Active	10-déc-07	09-déc-19	100% Minière Osisko inc. (96006)
2138617	32F03	42,77	CDC	Active	10-déc-07	09-déc-19	100% Minière Osisko inc. (96006)
2138618	32F03	28,25	CDC	Active	10-déc-07	09-déc-19	100% Minière Osisko inc. (96006)
2138628	32F03	40,65	CDC	Active	10-déc-07	09-déc-19	100% Minière Osisko inc. (96006)
2138629	32F03	44,24	CDC	Active	10-déc-07	09-déc-19	100% Minière Osisko inc. (96006)
2138630	32F03	42,75	CDC	Active	10-déc-07	09-déc-19	100% Minière Osisko inc. (96006)
2138631	32F03	41,1	CDC	Active	10-déc-07	09-déc-19	100% Minière Osisko inc. (96006)
2138632	32F03	41,98	CDC	Active	10-déc-07	09-déc-19	100% Minière Osisko inc. (96006)
2138633	32F03	43,68	CDC	Active	10-déc-07	09-déc-19	100% Minière Osisko inc. (96006)
2138634	32F03	40,22	CDC	Active	10-déc-07	09-déc-19	100% Minière Osisko inc. (96006)
2138635	32F03	41,69	CDC	Active	10-déc-07	09-déc-19	100% Minière Osisko inc. (96006)
2138641	32F03	40,04	CDC	Active	10-déc-07	09-déc-19	100% Minière Osisko inc. (96006)
2138642	32F03	43,36	CDC	Active	10-déc-07	09-déc-19	100% Minière Osisko inc. (96006)
2138643	32F03	42,23	CDC	Active	10-déc-07	09-déc-19	100% Minière Osisko inc. (96006)
2138644	32F03	40,92	CDC	Active	10-déc-07	09-déc-19	100% Minière Osisko inc. (96006)
2138645	32F03	41,23	CDC	Active	10-déc-07	09-déc-19	100% Minière Osisko inc. (96006)
2138646	32F03	43,6	CDC	Active	10-déc-07	09-déc-19	100% Minière Osisko inc. (96006)
2138647	32F03	40,5	CDC	Active	10-déc-07	09-déc-19	100% Minière Osisko inc. (96006)
2138648	32F03	41,56	CDC	Active	10-déc-07	09-déc-19	100% Minière Osisko inc. (96006)
2138649	32F03	42,78	CDC	Active	10-déc-07	09-déc-19	100% Minière Osisko inc. (96006)
2138650	32F03	42,43	CDC	Active	10-déc-07	09-déc-19	100% Minière Osisko inc. (96006)
2138651	32F03	42,39	CDC	Active	10-déc-07	09-déc-19	100% Minière Osisko inc. (96006)
2138652	32F03	42,16	CDC	Active	10-déc-07	09-déc-19	100% Minière Osisko inc. (96006)
2138653	32F03	42,15	CDC	Active	10-déc-07	09-déc-19	100% Minière Osisko inc. (96006)
2138654	32F03	41,77	CDC	Active	10-déc-07	09-déc-19	100% Minière Osisko inc. (96006)
2138655	32F03	42,18	CDC	Active	10-déc-07	09-déc-19	100% Minière Osisko inc. (96006)
2138656	32F03	42,17	CDC	Active	10-déc-07	09-déc-19	100% Minière Osisko inc. (96006)
2138657	32F03	42,16	CDC	Active	10-déc-07	09-déc-19	100% Minière Osisko inc. (96006)
2138658	32F03	42,15	CDC	Active	10-déc-07	09-déc-19	100% Minière Osisko inc. (96006)
2138659	32F03	27,27	CDC	Active	10-déc-07	09-déc-19	100% Minière Osisko inc. (96006)
2138664	32F03	56,47	CDC	Active	11-déc-07	10-déc-19	100% Minière Osisko inc. (96006)
2138665	32F03	56,47	CDC	Active	11-déc-07	10-déc-19	100% Minière Osisko inc. (96006)
2138666	32F03	56,47	CDC	Active	11-déc-07	10-déc-19	100% Minière Osisko inc. (96006)
2138667	32F03	56,46	CDC	Active	11-déc-07	10-déc-19	100% Minière Osisko inc. (96006)
2138668	32F03	56,46	CDC	Active	11-déc-07	10-déc-19	100% Minière Osisko inc. (96006)
2138669	32F03	56,46	CDC	Active	11-déc-07	10-déc-19	100% Minière Osisko inc. (96006)
2138670	32F03	56,45	CDC	Active	11-déc-07	10-déc-19	100% Minière Osisko inc. (96006)
2138671	32F03	56,45	CDC	Active	11-déc-07	10-déc-19	100% Minière Osisko inc. (96006)
2138672	32F03	56,45	CDC	Active	11-déc-07	10-déc-19	100% Minière Osisko inc. (96006)
2138673	32F03	56,44	CDC	Active	11-déc-07	10-déc-19	100% Minière Osisko inc. (96006)
2138674	32F03	56,44	CDC	Active	11-déc-07	10-déc-19	100% Minière Osisko inc. (96006)
2138675	32F03	56,44	CDC	Active	11-déc-07	10-déc-19	100% Minière Osisko inc. (96006)
2138676	32F03	56,44	CDC	Active	11-déc-07	10-déc-19	100% Minière Osisko inc. (96006)
2138677	32F03	56,44	CDC	Active	11-déc-07	10-déc-19	100% Minière Osisko inc. (96006)
2138678	32F03	56,44	CDC	Active	11-déc-07	10-déc-19	100% Minière Osisko inc. (96006)
2138679	32F03	56,43	CDC	Active	11-déc-07	10-déc-19	100% Minière Osisko inc. (96006)

Title	NTS	Area (ha)	Type	Status	Staking Date	Expiration Date	Owner (according to GESTIM)
2138731	32F03	11,78	CDC	Active	11-déc-07	10-déc-19	100% Minière Osisko inc. (96006)
2138732	32F03	10,66	CDC	Active	11-déc-07	10-déc-19	100% Minière Osisko inc. (96006)
2138733	32F03	12,24	CDC	Active	11-déc-07	10-déc-19	100% Minière Osisko inc. (96006)
2138734	32F03	14,18	CDC	Active	11-déc-07	10-déc-19	100% Minière Osisko inc. (96006)
2138735	32F03	17,43	CDC	Active	11-déc-07	10-déc-19	100% Minière Osisko inc. (96006)
2138736	32F03	20,5	CDC	Active	11-déc-07	10-déc-19	100% Minière Osisko inc. (96006)
2138737	32F03	22,25	CDC	Active	11-déc-07	10-déc-19	100% Minière Osisko inc. (96006)
2138738	32F03	21,41	CDC	Active	11-déc-07	10-déc-19	100% Minière Osisko inc. (96006)
2138739	32F03	19,81	CDC	Active	11-déc-07	10-déc-19	100% Minière Osisko inc. (96006)
2140617	32E01	42,59	CDC	Active	07-janv-08	06-janv-20	100% Minière Osisko inc. (96006)
2140618	32E01	42,62	CDC	Active	07-janv-08	06-janv-20	100% Minière Osisko inc. (96006)
2140619	32E01	42,64	CDC	Active	07-janv-08	06-janv-20	100% Minière Osisko inc. (96006)
2140620	32E01	42,67	CDC	Active	07-janv-08	06-janv-20	100% Minière Osisko inc. (96006)
2140621	32E01	42,7	CDC	Active	07-janv-08	06-janv-20	100% Minière Osisko inc. (96006)
2140622	32E01	42,73	CDC	Active	07-janv-08	06-janv-20	100% Minière Osisko inc. (96006)
2140623	32E01	42,76	CDC	Active	07-janv-08	06-janv-20	100% Minière Osisko inc. (96006)
2140624	32E01	30,76	CDC	Active	07-janv-08	06-janv-20	100% Minière Osisko inc. (96006)
2140625	32E01	42,8	CDC	Active	07-janv-08	06-janv-20	100% Minière Osisko inc. (96006)
2140626	32E01	42,15	CDC	Active	07-janv-08	06-janv-20	100% Minière Osisko inc. (96006)
2140627	32E01	42,13	CDC	Active	07-janv-08	06-janv-20	100% Minière Osisko inc. (96006)
2140628	32E01	42,11	CDC	Active	07-janv-08	06-janv-20	100% Minière Osisko inc. (96006)
2140629	32E01	42,09	CDC	Active	07-janv-08	06-janv-20	100% Minière Osisko inc. (96006)
2140630	32E01	42,06	CDC	Active	07-janv-08	06-janv-20	100% Minière Osisko inc. (96006)
2140631	32E01	42,04	CDC	Active	07-janv-08	06-janv-20	100% Minière Osisko inc. (96006)
2140632	32E01	42,02	CDC	Active	07-janv-08	06-janv-20	100% Minière Osisko inc. (96006)
2140633	32E01	29,5	CDC	Active	07-janv-08	06-janv-20	100% Minière Osisko inc. (96006)
2143533	32F03	56,44	CDC	Active	13-févr-08	12-févr-20	100% Minière Osisko inc. (96006)
2143534	32F03	56,44	CDC	Active	13-févr-08	12-févr-20	100% Minière Osisko inc. (96006)
2143535	32F03	33,93	CDC	Active	13-févr-08	12-févr-20	100% Minière Osisko inc. (96006)
2143536	32F03	54,94	CDC	Active	13-févr-08	12-févr-20	100% Minière Osisko inc. (96006)
2143537	32F03	54,9	CDC	Active	13-févr-08	12-févr-20	100% Minière Osisko inc. (96006)
2143538	32F03	38,17	CDC	Active	13-févr-08	12-févr-20	100% Minière Osisko inc. (96006)
2143539	32F03	53,12	CDC	Active	13-févr-08	12-févr-20	100% Minière Osisko inc. (96006)
2143540	32F03	27,35	CDC	Active	13-févr-08	12-févr-20	100% Minière Osisko inc. (96006)
2143541	32F03	20,28	CDC	Active	13-févr-08	12-févr-20	100% Minière Osisko inc. (96006)
2144452	32F03	56,49	CDC	Under renewal	06-mars-08	05-mars-18	100% Minière Osisko inc. (96006)
2144453	32F03	56,49	CDC	Under renewal	06-mars-08	05-mars-18	100% Minière Osisko inc. (96006)
2144454	32F03	56,48	CDC	Under renewal	06-mars-08	05-mars-18	100% Minière Osisko inc. (96006)
2144455	32F03	56,48	CDC	Under renewal	06-mars-08	05-mars-18	100% Minière Osisko inc. (96006)
2144456	32F03	56,47	CDC	Under renewal	06-mars-08	05-mars-18	100% Minière Osisko inc. (96006)
2144457	32F03	56,47	CDC	Under renewal	06-mars-08	05-mars-18	100% Minière Osisko inc. (96006)
