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Mining Industry Consultants

NI43-101 Technical Report on the Tom-Jason Zinc-Lead-Silver Project, Watson Lake & Mayo Mining Districts Yukon Territory, Canada Centred near 63º 10’N, 130º 09’W NTS Map Sheet: 105O-01

Prepared for:
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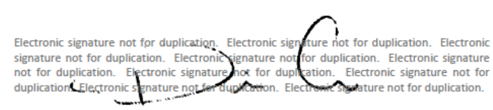
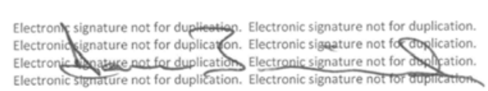
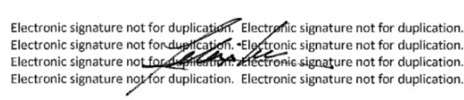
Principal Author	Dennis Arne, PhD PGeo (BC) RPgeo (AIG)	Signature:	
Principal reviewer:	Ian Trinder, M.Sc., P.Geo. (ON & MB)	Signature:	
CSA Global Authorisation:	Felix Lee Director	Signature:	

Date and Signature Page

This Report titled "NI43-101 Technical Report on the Tom-Jason Zinc-Lead-Silver Project, Watson Lake & Mayo Mining Districts, Yukon Territory, Canada Centred near 63° 10'N, 130° 09'W NTS Map Sheet: 105O-01" for Fireweed Zinc Ltd and dated January 31, 2017 was prepared and signed by the following author:

"Signed and Stamped"

____

Dated at Vancouver, BC

January 31, 2017

Dennis Arne, PhD, PGeo (BC), RPgeo (AIG).

Director and Principal Consultant

CSA Global Geosciences Canada Ltd

Report Effective Date:

January 31, 2017.

Certificate

Certificate of Qualified Person – Dr. Dennis Arne

As a Qualified Person of this Technical Report covering the Project named as the NI43-101 Technical Report on the Tom-Jason Zinc-Lead-Silver Project, Watson Lake & Mayo Mining Districts, Yukon Territory, Canada Centred near 63° 10'N, 130° 09'W NTS Map Sheet: 105O-01, I, Dennis Arne do hereby certify that:

1. I am a Principal Consultant of CSA Global Geosciences Canada Ltd, and carried out this assignment for CSA Global Geosciences Canada Ltd of Suite 610, 1155 West Pender Street, Vancouver, British Colombia, Canada (dennis.arne@csaglobal.com)
2. The Technical Report to which this certificate applies is titled "NI43-101 Technical Report on the Tom- Jason Zinc-Lead-Silver Project, Watson Lake & Mayo Mining Districts, Yukon Territory, Canada Centred near 63° 10'N, 130° 09'W NTS Map Sheet: 105O-01" and is dated January 31, 2017 ("the effective date").
3. I hold a BSc (Hons), MSc, PhD and Graduate Diploma, and am a registered Professional Geologist in good standing of the Association of Professional Engineers and Geoscientist of British Colombia (#34686) and a Registered Professional Geoscientist of the Australian Institute of Geoscientists (#10064). I am familiar with NI 43-101 and, by reason of education, experience in exploration and evaluation of hydrothermal deposits, including sediment-hosted base metal deposits, and professional registration, I fulfil the requirements of a Qualified Person as defined in NI 43-101. My experience includes more than 30 years in geology.
4. I personally visited the project that is the subject of this Technical Report between August 31 and September 2, 2011 for a total of 3 days.
5. I am responsible for all sections of this Technical Report.
6. I am independent of the issuer as described in Section 1.5 of NI 43-101.
7. I have had prior involvement with the Project that is the subject of this Technical Report through a previous consulting engagement in 2011.
8. I have read NI 43-101 and this Technical Report for which I am responsible has been prepared in compliance with N1 43-101.
9. As of the effective date of the Technical Report, to the best of my knowledge, information and belief, the Technical Report contains all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.

Dated this 31st day of January, 2017.

"Signed and Stamped"

Dr. Dennis Arne, PGeo (BC), RPGeo (Aust)
Director and Principal Consultant - Geochemistry
CSA Global Geosciences Canada Ltd.

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1. Summary

The Tom and Jason Project is in the MacMillan Pass area of western Yukon near the border with the Northwest Territories, approximately 400 km northeast of Whitehorse. It consists of a total of 427 claims covering 5,944 Ha, as well as a single surface lease comprising 120.7 Ha. All claims are controlled by Hudbay Minerals Inc. ("Hudbay") who recently optioned the project to Fireweed Zinc Ltd. (the "Issuer"), a private company with plans to list on the TSX-Venture Exchange ("TSX-V").

Access to the site is by seasonal gravel road or by air, and there is minimal infrastructure available in the region. The nearest population centre is at Ross River located about 200km to the southwest.

The Tom and Jason Zn-Pb-Ag deposits are proximal vent SEDEX deposits formed during Devonian rifting activity in the Selwyn Basin. They were subsequently folded during the transition of the Pacific margin of North America from a passive to convergent plate margin.

There has been a significant amount of historical exploration on the Tom and Jason properties commencing with the discovery of the Tom West Zone in 1951. This has resulted in the drilling of 128 holes on the Jason property for a total of 37,924m and 212 holes on the Tom property, for a total of 33,495m. In addition, an adit with approximately 3,423m of underground development and a spiral decline were put into the Tom deposit to assist exploration and bulk sampling. Exploration effectively ceased on the properties after 1992. There has been minimal modern exploration on the properties since that time.

Hudbay Minerals Inc. commissioned a mineral resource estimate in 2007 (Rennie, 2007) that reported 6.43Mt indicated resources at both Tom and Jason at 6.33% Zn, 5.05% Pb and 56.55g/t Ag, and 24.55Mt inferred resources at 6.71% Zn, 3.48% Pb and 33.85g/t Ag. CSA Global have done insufficient analysis to confirm these resource estimates as current and compliant with NI43-101. CSA Global and the Issuer are treating them as historical and as such they should not be relied upon. The Author includes these historical estimates in this report because they represent material historical information which has been previously publicly disclosed (see Rennie (2007) in the Hudbay profile under www.sedar.com).

Exploration recommenced briefly in 2011 with the drilling of 11 new diamond holes for a total of 1,823m. These holes were drilled for metallurgical testing and in-fill purposes in the Tom West Zone. Five of the holes were twin holes that verify historical intersections, although there appear to be minor discrepancies in the location of at least some of the Tom property historical drill collars. Some of the Jason property collars appear to have a more significant locational error of approximately 53m to the northwest, as determined from collar surveys of historical collar locations in 2011 and comparisons with satellite imagery. Surveying to accurately locate the location of these drill holes is included in the proposed budget of Section 18, Recommendations.

Issues impacting on the potential economic development of the Tom and Jason deposits include the remoteness of the location and a lack of infrastructure except for the access road which will need upgrading. Uncertainties associated with ongoing Native land claim negotiations, and as such unresolved eventual title, remain a risk for future development of the properties although this does not prevent the Issuer from carrying out exploration work on the properties.

The Tom and Jason properties are considered by CSA Global to be at an advanced stage of exploration. CSA Global concludes that the Tom and Jason Project warrants additional expenditures including a new phase of modern exploration. The main objectives of the recommended work program are to upgrade the technical database so a new NI43-101 compliant mineral resource may be estimated for both the Tom and Jason deposits and to carry out exploration work toward discovery of additional high-grade mineralization. This work will be informed by the substantial work on the stratigraphy, structure and mineralisation of the MacMillan Pass region undertaken by the Geological Survey of Canada after the earlier historical exploration. The focus of this recommended exploration should be the identification of additional mineralisation with the goal of defining high-grade resources. At the same time, the existing substantial historical drill hole database should be verified through a systematic re-sampling program of mineralised intervals in archived drill core, accompanied by a comprehensive quality assurance and quality control program. The locations of historical drill collars should be re-surveyed. Additional twin holes may need to be drilled at both the Tom and Jason deposits to verify the position of mineralisation in the current coordinate system if the positions of historical drill collars cannot be confirmed. This verification work as well as mapping and other field work should lead to the development of new geological models for both deposits that can form a guide for further exploration.

A budget of C$700,000 is proposed for the 2017 field season as detailed in Table 1-1. The budget assumes that existing tracks and a fording at the site of the former bridge across the South MacMillan River can be used to move a drill rig into position. Also included in the budget is scope for an aerial survey of the properties in order to obtain an accurate digital elevation model ("DEM"). A substantial geochemical budget has been included for a program of systematically re-sampling drill core to verify historical assays.

It is the opinion of the Author that the property is of sufficient merit that the recommended budget as outlined represents a worthwhile and sensible work program if carried out by qualified competent personnel. The project manager may make small adjustments to this program and budget as circumstances require during the work.

Table 1-1. Proposed budget for Tom and Jason exploration

Expense Category	**Estimates**
Camp Management & Logistics	$120,000
Geoscience equipment / Supplies / Consumables	$70,000
General Transport & Shipping	$20,000
Diamond Drilling (2,000m)	$320,000
Geochemical Analyses	$40,000
Metallurgical Tests	$25,000
Aerial Topographic Survey	$30,000
Surveying	$15,000
Contractor Services	$50,000
Project Air Support	$10,000
Total:	$700,000

2. Introduction

Issuer

This report has been prepared by CSA Global Canada Geosciences Ltd ("CSA Global") for Fireweed Zinc Ltd ("Issuer"), a private company registered in the Yukon Territory with corporate offices in Vancouver, British Columbia, Canada.

Terms of Reference

CSA Global has been commissioned by the Issuer to provide a National Instrument 43-101 compliant Technical Report on the Tom and Jason Project in the Yukon. The Issuer requires the Technical Report as part of the listing requirements for Tier 2 mining companies on the TSX-V.

Sources of Information

This report has been prepared by CSA Global based on information supplied to them by the Issuer, much of which in turn was provided to them by Hudbay Minerals Inc. ("Hudbay") and on information from public sources referenced in Section 19 and elsewhere in this report. CSA Global has taken reasonable steps to verify the information provided where possible, and through their predecessor company, Revelation Geoscience Ltd ("Revelation"), is familiar with the most recent exploration data and existing verification issues.

Qualified Person Property Inspection

The Qualified Person authoring this report undertook a three-day site visit to the Tom and Jason properties between August 31 and September 2, 2011 during the most recent drilling program at the Project conducted by Revelation for Hudbay. There have been no material changes to the project since this program and the Author confirmed this through discussions with the Issuer and Hudbay, and has checked the Yukon Assessment Report Library online (link: http://virtua.gov.yk.ca:8080/search/query?match_1=MUST&field_1=&term_1=105o&facet_ngp=NTS+105O-01&facet_date_1=201&theme=emr). As such the Author considers this site visit current under section 6.2 of NI43-101.

3. Reliance on Other Experts

CSA Global has relied on information provided to them by the Issuer on claim ownership and the option agreement between themselves and Hudbay (Sections 4.2, 4.3 and 4.4). The claim ownership information in this report was provided by the Issuer to the Author and is based on written legal opinions for the Tom claims and the Jason claims by Austring, Fendrick & Fairman, Barristers & Solicitors, of Whitehorse, Yukon, and dated January 17, 2017 (Austring, Fendrick & Fairman, 2017a; Austring, Fendrick & Fairman, 2017b). The Issuer has informed the Author that the Definitive Option Agreement between Hudbay and the Issuer is dated December 14, 2016 and has provided the Author with the terms of the agreement as reproduced in Section 4 – Property Agreements and Encumbrances. CSA Global has not independently verified ownership or mineral title beyond information that is publicly available or been provided by the Issuer.

Historical environmental permits have been reviewed and those that have expired have been noted. The Issuer has confirmed to CSA Global that all necessary environmental and operation permits for the project are either current and/or will be applied/re-applied for (see Section 4- Permitting Considerations).

4. Property Description and Location

Property Location

The Tom and Jason project is in the MacMillan Pass area of the Yukon of Canada near the border with the Northwest Territories (Figure 1). It is located approximately at latitude 63° 10'N and longitude 130° 09'W on NTS map sheet 105O-01, approximately 400km northeast of Whitehorse, a major regional city, and 200km northeast of the community of Ross River, which is the nearest settlement.

Property Description and Mineral Tenure

The Tom and Jason project consists of two historically distinct but contiguous properties/claim groups (Figure 2). The Tom property/mining lease consists of a total of 144 claims covering 2295 Ha (Appendix 1) with an anniversary date of October 12, 2018 which can be extended. The group also includes a surface lease comprising 120.68 Ha over the Tom deposits which expires February 28, 2022 but can also be extended. The Jason property/claim group consists of a total of 283 claims for an area of 3,528 Ha (Appendix 1) that are renewed on an annual basis, with a current anniversary date of December 31, 2017 which also can be extended.

The Tom property and Jason property claims are held by Hudbay (Figure 2) and located in the Watson Lake and Mayo Mining Districts.

Continued tenure to mineral rights on a lode mineral claim (termed a "quartz claim" in the Yukon) is dependent upon work performed on the claim or a group of claims. When work has been done on a claim and is being used for the renewal of that claim, a full report of the work done must be submitted to the Mining Recorder Office. A renewal certificate will not be issued until the report and/or survey has been approved for the value required. The Yukon *Quartz Mining Act* (QMA) does not specify work to be performed, except in dollar terms. Renewal of a quartz claim requires that C$100 of work be done per claim per year, based on the Schedule of Representation Work outlined in the QMA. Where work is not performed, the claimant may make a payment in lieu of work. The fee for payment in lieu is C$100 per claim per year plus C$5 for the certificate of work per claim per year. Work must be performed on every claim unless groupings are filed. An application can be made to group adjoining claims; the maximum number of claims per grouping is 750. Grouping allows work to be performed on one or more claims and can be distributed to any or all other claims in the group. As such, annual work requirements for the Jason claims total C$28,300 per year. The Tom claims are a mining lease and are only subject to annual permit fees totaling $28,960 per year. In recent years, these work requirements and fees have been waived by the Yukon government due to the staking withdrawal in the region (described below under First Nations Consultations). The annual fee for the 120.68 Ha surface lease on the Tom property is $2,311 per year.

Property Agreements and Encumbrances

The following information has been provided to the Author by the Issuer as described in Section 3.

The Issuer executed a Definitive Option Agreement with Hudbay on December 14, 2016 to acquire the Tom mining lease and Tom surface lease, the Jason quartz claims and all existing permits and infrastructure. The total payment to acquire 100% of the project is C$1,000,000, to consist of C$100,000 payable on signing of the Definitive Agreement (paid), a further C$150,000 payable upon listing on the TSX-V, and another C$750,000 payable on exercise of the option. The final payment will also include 15% of fully diluted shares in the Issuer at the time of Exercise less any shares issued that relate to a project other than Tom-Jason.

The term of the option is 24 months, but it can only be exercised after the first 12 months. Minimum work commitments are C$1,000,000 over the two-year option period, including a minimum of C$250,000 in the first year.

The Jason quartz claims were purchased by Hudbay on August 3, 2006 from a consortium of companies operating as MacPass Resources Limited. As per a royalty agreement dated August 3, 2006, the Jason property is subject to a 3% NSR royalty. As part of the original option agreement, Hudbay also has the right to purchase, at any time, 1.5% of the NSR for C$1.25 million and the remaining 1.5% of the NSR for C$4.0 million. These obligations and rights will pass to the Issuer upon exercise of the property option by the Issuer.

There is no NSR encumbrance on the Tom mining lease.

Environmental Liabilities

The lower adit on the Tom property was partially plugged in 2010 to flood the mine workings and reduce the flow of acid mine drainage ("AMD") from oxidation of sulphides in the mine workings. A waste pile from underground development at Tom West has also been covered with an impermeable barrier to reduce AMD from the site. The lower adit continues to make water as designed and metal contents and other parameters of the discharge water are within standards set in the current Type B water use licence (see Permitting Considerations below) (G. Gorzynski, Personal Communication, January 2017).

Current environmental liabilities for the Project include on-going monitoring of surface and groundwater on the Tom property.

A preliminary environmental investigation of the Jason property in 2006 by Gartner Lee Limited noted that several exploration boreholes below an elevation of 1,250m were discharging water. Water samples from one of these boreholes and four samples of surface water exceeded the Canadian Council of Ministers of the Environment ("CCME") Aquatic Life guidelines for several metals, including Cd and Zn. Elevated metal concentrations and lowered pH levels may reflect natural groundwater discharge from the site, as the Earn Group sediments are regionally elevated with respect to several metals, including Zn, Cd, Pb and Ag (Mackie et al., 2015). In 2015, a number of drill pads and collars at the Jason property were rehabilitated and holes plugged with cement when ground conditions allowed it. Water still flows from some holes where it was not possible to properly complete the cementing (G. Gorzynski, Personal Communication, 2017).

Permitting Considerations

Exploration work is subject to the Mining Land Use Regulations of the Yukon Mining Quartz Act and to the Yukon Environmental and Socio-Economic Assessment Act ("YESAA"). A land use permit must be obtained and YESAA Board approval issued before large-scale exploration is conducted.

A Class 3 land use permit for exploration activities on the Tom and Jason Properties (LQ00325) under the Quartz Mining Act and Quartz Mining Land Use Regulations has been issued to Hudbay and extended to September 21, 2021. A waste management permit issued in 2011 (81-029) has been extended to December 31, 2021.

Currently water use and discharge of water from the Tom adit are governed by a Type B water use licence (QZ15-060-01) granted on July 24, 2015 and extended until December 31, 2020. The discharge from the lower Tom adit has naturally elevated metals levels and has been the subject of water quality monitoring a minimum of six times per year and reporting since 2001. Continued efforts will be required to monitor compliance with the water licence.

Any potential future development of the Tom and Jason deposits will require an environmental assessment under YESAA and a Yukon Mining Licence and Lease issued by the Yukon Government. A preliminary environmental investigation was undertaken on the Jason deposit by Gartner Lee Limited (Pearson, 2006) Additional permits will be required from the territorial and federal governments to further develop the deposits. For example, development of mining activities in the Yukon requires the issuance of a Type A water licence by the Yukon Water Board.

First Nations Consultations

The Tom and Jason properties lie within an area of territorial claim by the Kaska First Nations that has been withdrawn from staking (Ross River Area OIC 2013/224 and OIC 2013/60). The Kaska have not reached a land claim settlement with the Yukon government, and so the terms of any future development of the Tom and Jason deposits remain uncertain and will require consultation with the Kaska and any other affected First Nation. However, the current staking moratorium does not prevent exploration work to be carried out on existing claims.

Other Significant Factors and Risks

As of the effective date, CSA Global is unaware of any other significant factors and risks that may affect access, title, or the right or ability to perform work on the Tom and Jason project.

Figure 1. Location of the Tom and Jason properties (from Wells, 2012).