2144458	32F03	56,46	CDC	Under renewal	06-mars-08	05-mars-18	100% Minière Osisko inc. (96006)
2144459	32F03	56,46	CDC	Under renewal	06-mars-08	05-mars-18	100% Minière Osisko inc. (96006)
2144460	32F03	56,46	CDC	Under renewal	06-mars-08	05-mars-18	100% Minière Osisko inc. (96006)
2144461	32F03	56,46	CDC	Under renewal	06-mars-08	05-mars-18	100% Minière Osisko inc. (96006)
2144462	32F03	56,46	CDC	Under renewal	06-mars-08	05-mars-18	100% Minière Osisko inc. (96006)
2144463	32F03	56,45	CDC	Under renewal	06-mars-08	05-mars-18	100% Minière Osisko inc. (96006)
2144464	32F03	56,45	CDC	Under renewal	06-mars-08	05-mars-18	100% Minière Osisko inc. (96006)
2144465	32F03	56,45	CDC	Under renewal	06-mars-08	05-mars-18	100% Minière Osisko inc. (96006)
2144466	32F03	56,45	CDC	Under renewal	06-mars-08	05-mars-18	100% Minière Osisko inc. (96006)
2144467	32F03	56,45	CDC	Under renewal	06-mars-08	05-mars-18	100% Minière Osisko inc. (96006)

Title	NTS	Area (ha)	Type	Status	Staking Date	Expiration Date	Owner (according to GESTIM)
2144468	32F03	56,44	CDC	Under renewal	06-mars-08	05-mars-18	100% Minière Osisko inc. (96006)
2144469	32F03	56,47	CDC	Under renewal	06-mars-08	05-mars-18	100% Minière Osisko inc. (96006)
2144470	32F03	56,47	CDC	Under renewal	06-mars-08	05-mars-18	100% Minière Osisko inc. (96006)
2144471	32F03	56,47	CDC	Under renewal	06-mars-08	05-mars-18	100% Minière Osisko inc. (96006)
2146055	32F03	56,49	CDC	Under renewal	01-avr-08	31-mars-18	100% Minière Osisko inc. (96006)
2146060	32F03	56,48	CDC	Under renewal	01-avr-08	31-mars-18	100% Minière Osisko inc. (96006)
2146061	32F03	56,48	CDC	Under renewal	01-avr-08	31-mars-18	100% Minière Osisko inc. (96006)
2146062	32F03	56,48	CDC	Under renewal	01-avr-08	31-mars-18	100% Minière Osisko inc. (96006)
2159920	32F04	56,36	CDC	Active	09-juin-08	08-juin-18	100% Minière Osisko inc. (96006)
2185721	32F03	42,09	CDC	Active	27-juil-09	26-juil-19	100% Minière Osisko inc. (96006)
2185722	32F03	42,04	CDC	Active	27-juil-09	26-juil-19	100% Minière Osisko inc. (96006)
2186017	32E01	56,42	CDC	Active	29-juil-09	28-juil-19	100% Minière Osisko inc. (96006)
2186018	32E01	56,42	CDC	Active	29-juil-09	28-juil-19	100% Minière Osisko inc. (96006)
2186019	32E01	56,42	CDC	Active	29-juil-09	28-juil-19	100% Minière Osisko inc. (96006)
2186020	32E01	56,42	CDC	Active	29-juil-09	28-juil-19	100% Minière Osisko inc. (96006)
2186021	32E01	56,42	CDC	Active	29-juil-09	28-juil-19	100% Minière Osisko inc. (96006)
2186022	32E01	56,42	CDC	Active	29-juil-09	28-juil-19	100% Minière Osisko inc. (96006)
2186023	32E01	20,49	CDC	Active	29-juil-09	28-juil-19	100% Minière Osisko inc. (96006)
2186024	32E01	56,41	CDC	Active	29-juil-09	28-juil-19	100% Minière Osisko inc. (96006)
2186025	32E01	56,41	CDC	Active	29-juil-09	28-juil-19	100% Minière Osisko inc. (96006)
2186026	32E01	56,41	CDC	Active	29-juil-09	28-juil-19	100% Minière Osisko inc. (96006)
2186027	32E01	56,41	CDC	Active	29-juil-09	28-juil-19	100% Minière Osisko inc. (96006)
2186028	32E01	56,41	CDC	Active	29-juil-09	28-juil-19	100% Minière Osisko inc. (96006)
2186029	32E01	56,41	CDC	Active	29-juil-09	28-juil-19	100% Minière Osisko inc. (96006)
2186030	32E01	20,6	CDC	Active	29-juil-09	28-juil-19	100% Minière Osisko inc. (96006)
2186031	32E01	56,4	CDC	Active	29-juil-09	28-juil-19	100% Minière Osisko inc. (96006)
2186032	32E01	56,4	CDC	Active	29-juil-09	28-juil-19	100% Minière Osisko inc. (96006)
2186033	32E01	56,4	CDC	Active	29-juil-09	28-juil-19	100% Minière Osisko inc. (96006)
2186034	32E01	56,4	CDC	Active	29-juil-09	28-juil-19	100% Minière Osisko inc. (96006)
2186035	32E01	20,73	CDC	Active	29-juil-09	28-juil-19	100% Minière Osisko inc. (96006)
2190891	32F02	56,34	CDC	Active	07-oct-09	06-oct-19	100% Minière Osisko inc. (96006)
2190892	32F02	56,33	CDC	Active	07-oct-09	06-oct-19	100% Minière Osisko inc. (96006)
2190893	32F02	56,33	CDC	Active	07-oct-09	06-oct-19	100% Minière Osisko inc. (96006)
2190894	32F02	56,33	CDC	Active	07-oct-09	06-oct-19	100% Minière Osisko inc. (96006)
2190895	32F02	56,32	CDC	Active	07-oct-09	06-oct-19	100% Minière Osisko inc. (96006)
2190896	32F02	56,32	CDC	Active	07-oct-09	06-oct-19	100% Minière Osisko inc. (96006)
2190897	32F02	56,32	CDC	Active	07-oct-09	06-oct-19	100% Minière Osisko inc. (96006)
2190898	32F02	56,31	CDC	Active	07-oct-09	06-oct-19	100% Minière Osisko inc. (96006)
2190899	32F02	56,31	CDC	Active	07-oct-09	06-oct-19	100% Minière Osisko inc. (96006)
2190900	32F02	56,31	CDC	Active	07-oct-09	06-oct-19	100% Minière Osisko inc. (96006)
2190901	32F03	56,34	CDC	Active	07-oct-09	06-oct-19	100% Minière Osisko inc. (96006)
2190902	32F03	56,34	CDC	Active	07-oct-09	06-oct-19	100% Minière Osisko inc. (96006)
2190903	32F03	56,33	CDC	Active	07-oct-09	06-oct-19	100% Minière Osisko inc. (96006)
2190904	32F03	56,33	CDC	Active	07-oct-09	06-oct-19	100% Minière Osisko inc. (96006)
2190905	32F03	56,32	CDC	Active	07-oct-09	06-oct-19	100% Minière Osisko inc. (96006)
2190906	32F03	56,32	CDC	Active	07-oct-09	06-oct-19	100% Minière Osisko inc. (96006)
2190907	32F03	56,32	CDC	Active	07-oct-09	06-oct-19	100% Minière Osisko inc. (96006)
2190908	32F03	56,31	CDC	Active	07-oct-09	06-oct-19	100% Minière Osisko inc. (96006)
2190909	32F03	56,31	CDC	Active	07-oct-09	06-oct-19	100% Minière Osisko inc. (96006)
2190910	32F03	56,31	CDC	Active	07-oct-09	06-oct-19	100% Minière Osisko inc. (96006)
2192331	32F03	56,38	CDC	Active	20-oct-09	19-oct-19	100% Minière Osisko inc. (96006)

Title	NTS	Area (ha)	Type	Status	Staking Date	Expiration Date	Owner (according to GESTIM)
2208205	32F03	56,26	CDC	Under renewal	03-mars-10	02-mars-18	100% Minière Osisko inc. (96006)
2208206	32F03	56,26	CDC	Under renewal	03-mars-10	02-mars-18	100% Minière Osisko inc. (96006)
2208207	32F03	56,26	CDC	Under renewal	03-mars-10	02-mars-18	100% Minière Osisko inc. (96006)
2208208	32F03	56,26	CDC	Under renewal	03-mars-10	02-mars-18	100% Minière Osisko inc. (96006)
2208209	32F03	56,25	CDC	Under renewal	03-mars-10	02-mars-18	100% Minière Osisko inc. (96006)
2208210	32F03	56,25	CDC	Under renewal	03-mars-10	02-mars-18	100% Minière Osisko inc. (96006)
2208211	32F03	56,25	CDC	Under renewal	03-mars-10	02-mars-18	100% Minière Osisko inc. (96006)
2208212	32F03	56,25	CDC	Under renewal	03-mars-10	02-mars-18	100% Minière Osisko inc. (96006)
2208213	32F02	56,29	CDC	Under renewal	03-mars-10	02-mars-18	100% Minière Osisko inc. (96006)
2231774	32E01	42,79	CDC	Active	07-mai-10	06-mai-18	100% Minière Osisko inc. (96006)
2231775	32E01	42,78	CDC	Active	07-mai-10	06-mai-18	100% Minière Osisko inc. (96006)
2231776	32E01	42,77	CDC	Active	07-mai-10	06-mai-18	100% Minière Osisko inc. (96006)
2231777	32E01	42,46	CDC	Active	07-mai-10	06-mai-18	100% Minière Osisko inc. (96006)
2238199	32F03	38,09	CDC	Active	14-juin-10	13-juin-18	100% Minière Osisko inc. (96006)
2238200	32F03	38,09	CDC	Active	14-juin-10	13-juin-18	100% Minière Osisko inc. (96006)
2238201	32F03	38,09	CDC	Active	14-juin-10	13-juin-18	100% Minière Osisko inc. (96006)
2238202	32F03	25,78	CDC	Active	14-juin-10	13-juin-18	100% Minière Osisko inc. (96006)
2243314	32F03	38,02	CDC	Active	28-juil-10	27-juil-18	100% Minière Osisko inc. (96006)
2243315	32F03	38,06	CDC	Active	28-juil-10	27-juil-18	100% Minière Osisko inc. (96006)
2243316	32F03	38,11	CDC	Active	28-juil-10	27-juil-18	100% Minière Osisko inc. (96006)
2243317	32F03	34,31	CDC	Active	28-juil-10	27-juil-18	100% Minière Osisko inc. (96006)
2243318	32F03	25,64	CDC	Active	28-juil-10	27-juil-18	100% Minière Osisko inc. (96006)
2243319	32F03	28,1	CDC	Active	28-juil-10	27-juil-18	100% Minière Osisko inc. (96006)
2243323	32F03	38,03	CDC	Active	28-juil-10	27-juil-18	100% Minière Osisko inc. (96006)
2243324	32F03	38,09	CDC	Active	28-juil-10	27-juil-18	100% Minière Osisko inc. (96006)
2243325	32F03	25,38	CDC	Active	28-juil-10	27-juil-18	100% Minière Osisko inc. (96006)
2243326	32F03	29,32	CDC	Active	28-juil-10	27-juil-18	100% Minière Osisko inc. (96006)
2243327	32F03	27,94	CDC	Active	28-juil-10	27-juil-18	100% Minière Osisko inc. (96006)
2244742	32C14	56,52	CDC	Active	06-août-10	05-août-18	100% Minière Osisko inc. (96006)
2244743	32C14	56,52	CDC	Active	06-août-10	05-août-18	100% Minière Osisko inc. (96006)
2244744	32C14	7,27	CDC	Active	06-août-10	05-août-18	100% Minière Osisko inc. (96006)
2248553	32F03	21,95	CDC	Active	02-sept-10	01-sept-18	100% Minière Osisko inc. (96006)
2248554	32F03	6,31	CDC	Active	02-sept-10	01-sept-18	100% Minière Osisko inc. (96006)
2248555	32F03	16,59	CDC	Active	02-sept-10	01-sept-18	100% Minière Osisko inc. (96006)
2250502	32C14	56,52	CDC	Active	20-sept-10	19-sept-18	100% Minière Osisko inc. (96006)
2250503	32C14	56,52	CDC	Active	20-sept-10	19-sept-18	100% Minière Osisko inc. (96006)
2250504	32C14	43,11	CDC	Active	20-sept-10	19-sept-18	100% Minière Osisko inc. (96006)
2250505	32C15	56,52	CDC	Active	20-sept-10	19-sept-18	100% Minière Osisko inc. (96006)
2250506	32C14	56,52	CDC	Active	20-sept-10	19-sept-18	100% Minière Osisko inc. (96006)
2250507	32C14	53,52	CDC	Active	20-sept-10	19-sept-18	100% Minière Osisko inc. (96006)
2250508	32C14	16,87	CDC	Active	20-sept-10	19-sept-18	100% Minière Osisko inc. (96006)
2250509	32C14	0,5	CDC	Active	20-sept-10	19-sept-18	100% Minière Osisko inc. (96006)
2250510	32C14	10,4	CDC	Active	20-sept-10	19-sept-18	100% Minière Osisko inc. (96006)
2250511	32C14	28,68	CDC	Active	20-sept-10	19-sept-18	100% Minière Osisko inc. (96006)
2250512	32C14	18,48	CDC	Active	20-sept-10	19-sept-18	100% Minière Osisko inc. (96006)
2250513	32C14	14,03	CDC	Active	20-sept-10	19-sept-18	100% Minière Osisko inc. (96006)
2250514	32C15	39,42	CDC	Active	20-sept-10	19-sept-18	100% Minière Osisko inc. (96006)
2250515	32C14	38,36	CDC	Active	20-sept-10	19-sept-18	100% Minière Osisko inc. (96006)
2250516	32C14	9	CDC	Active	20-sept-10	19-sept-18	100% Minière Osisko inc. (96006)
2250517	32C14	8,99	CDC	Active	20-sept-10	19-sept-18	100% Minière Osisko inc. (96006)
2250518	32C14	8,96	CDC	Active	20-sept-10	19-sept-18	100% Minière Osisko inc. (96006)

Title	NTS	Area (ha)	Type	Status	Staking Date	Expiration Date	Owner (according to GESTIM)
2262913	32E01	56,43	CDC	Active	06-déc-10	05-déc-18	100% Minière Osisko inc. (96006)
2262914	32E01	56,43	CDC	Active	06-déc-10	05-déc-18	100% Minière Osisko inc. (96006)
2262915	32E01	56,43	CDC	Active	06-déc-10	05-déc-18	100% Minière Osisko inc. (96006)
2262916	32E01	56,43	CDC	Active	06-déc-10	05-déc-18	100% Minière Osisko inc. (96006)
2262917	32E01	56,43	CDC	Active	06-déc-10	05-déc-18	100% Minière Osisko inc. (96006)
2262918	32E01	56,43	CDC	Active	06-déc-10	05-déc-18	100% Minière Osisko inc. (96006)
2262919	32E01	56,43	CDC	Active	06-déc-10	05-déc-18	100% Minière Osisko inc. (96006)
2262924	32E01	56,42	CDC	Active	06-déc-10	05-déc-18	100% Minière Osisko inc. (96006)
2262925	32E01	56,42	CDC	Active	06-déc-10	05-déc-18	100% Minière Osisko inc. (96006)
2262926	32E01	56,42	CDC	Active	06-déc-10	05-déc-18	100% Minière Osisko inc. (96006)
2262927	32E01	56,42	CDC	Active	06-déc-10	05-déc-18	100% Minière Osisko inc. (96006)
2262928	32E01	56,42	CDC	Active	06-déc-10	05-déc-18	100% Minière Osisko inc. (96006)
2263106	32E01	56,29	CDC	Active	06-déc-10	05-déc-18	100% Minière Osisko inc. (96006)
2263107	32E01	41,85	CDC	Active	06-déc-10	05-déc-18	100% Minière Osisko inc. (96006)
2263108	32E01	56,28	CDC	Active	06-déc-10	05-déc-18	100% Minière Osisko inc. (96006)
2263109	32E01	56,28	CDC	Active	06-déc-10	05-déc-18	100% Minière Osisko inc. (96006)
2263121	32E02	56,29	CDC	Active	06-déc-10	05-déc-18	100% Minière Osisko inc. (96006)
2263122	32E02	56,28	CDC	Active	06-déc-10	05-déc-18	100% Minière Osisko inc. (96006)
2263654	32F04	56,44	CDC	Active	07-déc-10	06-déc-18	100% Minière Osisko inc. (96006)
2263655	32F04	56,44	CDC	Active	07-déc-10	06-déc-18	100% Minière Osisko inc. (96006)
2263656	32F04	56,44	CDC	Active	07-déc-10	06-déc-18	100% Minière Osisko inc. (96006)
2266504	32E01	21,73	CDC	Active	07-janv-11	06-janv-19	100% Minière Osisko inc. (96006)
2271856	32E01	6,94	CDC	Active	04-févr-11	03-févr-19	100% Minière Osisko inc. (96006)
2272672	32C14	43,11	CDC	Active	09-févr-11	08-févr-19	100% Minière Osisko inc. (96006)
2272673	32C14	43,12	CDC	Active	09-févr-11	08-févr-19	100% Minière Osisko inc. (96006)
2272674	32C14	43,12	CDC	Active	09-févr-11	08-févr-19	100% Minière Osisko inc. (96006)
2272675	32C14	43,12	CDC	Active	09-févr-11	08-févr-19	100% Minière Osisko inc. (96006)
2272676	32C14	43,11	CDC	Active	09-févr-11	08-févr-19	100% Minière Osisko inc. (96006)
2272677	32C14	43,11	CDC	Active	09-févr-11	08-févr-19	100% Minière Osisko inc. (96006)
2284473	32E01	56,44	CDC	Active	12-avr-11	11-avr-19	100% Minière Osisko inc. (96006)
2284474	32E01	8,19	CDC	Active	12-avr-11	11-avr-19	100% Minière Osisko inc. (96006)
2284475	32E01	2,76	CDC	Active	12-avr-11	11-avr-19	100% Minière Osisko inc. (96006)
2284476	32F03	0,66	CDC	Active	12-avr-11	11-avr-19	100% Minière Osisko inc. (96006)
2284477	32F03	0,28	CDC	Active	12-avr-11	11-avr-19	100% Minière Osisko inc. (96006)
2301431	32E01	56,33	CDC	Active	18-juil-11	17-juil-19	100% Minière Osisko inc. (96006)
2301432	32E01	35,03	CDC	Active	18-juil-11	17-juil-19	100% Minière Osisko inc. (96006)
2301433	32E01	13,22	CDC	Active	18-juil-11	17-juil-19	100% Minière Osisko inc. (96006)
2301434	32E01	8,22	CDC	Active	18-juil-11	17-juil-19	100% Minière Osisko inc. (96006)
2301435	32E01	0,94	CDC	Active	18-juil-11	17-juil-19	100% Minière Osisko inc. (96006)
2301436	32E01	1,05	CDC	Active	18-juil-11	17-juil-19	100% Minière Osisko inc. (96006)
2301437	32E01	56,3	CDC	Active	18-juil-11	17-juil-19	100% Minière Osisko inc. (96006)
2301438	32E01	56,3	CDC	Active	18-juil-11	17-juil-19	100% Minière Osisko inc. (96006)
2301439	32E01	56,29	CDC	Active	18-juil-11	17-juil-19	100% Minière Osisko inc. (96006)
2301440	32E01	42,31	CDC	Active	18-juil-11	17-juil-19	100% Minière Osisko inc. (96006)
2301441	32E01	38,11	CDC	Active	18-juil-11	17-juil-19	100% Minière Osisko inc. (96006)
2301442	32E01	56,24	CDC	Active	18-juil-11	17-juil-19	100% Minière Osisko inc. (96006)
2301443	32E01	56,24	CDC	Active	18-juil-11	17-juil-19	100% Minière Osisko inc. (96006)
2301444	32E01	42,42	CDC	Active	18-juil-11	17-juil-19	100% Minière Osisko inc. (96006)
2301445	32E01	42,4	CDC	Active	18-juil-11	17-juil-19	100% Minière Osisko inc. (96006)
2301446	32E01	42,36	CDC	Active	18-juil-11	17-juil-19	100% Minière Osisko inc. (96006)
2301447	32E01	42,39	CDC	Active	18-juil-11	17-juil-19	100% Minière Osisko inc. (96006)

Title	NTS	Area (ha)	Type	Status	Staking Date	Expiration Date	Owner (according to GESTIM)
2301448	32E01	42,45	CDC	Active	18-juil-11	17-juil-19	100% Minière Osisko inc. (96006)
2301449	32E01	42,37	CDC	Active	18-juil-11	17-juil-19	100% Minière Osisko inc. (96006)
2301450	32E01	42,29	CDC	Active	18-juil-11	17-juil-19	100% Minière Osisko inc. (96006)
2301451	32E01	42,34	CDC	Active	18-juil-11	17-juil-19	100% Minière Osisko inc. (96006)
2301452	32E01	42,41	CDC	Active	18-juil-11	17-juil-19	100% Minière Osisko inc. (96006)
2301453	32E01	42,25	CDC	Active	18-juil-11	17-juil-19	100% Minière Osisko inc. (96006)
2301454	32E01	42,26	CDC	Active	18-juil-11	17-juil-19	100% Minière Osisko inc. (96006)