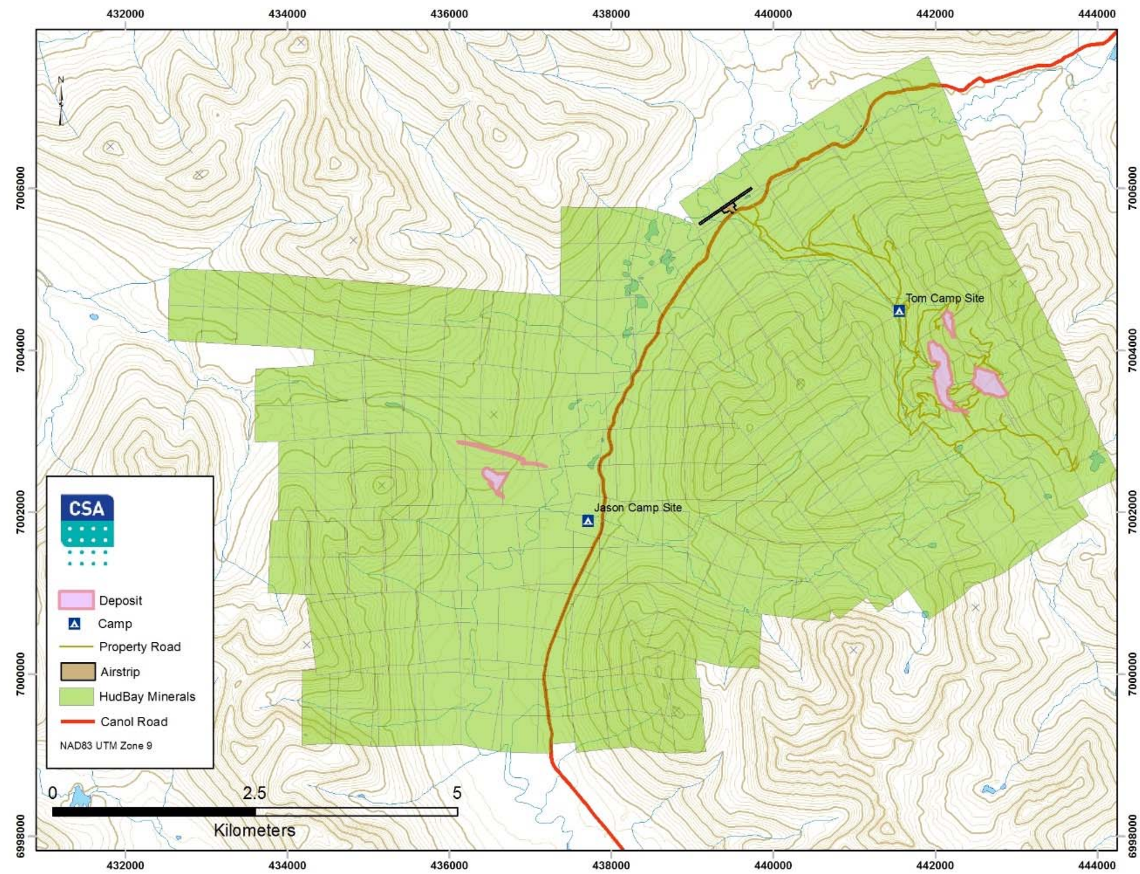

Figure 2. Tom and Jason claim groups (from Wells, 2012).

5. Accessibility, Climate, Local Resources, Infrastructure and Physiography

Topography, Elevation and Vegetation

The Tom and Jason properties are in the Hess Mountain region of the Selwyn Mountains, part of the western North American Cordillera. Elevations in the Project area vary between approximately 1,125m and 1,200m in the flat, wide valley bottom of MacMillan Pass to approximately 2,100m at mountain peaks on the Tom Property (Figure 2; Figure 3; Figure 4). The tree line occurs at approximately 1,350m, and mountain tops are covered by alpine vegetation. Vegetation below 1,350m is dominated by mixed deciduous and conifer (mainly black spruce) forest.

Figure 3. View of the Tom camp in middle distance (circled) taken in 2011 looking north down Sekie Creek.

Figure 4. Aerial view of the Jason property in the middle distance looking northwest.

Access to Property

Access to the property is via the sealed Robert Campbell Highway from Whitehorse, the capital of Yukon with an international airport, to the town of Ross River, a distance of approximately 400km (Figure 1). The seasonal North Canol Road continues to the Project area at MacMillan Pass from Ross River approximately 200km (Figure 1). This road can only be accessed by a ferry/barge across the Pelly River near the town of Ross River during the summer months (Figure 5).

The Tom Property can be accessed directly from the North Canol Road. A wooden bridge across the South MacMillan River previously provided access to the Jason Property, but this bridge was derelict in 2011. It is possible to ford the South MacMillan River during low water in the summer (G. Gorzynski, personal communication, November, 2016). Numerous tracks provide access to various areas of both projects (Figure 4).

A seasonal gravel airstrip is also available at MacMillan Pass to support activities in the region (Figure 6).

Climate

The climate of the region is sub-arctic. Weather data collected between 1974 and 1982 at the Mactung project located 14 km north of the Tom and Jason properties indicates an average annual temperature of -7.7°C, ranging between seasonal averages of -30°C in winter and +4°C in summer (Rennie, 2007). The average recorded annual precipitation for this period was 490mm, with an average annual snowfall of 294cm.

The effective season for field exploration operations in the Project area runs from June through late September or early October, depending upon when the Pelly River ferry commences and ceases operations for the season. Mine operations in the region with supporting infrastructure, can operate year-round.

Infrastructure

There are no services available at the project site. Electricity must be generated locally by diesel generators.

A 20-person trailer camp was installed at the Tom property in 2011 (Figure 7), including a septic system. All drill cores from both the Tom and Jason deposits are stored just upstream from the Tom camp (Figure 8).

Figure 5. Pelly River barge near Ross River.

Figure 6. Gravel airstrip at MacMillan Pass (circled) in middle distance looking north.

Figure 7. Camp at the Tom property installed in 2011.

Figure 8. 2011 GeoEye satellite image of the Tom camp and infrastructure (From Wells, 2012).

Hudbay developed an adit in 1970 to access the Tom West Zone for bulk sampling and underground drilling, for a total of 1,809m of drifting (Rennie, 2007). The adit was subsequently partially plugged on August 26, 2010 to flood existing workings and reduce the flow of acid mine drainage (AMD) from the opening. An upper level decline into the deposit was developed in 1982, also for exploration purposes, but was subsequently backfilled.

Project infrastructure needs in the event of potential development of the Tom and Jason deposits to production stage have not been assessed in detail, but CSA Global is of the opinion that the property surface rights are sufficient for potential mining operations, processing plant sites and waste and tailings storage areas, provided necessary permits are obtained and a satisfactory land claim settlement is reached with the Kaska First Nations. Water is readily available, provided necessary permits can be obtained from the Yukon Water Board. The North Canol Road would require upgrading and the construction of a bridge across the Pelly River and South MacMillan River. Power needs would probably require installation of diesel or LNG generators at the site. The nearest year-round ice-free port facilities are in Skagway, Alaska and Stewart, British Columbia. While there is a heritage rail link between Whitehorse and Skagway via the town of Carcross, there are no existing rail freight lines in the Yukon, meaning that metal concentrates would likely be transported by road from the Project to the port at Stewart, a distance of 1200km by road.

Whitehorse, 610km via road from the Project, is the major center of supplies and communications in the Yukon and has a source of skilled labor for exploration diamond drilling, construction and mining operations. There is daily jet airplane service from Whitehorse to Vancouver, British Columbia and other points south. The closest population centres to the Project via road (Figure 1) from which local supplies may be obtained Include:

- Ross River (population 350, 200km)
- Faro (population 400, 275km)
- Carmacks (population 500, 435km)
- Watson Lake (population 1200, 570km)

6. History

Property Ownership

Tom Property

The Tom property has been held continuously by Hudbay through various subsidiaries since its discovery in 1951, although it was optioned to Cominco Ltd between 1988-92. On December 14, 2016 Hudbay signed a Definitive Option Agreement for the Tom and Jason properties with the Issuer as described in Section 4.

Jason Property

The following history of ownership is taken largely from Rennie (2007). The Jason claims were first staked in 1971 by the Ogilvie Joint Venture. An interest in the property was obtained by Pan Ocean Oil Ltd in 1979 before being acquired by Aberford in 1981. Aberford's interest in the property was transferred to Abermin Corporation ("Abermin") in 1985, and thence to CSA Gold Corporation (no connection to CSA Global). All parties transferred their interest to MacPass Resources Ltd. and the property was then purchased by Hudbay in 2007 subject to a 3% NSR (see Section 4 – Property Agreements and Encumbrances, for details).

Project Results – Previous Owners

Tom Property

A comprehensive history of exploration activity presented below is taken from Wells (2012). Key events include:

- discovery of the Tom West Zone in 1951 with commencement of drilling in 1952;
- discovery of the Tom East Zone in 1953;
- commencement of adit development in 1969 (lower adit) with 1,703m of lateral development in 1970;
- discovery of an extension to the Tom West Zone in 1979;
- completion of a spiral decline in 1982 (upper adit);
- optioning of the property to Cominco Ltd between 1988 and 1992;

- partial plugging of the lower adit and covering of waste rock pile between 2007 and 2010;
- 201 drill holes totalling 31,672m completed between 1952 and 2007. Details of this drilling are provided by Rennie (2007);
- 11 additional diamond drill holes totalling 1823m were drilled for metallurgical and in-fill drilling at the Tom property in 2011, followed by metallurgical testing; and
- orientation surface geochemical soil sampling surveys on the Tom and Jason properties in 2011.

There has been no material exploration work carried out on the Tom property since 2011.

Jason Property

The following summary of exploration is taken from Rennie (2007) and includes:

- drilling of 87 holes, including 45 diamond and 33 rotary overburden holes, between 1974 and 1978;
- drilling of 42 diamond drill holes between 1980 and 1982 for a total of 128 historical diamond and rotary holes totalling 37,924m. Details of this drilling are provided by Rennie (2007). No drilling has occurred on the property since 1991;
- an option to Phelps Dodge Corporation of Canada between 1990 and 1992; and
- purchase by Hudbay in 2006.

The Author is unaware of any material exploration on the Jason property undertaken since 1992.

A majority of the historical exploration work carried out at Tom and Jason was drilling with the goal of defining economic resources.

Historical Mineral Resource Estimates

In 2007, Scott Wilson Roscoe Postle Associates Inc. ("RPA") completed mineral resource estimates on the Tom and Jason deposits for Hudbay in accordance to NI 43-101 (Rennie, 2007). Since those estimates were made, there has been no further drilling at Jason and 11 diamond holes were drilled at Tom in 2011. The latter were either twin holes (5) sampled for metallurgical testing or in-fill holes (6) for the Tom West Zone.

The 2007 resource estimates are not in compliance with current NI 43-101 standards with respect to the Issuer and this Report. CSA Global and the Issuer are treating these resources as historical estimates, not current mineral resources. The Author and Qualified Person has not done the work necessary to verify the historical estimates as current estimates under NI 43-101 and as such they should not be relied upon. The Author includes these historical estimates in this report because they represent material historical information that has been previously publicly disclosed (see Rennie (2007) in the Hudbay profile under www.sedar.com). These historical resource estimates (Rennie, 2007) are presented in Table 6-1. The Author is not aware of any mineral resource estimates for the project after 2007.

The historical resource estimates are based on wireframe models of the mineralised zones provided by Hudbay for Tom and constructed by Rennie (2007) for Jason. Block estimates for Pb, Zn, Ag and Ba were calculated using inverse distance squared (IDW^2) interpolation after compositing the data to 1.52 m lengths. A search ellipse of 200m by 200m by 30 m was used for grade estimation and a search ellipse 100m by 100m by 30m was used for resource classification. A monetary cut-off value of US$50 was applied to both the wireframe and block model, based on the following price assumptions (in 2007 US dollars): $0.57/lb Zn, $0.35/lb Pb and $7.00/oz Ag.

Bulk density data were not available for the Tom deposit. Bulk densities were estimated by regression analysis of Zn, Pb, Ba and Fe data from 1,758 samples from the Jason deposit, for which there were bulk density measurements, on the assumption that the relationship was similar at Tom (Rennie, 2007).

Rennie (2007) recommended that bulk density measurements be determined for the Tom deposit. Bulk densities were measured for selected samples from the metallurgical test holes drilled in 2011 using the water immersion method. Composite specific gravities calculated for entire mineralised intersections and from waste from three of the metallurgical test holes agree closely with those estimated using the same regression equation obtained by Rennie (2007) for the Jason deposit (Allen, 2012).

Table 6-1. Historical mineral resource estimates for the Tom and Jason deposits from Rennie (2007).

Class	Deposit	Mt	Zn (%)	Pb (%)	Ag (g/t)
Indicated	Jason	1.45	5.25	7.42	86.68
Indicated	Tom	4.98	6.64	4.36	47.77
Indicated	**Total**	**6.43**	**6.33**	**5.05**	**56.55**
Inferred	Jason	11.0	6.75	3.96	36.42
Inferred	Tom	13.6	6.68	3.10	31.77
Inferred	**Total**	**24.6**	**6.71**	**3.48**	**33.85**

Further in-fill drilling to allow upgrade of the resource from inferred to indicated was also recommended by Rennie (2007), along with geometallurgical domaining of the mineralisation. Development of a more detailed geological model was also recommended for the Jason deposit.

In the case of both the Tom and Jason deposits, some capping of high grade Pb was also recommended. Investigation of the low Ag grades at Jason was also suggested, and this could be addressed through a re-sampling and assay verification program.

CSA Global believe that a re-sampling program of drill core from the Tom and Jason deposits, at the rate of 5-10% of mineralised intervals, is required to validate the assay data from these areas prior to an update of the resource estimates. In addition, several twin diamond drill holes may be required to validate the mineralised intersections and core recoveries from Jason and the Tom East and Southeast Zones, depending on how reliably historical collars can located. The metallurgical drill holes from Tom West are considered to have adequately verified the location and grade of the mineralised zone in this area.

All drill cores from both the Tom and Jason deposits are stored just upstream from the Tom camp (Figure 8). Most of the Tom deposit core is in a metal shed and the Jason deposit core was transported and cross staked in piles beside the shed and protected by thick vinyl covers in 2015. Some limited core was donated to the Yukon government core library in Whitehorse where it is accessible for viewing and, with permission, sampling. The core stored at the Tom site was in good condition when last viewed in 2015 (G. Gorzynski, Personal Communication, September, 2016).

Production History

There is no recorded production from the Tom or Jason deposits. An exploration adit and a decline were developed for underground bulk sampling and exploration purposes at the Tom deposit as described previously.

7. Geological Setting and Mineralisation

Regional Geology

The regional geology of the Tom and Jason properties has previously been described by Rennie (2007), Goodfellow (2007) and Wells (2012). A summary is presented here from those sources.

Stratigraphy

The Tom and Jason properties occur within the Selwyn Basin (Figure 9), a deep water marine basin that was initiated off the ancestral coast of North America during the late Proterozoic with deposition continuing through the early to middle Paleozoic. The Selwyn Basin consists of a package of sedimentary rocks beginning with continentally-derived sediments of the late Proterozoic to Cambrian Windermere Supergroup. These units were followed in the late Cambrian to Ordovician by carbonate rocks of the Rabbitkettle Formation, and then by deep water cherts and shales of the Ordovician to early Devonian Road River Group. The Road River Group is in turn overlain by chert, black shales and turbidite sediments of the Devonian to Mississippian Earn Group, the host of the Tom and Jason deposits, as well as other Pb-Zn-Ag and Ba mineralisation in the MacMillan Pass region (Figure 10).

The stratigraphy of the Selwyn Basin and the adjacent Mackenzie carbonate platform that existed to the north and east of the basin (Figure 9) is given in Figure 11. A detailed stratigraphic description of the MacMillan Pass area is available from Abbott and Turner (1991).

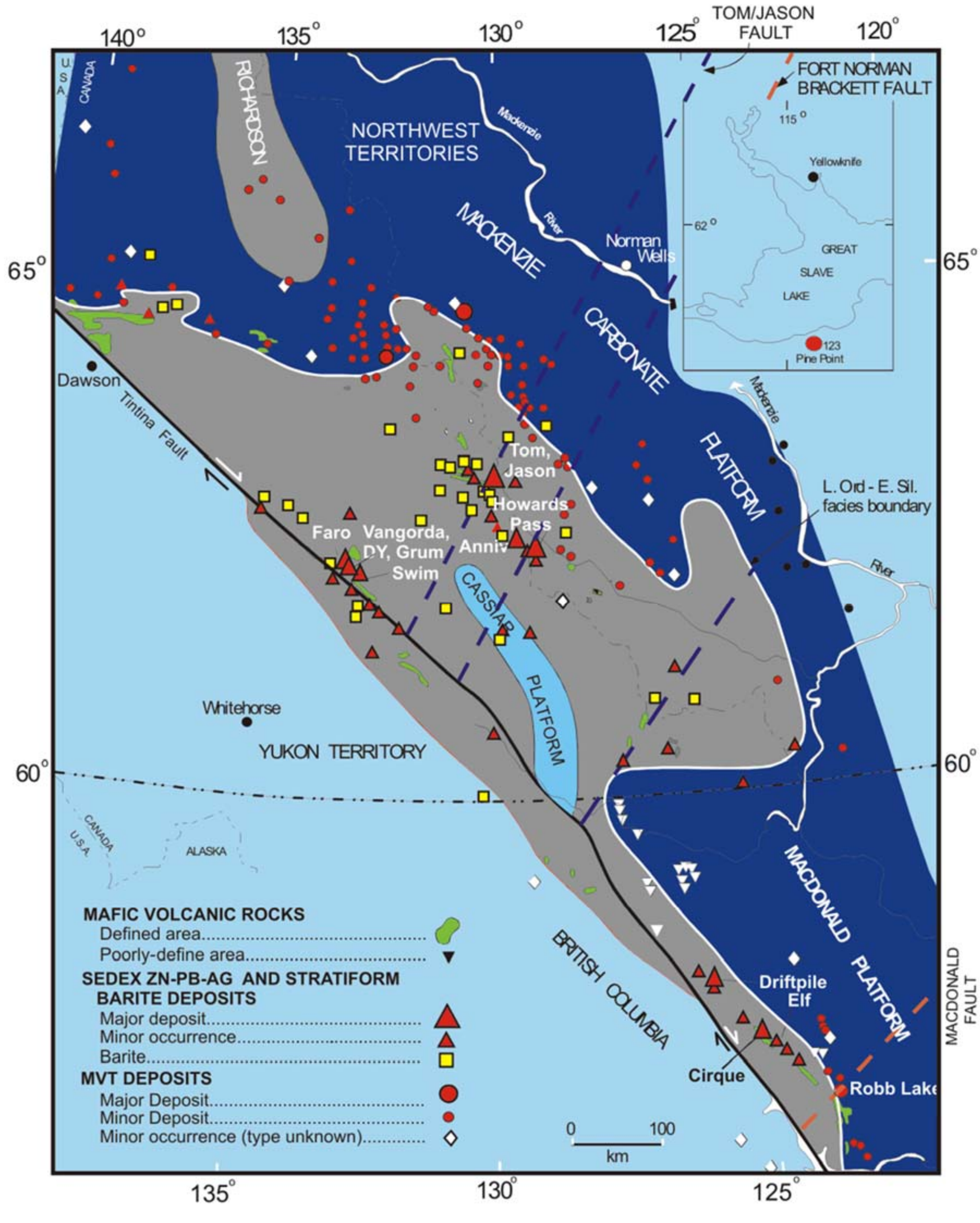

Figure 9. Regional geological setting and zinc-lead-silver deposits of the Selwyn Basin, including the Tom and Jason deposits (from Goodfellow, 2007).