2301455	32E01	42,29	CDC	Active	18-juil-11	17-juil-19	100% Minière Osisko inc. (96006)
2301456	32E01	42,35	CDC	Active	18-juil-11	17-juil-19	100% Minière Osisko inc. (96006)
2301457	32E01	42,28	CDC	Active	18-juil-11	17-juil-19	100% Minière Osisko inc. (96006)
2301458	32E01	42,2	CDC	Active	18-juil-11	17-juil-19	100% Minière Osisko inc. (96006)
2301459	32E01	42,32	CDC	Active	18-juil-11	17-juil-19	100% Minière Osisko inc. (96006)
2301460	32E01	42,03	CDC	Active	18-juil-11	17-juil-19	100% Minière Osisko inc. (96006)
2301461	32E01	41,88	CDC	Active	18-juil-11	17-juil-19	100% Minière Osisko inc. (96006)
2301462	32E01	41,93	CDC	Active	18-juil-11	17-juil-19	100% Minière Osisko inc. (96006)
2301463	32E01	31,92	CDC	Active	18-juil-11	17-juil-19	100% Minière Osisko inc. (96006)
2301464	32E02	18,72	CDC	Active	18-juil-11	17-juil-19	100% Minière Osisko inc. (96006)
2301465	32E02	0,76	CDC	Active	18-juil-11	17-juil-19	100% Minière Osisko inc. (96006)
2301466	32E02	0,83	CDC	Active	18-juil-11	17-juil-19	100% Minière Osisko inc. (96006)
2301467	32E02	56,3	CDC	Active	18-juil-11	17-juil-19	100% Minière Osisko inc. (96006)
2301468	32E02	56,3	CDC	Active	18-juil-11	17-juil-19	100% Minière Osisko inc. (96006)
2301469	32E02	56,3	CDC	Active	18-juil-11	17-juil-19	100% Minière Osisko inc. (96006)
2301470	32E02	56,3	CDC	Active	18-juil-11	17-juil-19	100% Minière Osisko inc. (96006)
2301471	32E02	56,3	CDC	Active	18-juil-11	17-juil-19	100% Minière Osisko inc. (96006)
2301472	32E02	56,29	CDC	Active	18-juil-11	17-juil-19	100% Minière Osisko inc. (96006)
2301473	32E02	56,29	CDC	Active	18-juil-11	17-juil-19	100% Minière Osisko inc. (96006)
2301474	32E02	56,29	CDC	Active	18-juil-11	17-juil-19	100% Minière Osisko inc. (96006)
2301475	32E02	56,29	CDC	Active	18-juil-11	17-juil-19	100% Minière Osisko inc. (96006)
2301476	32E02	42,42	CDC	Active	18-juil-11	17-juil-19	100% Minière Osisko inc. (96006)
2301477	32E02	42,44	CDC	Active	18-juil-11	17-juil-19	100% Minière Osisko inc. (96006)
2301478	32E02	42,42	CDC	Active	18-juil-11	17-juil-19	100% Minière Osisko inc. (96006)
2301479	32E02	42,38	CDC	Active	18-juil-11	17-juil-19	100% Minière Osisko inc. (96006)
2301480	32E02	42,45	CDC	Active	18-juil-11	17-juil-19	100% Minière Osisko inc. (96006)
2301481	32E02	42,39	CDC	Active	18-juil-11	17-juil-19	100% Minière Osisko inc. (96006)
2301482	32E01	42,39	CDC	Active	18-juil-11	17-juil-19	100% Minière Osisko inc. (96006)
2301484	32E08	56,23	CDC	Active	18-juil-11	17-juil-19	100% Minière Osisko inc. (96006)
2301485	32E08	56,23	CDC	Active	18-juil-11	17-juil-19	100% Minière Osisko inc. (96006)
2301486	32E08	56,23	CDC	Active	18-juil-11	17-juil-19	100% Minière Osisko inc. (96006)
2301487	32E08	56,24	CDC	Active	18-juil-11	17-juil-19	100% Minière Osisko inc. (96006)
2301488	32E08	56,22	CDC	Active	18-juil-11	17-juil-19	100% Minière Osisko inc. (96006)
2301489	32E08	56,22	CDC	Active	18-juil-11	17-juil-19	100% Minière Osisko inc. (96006)
2301490	32E08	56,22	CDC	Active	18-juil-11	17-juil-19	100% Minière Osisko inc. (96006)
2301491	32E08	56,22	CDC	Active	18-juil-11	17-juil-19	100% Minière Osisko inc. (96006)
2301492	32E08	56,21	CDC	Active	18-juil-11	17-juil-19	100% Minière Osisko inc. (96006)
2301493	32E08	56,21	CDC	Active	18-juil-11	17-juil-19	100% Minière Osisko inc. (96006)
2301494	32E08	56,21	CDC	Active	18-juil-11	17-juil-19	100% Minière Osisko inc. (96006)
2301495	32E08	56,22	CDC	Active	18-juil-11	17-juil-19	100% Minière Osisko inc. (96006)
2304464	32F03	56,37	CDC	Active	01-août-11	31-juil-19	100% Minière Osisko inc. (96006)
2304465	32F03	56,37	CDC	Active	01-août-11	31-juil-19	100% Minière Osisko inc. (96006)
2304469	32F03	56,33	CDC	Active	01-août-11	31-juil-19	100% Minière Osisko inc. (96006)
2304471	32F03	56,32	CDC	Active	01-août-11	31-juil-19	100% Minière Osisko inc. (96006)

Title	NTS	Area (ha)	Type	Status	Staking Date	Expiration Date	Owner (according to GESTIM)
2315357	32E01	56,38	CDC	Active	04-oct-11	03-oct-19	100% Minière Osisko inc. (96006)
2315358	32E01	42,24	CDC	Active	04-oct-11	03-oct-19	100% Minière Osisko inc. (96006)
2315359	32E01	42,23	CDC	Active	04-oct-11	03-oct-19	100% Minière Osisko inc. (96006)
2315360	32E01	42,31	CDC	Active	04-oct-11	03-oct-19	100% Minière Osisko inc. (96006)
2315361	32E01	42,2	CDC	Active	04-oct-11	03-oct-19	100% Minière Osisko inc. (96006)
2315362	32E01	42,18	CDC	Active	04-oct-11	03-oct-19	100% Minière Osisko inc. (96006)
2315363	32E01	42,16	CDC	Active	04-oct-11	03-oct-19	100% Minière Osisko inc. (96006)
2315364	32E01	31,72	CDC	Active	04-oct-11	03-oct-19	100% Minière Osisko inc. (96006)
2315365	32E01	26,86	CDC	Active	04-oct-11	03-oct-19	100% Minière Osisko inc. (96006)
2315366	32E01	46,34	CDC	Active	04-oct-11	03-oct-19	100% Minière Osisko inc. (96006)
2334379	32F04	56,44	CDC	Under renewal	06-mars-12	05-mars-18	100% Minière Osisko inc. (96006)
2335432	32E02	56,33	CDC	Under renewal	08-mars-12	07-mars-18	100% Minière Osisko inc. (96006)
2335433	32E02	13,29	CDC	Under renewal	08-mars-12	07-mars-18	100% Minière Osisko inc. (96006)
2350883	32F03	56,44	CDC	Active	12-juin-12	11-juin-18	100% Minière Osisko inc. (96006)
2350884	32F03	56,44	CDC	Active	12-juin-12	11-juin-18	100% Minière Osisko inc. (96006)
2350885	32F03	56,44	CDC	Active	12-juin-12	11-juin-18	100% Minière Osisko inc. (96006)
2350886	32F03	56,44	CDC	Active	12-juin-12	11-juin-18	100% Minière Osisko inc. (96006)
2350887	32F03	56,44	CDC	Active	12-juin-12	11-juin-18	100% Minière Osisko inc. (96006)
2350888	32F03	56,44	CDC	Active	12-juin-12	11-juin-18	100% Minière Osisko inc. (96006)
2350889	32F03	56,44	CDC	Active	12-juin-12	11-juin-18	100% Minière Osisko inc. (96006)
2350890	32F03	56,44	CDC	Active	12-juin-12	11-juin-18	100% Minière Osisko inc. (96006)
2350891	32F03	56,44	CDC	Active	12-juin-12	11-juin-18	100% Minière Osisko inc. (96006)
2350892	32F03	56,43	CDC	Active	12-juin-12	11-juin-18	100% Minière Osisko inc. (96006)
2351794	32E01	31,93	CDC	Active	18-juin-12	17-juin-18	100% Minière Osisko inc. (96006)
2351795	32E01	45,89	CDC	Active	18-juin-12	17-juin-18	100% Minière Osisko inc. (96006)
2351796	32E01	40,74	CDC	Active	18-juin-12	17-juin-18	100% Minière Osisko inc. (96006)
2353491	32F02	56,35	CDC	Active	29-juin-12	28-juin-18	100% Minière Osisko inc. (96006)
2353492	32F02	56,35	CDC	Active	29-juin-12	28-juin-18	100% Minière Osisko inc. (96006)
2353493	32F03	56,38	CDC	Active	29-juin-12	28-juin-18	100% Minière Osisko inc. (96006)
2353494	32F03	56,38	CDC	Active	29-juin-12	28-juin-18	100% Minière Osisko inc. (96006)
2353495	32F03	56,38	CDC	Active	29-juin-12	28-juin-18	100% Minière Osisko inc. (96006)
2353496	32F03	56,38	CDC	Active	29-juin-12	28-juin-18	100% Minière Osisko inc. (96006)
2353497	32F03	56,38	CDC	Active	29-juin-12	28-juin-18	100% Minière Osisko inc. (96006)
2353498	32F03	56,38	CDC	Active	29-juin-12	28-juin-18	100% Minière Osisko inc. (96006)
2353499	32F03	56,38	CDC	Active	29-juin-12	28-juin-18	100% Minière Osisko inc. (96006)
2353500	32F03	56,38	CDC	Active	29-juin-12	28-juin-18	100% Minière Osisko inc. (96006)
2353501	32F03	56,38	CDC	Active	29-juin-12	28-juin-18	100% Minière Osisko inc. (96006)
2353502	32F03	56,37	CDC	Active	29-juin-12	28-juin-18	100% Minière Osisko inc. (96006)
2353503	32F03	56,37	CDC	Active	29-juin-12	28-juin-18	100% Minière Osisko inc. (96006)
2353504	32F03	56,37	CDC	Active	29-juin-12	28-juin-18	100% Minière Osisko inc. (96006)
2353505	32F03	56,37	CDC	Active	29-juin-12	28-juin-18	100% Minière Osisko inc. (96006)
2353506	32F03	56,37	CDC	Active	29-juin-12	28-juin-18	100% Minière Osisko inc. (96006)
2353507	32F03	56,36	CDC	Active	29-juin-12	28-juin-18	100% Minière Osisko inc. (96006)