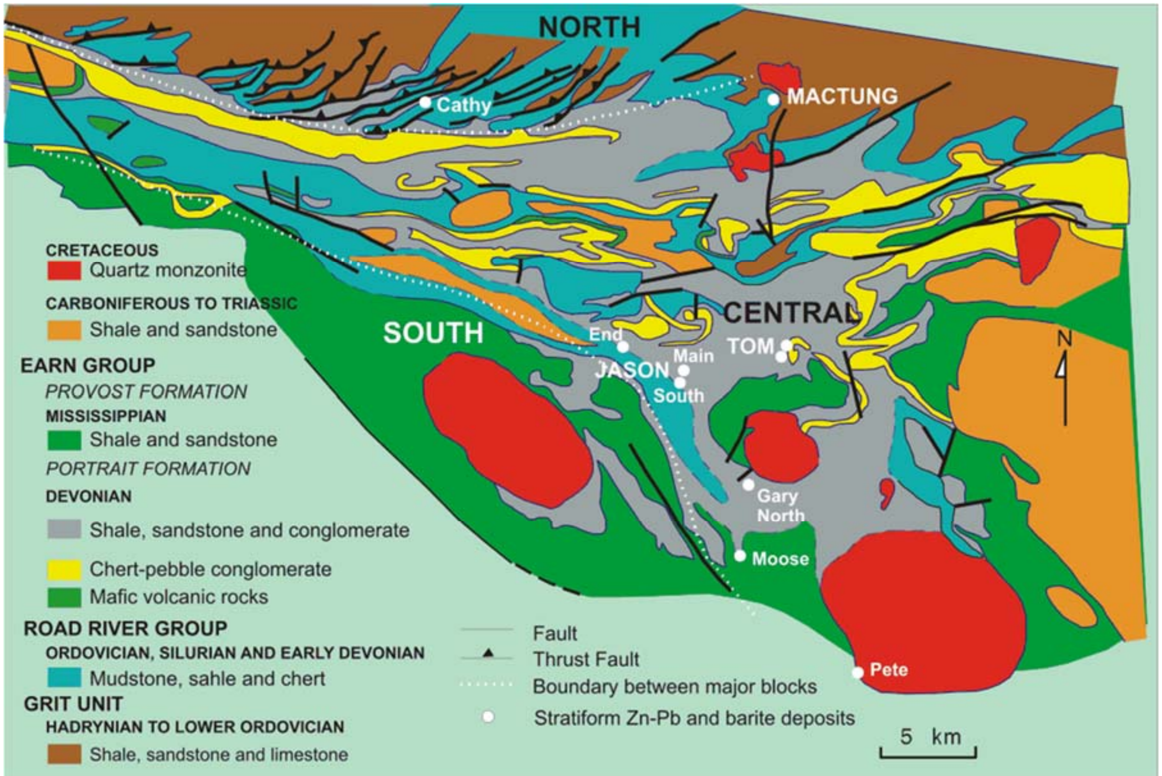

Figure 10. Geology of the MacMillan Pass region from Goodfellow (2007).

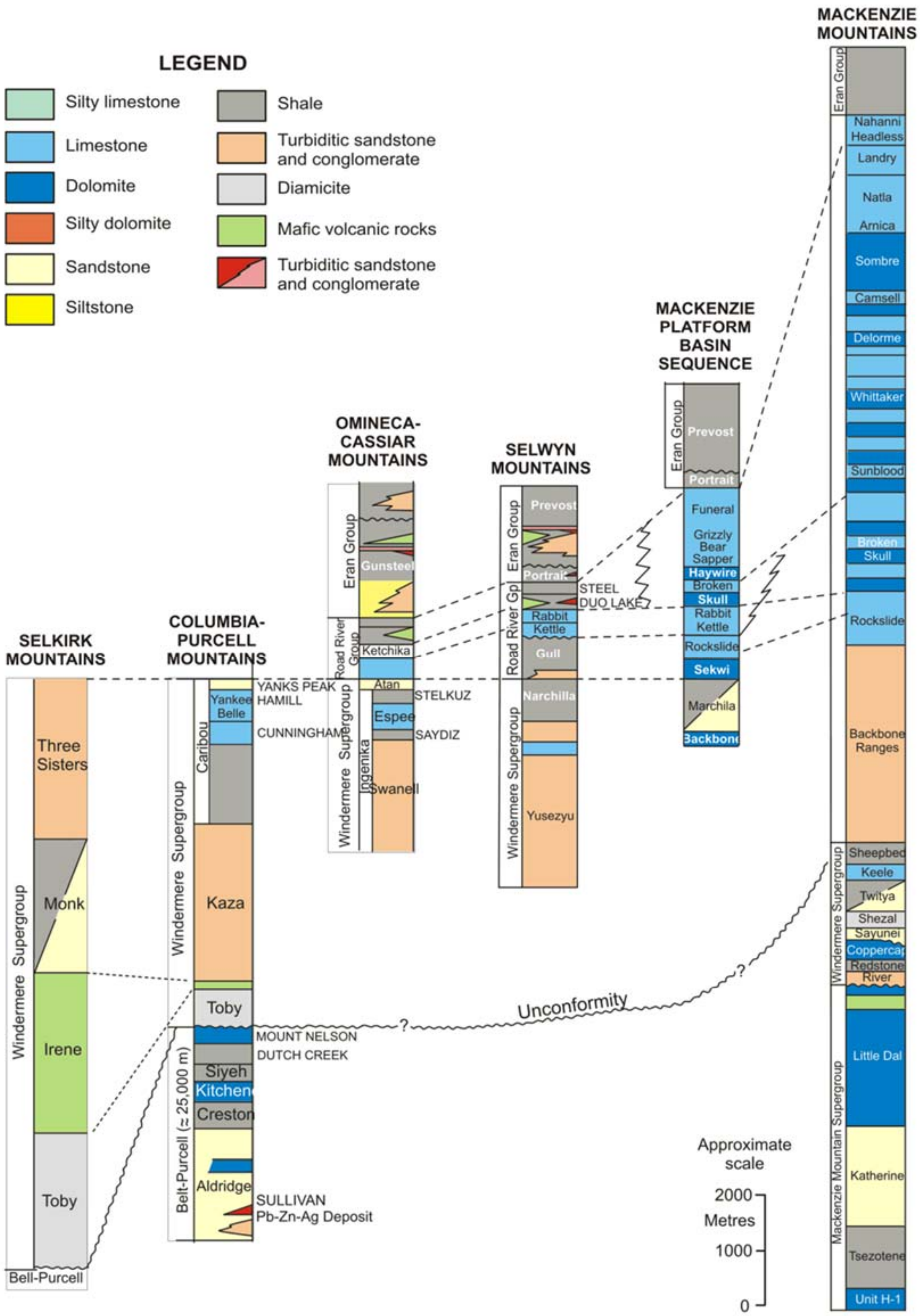

Figure 11. Stratigraphy of the Selwyn Basin and Belt Purcell Group from Goodfellow (2007).

Magmatism

Locally, mafic volcanic rocks were erupted during deposition of both the Road River and Earn Groups, and coincide broadly with the formation of Pb-Zn-Ag and barite deposits in the basin. The region was intruded by monzonite plutons during the waning stages of the Jurassic to Cretaceous periods.

Regional Tectonics and Structure

The Selwyn Basin formed in a passive margin setting following a major phase of rifting in the late Proterozoic to Cambrian. Gradual subsidence continued through the Paleozoic until the Antler Orogeny in the Devonian, at which time intracontinental rifting was initiated in a back-arc graben setting in the MacMillan Pass region. Extension faults controlling the exhalation of hydrothermal fluids were active at this time and are characterized by significant thickness variations in stratigraphic units across the structures, consistent with growth faulting, and the presence of sedimentary breccias, mass flow deposits (diamictites) and conglomerates indicative of syn-sedimentary faulting. The region was subject to compression during regional east-west shortening during the Jurassic to Cretaceous, resulting in likely re-activation of normal faults, folding and thrust faulting. The Macmillan Pass region occurs in the Central Block of the MacMillan Fold Belt where south-verging thrust faults and folds may be truncated by strike-slip re-activation of Devonian normal faults (Abbott et al., 1991).

Prospect and Local Geology

The local geology of the Tom and Jason claim groups is presented in Figure 12. Detailed descriptions are provided by Turner (1991) for the Jason deposit and Goodfellow (1991) for the Tom deposit. Summary descriptions of both deposits are provided in Rennie (2007) and Goodfellow (2007). The following descriptions are taken from those sources.

Tom Deposit

The Tom deposit is hosted by the Portrait Lake Formation of the Devonian Earn Group. Specifically, sulphide mineralisation occurs within an informal unit called the Tom Sequence (Goodfellow, 1991). The Tom Sequence is characterised by abrupt changes in sedimentary facies and unit thickness, demonstrating the influence of syn-sedimentary faulting. It consists of well banded carbonaceous and radiolarian chert, with occasional sandier intervals, barite nodules and pyrite laminae. It overlies sandy to silty laminated shales and siltstones of the MacMillan Pass Member which are interpreted to have been deposited by deep water turbidites (Goodfellow, 1991). The shales and siltstones are interbedded with occasional detrital chert layers containing chert pebble conglomerates, and with mixed clast diamictite, both indicative of submarine slumping near syn-sedimentary faulting. The Tom Sequence is unconformably overlain by fine grained clastic rocks of the informal Itsi Member. The sequence has been folded about a steeply south to southeast plunging upright anticline (Figure 13). The Tom Sequence is well exposed near the Tom deposit, although it is locally displaced along scree slopes and disrupted by frost heave in the alpine areas.

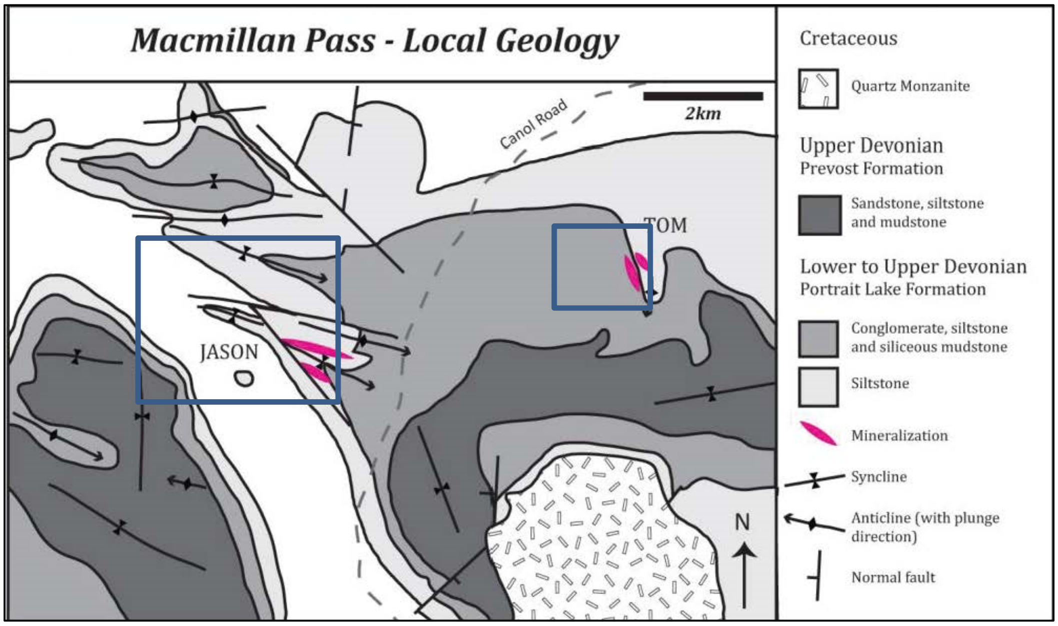

Figure 12. Geology of the Tom and Jason project areas from Magnall and others (2015) with areas of Figures 13 and 14 outlined in blue boxes.

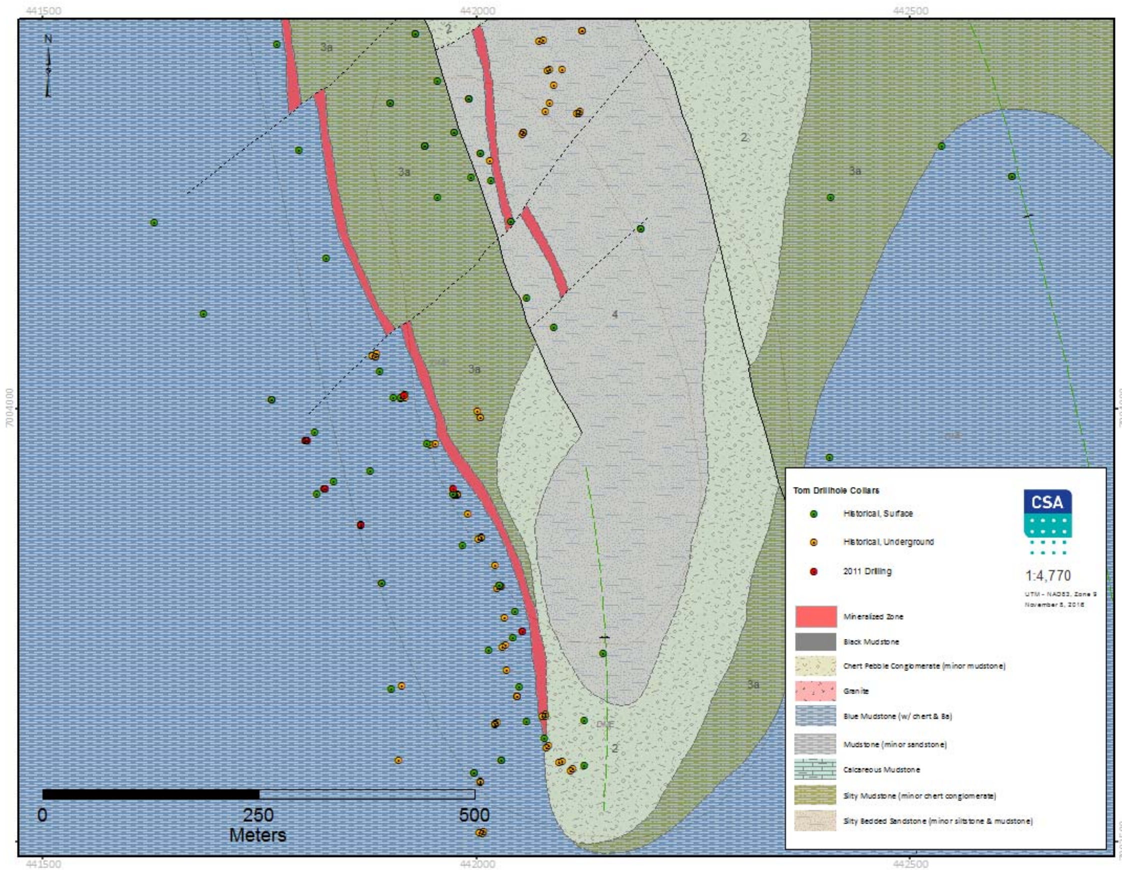

Figure 13. Geology of the Tom deposit from Hudbay files.

Historical drill hole collar locations are also shown.

Jason Deposit

The Jason deposit is hosted by a Devonian sequence disrupted by the Hess Fault and folded into a series of "upright tight west-trending, shallowly east-plunging folds" (Turner, 1991). The position of the Jason deposit is controlled by the location of the Jason Fault, a syn-sedimentary growth fault that brings older rocks of the Road River Group and lower Portrait Lake Formation of the Earn Group into contact with the MacMillan Pass Member and a stratigraphic package considered to be the lateral equivalent of the Tom Sequence (Goodfellow, 1991). The latter contains well developed sedimentary breccias, conglomerates and mass flow deposits (diamictites) that thicken towards the position of the Jason Fault, consistent with syn-sedimentary fault movement. Bedrock exposure is good within the alpine areas, but the valley bottoms and walls at lower elevations are concealed by a blanket of till that has inhibited exploration.

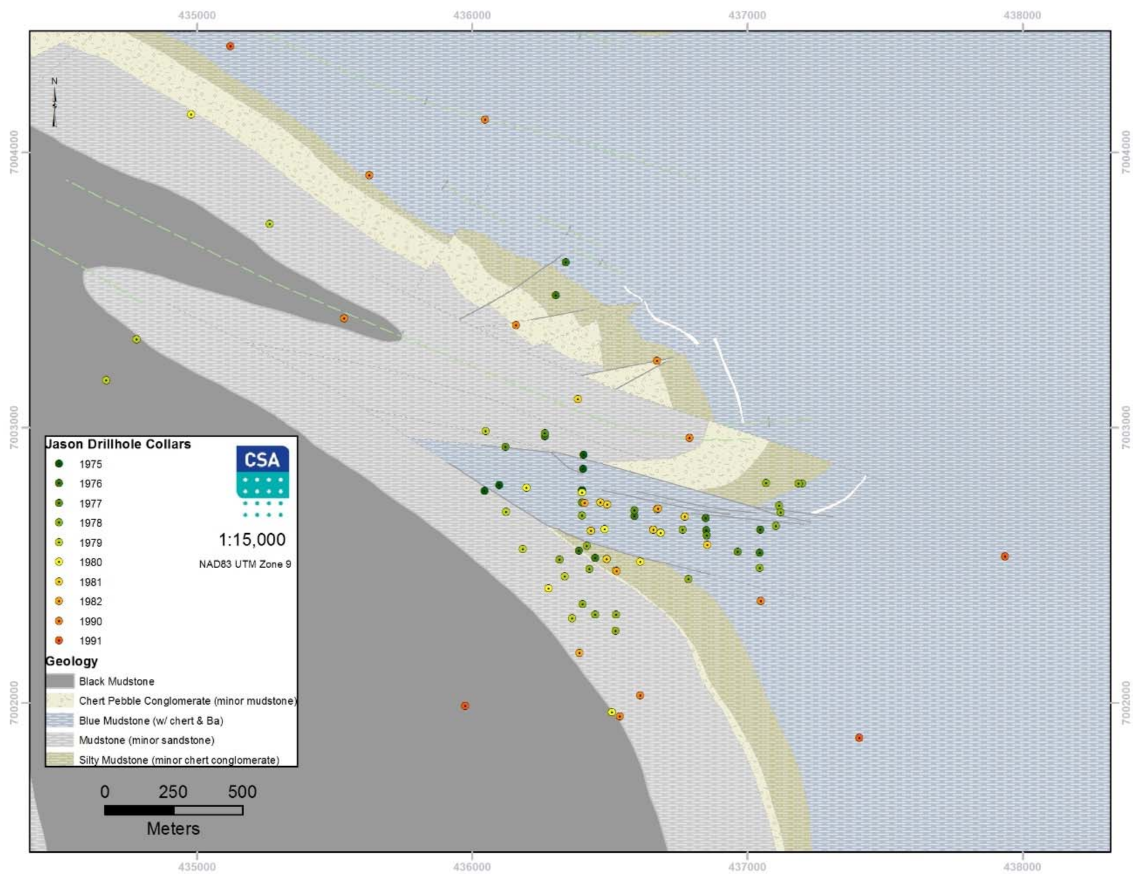

Figure 14. Geology of the Jason deposit from Hudbay files.
Historical drill hole collar locations are also shown.