2353508	32F03	56,36	CDC	Active	29-juin-12	28-juin-18	100% Minière Osisko inc. (96006)
2353509	32F03	56,36	CDC	Active	29-juin-12	28-juin-18	100% Minière Osisko inc. (96006)
2353510	32F03	56,36	CDC	Active	29-juin-12	28-juin-18	100% Minière Osisko inc. (96006)
2353511	32F03	56,36	CDC	Active	29-juin-12	28-juin-18	100% Minière Osisko inc. (96006)
2353512	32F03	56,36	CDC	Active	29-juin-12	28-juin-18	100% Minière Osisko inc. (96006)
2353513	32F03	56,36	CDC	Active	29-juin-12	28-juin-18	100% Minière Osisko inc. (96006)
2353514	32F03	56,36	CDC	Active	29-juin-12	28-juin-18	100% Minière Osisko inc. (96006)
2353515	32F03	56,36	CDC	Active	29-juin-12	28-juin-18	100% Minière Osisko inc. (96006)

Title	NTS	Area (ha)	Type	Status	Staking Date	Expiration Date	Owner (according to GESTIM)
2353516	32F03	56,35	CDC	Active	29-juin-12	28-juin-18	100% Minière Osisko inc. (96006)
2353517	32F03	56,35	CDC	Active	29-juin-12	28-juin-18	100% Minière Osisko inc. (96006)
2353518	32F03	56,35	CDC	Active	29-juin-12	28-juin-18	100% Minière Osisko inc. (96006)
2353519	32F03	56,35	CDC	Active	29-juin-12	28-juin-18	100% Minière Osisko inc. (96006)
2353520	32F03	56,35	CDC	Active	29-juin-12	28-juin-18	100% Minière Osisko inc. (96006)
2353521	32F03	56,35	CDC	Active	29-juin-12	28-juin-18	100% Minière Osisko inc. (96006)
2353522	32F03	56,35	CDC	Active	29-juin-12	28-juin-18	100% Minière Osisko inc. (96006)
2353523	32F03	56,35	CDC	Active	29-juin-12	28-juin-18	100% Minière Osisko inc. (96006)
2353524	32F03	56,35	CDC	Active	29-juin-12	28-juin-18	100% Minière Osisko inc. (96006)
2353525	32F03	56,35	CDC	Active	29-juin-12	28-juin-18	100% Minière Osisko inc. (96006)
2353608	32E01	27,17	CDC	Active	03-juil-12	02-juil-18	100% Minière Osisko inc. (96006)
2353609	32E01	42,87	CDC	Active	03-juil-12	02-juil-18	100% Minière Osisko inc. (96006)
2353610	32E01	29,69	CDC	Active	03-juil-12	02-juil-18	100% Minière Osisko inc. (96006)
2353611	32E01	42,52	CDC	Active	03-juil-12	02-juil-18	100% Minière Osisko inc. (96006)
2353612	32E01	31,89	CDC	Active	03-juil-12	02-juil-18	100% Minière Osisko inc. (96006)
2353613	32E01	31,82	CDC	Active	03-juil-12	02-juil-18	100% Minière Osisko inc. (96006)
2353614	32E01	20,96	CDC	Active	03-juil-12	02-juil-18	100% Minière Osisko inc. (96006)
2363481	32F03	56,37	CDC	Active	13-sept-12	12-sept-18	100% Minière Osisko inc. (96006)
2363482	32F03	56,37	CDC	Active	13-sept-12	12-sept-18	100% Minière Osisko inc. (96006)
2366018	32E01	42,44	CDC	Active	09-oct-12	08-oct-18	100% Minière Osisko inc. (96006)
2366019	32E01	42,28	CDC	Active	09-oct-12	08-oct-18	100% Minière Osisko inc. (96006)
2386042	32F03	56,48	CDC	Active	03-juil-13	26-sept-18	100% Minière Osisko inc. (96006)
2386043	32F03	56,48	CDC	Active	03-juil-13	26-sept-18	100% Minière Osisko inc. (96006)
2386045	32F03	2,79	CDC	Active	03-juil-13	26-sept-18	100% Minière Osisko inc. (96006)
2386046	32F03	3,52	CDC	Active	03-juil-13	26-sept-18	100% Minière Osisko inc. (96006)
2386047	32F03	30,2	CDC	Active	03-juil-13	26-sept-18	100% Minière Osisko inc. (96006)
2386048	32F03	56,48	CDC	Active	03-juil-13	26-sept-18	100% Minière Osisko inc. (96006)
2386049	32F03	56,48	CDC	Active	03-juil-13	26-sept-18	100% Minière Osisko inc. (96006)
2386050	32F03	6,96	CDC	Active	03-juil-13	26-sept-18	100% Minière Osisko inc. (96006)
2386051	32F03	49,51	CDC	Active	03-juil-13	26-sept-18	100% Minière Osisko inc. (96006)
2386052	32F03	56,46	CDC	Active	03-juil-13	26-sept-18	100% Minière Osisko inc. (96006)
2386053	32F03	56,47	CDC	Active	03-juil-13	26-sept-18	100% Minière Osisko inc. (96006)
2387716	32F03	56,35	CDC	Active	29-août-13	11-janv-19	100% Minière Osisko inc. (96006)
2387717	32F03	56,34	CDC	Active	29-août-13	11-janv-19	100% Minière Osisko inc. (96006)
2387718	32F03	56,35	CDC	Active	29-août-13	11-janv-19	100% Minière Osisko inc. (96006)
2387719	32F03	56,34	CDC	Active	29-août-13	11-janv-19	100% Minière Osisko inc. (96006)
2387720	32F03	56,35	CDC	Active	29-août-13	11-janv-19	100% Minière Osisko inc. (96006)
2387721	32F03	56,35	CDC	Active	29-août-13	11-janv-19	100% Minière Osisko inc. (96006)
2387722	32F03	56,38	CDC	Active	29-août-13	11-janv-19	100% Minière Osisko inc. (96006)
2387723	32F03	56,37	CDC	Active	29-août-13	11-janv-19	100% Minière Osisko inc. (96006)
2387724	32F03	56,37	CDC	Active	29-août-13	11-janv-19	100% Minière Osisko inc. (96006)
2387725	32F03	56,36	CDC	Active	29-août-13	11-janv-19	100% Minière Osisko inc. (96006)
2387726	32F03	56,36	CDC	Active	29-août-13	11-janv-19	100% Minière Osisko inc. (96006)
2387727	32F03	56,38	CDC	Active	29-août-13	11-janv-19	100% Minière Osisko inc. (96006)
2387728	32F03	56,38	CDC	Active	29-août-13	11-janv-19	100% Minière Osisko inc. (96006)
2387729	32F03	56,37	CDC	Active	29-août-13	11-janv-19	100% Minière Osisko inc. (96006)
2387730	32F03	56,37	CDC	Active	29-août-13	11-janv-19	100% Minière Osisko inc. (96006)
2387731	32F03	56,37	CDC	Active	29-août-13	11-janv-19	100% Minière Osisko inc. (96006)
2387732	32F03	56,36	CDC	Active	29-août-13	11-janv-19	100% Minière Osisko inc. (96006)
2387733	32F03	56,36	CDC	Active	29-août-13	11-janv-19	100% Minière Osisko inc. (96006)
2387734	32F03	56,39	CDC	Active	29-août-13	11-janv-19	100% Minière Osisko inc. (96006)

Title	NTS	Area (ha)	Type	Status	Staking Date	Expiration Date	Owner (according to GESTIM)
2387837	32F03	56,39	CDC	Active	29-août-13	11-janv-19	100% Minière Osisko inc. (96006)
2387838	32F03	14,85	CDC	Active	29-août-13	11-janv-19	100% Minière Osisko inc. (96006)
2387839	32F03	32,18	CDC	Active	29-août-13	11-janv-19	100% Minière Osisko inc. (96006)
2387840	32F03	56,29	CDC	Active	29-août-13	11-janv-19	100% Minière Osisko inc. (96006)
2387841	32F03	56,29	CDC	Active	29-août-13	11-janv-19	100% Minière Osisko inc. (96006)
2387842	32F03	49,08	CDC	Active	29-août-13	11-janv-19	100% Minière Osisko inc. (96006)
2387843	32F03	56,3	CDC	Active	29-août-13	11-janv-19	100% Minière Osisko inc. (96006)
2387844	32F03	56,32	CDC	Active	29-août-13	11-janv-19	100% Minière Osisko inc. (96006)
2387845	32F03	56,32	CDC	Active	29-août-13	11-janv-19	100% Minière Osisko inc. (96006)
2387846	32F03	56,33	CDC	Active	29-août-13	11-janv-19	100% Minière Osisko inc. (96006)
2387847	32F03	56,29	CDC	Active	29-août-13	11-janv-19	100% Minière Osisko inc. (96006)
2387848	32F03	56,33	CDC	Active	29-août-13	11-janv-19	100% Minière Osisko inc. (96006)
2387849	32F03	23,46	CDC	Active	29-août-13	11-janv-19	100% Minière Osisko inc. (96006)
2387850	32F03	56,31	CDC	Active	29-août-13	11-janv-19	100% Minière Osisko inc. (96006)
2387851	32F03	50,45	CDC	Active	29-août-13	11-janv-19	100% Minière Osisko inc. (96006)
2387852	32F03	56,37	CDC	Active	29-août-13	11-janv-19	100% Minière Osisko inc. (96006)
2387853	32F03	36,43	CDC	Active	29-août-13	11-janv-19	100% Minière Osisko inc. (96006)
2387854	32F03	35,3	CDC	Active	29-août-13	11-janv-19	100% Minière Osisko inc. (96006)
2387855	32F03	56,31	CDC	Active	29-août-13	11-janv-19	100% Minière Osisko inc. (96006)
2387856	32F03	56,29	CDC	Active	29-août-13	11-janv-19	100% Minière Osisko inc. (96006)
2387857	32F03	56,36	CDC	Active	29-août-13	11-janv-19	100% Minière Osisko inc. (96006)
2387858	32F03	56,31	CDC	Active	29-août-13	11-janv-19	100% Minière Osisko inc. (96006)
2387859	32F03	56,3	CDC	Active	29-août-13	11-janv-19	100% Minière Osisko inc. (96006)
2387860	32F03	56,34	CDC	Active	29-août-13	11-janv-19	100% Minière Osisko inc. (96006)
2387861	32F03	56,34	CDC	Active	29-août-13	11-janv-19	100% Minière Osisko inc. (96006)
2387862	32F03	56,32	CDC	Active	29-août-13	11-janv-19	100% Minière Osisko inc. (96006)
2387863	32F03	56,34	CDC	Active	29-août-13	11-janv-19	100% Minière Osisko inc. (96006)
2387864	32F03	13,06	CDC	Active	29-août-13	11-janv-19	100% Minière Osisko inc. (96006)
2387865	32F03	56,29	CDC	Active	29-août-13	11-janv-19	100% Minière Osisko inc. (96006)
2387866	32F03	56,3	CDC	Active	29-août-13	11-janv-19	100% Minière Osisko inc. (96006)
2387867	32F03	56,32	CDC	Active	29-août-13	11-janv-19	100% Minière Osisko inc. (96006)
2387868	32F03	56,36	CDC	Active	29-août-13	11-janv-19	100% Minière Osisko inc. (96006)
2387869	32F03	56,35	CDC	Active	29-août-13	11-janv-19	100% Minière Osisko inc. (96006)
2387870	32F03	56,35	CDC	Active	29-août-13	11-janv-19	100% Minière Osisko inc. (96006)
2387871	32F03	56,38	CDC	Active	29-août-13	11-janv-19	100% Minière Osisko inc. (96006)
2387872	32F03	56,31	CDC	Active	29-août-13	11-janv-19	100% Minière Osisko inc. (96006)
2387873	32F03	56,27	CDC	Active	29-août-13	11-janv-19	100% Minière Osisko inc. (96006)
2387874	32F03	56,3	CDC	Active	29-août-13	11-janv-19	100% Minière Osisko inc. (96006)
2387875	32F03	6,44	CDC	Active	29-août-13	11-janv-19	100% Minière Osisko inc. (96006)
2387876	32F03	56,35	CDC	Active	29-août-13	11-janv-19	100% Minière Osisko inc. (96006)
2387877	32F03	56,28	CDC	Active	29-août-13	11-janv-19	100% Minière Osisko inc. (96006)
2387878	32F03	49,11	CDC	Active	29-août-13	11-janv-19	100% Minière Osisko inc. (96006)
2387879	32F03	56,36	CDC	Active	29-août-13	11-janv-19	100% Minière Osisko inc. (96006)
2387880	32F03	56,3	CDC	Active	29-août-13	11-janv-19	100% Minière Osisko inc. (96006)
2387881	32F03	56,28	CDC	Active	29-août-13	11-janv-19	100% Minière Osisko inc. (96006)
2387882	32F03	56,31	CDC	Active	29-août-13	11-janv-19	100% Minière Osisko inc. (96006)
2387883	32F03	56,29	CDC	Active	29-août-13	11-janv-19	100% Minière Osisko inc. (96006)
2387884	32F03	20,07	CDC	Active	29-août-13	11-janv-19	100% Minière Osisko inc. (96006)
2387885	32F03	56,31	CDC	Active	29-août-13	11-janv-19	100% Minière Osisko inc. (96006)
2387886	32F03	56,34	CDC	Active	29-août-13	11-janv-19	100% Minière Osisko inc. (96006)
2387887	32F03	56,27	CDC	Active	29-août-13	11-janv-19	100% Minière Osisko inc. (96006)

Title	NTS	Area (ha)	Type	Status	Staking Date	Expiration Date	Owner (according to GESTIM)
2387939	32F03	23,76	CDC	Active	29-août-13	11-janv-19	100% Minière Osisko inc. (96006)
2387940	32F03	56,3	CDC	Active	29-août-13	11-janv-19	100% Minière Osisko inc. (96006)
2387941	32F03	56,32	CDC	Active	29-août-13	11-janv-19	100% Minière Osisko inc. (96006)
2387942	32F03	56,33	CDC	Active	29-août-13	11-janv-19	100% Minière Osisko inc. (96006)
2387943	32F03	35,99	CDC	Active	29-août-13	11-janv-19	100% Minière Osisko inc. (96006)
2387944	32F03	56,34	CDC	Active	29-août-13	11-janv-19	100% Minière Osisko inc. (96006)
2387945	32F03	56,31	CDC	Active	29-août-13	11-janv-19	100% Minière Osisko inc. (96006)
2387946	32F03	56,39	CDC	Active	29-août-13	11-janv-19	100% Minière Osisko inc. (96006)
2387947	32F03	56,35	CDC	Active	29-août-13	11-janv-19	100% Minière Osisko inc. (96006)
2387948	32F03	56,31	CDC	Active	29-août-13	11-janv-19	100% Minière Osisko inc. (96006)
2387949	32F03	56,31	CDC	Active	29-août-13	11-janv-19	100% Minière Osisko inc. (96006)
2387950	32F03	56,35	CDC	Active	29-août-13	11-janv-19	100% Minière Osisko inc. (96006)
2387951	32F03	0,51	CDC	Active	29-août-13	11-janv-19	100% Minière Osisko inc. (96006)
2387952	32F03	4,4	CDC	Active	29-août-13	11-janv-19	100% Minière Osisko inc. (96006)
2387953	32F03	56,34	CDC	Active	29-août-13	11-janv-19	100% Minière Osisko inc. (96006)
2387954	32F03	56,37	CDC	Active	29-août-13	11-janv-19	100% Minière Osisko inc. (96006)
2387955	32F03	56,3	CDC	Active	29-août-13	11-janv-19	100% Minière Osisko inc. (96006)
2387956	32F03	56,36	CDC	Active	29-août-13	11-janv-19	100% Minière Osisko inc. (96006)
2387957	32F03	56,38	CDC	Active	29-août-13	11-janv-19	100% Minière Osisko inc. (96006)
2387958	32F03	3,89	CDC	Active	29-août-13	11-janv-19	100% Minière Osisko inc. (96006)
2387959	32F03	56,36	CDC	Active	29-août-13	11-janv-19	100% Minière Osisko inc. (96006)
2387960	32F03	56,32	CDC	Active	29-août-13	11-janv-19	100% Minière Osisko inc. (96006)
2387961	32F03	23,61	CDC	Active	29-août-13	11-janv-19	100% Minière Osisko inc. (96006)
2387962	32F03	56,31	CDC	Active	29-août-13	11-janv-19	100% Minière Osisko inc. (96006)
2387963	32F03	56,3	CDC	Active	29-août-13	11-janv-19	100% Minière Osisko inc. (96006)
2387964	32F03	56,3	CDC	Active	29-août-13	11-janv-19	100% Minière Osisko inc. (96006)
2387965	32F03	56,32	CDC	Active	29-août-13	11-janv-19	100% Minière Osisko inc. (96006)
2387966	32F03	35,64	CDC	Active	29-août-13	11-janv-19	100% Minière Osisko inc. (96006)
2387967	32F03	56,35	CDC	Active	29-août-13	11-janv-19	100% Minière Osisko inc. (96006)
2387968	32F03	56,32	CDC	Active	29-août-13	11-janv-19	100% Minière Osisko inc. (96006)
2387970	32F03	50,48	CDC	Active	29-août-13	11-janv-19	100% Minière Osisko inc. (96006)
2387971	32F03	56,35	CDC	Active	29-août-13	11-janv-19	100% Minière Osisko inc. (96006)
2387972	32F03	56,33	CDC	Active	29-août-13	11-janv-19	100% Minière Osisko inc. (96006)
2387973	32F03	56,27	CDC	Active	29-août-13	11-janv-19	100% Minière Osisko inc. (96006)
2387974	32F03	56,34	CDC	Active	29-août-13	11-janv-19	100% Minière Osisko inc. (96006)
2387975	32F03	56,34	CDC	Active	29-août-13	11-janv-19	100% Minière Osisko inc. (96006)
2387976	32F03	56,29	CDC	Active	29-août-13	11-janv-19	100% Minière Osisko inc. (96006)
2387977	32F03	56,3	CDC	Active	29-août-13	11-janv-19	100% Minière Osisko inc. (96006)
2387978	32F03	56,28	CDC	Active	29-août-13	11-janv-19	100% Minière Osisko inc. (96006)
2387979	32F03	35,94	CDC	Active	29-août-13	11-janv-19	100% Minière Osisko inc. (96006)
2387980	32F03	56,29	CDC	Active	29-août-13	11-janv-19	100% Minière Osisko inc. (96006)
2387981	32F03	56,28	CDC	Active	29-août-13	11-janv-19	100% Minière Osisko inc. (96006)
2387982	32F03	56,38	CDC	Active	29-août-13	11-janv-19	100% Minière Osisko inc. (96006)
2387983	32F03	56,37	CDC	Active	29-août-13	11-janv-19	100% Minière Osisko inc. (96006)
2387984	32F03	22,98	CDC	Active	29-août-13	11-janv-19	100% Minière Osisko inc. (96006)
2387985	32F03	56,3	CDC	Active	29-août-13	11-janv-19	100% Minière Osisko inc. (96006)
2387986	32F03	56,38	CDC	Active	29-août-13	11-janv-19	100% Minière Osisko inc. (96006)
2387987	32F03	56,33	CDC	Active	29-août-13	11-janv-19	100% Minière Osisko inc. (96006)
2387988	32F03	56,3	CDC	Active	29-août-13	11-janv-19	100% Minière Osisko inc. (96006)
2387989	32F03	56,31	CDC	Active	29-août-13	11-janv-19	100% Minière Osisko inc. (96006)
2404122	32F02	56,37	CDC	Active	16-mai-14	15-mai-18	100% Minière Osisko inc. (96006)

Title	NTS	Area (ha)	Type	Status	Staking Date	Expiration Date	Owner (according to GESTIM)
2482760	32C14	56,68	CDC	Active	03-mars-17	02-mars-19	100% Minière Osisko inc. (96006)
2482761	32C14	56,67	CDC	Active	03-mars-17	02-mars-19	100% Minière Osisko inc. (96006)
2482762	32C14	56,67	CDC	Active	03-mars-17	02-mars-19	100% Minière Osisko inc. (96006)
2482763	32C14	56,66	CDC	Active	03-mars-17	02-mars-19	100% Minière Osisko inc. (96006)
2482764	32C14	56,66	CDC	Active	03-mars-17	02-mars-19	100% Minière Osisko inc. (96006)
2482890	32F02	56,23	CDC	Active	06-mars-17	05-mars-19	100% Minière Osisko inc. (96006)
2482891	32F02	56,23	CDC	Active	06-mars-17	05-mars-19	100% Minière Osisko inc. (96006)
2482892	32F02	56,23	CDC	Active	06-mars-17	05-mars-19	100% Minière Osisko inc. (96006)
2482893	32F02	56,23	CDC	Active	06-mars-17	05-mars-19	100% Minière Osisko inc. (96006)