Regional Mineralisation

The following information on regional SEDEX zinc-lead-silver mineralisation is taken from Goodfellow and Lydon (2007) and Goodfellow (2007).

The Selwyn Basin is one of the most productive basins for SEDEX zinc-lead-silver deposits in the world. The basin hosts 12 large deposits including the Tom and Jason deposits, the subject of this report (Figure 9). Past producers were Faro (aka Anvil), Grum and Vangorda. The Howards Pass deposit (aka Selwyn) is currently one of the world's largest undeveloped zinc deposits (Source:**https://www.woodmac.com/reports/metals-selwyn-howards-pass-zinc-mine-project-16157559**). SEDEX mineralisation of the Selwyn Basin occurs in four main districts of different ages: Anvil/Faro (Cambrian), Howards Pass/Selwyn (Silurian), Gataga/Cirque (Late Devonian) and MacMillan Pass/Tom-Jason (Late Devonian). Synchronous and genetically related Mississippi Valley Type zinc-lead mineralisation occurs in the carbonate platforms along the east side of the Selwyn Basin (Figure 9).

Property Mineralisation

Detailed descriptions of the Jason and Tom deposits are provided by Turner (1991) and Goodfellow (1991), respectively. The following descriptions of the Tom and Jason deposits have been taken from summaries by Goodfellow (2007) and Rennie (2007).

Tom Deposit

Zinc-lead-silver-barite mineralisation at the Tom deposit varies from well laminated and stratiform (parallel to sedimentary layering) to a brecciated stockwork zone adjacent to the Tom normal fault (Figure 15, Figure 14). The Tom West and Tom East Zones, both of which are exposed at surface, are interpreted to have formed one continuous lens prior to folding of the Tom Sequence, whereas the Southeast Zone is interpreted to have formed in a separate sub-basin to the main graben structure hosting the Tom West and Tom East Zones (Goodfellow, 1991), although all three zones have been affected by folding (Figure 13).

The Tom West Zone dips 60° to the southwest, has a strike extent of approximately 1km and extends up to 400m down dip. It is about 40m thick at its widest and breaks into two discrete layers in the centre. The highest-grade portion of the Tom West Zone occurs along the southern portion of the zone where Pb+Zn grades exceed 10%. The Tom West Zone hosts the bulk of the historical resource at the Tom deposit.

The Tom West Zone can be divided into a series of mineralisation facies (after Goodfellow, 1991; 2007; Figure 16) consisting of:

- Vent facies – stockwork of pyrite, pyrrhotite, galena, sphalerite, with minor chalcopyrite, arsenopyrite and tetrahedrite with a gangue of ferroan carbonates, quartz and barite subdivided into 5 types, including an upper high grade zone with 15-30% Pb+Zn, Ag between 150 and 200 g/t and a low Zn/(Zn+Pb) ratio;

- Pink facies – interbedded barite, chert, cream-coloured sphalerite, fine grained pyrite and black Ba-carbonate, overprinted by pink and yellow sphalerite resulting in locally high grades in the range 10-30% combined Pb and Zn;

- Gray facies – interbedded pink sphalerite, fine grained galena and pyrite, white to pale gray barite, pale grey chert and grey to white Ba-carbonate/Ba-feldspar, typically with grades in the range 4-5% Pb+Zn with negligible Ag; and

- Black facies – black mudstone and chert interbedded with barite, witherite (Ba-carbonate) and fine grained sphalerite, galena and pyrite, typically with grades in the 4-10% Pb+Zn range and a high Zn/(Pb+Zn) ratio.

The Tom East Zone occurs near the hinge of the anticline that has folded the originally planar deposit, and which plunges northward in this area. It consists of a series of fault-bounded pods of interbedded sphalerite, galena, barite and chert.

The Tom Southeast Zone is not exposed at surface, and consists of a tabular, stratiform body 0.5m to 6m thick with a strike length of approximately 400m and a down-dip extension of at least 350m dipping 60-70° to the east. It is located near the nose of the southeast-plunging Tom anticline on its eastern limb. Mineralisation consists of finely laminated sphalerite, galena, pyrite and black cherty mudstone (Goodfellow, 1991).

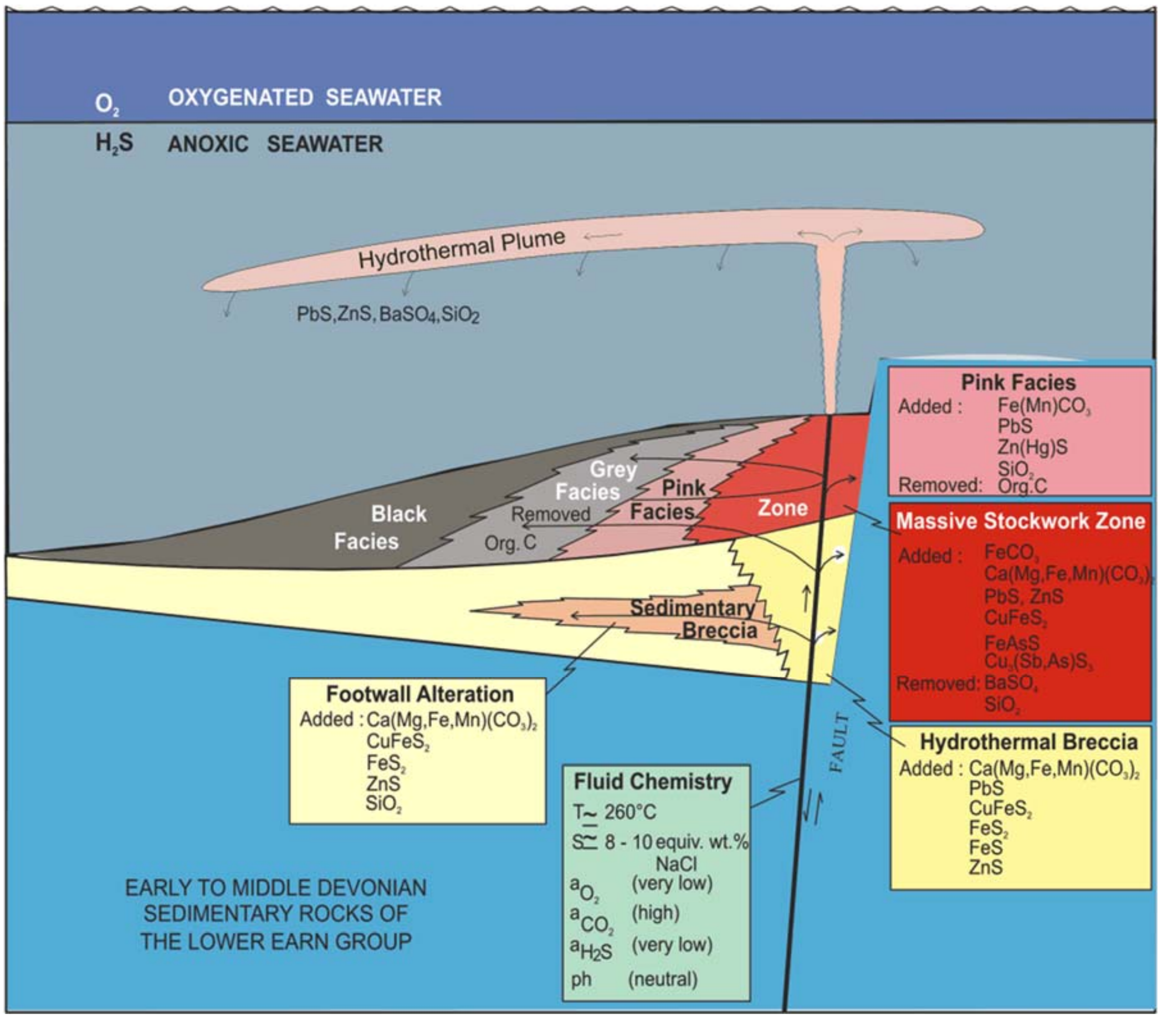

Figure 15. Stratigraphic reconstruction of the mineralisation facies (zones) at the Tom deposit from Goodfellow (2007).

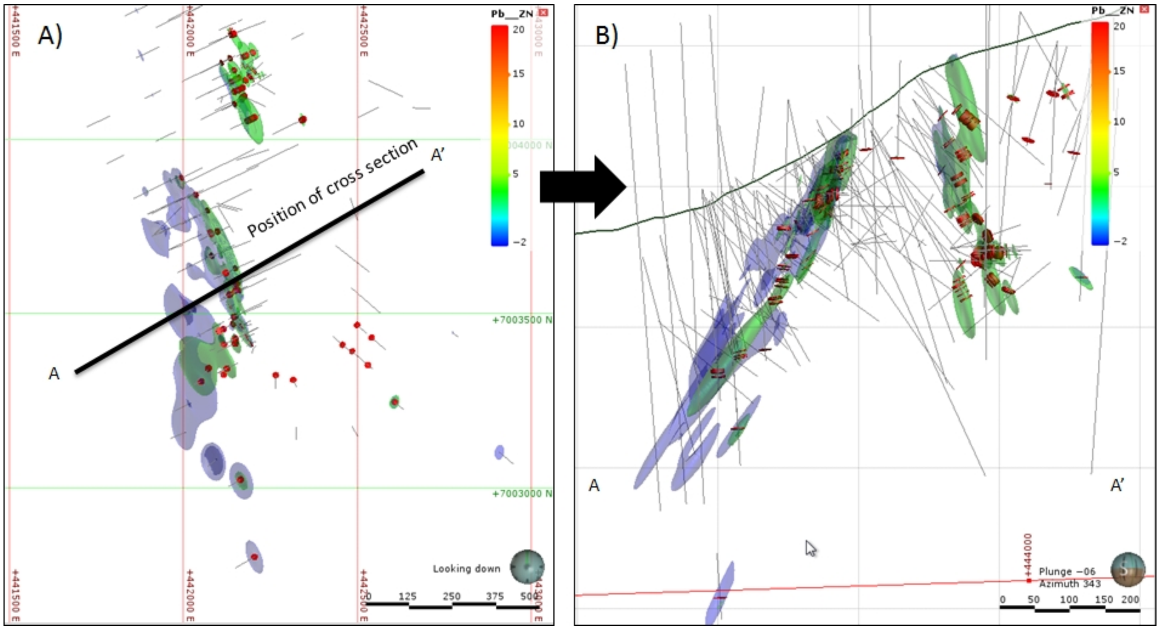

Figure 16. Preliminary Leapfrog model of the Tom West (left) and Tom East (right) Zones in plan (A) and cross section A-A' (B) looking north. The green areas delineate zones where Pb>2.6% and the blue areas delineate zones where Zn>4%.

Jason Deposit

A stratigraphic reconstruction of the Jason deposit at the time of mineralisation is presented in Figure 17. The Jason Main Zone is located on the northern limb of the east-plunging Jason syncline, while the Jason South Zone occurs on the southern limb (Figure 18). The South Zone consists of two separate horizons whereas the Main zone is defined by a single horizon. These horizons can be divided into several distinct mineralisation facies (zones), including (after Turner, 1991):

- Pb-Zn-Fe sulphide facies – massive, banded sphalerite-galena and galena-pyrite overlain by debris flow deposits containing clasts of earlier deposited massive sulphides;
- Barite-sulphide facies – interbedded fine-grained sphalerite, galena, barite, chert and ferroan carbonate forming the bulk of the mineralisation at Jason;
- Quartz-sulphide facies – interbedded sphalerite, pyrite, quartz and carbonaceous chert with quartz-celsian (barium feldspar) bands in the lower lens;
- Massive pyrite facies – massive pyrite beds interbedded with sphalerite, galena, chalcopyrite, pyrrhotite and quartz located near the Jason Fault; and

- Ferroan carbonate facies – massive beds of siderite and ankerite up to several metres across with irregularly distributed galena, sphalerite, pyrrhotite, pyrite, quartz, muscovite and pyrobitumen; spatially associated with a breccia pipe.

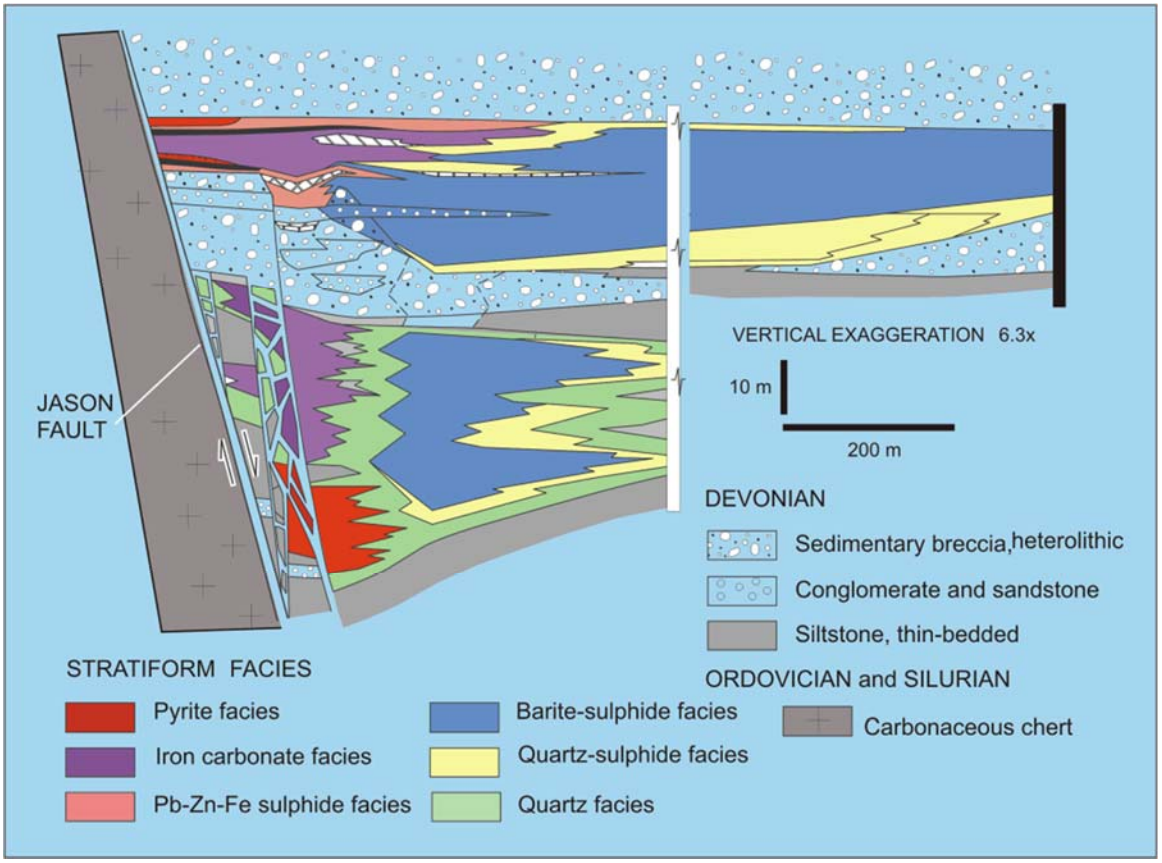

Figure 17. Stratigraphic reconstruction of the mineralisation facies (zones) at the Jason deposit from Goodfellow (2007).

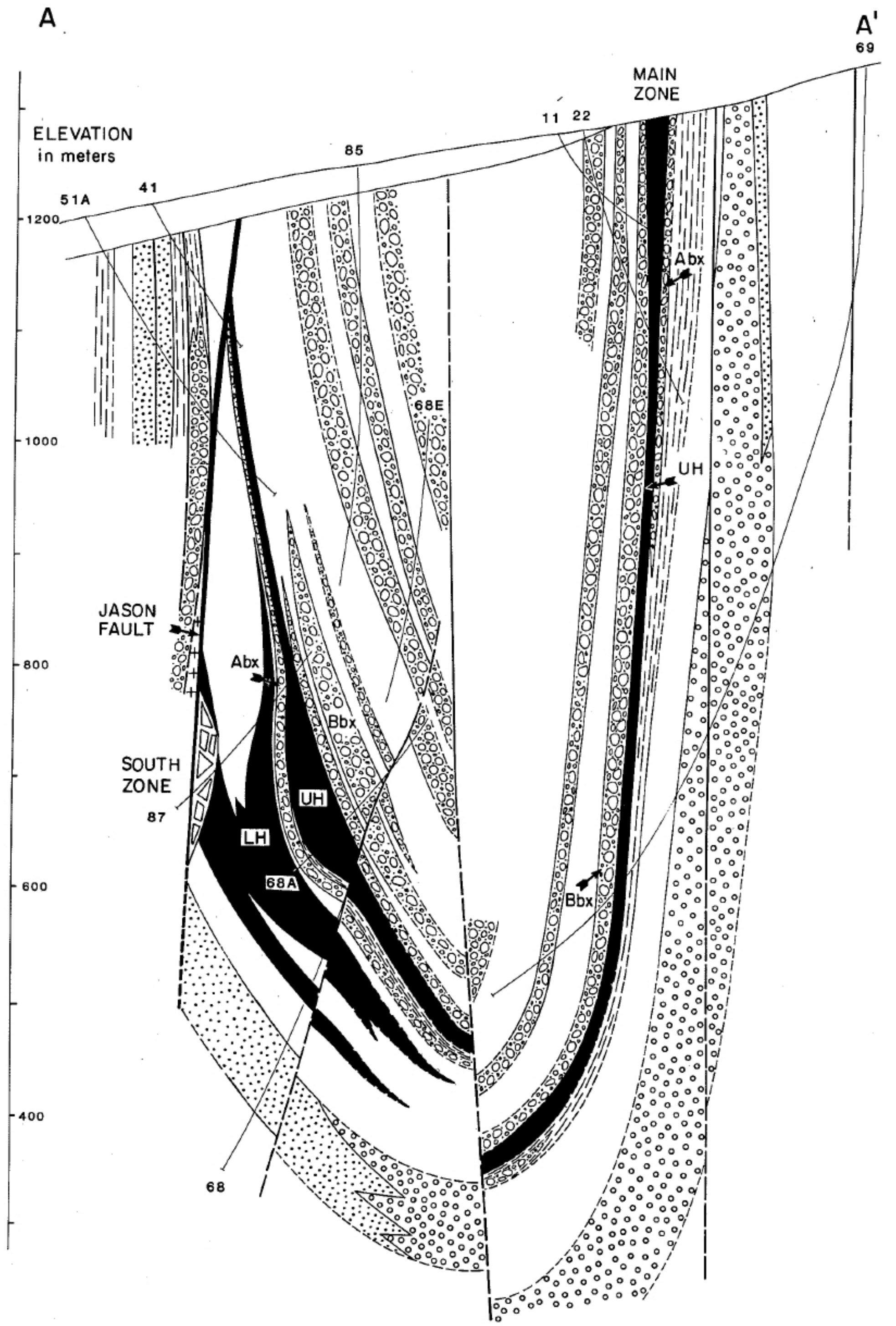

Figure 18. Geological cross section of the Jason syncline (from Turner, 1991).

8. Deposit Types

The Tom and Jason deposits are examples of stratiform, sediment-hosted, exhalative ("SEDEX") Zn-Pb-Ag-Ba deposits (Figure 19; Goodfellow et al., 1993; Leach et al., 2005; Goodfellow et al., 2007; Goodfellow, 2007). Historically the term SEDEX was first used in a report describing the zinc-lead-silver deposits of the Selwyn Basin by Carne and Cathro (1982) and since then the term has been used to describe these deposits worldwide. SEDEX deposits formed in rift basins primarily in the late Paleoproterozoic and in the early Phanerozoic, with typical grades of 10% combined Pb+Zn in producing mines. Mineralisation is interpreted to have formed at or close to the seawater-sediment interface either proximal or distal to submarine exhalative vents localized along syn-sedimentary (growth) faults (Figure 20). The more vent distal deposits are therefore largely stratiform in nature in that the mineralised zones are concordant with sedimentary layering, whereas proximal deposits show more complex metal zonation and replacement textures. Proximal deposits are more closely linked spatially with syn-sedimentary feeder faults. A clear understanding of structural geology and stratigraphy are therefore important aspects of exploration for SEDEX mineralisation. Metal ratios, such as Ag/Pb, Pb/(Pb+Zn), Cu/((Zn+Pb), Zn/Fe and Zn/Ba increase towards the feeder faults providing a vector towards the central and potentially higher grade parts of the hydrothermal system. Both the Tom and Jason deposits are proximal SEDEX deposits (Goodfellow, 2007).

Other important guides to exploration for SEDEX mineralisation include (after Goodfellow, 2007):

- the presence of footwall feeder zones involving silicification of the footwall sedimentary package, brecciation, veining and trace element enrichments (Cu, Co, Ni, Mo, As, Sb, Zn, Cd, Pb and Hg);
- laterally extensive stratigraphic horizons equivalent to the main deposit lens with elevated Zn, Cd, As and Hg;
- hanging-wall alteration indicative of a waning hydrothermal convection system, characterized by elevated Ba, Zn and pyrite enriched in Co, Ni and Cu;
- elevated total organic carbon, P and Zn in sediments on a regional scale indicative of deep water, reduced (anoxic) marine conditions;
- the presence of pyrite and/or pyrrhotite in vent complexes that may be detectable by electrical and/or electromagnetic geophysical exploration methods; and
- positive gravity anomalies that may be directly indicative of massive sulphide concentrations at depth.

Many of the exploration guides described in this section were developed through extensive research into the Tom and Jason deposits, as well as into other SEDEX deposits found within the

Selwyn Basin. Much of this research was carried out by the Geological Survey of Canada ("GSC") prior to 1991. There has been little in the way of meaningful exploration work carried out on the Tom and Jason properties since this research was completed and many of the concepts developed by the GSC have not yet been tested by modern exploration.

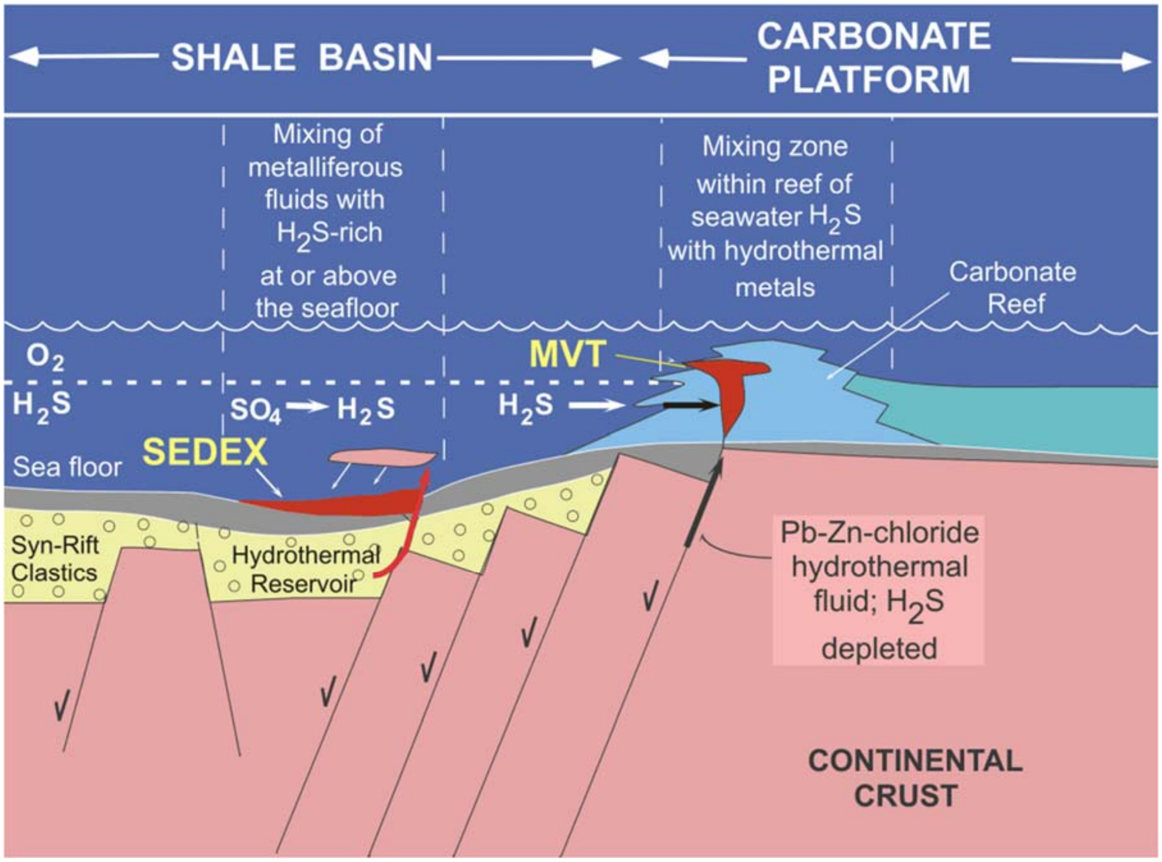

Figure 19. Conceptual models for SEDEX and MVT (Mississippi Valley-type) Pb-Zn deposits from Goodfellow (2007).

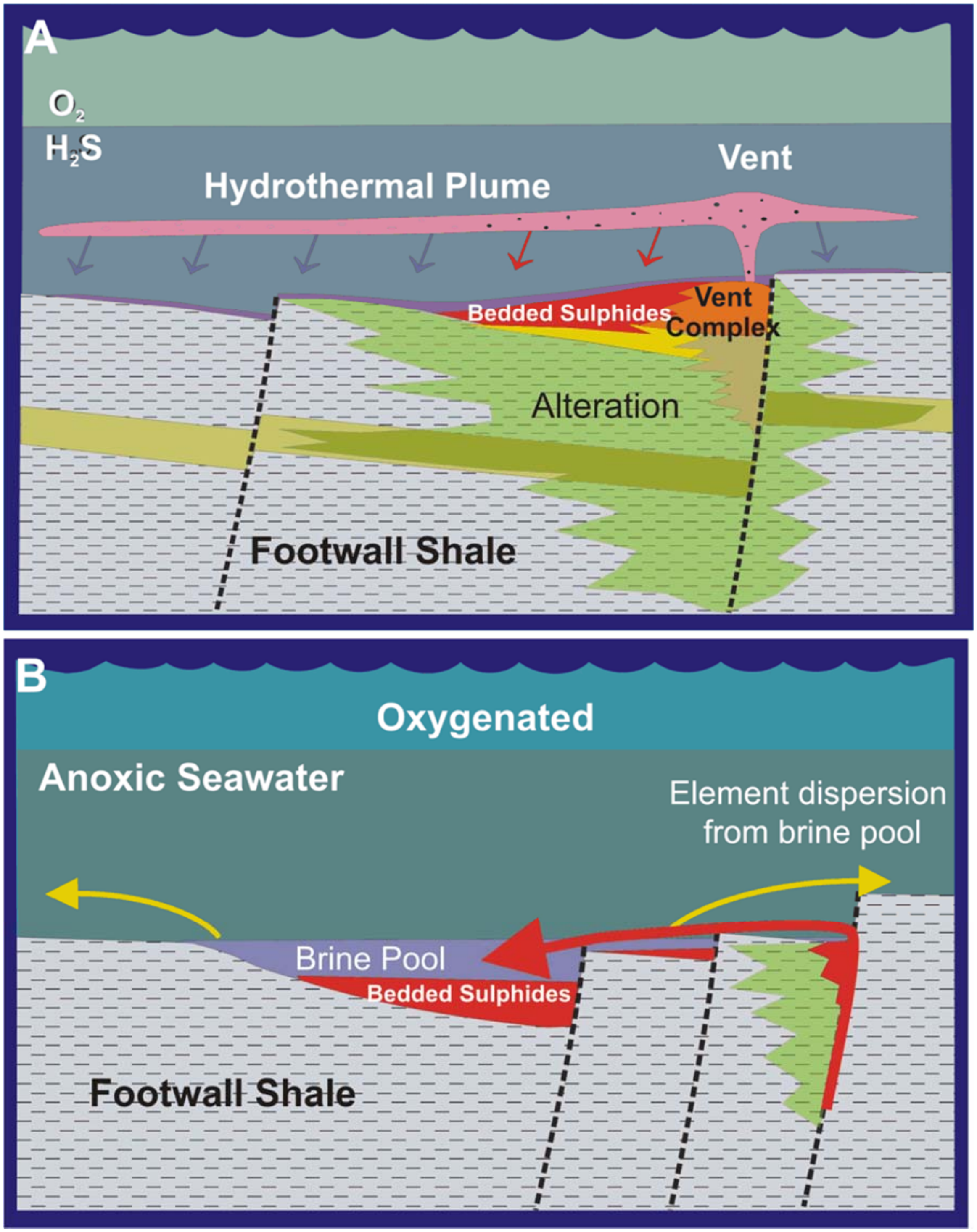

Figure 20. Conceptual models for proximal (A) and distal (B) SEDEX deposits from Goodfellow (2007).

9. Exploration

The Issuer has not conducted any exploration on the Tom or Jason properties. Section 18 of this report makes recommendations for a large work program to be carried out by the Issuer.

The most recent exploration work at the Project was carried out in 2011 by Revelation on behalf of Hudbay (Wells, 2012). The 2011 surface geochemical exploration is described in this section. The 2011 diamond drill program is described in this Section 10 and 2011 metallurgical test results are discussed in Section 13. The reader is referred to Section 6.2 for a brief history of the historical exploration activity on the property prior to 2011.

2011 Surface Geochemical Programme

Procedures

As no soil sampling had been carried out on the Tom and Jason properties since the Tom deposit was optioned to Cominco in 1988, two orientation surveys were undertaken in 2011 to evaluate different approaches to sampling transported material over both the Tom (colluvium) and Jason (till) deposits. This work was described in two internal memos from Revelation to Hudbay (Arne 2011a, 2011b).

Tom deposit

Approximately 2kg of unsieved fine-grained talus material was collected across the Tom West Zone. The material was sieved and centrifuged at ACME Laboratories in Vancouver ("ACME") to produce a -177 and a -2 micron fraction, respectively. A 0.5g aliquot of the two grain size fractions was analysed by ICP-MS following a modified aqua regia digestion.

Jason deposit

The Main Zone of the Jason Deposit appears to be partly covered by till below an elevation of approximately 1300 m, although it is reported to outcrop, or sub-crop in the area. Soil profiles are well developed on till near the mineralised horizon and are complex in some areas where mass movement of material down slope has buried earlier A1 (Ah) horizon layers. Samples were collected from a single soil line across the Main Zone.

Four types of samples were collected at Jason:

1) A1 (Ah) horizon material for sieving to -80 mesh (-177 micron) followed by modified aqua regia digestion and analysis by ICP-MS at ACME;

2) A soil sample collected approximately 20 cm below the base of the O-horizon for Mobile Metal Ion ("MMI") analysis and soil pH by SGS Laboratories in Toronto;

3) A conventional C-horizon soil for sieving to -80 mesh followed by modified aqua regia digestion and analysis by ICP-MS at ACME; and

4) Samples of recent twig growth from black spruce trees, which cover much of the Jason property below an elevation of approximately 1,350 m. These samples had the needles separated from the twigs, with the twigs dried, macerated and digested using nitric acid/aqua regia, and then analysed by ICP-MS by ACME.

Sampling

The 2011 sampling program was on an orientation basis to test for the best material and analytical technique for future soil sampling on the Tom and Jason properties (Figure 21; Figure 22). Time constraints limited the length of the soil lines and the number of traverses that could be conducted. The Jason orientation soil line was designed to place the Main Zone in the middle of the traverse however, it was subsequently determined that the drill collars, and thus the deposit wireframe used by Rennie (2007), were not in the correct positions. Adjustment of the wireframe using a correction factor determined from several drill collars measured in 2011 placed the Main Zone at the beginning of the completed soil line.

Interpretation

MMI and C-horizon aqua regia data from a -177 micron till fraction give a positive response at Jason Main Zone. The best indicators of mineralisation are Pb, Zn, Ag and Ba for both digestions, with As, Sb, Cu, Hg, Y and the REE also showing a positive response to buried mineralisation in the MMI data. The interpretation of conventional aqua regia soil data is complicated by the possibility of detecting trace metals scavenged onto secondary Fe oxides during this more aggressive digestion, particularly in the case of Zn, As, Sb and Tl. Correction for this effect, either using data normalisation or regression analysis is required for correct interpretation of the data. The results from an aqua regia digestion of Ah-horizon soils were generally negative once the potential effects of scavenging by secondary Fe oxides in the soil were considered. Black spruce twigs sampled at the Jason soil stations provide limited support for the MMI and C-horizon soil results. Given the limited distribution of black spruce trees at elevation and more consistent results from the soil samples, the collection of soil samples is preferred over biogeochemistry for future exploration in the area.

Data from colluvial soils across the Tom West Zone indicate clear responses for Pb and Ag at and directly down-slope from the sub-cropping deposit. The best indications of the Tom West Zone in the -80 mesh (-177 micron) grain size fraction are raw Pb, Ag, S and Ba, as well as Zn, As, Sr and Tl residuals following regression against Fe in the samples. A similar conclusion can be drawn for Pb, Ag, S and Ba in clay separates (<2 micron) from the colluvial soil over Tom West. The clay separates have the advantage of containing higher metal values and showing greater anomaly to background contrast compared to the standard -80 mesh soil data.

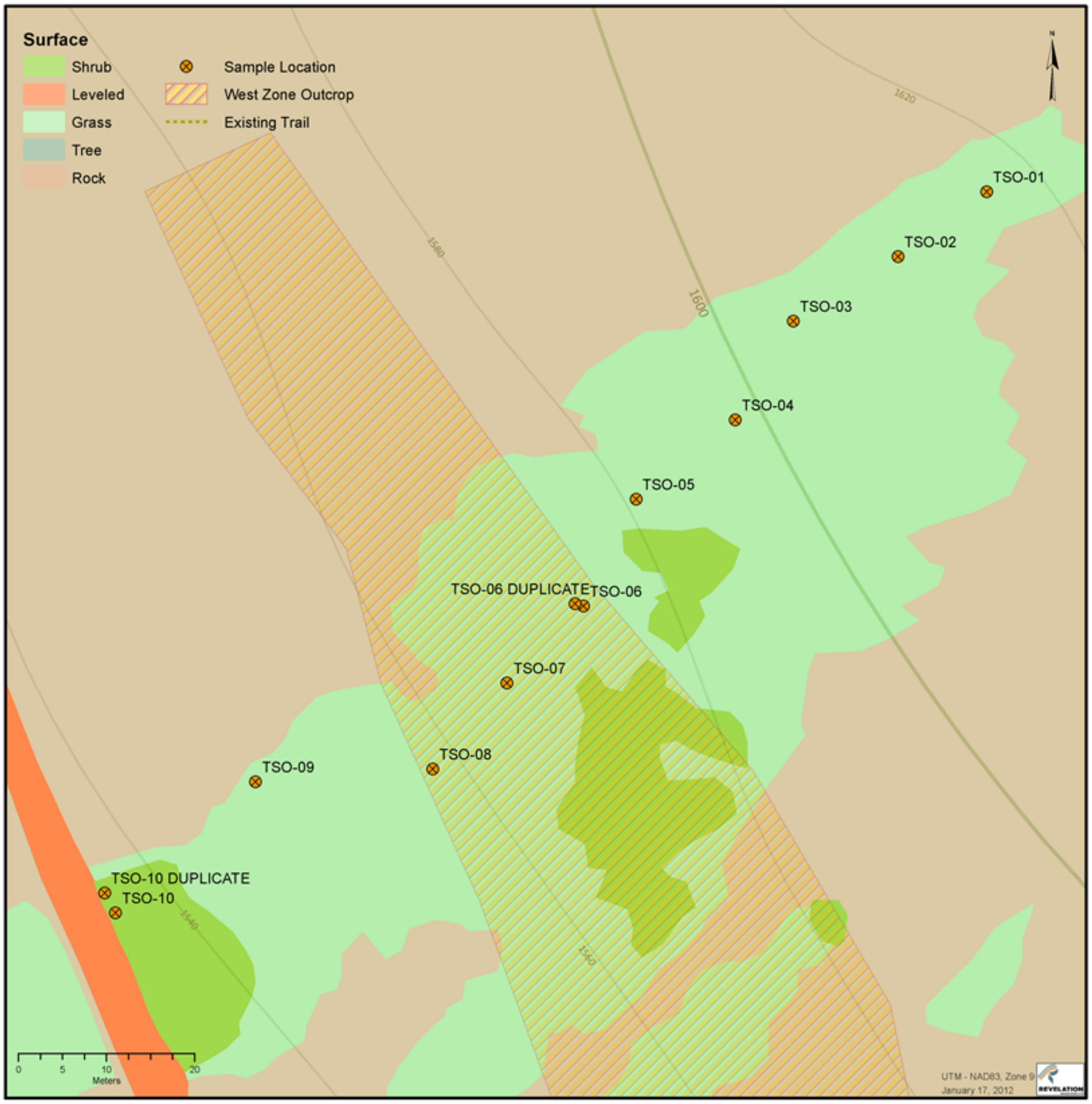

Figure 21. Soil orientation line across the Tom West Zone (from Wells, 2012).