2482894	32F02	56,23	CDC	Active	06-mars-17	05-mars-19	100% Minière Osisko inc. (96006)
2482895	32F02	56,23	CDC	Active	06-mars-17	05-mars-19	100% Minière Osisko inc. (96006)
2482896	32F02	56,23	CDC	Active	06-mars-17	05-mars-19	100% Minière Osisko inc. (96006)
2484165	32C14	38,1	CDC	Active	09-mars-17	08-mars-19	100% Minière Osisko inc. (96006)
2484166	32C14	49,98	CDC	Active	09-mars-17	08-mars-19	100% Minière Osisko inc. (96006)
2484167	32C14	0,99	CDC	Active	09-mars-17	08-mars-19	100% Minière Osisko inc. (96006)
2484168	32C14	21,67	CDC	Active	09-mars-17	08-mars-19	100% Minière Osisko inc. (96006)
2484169	32C14	2,86	CDC	Active	09-mars-17	08-mars-19	100% Minière Osisko inc. (96006)
2484170	32C14	2,64	CDC	Active	09-mars-17	08-mars-19	100% Minière Osisko inc. (96006)
2484171	32C14	40,42	CDC	Active	09-mars-17	08-mars-19	100% Minière Osisko inc. (96006)
2484172	32C14	46,72	CDC	Active	09-mars-17	08-mars-19	100% Minière Osisko inc. (96006)
2484176	32C14	56,51	CDC	Active	09-mars-17	08-mars-19	100% Minière Osisko inc. (96006)
2484177	32C14	30,31	CDC	Active	09-mars-17	08-mars-19	100% Minière Osisko inc. (96006)
2484178	32C14	40,59	CDC	Active	09-mars-17	08-mars-19	100% Minière Osisko inc. (96006)
2484179	32C14	40,47	CDC	Active	09-mars-17	08-mars-19	100% Minière Osisko inc. (96006)
2484180	32C14	0,92	CDC	Active	09-mars-17	08-mars-19	100% Minière Osisko inc. (96006)
2484181	32C14	0,67	CDC	Active	09-mars-17	08-mars-19	100% Minière Osisko inc. (96006)
2484182	32C14	16,57	CDC	Active	09-mars-17	08-mars-19	100% Minière Osisko inc. (96006)
2484183	32C14	51,2	CDC	Active	09-mars-17	08-mars-19	100% Minière Osisko inc. (96006)
2484184	32C14	56,55	CDC	Active	09-mars-17	08-mars-19	100% Minière Osisko inc. (96006)
2484185	32C14	38,48	CDC	Active	09-mars-17	08-mars-19	100% Minière Osisko inc. (96006)
2484186	32C14	37,79	CDC	Active	09-mars-17	08-mars-19	100% Minière Osisko inc. (96006)
2484187	32C15	30,79	CDC	Active	09-mars-17	08-mars-19	100% Minière Osisko inc. (96006)
2484188	32F02	8,27	CDC	Active	09-mars-17	08-mars-19	100% Minière Osisko inc. (96006)
2484189	32F02	53,13	CDC	Active	09-mars-17	08-mars-19	100% Minière Osisko inc. (96006)
2484190	32F02	1,59	CDC	Active	09-mars-17	08-mars-19	100% Minière Osisko inc. (96006)
2484191	32F02	50,46	CDC	Active	09-mars-17	08-mars-19	100% Minière Osisko inc. (96006)
2484192	32F02	43,29	CDC	Active	09-mars-17	08-mars-19	100% Minière Osisko inc. (96006)
2484193	32F02	4,24	CDC	Active	09-mars-17	08-mars-19	100% Minière Osisko inc. (96006)
2484194	32F02	29,94	CDC	Active	09-mars-17	08-mars-19	100% Minière Osisko inc. (96006)
2484195	32F02	55,99	CDC	Active	09-mars-17	08-mars-19	100% Minière Osisko inc. (96006)
2484196	32F02	15,85	CDC	Active	09-mars-17	08-mars-19	100% Minière Osisko inc. (96006)
2484197	32F03	46	CDC	Active	09-mars-17	08-mars-19	100% Minière Osisko inc. (96006)
2484198	32F03	29	CDC	Active	09-mars-17	08-mars-19	100% Minière Osisko inc. (96006)
2484199	32F03	29,73	CDC	Active	09-mars-17	08-mars-19	100% Minière Osisko inc. (96006)
2484200	32F03	16,07	CDC	Active	09-mars-17	08-mars-19	100% Minière Osisko inc. (96006)
2484201	32F02	14,54	CDC	Active	09-mars-17	08-mars-19	100% Minière Osisko inc. (96006)
2484202	32F02	4,33	CDC	Active	09-mars-17	08-mars-19	100% Minière Osisko inc. (96006)
2484203	32F03	2,85	CDC	Active	09-mars-17	08-mars-19	100% Minière Osisko inc. (96006)
2484507	32C15	56,51	CDC	Active	16-mars-17	15-mars-19	100% Minière Osisko inc. (96006)
2484508	32C15	43,26	CDC	Active	16-mars-17	15-mars-19	100% Minière Osisko inc. (96006)
2484509	32C15	28,37	CDC	Active	16-mars-17	15-mars-19	100% Minière Osisko inc. (96006)

Title	NTS	Area (ha)	Type	Status	Staking Date	Expiration Date	Owner (according to GESTIM)
2484510	32C15	21,47	CDC	Active	16-mars-17	15-mars-19	100% Minière Osisko inc. (96006)
2484511	32C15	27,08	CDC	Active	16-mars-17	15-mars-19	100% Minière Osisko inc. (96006)
2484512	32C15	48,37	CDC	Active	16-mars-17	15-mars-19	100% Minière Osisko inc. (96006)
2484513	32C15	45,4	CDC	Active	16-mars-17	15-mars-19	100% Minière Osisko inc. (96006)
2484514	32C15	56,44	CDC	Active	16-mars-17	15-mars-19	100% Minière Osisko inc. (96006)
2484515	32C16	56,22	CDC	Active	16-mars-17	15-mars-19	100% Minière Osisko inc. (96006)
2484516	32C14	52,08	CDC	Active	16-mars-17	15-mars-19	100% Minière Osisko inc. (96006)
2484517	32C14	56,71	CDC	Active	16-mars-17	15-mars-19	100% Minière Osisko inc. (96006)
2484518	32C14	54,33	CDC	Active	16-mars-17	15-mars-19	100% Minière Osisko inc. (96006)
2484519	32C14	42,26	CDC	Active	16-mars-17	15-mars-19	100% Minière Osisko inc. (96006)
2484520	32C14	13,96	CDC	Active	16-mars-17	15-mars-19	100% Minière Osisko inc. (96006)
2484521	32C14	49,6	CDC	Active	16-mars-17	15-mars-19	100% Minière Osisko inc. (96006)
2484522	32C14	56,52	CDC	Active	16-mars-17	15-mars-19	100% Minière Osisko inc. (96006)
2484523	32C14	16,24	CDC	Active	16-mars-17	15-mars-19	100% Minière Osisko inc. (96006)
2484524	32C14	41,78	CDC	Active	16-mars-17	15-mars-19	100% Minière Osisko inc. (96006)
2484525	32C14	39,75	CDC	Active	16-mars-17	15-mars-19	100% Minière Osisko inc. (96006)
2484526	32C14	1,17	CDC	Active	16-mars-17	15-mars-19	100% Minière Osisko inc. (96006)
2484537	32F02	56,27	CDC	Active	16-mars-17	15-mars-19	100% Minière Osisko inc. (96006)
2484538	32F02	53,43	CDC	Active	16-mars-17	15-mars-19	100% Minière Osisko inc. (96006)
2484539	32F02	51,85	CDC	Active	16-mars-17	15-mars-19	100% Minière Osisko inc. (96006)
2484540	32F02	52,6	CDC	Active	16-mars-17	15-mars-19	100% Minière Osisko inc. (96006)
2484541	32F02	54,4	CDC	Active	16-mars-17	15-mars-19	100% Minière Osisko inc. (96006)
2484542	32F02	39,05	CDC	Active	16-mars-17	15-mars-19	100% Minière Osisko inc. (96006)
2484543	32F02	3,76	CDC	Active	16-mars-17	15-mars-19	100% Minière Osisko inc. (96006)
2484544	32F02	41,17	CDC	Active	16-mars-17	15-mars-19	100% Minière Osisko inc. (96006)
2484545	32F02	46,63	CDC	Active	16-mars-17	15-mars-19	100% Minière Osisko inc. (96006)
2484546	32F02	47,59	CDC	Active	16-mars-17	15-mars-19	100% Minière Osisko inc. (96006)
2488070	32F02	54,8	CDC	Active	05-avr-17	04-avr-19	100% Minière Osisko inc. (96006)
2488071	32F03	9,59	CDC	Active	05-avr-17	04-avr-19	100% Minière Osisko inc. (96006)
2488072	32F03	14,66	CDC	Active	05-avr-17	04-avr-19	100% Minière Osisko inc. (96006)
2488073	32F03	24,93	CDC	Active	05-avr-17	04-avr-19	100% Minière Osisko inc. (96006)
2488074	32F03	54,02	CDC	Active	05-avr-17	04-avr-19	100% Minière Osisko inc. (96006)
2488075	32F03	4,06	CDC	Active	05-avr-17	04-avr-19	100% Minière Osisko inc. (96006)
2488076	32F03	13,16	CDC	Active	05-avr-17	04-avr-19	100% Minière Osisko inc. (96006)
2488077	32F03	7,56	CDC	Active	05-avr-17	04-avr-19	100% Minière Osisko inc. (96006)
2488078	32F03	17,63	CDC	Active	05-avr-17	04-avr-19	100% Minière Osisko inc. (96006)
2488079	32F03	54,78	CDC	Active	05-avr-17	04-avr-19	100% Minière Osisko inc. (96006)
2488080	32F03	0,76	CDC	Active	05-avr-17	04-avr-19	100% Minière Osisko inc. (96006)
2488081	32F03	1,45	CDC	Active	05-avr-17	04-avr-19	100% Minière Osisko inc. (96006)
2488101	32F02	13,44	CDC	Active	06-avr-17	05-avr-19	100% Minière Osisko inc. (96006)
2488102	32F02	34,11	CDC	Active	06-avr-17	05-avr-19	100% Minière Osisko inc. (96006)
2488103	32F02	7,21	CDC	Active	06-avr-17	05-avr-19	100% Minière Osisko inc. (96006)
2488104	32F02	26,67	CDC	Active	06-avr-17	05-avr-19	100% Minière Osisko inc. (96006)
2488105	32F02	6,85	CDC	Active	06-avr-17	05-avr-19	100% Minière Osisko inc. (96006)
2488106	32F02	0,11	CDC	Active	06-avr-17	05-avr-19	100% Minière Osisko inc. (96006)