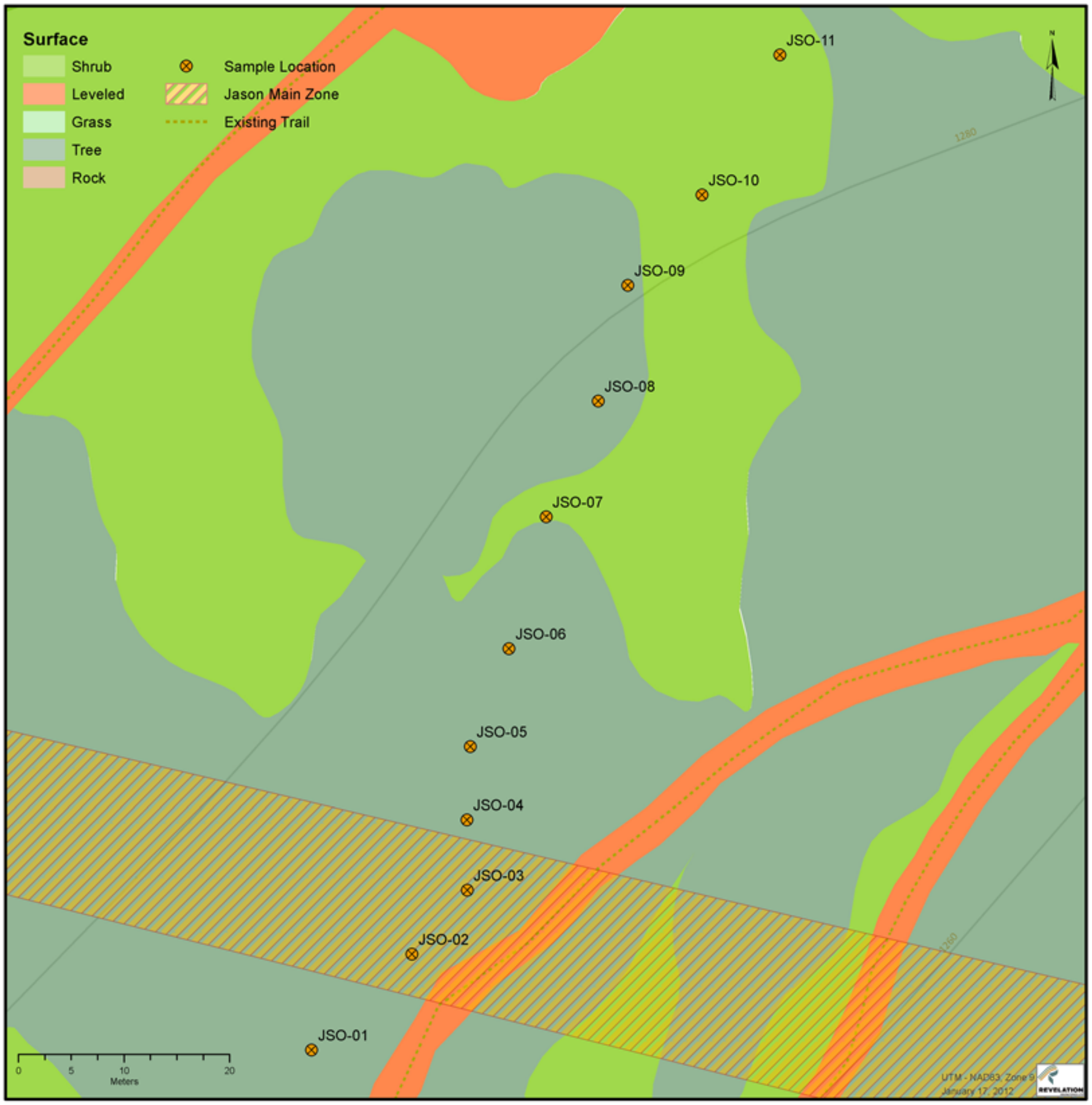

Figure 22. Soil orientation line across the Jason Main Zone (from Well, 2012).

10. Drilling

The Issuer has not conducted any drilling on the Tom or Jason properties.

At total of 31,672m from 201 holes of historical drilling has been completed on the Tom property (Figure 13) and 128 historic diamond and rotary holes totalling 37,924m have been completed on the Jason property (Figure 14). Details of this drilling are provided by Rennie (2007).

The most recent drilling at the Project was carried out in 2011 by Revelation on behalf of Hudbay (Wells, 2012) and is described in this section. The reader is referred to Section 6.2 for a brief history of the historical exploration activity on the property prior to 2011.

2011 Drilling at the Tom Property

An additional 11 holes were drilled in 2011 for a total of 1,823m drilled using an EF-75-2 diamond drill coring HQ diameter core and operated by Rodren Drilling (Figure 23; Table 10-1). These holes were designed to twin previous historical drill holes for metallurgical testing purposes (TYK001 to TYK-005) and to in-fill some of the historical inferred resource areas for the Tom West Zone defined by Rennie (2007; TYK-006 to TYK-011). In-fill drilling resulted in 50m drill spacing over a strike length of 250m in the core of the Tom West Zone (Wells, 2012). Existing drill tracks were widened with a John Deere dozer to allow access for the rig.

Sampling

HQ core drilled and sampled for metallurgical testing was halved and one half cut in half again. A quarter core sample was sent to ACME for assay. The half core was shipped to Hudbay in Flin Flon, Manitoba for metallurgical test work. A quarter core section was retained in the core trays. Samples for those drill holes not used for metallurgical testing were halved with the half core sent for assay and the remaining half core section retained in the core trays.

Sample intervals were typically 1m but may be shorter where geological contacts were used to define a sample interval.

Core Logging

All drill core from the 2011 program was logged using Hudbay lithological codes. Mineralogy was recorded where it could be identified along with visual estimates of sulphide minerals. A rock quality designation (“RQD”) was recorded for each core run, as were prominent structures. Recoveries were generally excellent with complete core recovery in most runs, but there was significant core loss in the mineralised zone for hole TYK-003.

Surveying

Drill collars in 2011 were surveyed using a Trimble GeoExplorer 6000 GeoXH model DGPS receiver. Down-hole surveying in 2011 was performed using a multi-shot Reflex instrument.

Significant 2011 Mineralised Drill Intervals

Significant mineralised intersections are presented in Table 10-2 using weighted averages. The metallurgical test holes, TYK-001 to TYK-005, twinned historical drill holes. The Zn, Pb and Ag grades from the 2011 metallurgical test holes are comparable with the historical results and can be used for verification purposes.

Table 10-1. Summary of 2011 drilling program (from Wells, 2012).

Hole Number	Depth (m)	East (m)	North (m)	Elevation (m)	Collar Az.	Dip
TYK001	100.00	442053.7	7003743.5	1537.2	70	-65
TYK002	129.00	442053.5	7003743.4	1537.0	65	-85
TYK003	125.00	441916.1	7004015.9	1538.5	65	-80
TYK004	86.00	441973.0	7003907.8	1536.0	65	-78
TYK005	158.00	441804.8	7003964.2	1479.2	65	-45
TYK006	194.00	441803.6	7003963.5	1478.9	65	-65
TYK007	226.00	441803.1	7003963.4	1478.2	65	-80
TYK008	177.00	441825.6	7003908.6	1482.3	45	-50
TYK009	245.00	441825.2	7003908.3	1482.3	55	-80
TYK010	179.00	441866.8	7003866.2	1490.4	65	-55
TYK011	204.00	441866.7	7003866.5	1490.6	70	-78
Total:	**1823.00**					

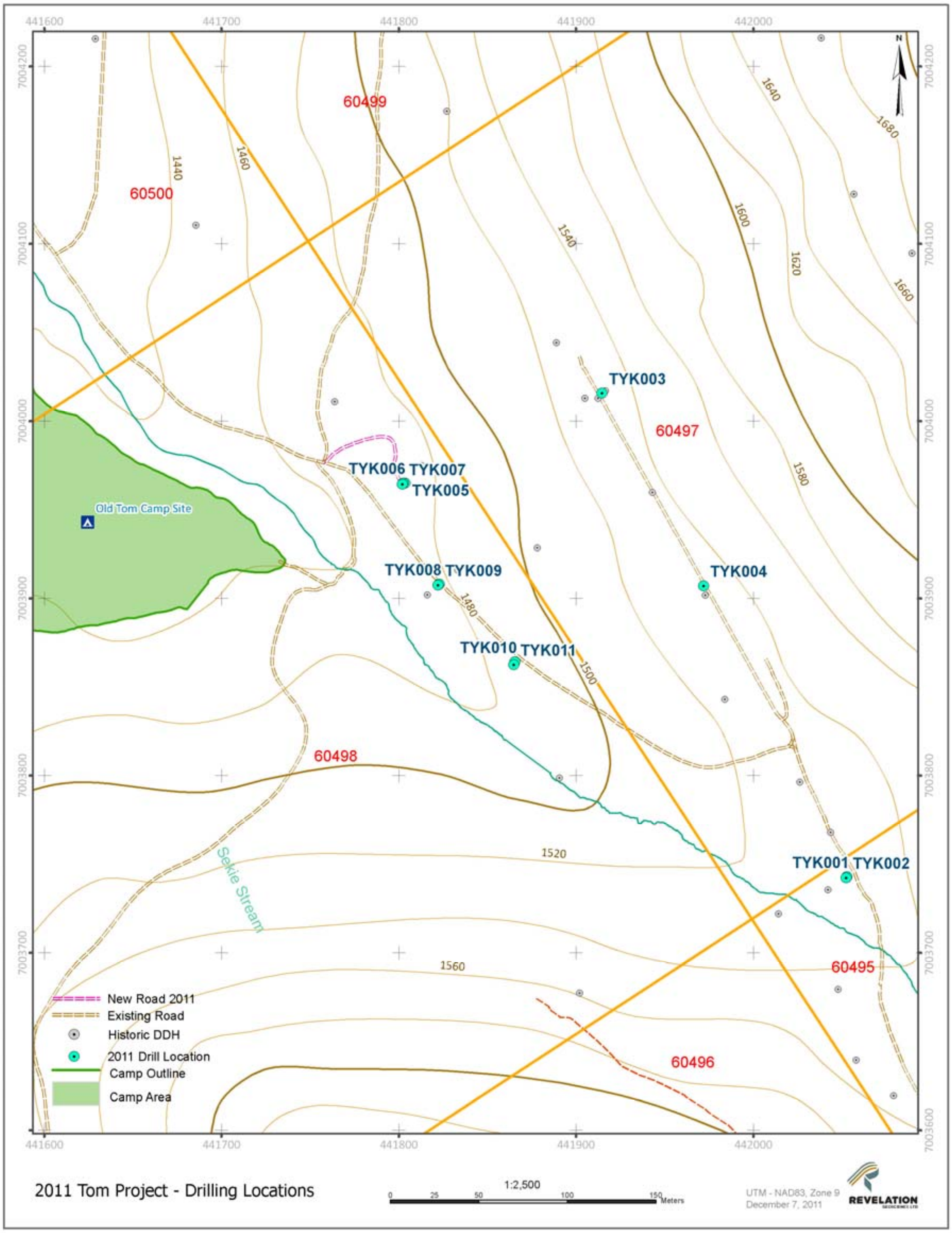

Figure 23. Drill collar locations from 2011 drill program at Tom West (from Wells, 2012).

Table 10-2. Significant drill intersections from the 2011 drilling program (modified from Wells, 2012).

Hole Number	From (m)	To (m)	Length (m)	Zn (%)	Pb (%)	Ag (ppm)	Twinned hole
TYK001	10.0	32.2	22.2	7.78	4.47	52.4	TS91-014
including	*10.0*	*13.4*	*3.4*	*10.81*	*3.63*	*2.7*	
and	*23.0*	*29.2*	*6.2*	*11.43*	*8.66*	*145.6*	
TYK002	17.0	58.4	41.4	6.20	6.95	95.7	TS006
including	*18.0*	*21.2*	*3.2*	*11.27*	*3.73*	*2.2*	
and	*35.0*	*39.0*	*4.0*	*12.39*	*5.28*	*134.5*	
TYK003	59.5	99.3	39.8	5.43	1.53	1.7	TS008
including	*59.5*	*63.0*	*3.5*	*11.28*	*8.54*	*3.71*	
TYK004	28.5	67.0	38.5	5.48	2.45	5.1	TS086
including	*28.5*	*29.0*	*0.5*	*11.92*	*3.30*	*6.00*	
TYK005	101.0	131.1	30.1	5.63	0.85	1.0	TS019
TYK006	117.0	152.0	35.0	4.51	0.75	1.1	
TYK007	149.0	184.0	35.0	4.95	0.45	1.1	
including	*156.0*	*157.0*	*1.0*	*11.34*	*0.88*	*3.00*	
TYK007	186.0	190.0	4.0	3.91	0.42	1.5	
TYK008	96.0	140.0	44.0	5.69	0.68	1.0	
including	*106.0*	*109.9*	*3.9*	*8.62*	*1.11*	*<2*	
TYK009	140.0	198.0	58.0	4.94	0.12	1.0	
including	*195.0*	*197.5*	*1.5*	*11.55*	*0.32*	*<2*	
TYK010	99.0	152.9	53.9	5.32	1.15	1.0	
including	*103.0*	*107.0*	*4.0*	*10.1*	*0.38*	*<2*	
TYK010	154.0	157.0	3.0	1.45	3.62	8.0	
TYK011	115.2	184.6	69.4	5.79	0.32	1.0	
including	*124.0*	*125.8*	*1.8*	*10.65*	*0.79*	*1.5*	

Interpretation of 2011 Drill Results

Drill holes TYK-001 and TYK-002 were drilled toward the southern extremity of the Tom West Zone. These samples display higher combined Zn+Pb grades, Ag assays, and Pb/(Pb+Zn) ratios than the remaining holes drilled further north along the zone. This is consistent with their position more proximal to the paleo-hydrothermal vent area.

True Thickness

The core angles of bedding measured in the drill core generally vary from 25 to 75° to the long core axis; therefore the thicknesses presented in Table 10-2 are apparent thicknesses. The true thicknesses of the intercepts will be significantly less for those holes that have intercepted bedding at low angles to the long core axis.

Mineralisation Orientation

The orientation of the Tom West Zone is well established from previous drilling and 3D modelling to strike approximately 155° relative to grid north and dip 60° to the southwest (Rennie, 2007). The reported 2011 intercepts are consistent with this orientation.

11. Sample Preparation, Analyses and Security

The Issuer has not conducted any exploration programs on the Tom or Jason properties.

Pre-2011 Sample Preparation, Analyses and Security

Due to its historic nature, CSA Global has been unable to confirm the sampling protocols, core-handling procedures, or site security utilized on diamond drill programs prior to 2011. All drill cores from both the Tom and Jason deposits are stored just upstream from the Tom camp (Figure 8). Most of the Tom deposit core is in a metal shed and the Jason deposit core was transported and cross staked in piles beside the shed and protected by thick vinyl covers in 2015. Some limited core was donated to the Yukon government core library in Whitehorse where it is accessible for viewing and, with permission, sampling. The core stored at the Tom site was in good condition when last viewed in 2015 (G. Gorzynski, Personal Communication, September, 2016).

Pre-2011 core samples were collected using a diamond saw or a blade splitter. Core samples from both Tom and Jason were reportedly sent to a number of labs including Bondar Clegg and Company Ltd., Chemex Labs Ltd. and Hudson Bay Mining and Smelting Co., Limited (Flin Flon, Manitoba), prior to its acquisition by Hudbay (Rennie, 2007). CSA Global notes that the analytical work carried out at the Hudson Bay Mining and Smelting lab was not independent as it was performed by employees of the same company which was undertaking the exploration drilling.

Assay certificates for historical analyses are available, although these have not been checked to ensure that copies of original certificates are available for all samples in the database. No quality assurance and quality control data are available for the pre-2011 historic analyses beyond check assays, although further detailed assessment of the historical assay certificates is required to confirm this.

Despite this, it is CSA's opinion that the historic sample preparation and analyses would have been carried using industry standard procedures for that time. There is no reason to suspect that analytical results contained in the Tom and Jason historic drill database are not representative of *in situ* mineralisation and CSA Global considers the data adequate for the purposes of this Report.

2011 Hudbay Drill Core Sample Preparation and Security

Sample preparation, analyses and security methods and protocols for the 2011 drilling program carried out by Revelation on behalf of Hudbay (Wells, 2012) is described in this section.

Samples for analysis were collected into polypropylene bags. Security of samples prior to dispatch to the analytical laboratory was maintained by limiting access of un-authorized persons to the site. Samples were stored in a secure storage area at the base camp on the Property. Detailed records of sample numbers and sample descriptions provide integrity to the sampling process. Labelled samples bags were packed in polypropylene rice bags and sealed for shipping. Samples remained under the supervision of Revelation personnel while onsite at the Project and during delivery to ACME Labs in Whitehorse, Yukon. ACME completed sample preparation operations at their Whitehorse facility, and employ bar coding and scanning technologies that provided complete chain of custody records for every sample. Master pulps were then shipped by ACME to their Vancouver laboratory for analyses.

The ACME Whitehorse laboratory is certified to standards within ISO 9001:2008. The Vancouver analytical facility is certified to standards within ISO 9001:2008 and at the time of the 2011 program was in the process of accreditation to ISO/IEC 17025:2005 from the Standards Council of Canada ("SCC"). ISO/IEC 17025:2005 accreditation conforming to requirements of CAN-P-1579 and CAN-P-4E was received in October 2011 for methods including the determination of Ag, Cu, Pb and Zn by multi-acid digestion with an atomic absorption spectrometry ("AAS") finish. ACME sample preparation procedures and analytical methods are routine and follow industry best practices and procedures. CSA Global notes however that ACME's ISO/IEC 17025:2005 accredited analytical methods do not include those utilized for the analysis of the 2011 drill core samples.

ACME and its employees are independent from CSA Global, the Issuer, Hudbay and its consultant Revelation. Hudbay and Revelation personnel, consultants and contractors were not involved in the 2011 sample preparation and analysis.

2011 Drill Core Sample Analytical Method

Drill core samples from the Tom Zn-Pb -Ag deposit were analysed by ACME following crushing and pulverisation of the samples to >85% less than 75 microns. The pulps were analysed for a suite of 24 elements using inductively-couple plasma optical emission spectroscopy ("ICP-OES"), including base metals, following a hot aqua regia digestion (ACME group 7AR). Samples with greater than 4% Pb or 20% Zn were re-digested using a dilution to obtain data within range for the ICP-OES. Two samples with greater than 300 ppm Ag were also re-analysed by fire assay. Barium was determined by fused disc XRF (ACME group 8X – Ba). Gold was determined by aqua regia digestion of a 15g charge (ACME group 3A01) as a preliminary check of Au levels, there being few previous analyses. It was not intended to provide rigorous Au assay data.

2011 Drill Core Sample QA-QC

Overview

Several in-house certified reference materials ("CRM") manufactured from Flin Flon, Manitoba area base metal material and supplied by Hudbay were included with the core sample submissions. These were A5 (7 samples), B5 (7 samples), E5 (7 samples) and the base metal blank F6 (42 samples). Because these samples are not matrix-matched to the sediment-hosted base metal deposit at Tom, two additional Pb-Zn-Ag CRMs manufactured from base metal material from the Mt. Isa district in Australia were purchased from Ore Research & Exploration and included in the sample submission – Oreas 133a (6 samples) and 134a (9 samples). In addition, data for two ACME internal CRMs, Oreas 131b (27 analyses) and Geostats GBM997-6 (19 analyses) were also assessed. Oreas 131b is a low-grade Pb-Zn-Ag CRM made from the same material as Oreas 133a and 134a, and GBM997-6 is a high-grade Pb-Zn CRM.

Analysis of QA-QC Data

A summary of CRM performance is provided in Table 11-1. Samples with a bias and no failures are considered to lie mainly within 2 standard deviations of the calculated mean for the CRM (i.e. the expected value). A failure is taken to be any analysis that lies more than 3 standard deviations away from the expected value, or two consecutive analyses with the same bias (i.e. positive or negative) more than 2 standard deviations from the expected value.

Table 11-1. Summary of CRM performance for 2011 assays

CRM	Number	Pb	Zn	Cu	Ba	Ag
HBMS A5	7	n/a	Positive bias	Negative bias	n/a	n/a
HBMS B5	7	n/a	Positive bias	Negative bias	n/a	n/a
HBMS E5	7	Acceptable	Positive bias	Excellent	n/a	Positive bias
HBMS F6	42	No failures	1 failure	No failures	n/a	No failures
Oreas 133a	6	Negative bias	Acceptable	Negative bias	2 failures	6 failures; positive bias
Oreas 134a	9	1 failure	3 failures	2 failures; positive bias	3 failures	1 failure; positive bias
Oreas 131b	27	6 failures; negative bias	Acceptable but with drift	Not assessed	Not assessed	9 failures; positive bias
GBM997-6	19	1 failure; negative bias	Negative bias	n/a	n/a	n/a

n/a = not applicable

The Hudbay CRM F6 is not an ideal blank material because the material is already pulverized and thus does not pass through the crushing and pulverizing stream at the laboratory. Therefore, the blank tests only for laboratory contamination during digestion and analysis. Aside from a single instance of probable Zn cross contamination, the results are acceptable when the data are filtered to remove all data within an order of magnitude of the lower limit of detection.

Laboratory precision has been assessed through an assessment of pulp duplicate analyses provided by ACME. This estimate of laboratory precision does not include any variance introduced during the sample preparation stages, and assesses only the combined effects of sub-sampling the final pulp, sample digestion and instrumental uncertainties. The analysis used the square root of the average relative variances for individual duplicate pairs (relative standard deviation = RSD; RMS method of Stanley and Lawie, 2007). The data were filtered to remove any values within an order of magnitude of the lower limit of detection, as these data are inherently imprecise. The result of this analysis for the main commodity elements is summarized in Table 11-1 There were insufficient Ag data for pulp duplicates greater than an order of magnitude above the detection limit to allow an assessment of laboratory precision. The results for Pb, Zn and Ba are all less than 5% and considered to be best practice for base metals assay (Abzalov, 2008). In general, the relative standard deviation for pulp duplicate pairs decreases with increasing grade.

Pulp splits from 38 samples processed by ACME were obtained and submitted to ALS Minerals of North Vancouver with Oreas 133a and 134a for control. The ALS North Vancouver analytical facility is individually certified to standards within ISO 9001:2008 and has received accreditation to ISO/IEC 17025:2005 from the SCC for methods including: Fire Assay Au by AAS; Fire Assay Au and Ag by gravimetric finish; aqua regia Ag, Cu, Pb, Zn and Mo by AA; and aqua regia multi-element analysis by ICP-OES and ICP-MS. ALS sample preparation procedures and analytical methods are routine and follow industry best practices and procedures.

ALS and its employees are independent from CSA, the Issuer, Hudbay and its consultant Revelation. Hudbay and Revelation personnel, consultants and contractors were not involved in the 2011 sample preparation and analysis.

The analytical methods used by ALS were similar to those used by Acme Labs: Pb, Zn, Ag, S and Fe were analysed by ICP-OES following an aqua regia digestion (ALS method ME-OG46); Ba was analysed by fused disc X-ray fluorescence (“XRF”; ALS method Ba-XRF15c); Au was analysed by 30g fire assay to check the validity of the aqua regia Au data from ACME (ALS method Au-ICP21). The data for the two CRMs submitted with the check assays are acceptable. While Au values by fire assay are systematically higher than those obtained by aqua regia, the values are all typically only an order of magnitude above background levels and are not considered to be economically significant.

Aside from Ba, the other main commodity elements show a negative bias in the check assay results compared to the original assays (Table 11-2), indicating that the original ACME data are slightly higher, on average, relative to the check assays from ALS Minerals. In the case of Zn, this bias occurs at all grades and is consistent with the positive bias shown by some of the CRMs submitted to ACME (Table 11-1). By contrast, the negative bias is strongest at lower grades in the case of Pb, and may even give way to a positive bias at higher grades, consistent with the bias observed from the CRMs (Table 11-1). The negative bias in the Ag check assays is also supported by a positive bias in the ACME Ag data for the CRMs (Table 11-1). These biases appear to account for most of the variation in the two data sets.

Table 11-2. Summary of laboratory precision and bias from check assays for 2011

Element	Pb	Zn	Ba	Ag
Precision (Average % RSD)	3.9	4.9	2.4	n/a
Bias (Average % relative difference)	-10	-5	1	-6

QA/QC Analysis Summary

In general, the data for the in-house HBMS CRMs were acceptable for Zn and Cu. The Pb and the Ag levels are too close to the lower limit of detection available for the Tom deposit assays in many of the Hudbay CRMs for a precise assessment of accuracy. There is a clear bias toward lower Au values from the aqua regia digestion of the Hudbay CRMs that probably reflects incomplete digestion compared to the certified fire assay results. The poor performance of the Au assays at Tom is not considered to be relevant.

Of concern are the strong positive biases displayed by the aqua regia Ag data in the Oreas CRMs, including the ACME internal CRM Oreas 131b, and the Hudbay CRM E5. Clearly, the Ag data for the samples are over-estimated by these assays, probably on the order of 5 to 10 %.

In general, the Zn assays for the Oreas CRMs are acceptable, but there appears to have been a problem with the initial dilutions for the over-range samples. The original Zn analyses for Oreas 134a were generally acceptable, except for one failure outside of 3 standard deviations below the expected value and a clear negative bias. However, the over-range re-assays show erratic data for several early batches, before steadying at quite good results. The Zn data for Oreas 131b show a distinct drift through the sample sequence from a negative to positive bias. The Pb data for Oreas 131b also show a negative bias, with numerous analyses greater than 3 standard deviations below the expected value.

The Ba data for both Oreas 133a and 134a are erratic, with both positive and negative failures. Both CRMs have low Ba contents and the values are only an order of magnitude or so above the lower limit of detection. Imprecise data are expected at these levels.

Given the poor performance of the CRMs for the higher-grade material, re-assays of two batches were requested at ACME. Re-assays of over range samples using method 7AR and a dilution method showed a slight positive bias for both Pb and Zn compared to the original analytical results, and this is reflected in Zn data from certified reference materials. Despite these slight biases, the re-assay data are generally within a 20 % relative difference from the original data in the case of Pb, and within 10 % in the case of Zn. Given the absence of significant differences between the original and re-assay data, as well as evidence of positive bias in the ACME data relative to check assays performed at ALS Minerals, retention of the original data in the database was recommended.

Author's Opinion on 2011 Sample Preparation, Security and Analytical Procedures

It is the Author's opinion that sample security, collection, preparation and analysis undertaken on the Tom and Jason Project during 2011 by Hudbay and its consultant Revelation were appropriate for the sample media and mineralisation type and conform to industry standards. The Pb, Zn and Ag data from ACME show evidence of biases, but these are generally <10%, and are acceptable for exploration work. The higher-grade intervals from the 2011 drilling program should be re-assayed prior to inclusion in a mineral resource estimate. The laboratory precision of the data is industry best practice.

12. Data Verification

Site Visit

The Qualified Person authoring this report undertook a three-day site visit to the Tom and Jason properties between August 31 and September 2, 2011 during the most recent drilling program conducted by Revelation for Hudbay. While onsite the Author and other Revelation staff conducted drill collar checks of several drill hole collars from the Jason deposit. There have been no material changes to the Project since this program and the Author confirmed this through discussions with the Issuer and Hudbay, and has checked the Yukon Assessment Report Library (link:**http://virtua.gov.yk.ca:8080/search/query?match_1=MUST&field_1=&term_1=105o&facet_ngp=NTS+105O-01&facet_date_1=201&theme=emr**). As such the Author considers this site visit current under section 6.2 of NI43-101.Data Verification

Drill collar locations

Rennie (2007) recommended that the drill collars on the Jason property be re-surveyed. Wells (2012) noted that verification checks of a limited number of historical drill hole collars at the Jason deposit using a Trimble GeoExplorer 6000 GeoXH model DGPS receiver indicated that there is a locational error in the positions of these collars in the Hudbay database; database collar locations appear to be internally consistent with respect to one another but as a group they are located approximately 53m northwest of their actual locations in NAD83 UTM-Z9. A preliminary correction of 38m east and 37m north should be applied to all historical drill collars from the Jason deposit, and this correction confirmed through the re-survey of all available historical drill collars that can be located on the ground. In the event that the locations of historical drillhole collars cannot be confirmed by re-survey, it may be necessary to twin several drill holes into the Jason deposit to verify locations in NAD83 UTM-Z9.

The drill collar checks at the Jason deposit were supervised by the Author during the 2011 site visit. Wells (2012) recommended a re-survey of all available collar locations at the Jason property, but it does not appear that this work was undertaken by Hudbay. Some of the drill pads on the Jason property that were making water have subsequently been rehabilitated (G. Gorzynski, Personal Communication 2016) and any casing removed. The location verifications and correction described in the preceding paragraph therefore appears to be the only method to correct the locations of the Jason deposit drill hole collars until such time that further re-survey work can be completed.

Those drill collars at the Tom deposit that could be identified were re-surveyed in 2011 in NAD83 UTM-Z9 coordinates and the previous NAD27 UTM coordinates converted to NAD83 UTM-Z9. Upon realization that an error occurred aligning a 2011 drill hole using a historical collar, Wells (2012) noted that "Following discovery of the error the historic drill hole location was surveyed with a sub-meter GPS. This showed that the collar was located 10 metres further north than the drill database indicated." It appears that various translations of the historical

Tom drill collar locations from local grid to NAD27, and from NAD27 to NAD83 have also resulted in some inaccuracies in hole locations at Tom West and these collars should also be re-surveyed.

Database verification

The database provided by the Issuer to CSA Global was that obtained directly from Hudbay by the Issuer. It was evaluated by Dave Muir, Senior Data Geologist with CSA Global.

Data that were provided electronically by the Issuer in Excel™ and CSV format as well as PDF logging sheets were reviewed, verified where possible and collated into a master database. The file "2.3.2.2-Drilling.xls" was used as the base of the master template and data were added to this file to create the master template. Once this master database had been compiled, data from the 2011 drilling campaign handover (holes TYK001 – TYK011) were also compared to the master database as a further check. It was determined that the database was satisfactory for the purposes of this report.

Data were loaded into the DataShed database schema to verify drill hole names and check for interval issues such as overlaps, negative lengths (From > To), zero lengths (From = To) and records at depths exceeding the depth of the drill hole. Drill hole co-ordinates were plotted to check for outliers.

The only checks against original assay files were for the 2011 drill holes where co-ordinates were checked against those in the database. The only other checks were against original laboratory assay certificates from the 2011 drill program.

The master database contains data that has been verified in terms of being cleaned for use in software packages, but no other verifications have been undertaken. Slight discrepancies between co-ordinates from different source data were noted, which is attributed to different transformation processes being used.

Collars

Two UTM projection system datums were used historically on the properties; the North American Datum of 1927 (NAD27) and the North American Datum of 1983 (NAD83), as well as local grid coordinates in the earlier days of the projects. NAD83 is the preferred datum for the project data, but many historical co-ordinates were measured in NAD27 so both have been included in the database. It is unclear what transformation parameters have been used to convert between the two datums.

Collars were plotted in both datums and no outliers were observed. When the 2011 collar co-ordinates were compared to the PDF logs, minor discrepancies were noted in eastings, northings and elevations, which are probably due to variations in the transformation process. Differences ranged from 1 cm to 1.5 m. Co-ordinates from the Revelation handover file "Geocollar.csv" were used as the final NAD83 collar co-ordinates.

Downhole Surveys

No verification other than hole ID and depths were undertaken and no issues were noted.

Geology

A numeric lithology code has been used for the 2011 drill holes, and numeric and alpha codes for the historical drilling. The only overlap is with numeric code '0' which has been assigned alpha codes of 'C' (two instances) and 'FD' (one instance). There are no other instances where a numeric or alpha code has more than one corresponding alpha or numeric code. Seven holes do not have lithology records (JS82-088 had lithology data, but there were too many unresolvable interval issues to include in the master database).

Instances of overlapping intervals and mFrom and mTo reversals were noted and resolved during the merging process.

Assay

Some comments and issues with respect to the assay results were noted as follows:

The merged assay data were validated against original copies of the laboratory certificates from 2011 using several spot checks for each certificate. It was noted that whole core samples collected for geotechnical testing by Hudbay and later analysed at ACME are missing from the final database, although the data are available.

Duplicated sample IDs have been used in the historical data, but no interval issues were observed, so if required, unique sample IDs could be created using the hole ID, mFrom and mTo.

Default values of '0' have been used for below detection limit results in the 2011 assay results. It is unclear whether the same process has been consistently used for the historical assay data or whether '0' has also been used in some instances where samples were not assayed for the element of interest.

The master database provided by Hudbay was updated with assay results for holes TYK006, TYK007, TYK008, TYK010 and TYK011 from file "6.2.2.4.1-Hudbay_Tom_Data_Final.xlsx", as these data were missing from the original drill hole database.

13. Mineral Processing and Metallurgical Testing

The Issuer has not conducted any mineral processing or metallurgical testing exploration on the Tom and Jason Project.

2011 Metallurgical Testwork

Hudbay commissioned G & T Metallurgical Services of Kamloops, British Columbia to conduct the most recent metallurgical test work on the Project using whole drill core collected from four 2011 diamond drill holes drilled into the Tom West Zone (Johnson and Sloan, 2012). Only the most recent test work summarized from Johnson and Sloan (2012) is presented:

Assumptions

The material sampled was assumed to be representative of both the Tom and Jason deposits (Allen, 2012).

Sample Selection

Entire mineralised sections (whole HQ core) from holes TYK001, TYK002, TYK003 and TYK004, as well as both footwall and hangingwall material, were submitted for testing. Recoveries from one of the twinned metallurgical test holes (TYK004) were poor over part of the mineralised section and so material from this hole was not submitted for test work. A total of 764 kg of whole HQ drill core was collected.

Metallurgical Testing Procedures and Results

A bulk mineral assessment was undertaken using QEMSCAN and fragmental characteristics were determined petrographically. A Bond ball mill work index of 11.5 kWh/tonne was calculated for the material. Batch floatation indicated an optimum primary grind size of 72 microns, with a Pb regrind to <15 microns K_{80} and a Zn regrind of <30 microns K_{80} required to optimize recoveries. Concentrate grades of 71% Pb plus 673 g/t Ag and 58% Zn were obtained after three stages of cleaning.

A single locked cycle test indicated recoveries of 83% of the Pb and 73% of the Ag in the Pb concentrate and 79% of the Zn and 12% of the Ag in the Zn concentrate. The test conditions and reagent consumption are summarized in Table 13-1.

Table 13-1. Summary of 2011 locked cycle test conditions and reagent consumption - Tom West drill core mineralisation

Stage	pH	Reagent Addition (g/tonne)			
		Na_2SO_3	$ZnSO_4$	NaCN	SEX
Primary grind	7.9-9.6	1000	1000	150	
Lead roughers	7.9-10.1				70
Lead regrind	7.8-9.7	250	100	75	
Lead cleaners	8.1-9.7				133
		Lime	**$CuSO_4$**	**SIPX**	
Zinc roughers	11.0-11.2	1300	750	6	
Zinc regrind	11.0-11.6	400	350		
Zinc cleaners	11.0-11.6			15	

Other Factors

Mercury levels of 42 and 327 ppm were measured in the Pb and Zn concentrates, respectively. Cadmium levels of 0.2% were measured in the Zn concentrate. These elements are deleterious in concentrates and may attract smelter penalties. Rennie (2007) recommended additional analysis of drill core for As, Sb and Hg, as well as Fe and Ba on a routine basis. These elements were included in the 2011 analytical package.

14. Mineral Resource Estimates

No current resources estimates are available for the Tom and Jason deposits.

15. Adjacent Properties

Adjacent claims are owned by major and junior mining companies and most were staked to explore for Carlin-style gold deposits. These claims cover known precious and base metal prospects and anomalies, none of which are at the advanced stage of the Tom-Jason project.

16. Other Relevant Data and Information

There are no additional relevant data, information or explanation necessary to make this report understandable and not misleading.

17. Interpretation and Conclusions

The Tom and Jason Zn-Pb-Ag deposits are in the MacMillan Pass area of western Yukon near the border with the Northwest Territories. Access to the site is by seasonal gravel road or by air, and there is minimal infrastructure available in the region.

Tom and Jason are proximal vent SEDEX deposits formed during Devonian rifting activity in the Selwyn Basin. They were subsequently folded during the transition of the Pacific margin of North America from a passive to convergent plate margin. SEDEX deposits are major sources of Pb and Zn globally. Although no SEDEX deposits in the Selwyn Basin are currently in production, the large Anvil SEDEX deposits northwest of Tom-Jason, were a major producer of zinc, lead and silver in the 1980s and the Selwyn (Howards Pass) SEDEX deposit southeast of Tom Jason is one of the world's largest undeveloped SEDEX zinc-lead-silver resources.

The Tom and Jason properties have undergone a significant amount of historical exploration work commencing with the discovery of the Tom West Zone in 1951. By the early 1990s 128 drill holes were completed on the Jason property for a total of 37,924m and 201 drill holes were completed on the Tom property for a total of 31,672m. In addition, an adit with approximately 3,423m of underground development including a spiral decline were put into the Tom deposit to assist exploration and bulk sampling. Exploration effectively ceased on the properties after 1992. Since then the GSC released extensive information on the geology, stratigraphy and Pb-Zn-Ba mineralisation of the MacMillan Pass region which is available to guide future exploration in the area. There has been minimal modern exploration on the properties since 1992.