2488107	32F02	1,07	CDC	Active	06-avr-17	05-avr-19	100% Minière Osisko inc. (96006)
2488108	32F02	7,64	CDC	Active	06-avr-17	05-avr-19	100% Minière Osisko inc. (96006)
2488109	32F02	1,15	CDC	Active	06-avr-17	05-avr-19	100% Minière Osisko inc. (96006)
2488127	32C14	16,76	CDC	Active	06-avr-17	05-avr-19	100% Minière Osisko inc. (96006)
2488128	32C14	47,68	CDC	Active	06-avr-17	05-avr-19	100% Minière Osisko inc. (96006)
2488129	32C14	0,96	CDC	Active	06-avr-17	05-avr-19	100% Minière Osisko inc. (96006)

Title	NTS	Area (ha)	Type	Status	Staking Date	Expiration Date	Owner (according to GESTIM)
2494111	32F03	56,35	CDC	Active	29-mai-17	28-mai-19	100% Minière Osisko inc. (96006)
2494112	32F03	56,36	CDC	Active	29-mai-17	28-mai-19	100% Minière Osisko inc. (96006)
2494113	32F03	55,61	CDC	Active	29-mai-17	28-mai-19	100% Minière Osisko inc. (96006)
2494114	32F03	55,44	CDC	Active	29-mai-17	28-mai-19	100% Minière Osisko inc. (96006)
2494115	32F03	55,9	CDC	Active	29-mai-17	28-mai-19	100% Minière Osisko inc. (96006)
2494116	32F03	9,65	CDC	Active	29-mai-17	28-mai-19	100% Minière Osisko inc. (96006)
2494117	32F03	42,11	CDC	Active	29-mai-17	28-mai-19	100% Minière Osisko inc. (96006)
2494118	32F03	41,97	CDC	Active	29-mai-17	28-mai-19	100% Minière Osisko inc. (96006)
2494119	32F03	42,04	CDC	Active	29-mai-17	28-mai-19	100% Minière Osisko inc. (96006)
2494120	32F03	42,14	CDC	Active	29-mai-17	28-mai-19	100% Minière Osisko inc. (96006)
2494121	32F03	48,18	CDC	Active	29-mai-17	28-mai-19	100% Minière Osisko inc. (96006)
2494122	32F03	24,19	CDC	Active	29-mai-17	28-mai-19	100% Minière Osisko inc. (96006)
2494123	32F03	9,24	CDC	Active	29-mai-17	28-mai-19	100% Minière Osisko inc. (96006)
2495019	32C14	56,72	CDC	Active	08-juin-17	07-juin-19	100% Minière Osisko inc. (96006)
2495020	32C14	56,72	CDC	Active	08-juin-17	07-juin-19	100% Minière Osisko inc. (96006)
2495021	32C14	56,72	CDC	Active	08-juin-17	07-juin-19	100% Minière Osisko inc. (96006)
2495022	32C14	56,72	CDC	Active	08-juin-17	07-juin-19	100% Minière Osisko inc. (96006)
2495023	32C14	56,71	CDC	Active	08-juin-17	07-juin-19	100% Minière Osisko inc. (96006)
2495024	32C14	56,71	CDC	Active	08-juin-17	07-juin-19	100% Minière Osisko inc. (96006)
2495025	32C14	56,71	CDC	Active	08-juin-17	07-juin-19	100% Minière Osisko inc. (96006)
2495026	32C14	56,71	CDC	Active	08-juin-17	07-juin-19	100% Minière Osisko inc. (96006)
2495027	32C14	56,71	CDC	Active	08-juin-17	07-juin-19	100% Minière Osisko inc. (96006)
2499669	32F03	56,41	CDC	Active	11-août-17	10-août-19	100% Minière Osisko inc. (96006)
2499670	32F03	56,41	CDC	Active	11-août-17	10-août-19	100% Minière Osisko inc. (96006)
2499671	32F03	56,4	CDC	Active	11-août-17	10-août-19	100% Minière Osisko inc. (96006)
2499672	32F03	56,41	CDC	Active	11-août-17	10-août-19	100% Minière Osisko inc. (96006)
2499673	32F03	56,41	CDC	Active	11-août-17	10-août-19	100% Minière Osisko inc. (96006)
2499674	32F03	56,41	CDC	Active	11-août-17	10-août-19	100% Minière Osisko inc. (96006)
2499675	32F03	56,41	CDC	Active	11-août-17	10-août-19	100% Minière Osisko inc. (96006)
2499676	32F03	56,4	CDC	Active	11-août-17	10-août-19	100% Minière Osisko inc. (96006)
2499677	32F03	56,4	CDC	Active	11-août-17	10-août-19	100% Minière Osisko inc. (96006)
2499678	32F03	56,4	CDC	Active	11-août-17	10-août-19	100% Minière Osisko inc. (96006)
2499679	32F03	56,4	CDC	Active	11-août-17	10-août-19	100% Minière Osisko inc. (96006)
2499680	32F03	56,4	CDC	Active	11-août-17	10-août-19	100% Minière Osisko inc. (96006)
2499681	32F03	56,39	CDC	Active	11-août-17	10-août-19	100% Minière Osisko inc. (96006)
2499682	32F03	56,39	CDC	Active	11-août-17	10-août-19	100% Minière Osisko inc. (96006)
2499683	32F03	56,39	CDC	Active	11-août-17	10-août-19	100% Minière Osisko inc. (96006)
2502769	32F03	4,64	CDC	Active	27-sept-17	26-sept-19	100% Minière Osisko inc. (96006)
2502770	32F03	4,81	CDC	Active	27-sept-17	26-sept-19	100% Minière Osisko inc. (96006)
2502771	32F03	4,92	CDC	Active	27-sept-17	26-sept-19	100% Minière Osisko inc. (96006)
2502772	32F03	0,28	CDC	Active	27-sept-17	26-sept-19	100% Minière Osisko inc. (96006)
2502773	32F03	0,83	CDC	Active	27-sept-17	26-sept-19	100% Minière Osisko inc. (96006)
2502774	32F03	2,48	CDC	Active	27-sept-17	26-sept-19	100% Minière Osisko inc. (96006)
2502775	32F03	2,04	CDC	Active	27-sept-17	26-sept-19	100% Minière Osisko inc. (96006)
2503019	32F02	56,25	CDC	Active	06-oct-17	05-oct-19	100% Minière Osisko inc. (96006)
2505906	32F02	56,33	CDC	Active	21-nov-17	20-nov-19	100% Minière Osisko inc. (96006)
2505907	32F02	56,33	CDC	Active	21-nov-17	20-nov-19	100% Minière Osisko inc. (96006)
2505908	32F02	42,02	CDC	Active	21-nov-17	20-nov-19	100% Minière Osisko inc. (96006)
2505909	32F02	31,36	CDC	Active	21-nov-17	20-nov-19	100% Minière Osisko inc. (96006)
2505910	32F02	40,03	CDC	Active	21-nov-17	20-nov-19	100% Minière Osisko inc. (96006)
2505911	32F03	37,68	CDC	Active	21-nov-17	20-nov-19	100% Minière Osisko inc. (96006)

Title	NTS	Area (ha)	Type	Status	Staking Date	Expiration Date	Owner (according to GESTIM)
2505912	32F02	56,33	CDC	Active	21-nov-17	20-nov-19	100% Minière Osisko inc. (96006)
2505913	32F03	39,53	CDC	Active	21-nov-17	20-nov-19	100% Minière Osisko inc. (96006)
2505914	32F02	39,52	CDC	Active	21-nov-17	20-nov-19	100% Minière Osisko inc. (96006)
2505915	32F02	37,39	CDC	Active	21-nov-17	20-nov-19	100% Minière Osisko inc. (96006)
2505987	32C14	56,65	CDC	Active	22-nov-17	21-nov-19	100% Minière Osisko inc. (96006)
2506967	32F02	22,53	CDC	Active	28-nov-17	27-nov-19	100% Minière Osisko inc. (96006)
2507610	32F02	56,26	CDC	Active	08-déc-17	07-déc-19	100% Minière Osisko inc. (96006)
2507611	32F02	56,26	CDC	Active	08-déc-17	07-déc-19	100% Minière Osisko inc. (96006)
2507612	32F02	56,26	CDC	Active	08-déc-17	07-déc-19	100% Minière Osisko inc. (96006)
2507613	32F02	56,26	CDC	Active	08-déc-17	07-déc-19	100% Minière Osisko inc. (96006)
2507614	32F02	56,25	CDC	Active	08-déc-17	07-déc-19	100% Minière Osisko inc. (96006)
2508192	32F02	56,29	CDC	Active	08-janv-18	07-janv-20	100% Minière Osisko inc. (96006)
2508193	32F02	56,29	CDC	Active	08-janv-18	07-janv-20	100% Minière Osisko inc. (96006)
2508194	32F02	56,29	CDC	Active	08-janv-18	07-janv-20	100% Minière Osisko inc. (96006)
2508195	32F02	56,28	CDC	Active	08-janv-18	07-janv-20	100% Minière Osisko inc. (96006)
2508196	32F02	56,28	CDC	Active	08-janv-18	07-janv-20	100% Minière Osisko inc. (96006)
2508197	32F02	56,28	CDC	Active	08-janv-18	07-janv-20	100% Minière Osisko inc. (96006)
2509869	32C14	56,7	CDC	Active	17-janv-18	16-janv-20	100% Minière Osisko inc. (96006)
2509870	32C14	56,69	CDC	Active	17-janv-18	16-janv-20	100% Minière Osisko inc. (96006)
2512554	32C14	56,66	CDC	Active	06-févr-18	05-févr-20	100% Minière Osisko inc. (96006)
2512555	32C14	56,65	CDC	Active	06-févr-18	05-févr-20	100% Minière Osisko inc. (96006)
2512900	32F08	56,03	CDC	Active	15-févr-18	14-févr-20	100% Minière Osisko inc. (96006)
2512901	32F08	56,03	CDC	Active	15-févr-18	14-févr-20	100% Minière Osisko inc. (96006)
2512902	32F08	56,03	CDC	Active	15-févr-18	14-févr-20	100% Minière Osisko inc. (96006)
2512903	32F08	56,03	CDC	Active	15-févr-18	14-févr-20	100% Minière Osisko inc. (96006)
2512904	32F08	56,03	CDC	Active	15-févr-18	14-févr-20	100% Minière Osisko inc. (96006)
2512905	32F08	56,02	CDC	Active	15-févr-18	14-févr-20	100% Minière Osisko inc. (96006)
2512906	32F08	56,02	CDC	Active	15-févr-18	14-févr-20	100% Minière Osisko inc. (96006)
2512907	32F08	56,02	CDC	Active	15-févr-18	14-févr-20	100% Minière Osisko inc. (96006)

Claim List on February 20, 2018. 4,211 Claims for 224,370.78 ha