Hudbay commissioned a mineral resource estimate in 2007 that reported a total of 6.43Mt indicated resources at both Tom and Jason grading 6.33% Zn, 5.05% Pb and 56.55g/t Ag, and a total of 24.55Mt inferred resources grading 6.71% Zn, 3.48% Pb and 33.85g/t Ag. CSA Global has done insufficient analysis to confirm these resource estimates as compliant with NI43-101; CSA Global and the Issuer are treating them as historical resources.

Hudbay briefly recommenced exploration in 2011 with the drilling of 11 new diamond holes for a total of 1,823m. These holes were drilled for metallurgical testing and in-fill purposes in the Tom West Zone. The five metallurgical holes were twin holes that verify historical intersections, although there appear to be minor discrepancies in the location of at least some of the Tom property historical drill collars. Jason property drill collars appear to have a more significant locational error of approximately 53m to the northwest, as determined from collar surveys of historical collar locations in 2011 and comparisons with satellite imagery.

Issues impacting on the eventual economic development of the Tom and Jason deposits include the remoteness of the location and a lack of infrastructure except for the access road which will need upgrading. Uncertainties associated with ongoing Native land claim negotiations and as such unresolved eventual title remain a risk for further development of the properties although this does not prevent the Issuer from carrying out exploration work on the properties.

CSA Global considers the Tom and Jason Project to be properties at an advanced stage of exploration. CSA Global concludes that the Tom and Jason Project warrants additional expenditures to verify historical drill results at the known mineralised zones and to explore for additional high-grade mineralisation on the properties.

18. Recommendations

A new phase of modern exploration is warranted at the Tom and Jason project. The main objectives of the recommended work program are to upgrade the technical database so that a new NI43-101 compliant mineral resource may be estimated for both the Tom and Jason deposits and to carry out exploration work toward discovery of additional high-grade mineralization.

This new phase of exploration will be informed by the substantial work undertaken by the GSC after the earlier historic exploration. The focus of this exploration should be the identification of additional mineralisation with an emphasis on defining high-grade resources. This would be achieved through refinements of the geological/mineralisation models, mapping, geochemical sampling, drilling and geophysics. At the same time, the existing substantial historical drill hole database should be verified through a systematic re-sampling program of mineralised intervals in archived drill core, accompanied by a comprehensive QAQC program. The locations of historical drill collars should be re-surveyed. Additional twin holes may need to be drilled at both the Tom and Jason deposits to verify the position of mineralisation in the current coordinate system NAD 83 UTM Z9 if the re-surveying of historical drill collars is deemed insufficient to determine the precise location of mineralised intervals. This verification work as well as mapping and other field work should lead to the development of new geological models for both deposits that can form a guide for further exploration.

A budget for the 2017 field season of C$700,000 is proposed as detailed in Table 18-1. The budget assumes that existing tracks and a fording at the site of the former bridge across the South MacMillan River can be used to move a drill rig into position. Also included in the budget is scope for an aerial survey of the properties in order to obtain an accurate digital elevation model (“DEM”). A substantial geochemical budget has been included for a program of systematically re-sampling drill core to verify historical assays.

It is the opinion of the Author that the property is of sufficient merit that the recommended budget as outlined represents a worthwhile and sensible work program if carried out by qualified competent personnel. The project manager may make small adjustments to this program and budget as circumstances require during the work.

Table 18-1. Proposed budget for Tom and Jason exploration

Expense Category	**Estimates**
Camp Management & Logistics	$120,000
Geoscience equipment / Supplies / Consumables	$70,000
General Transport & Shipping	$20,000
Diamond Drilling (2,000m)	$320,000
Geochemical Analyses	$40,000
Metallurgical Tests	$25,000
Aerial Topographic Survey	$30,000
Surveying	$15,000
Contractor Services	$50,000
Project Air Support	$10,000
Total :	$700,000

19. References

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Appendix 1 Listing of Claims

APPENDIX 1: TOM AND JASON CLAIMS LIST

Appendix to 'Technical Report on the Tom-Jason Zinc-Lead-Silver Project' by Dennis Arne, P.Geo. dated January 31, 2017

TOM PROPERTY

Holder	Disposition No	Disposition Name	HECTARES	ANNIVERSARY DATE
TOM MINING LEASES				
Hudbay Minerals	60495	TOM 1 (OL-00001)	20.83	Oct 12, 2018
Hudbay Minerals	60496	TOM 2 (OL-00002)	20.82	Oct 12, 2018
Hudbay Minerals	60497	TOM 3 (OL-00003)	20.90	Oct 12, 2018
Hudbay Minerals	60498	TOM 4 (OL-00004)	20.90	Oct 12, 2018
Hudbay Minerals	60499	TOM 5 (OL-00005)	18.70	Oct 12, 2018
Hudbay Minerals	60500	TOM 6 (OL-00006)	18.70	Oct 12, 2018
Hudbay Minerals	60501	TOM 7 (OL-00007)	20.55	Oct 12, 2018
Hudbay Minerals	60502	TOM 8 (OL-00008)	20.55	Oct 12, 2018
Hudbay Minerals	60503	TOM 9 (OL-00009)	18.99	Oct 12, 2018
Hudbay Minerals	60504	TOM 10 (OL-00010)	18.98	Oct 12, 2018
Hudbay Minerals	60505	TOM 11 (OL-00011)	19.34	Oct 12, 2018
Hudbay Minerals	60506	TOM 12 (OL-00012)	19.34	Oct 12, 2018
Hudbay Minerals	60507	TOM 13 (OL-00013)	19.75	Oct 12, 2018
Hudbay Minerals	60508	TOM 14 (OL-00014)	19.76	Oct 12, 2018
Hudbay Minerals	60509	TOM 15 (OL-00015)	19.81	Oct 12, 2018
Hudbay Minerals	60510	TOM 16 (OL-00016)	19.81	Oct 12, 2018
Hudbay Minerals	60511	TOM 18 (OL-00017)	20.21	Oct 12, 2018
Hudbay Minerals	60512	TOM 20 (OL-00018)	10.59	Oct 12, 2018
Hudbay Minerals	60513	TOM 21 (OL-00019)	14.68	Oct 12, 2018
Hudbay Minerals	60514	TOM 22 (OL-00020)	19.49	Oct 12, 2018
Hudbay Minerals	60515	TOM 23 (OL-00021)	19.13	Oct 12, 2018
Hudbay Minerals	60516	TOM 36 (OL-00022)	20.90	Oct 12, 2018
Hudbay Minerals	60517	TOM 38 (OL-00023)	20.76	Oct 12, 2018
Hudbay Minerals	60518	TOM 40 (OL-00024)	20.90	Oct 12, 2018
Hudbay Minerals	60519	TOM 19 (OL-00025)	20.42	Oct 12, 2018
Hudbay Minerals	60520	TOM 24 (OL-00026)	20.72	Oct 12, 2018
Hudbay Minerals	60521	TOM 39 (OL-00027)	20.90	Oct 12, 2018
Hudbay Minerals	60522	TOM 41 (OL-00028)	18.53	Oct 12, 2018
Hudbay Minerals	60523	TOM 43 (OL-00029)	15.48	Oct 12, 2018
Hudbay Minerals	60524	TOM 45 (OL-00030)	12.74	Oct 12, 2018
Hudbay Minerals	60525	TOM 47 (OL-00031)	20.90	Oct 12, 2018
Hudbay Minerals	60526	TOM 49 (OL-00032)	20.90	Oct 12, 2018
Hudbay Minerals	60527	TOM 17 (OL-00033)	20.90	Oct 12, 2018
Hudbay Minerals	60528	TOM 25 (OL-00034)	20.83	Oct 12, 2018
Hudbay Minerals	60529	TOM 34 (OL-00035)	20.90	Oct 12, 2018
Hudbay Minerals	60530	TOM 42 (OL-00036)	18.53	Oct 12, 2018
Hudbay Minerals	60531	TOM 44 (OL-00037)	17.62	Oct 12, 2018
Hudbay Minerals	60532	TOM 46 (OL-00038)	10.16	Oct 12, 2018
Hudbay Minerals	60533	TOM 48 (OL-00039)	20.04	Oct 12, 2018

Hudbay Minerals	60534	TOM 50 (00040)	20.04	Oct 12, 2018
Hudbay Minerals	60535	TOM 26 (OL-00041)	19.78	Oct 12, 2018
Hudbay Minerals	60536	TOM 32 (OL-00042)	20.87	Oct 12, 2018
Hudbay Minerals	60537	TOM 27 (OL-00043)	20.90	Oct 12, 2018
Hudbay Minerals	60538	TOM 28 (OL-00044)	20.61	Oct 12, 2018
Hudbay Minerals	60539	TOM 29 (OL-00045)	20.90	Oct 12, 2018
Hudbay Minerals	60540	TOM 30 (OL-00046)	20.61	Oct 12, 2018
Hudbay Minerals	60541	TOM 31 (OL-00047)	20.87	Oct 12, 2018
Hudbay Minerals	60542	TOM 33 (OL-00048)	20.90	Oct 12, 2018
Hudbay Minerals	60543	TOM 35 (OL-00049)	20.90	Oct 12, 2018
Hudbay Minerals	60544	TOM 37 (OL-00050)	20.76	Oct 12, 2018
Hudbay Minerals	60545	TOM 51 (OL-00051)	19.55	Oct 12, 2018
Hudbay Minerals	60546	TOM 52 (OL-00052)	19.55	Oct 12, 2018
Hudbay Minerals	60547	TOM 53 (OL-00053)	21.52	Oct 12, 2018
Hudbay Minerals	60548	TOM 54 (OL-00054)	19.59	Oct 12, 2018
Hudbay Minerals	60549	TOM 55 (OL-00055)	20.18	Oct 12, 2018
Hudbay Minerals	60550	TOM 56 FR.(OL-00056)	7.26	Oct 12, 2018
Hudbay Minerals	63525	TOM 57 (OL-00057)	20.89	Oct 12, 2018
Hudbay Minerals	63526	TOM 58 (OL-00058)	18.70	Oct 12, 2018
Hudbay Minerals	63527	TOM 59 (OL-00059)	20.90	Oct 12, 2018
Hudbay Minerals	63528	TOM 60 (OL-00060)	17.80	Oct 12, 2018
Hudbay Minerals	63529	TOM 61 (OL-00061)	14.81	Oct 12, 2018
Hudbay Minerals	63530	TOM 62 (OL-00062)	12.14	Oct 12, 2018
Hudbay Minerals	63531	TOM 63 (OL-00063)	9.23	Oct 12, 2018
Hudbay Minerals	63532	TOM 64 (OL-00064)	9.44	Oct 12, 2018
Hudbay Minerals	63533	TOM 65 (OL-00065)	0.09	Oct 12, 2018
Hudbay Minerals	63534	TOM 66 (OL-00066)	1.11	Oct 12, 2018
Hudbay Minerals	63535	TOM 67 (OL-00067)	1.80	Oct 12, 2018
Hudbay Minerals	63536	TOM 68 (OL-00068)	17.49	Oct 12, 2018
Hudbay Minerals	63537	TOM 69 (OL-00069)	5.30	Oct 12, 2018
Hudbay Minerals	63538	TOM 70 (OL-00070)	20.63	Oct 12, 2018
Hudbay Minerals	63539	TOM 71 (OL-00071)	18.75	Oct 12, 2018
Hudbay Minerals	63540	TOM 72 (OL-00072)	17.12	Oct 12, 2018
Hudbay Minerals	63541	TOM 73 (OL-00073)	13.85	Oct 12, 2018
Hudbay Minerals	63542	TOM 74 (OL-00074)	20.61	Oct 12, 2018
Hudbay Minerals	63543	TOM 75 (OL-00075)	15.68	Oct 12, 2018
Hudbay Minerals	63544	TOM 76 (OL-00076)	17.63	Oct 12, 2018
Hudbay Minerals	63545	TOM 77 (OL-00077)	20.19	Oct 12, 2018
Hudbay Minerals	63546	TOM 78 (OL-00078)	10.63	Oct 12, 2018
Hudbay Minerals	63547	TOM 79 (OL-00079)	18.51	Oct 12, 2018
Hudbay Minerals	63548	TOM 80 (OL-00080)	18.68	Oct 12, 2018
Hudbay Minerals	63549	TOM 81 (OL-00081)	19.76	Oct 12, 2018
Hudbay Minerals	63550	TOM 82 (OL-00082)	20.90	Oct 12, 2018
Hudbay Minerals	63551	TOM 83 (OL-00083)	20.97	Oct 12, 2018
Hudbay Minerals	63552	TOM 84 (OL-00084)	20.83	Oct 12, 2018
Hudbay Minerals	63553	TOM 86 (OL-00085)	20.88	Oct 12, 2018
Hudbay Minerals	63554	TOM 87 (OL-00086)	20.25	Oct 12, 2018

Hudbay Minerals	63555	TOM 88 (OL-00087)	20.90	Oct 12, 2018
Hudbay Minerals	63556	TOM 89 (OL-00088)	20.87	Oct 12, 2018
Hudbay Minerals	63557	TOM 90 (OL-00089)	19.79	Oct 12, 2018
Hudbay Minerals	63558	TOM 91 (OL-00090)	19.32	Oct 12, 2018
Hudbay Minerals	63559	TOM 92 (OL-00091)	19.37	Oct 12, 2018
Hudbay Minerals	63560	TOM 93 (OL-00092)	19.02	Oct 12, 2018
Hudbay Minerals	63561	TOM 94 (OL-00093)	17.62	Oct 12, 2018
Hudbay Minerals	63562	TOM 95 (OL-00094)	16.69	Oct 12, 2018
Hudbay Minerals	63563	TOM 96 (OL-00095)	16.03	Oct 12, 2018
Hudbay Minerals	63564	TOM 97 (OL-00096)	19.49	Oct 12, 2018
Hudbay Minerals	63565	TOM 98 (OL-00097)	17.70	Oct 12, 2018
Hudbay Minerals	63566	TOM 99 (OL-00098)	18.82	Oct 12, 2018
Hudbay Minerals	63567	TOM 100 (OL-00099)	12.01	Oct 12, 2018
Hudbay Minerals	63568	TOM 101 (OL-00100)	20.63	Oct 12, 2018
Hudbay Minerals	63569	TOM 102 (OL-00101)	18.75	Oct 12, 2018
Hudbay Minerals	63570	TOM 103 (OL-00102)	21.58	Oct 12, 2018
Hudbay Minerals	63571	TOM 104 (OL-00103)	9.00	Oct 12, 2018
Hudbay Minerals	63572	TOM 105 (OL-00104)	20.79	Oct 12, 2018
Hudbay Minerals	63573	TOM 107 (OL-00105)	19.98	Oct 12, 2018
Hudbay Minerals	63574	TOM 108 (OL-00106)	20.89	Oct 12, 2018
Hudbay Minerals	63575	TOM 109 (OL-00107)	20.47	Oct 12, 2018
Hudbay Minerals	63576	TOM 110 (OL-00108)	20.90	Oct 12, 2018
Hudbay Minerals	63577	TOM 111 (OL-00109)	12.66	Oct 12, 2018
Hudbay Minerals	63578	TOM 112 (OL-00110)	19.33	Oct 12, 2018
Hudbay Minerals	63579	TOM 113 (OL-00111)	16.73	Oct 12, 2018
Hudbay Minerals	63580	TOM 114 (OL-00112)	21.98	Oct 12, 2018
Hudbay Minerals	63581	TOM 115 (OL-00113)	20.90	Oct 12, 2018
Hudbay Minerals	63582	TOM 116 (OL-00114)	20.80	Oct 12, 2018
Hudbay Minerals	63583	TOM 117 (OL-00115)	20.90	Oct 12, 2018
Hudbay Minerals	66850	TOM 118 FR.(OL-00116)	5.42	Oct 12, 2018
Hudbay Minerals	66851	TOM 119 FR.(OL-00117)	5.42	Oct 12, 2018
Hudbay Minerals	66852	TOM 125 FR.(OL-00118)	4.98	Oct 12, 2018
Hudbay Minerals	66853	TOM 126 FR.(OL-00119)	3.91	Oct 12, 2018
Hudbay Minerals	66854	TOM 129 FR.(OL-00120)	12.76	Oct 12, 2018
Hudbay Minerals	66855	TOM 130 FR.(OL-00121)	0.16	Oct 12, 2018
Hudbay Minerals	66856	TOM 131 FR.(OL-00122)	10.59	Oct 12, 2018
Hudbay Minerals	66857	TOM 132 FR.(OL-00123)	9.64	Oct 12, 2018
Hudbay Minerals	66858	TOM 120 FR.(OL-00124)	9.70	Oct 12, 2018
Hudbay Minerals	66859	TOM 121 FR.(OL-00125)	9.74	Oct 12, 2018
Hudbay Minerals	66860	TOM 124 FR.(OL-00126)	4.22	Oct 12, 2018
Hudbay Minerals	66861	TOM 127 FR.(OL-00127)	4.74	Oct 12, 2018
Hudbay Minerals	66862	TOM 128 FR.(OL-00128)	4.31	Oct 12, 2018
Hudbay Minerals	66863	TOM 133 FR.(OL-00129)	0.39	Oct 12, 2018
Hudbay Minerals	66864	TOM 134 FR.(OL-00130)	6.57	Oct 12, 2018
Hudbay Minerals	66865	TOM 141 FR.(OL-00131)	14.86	Oct 12, 2018
Hudbay Minerals	66866	TOM 122 FR.(OL-00132)	12.10	Oct 12, 2018
Hudbay Minerals	66867	TOM 123 FR.(OL-00133)	11.16	Oct 12, 2018

Hudbay Minerals	66868	TOM 135 FR.(OL-00134)	5.67	Oct 12, 2018
Hudbay Minerals	66869	TOM 136 FR.(OL-00135)	3.16	Oct 12, 2018
Hudbay Minerals	66870	TOM 137 FR.(OL-00136)	8.06	Oct 12, 2018
Hudbay Minerals	66871	TOM 138 FR.(OL-00137)	9.32	Oct 12, 2018
Hudbay Minerals	66872	TOM 139 FR.(OL-00138)	7.59	Oct 12, 2018
Hudbay Minerals	66873	TOM 140 FR.(OL-00139)	7.59	Oct 12, 2018
Hudbay Minerals	67415	TOM 142 FR.(OL-00140)	5.45	Oct 12, 2018
Hudbay Minerals	67416	TOM 143 FR.(OL-00141)	13.15	Oct 12, 2018
Hudbay Minerals	67417	TOM 144 FR.(OL-00142)	7.03	Oct 12, 2018
Hudbay Minerals	67418	TOM 145 FR.(OL-00143)	4.19	Oct 12, 2018
Hudbay Minerals	67419	TOM 146 FR.(OL-00144)	5.05	Oct 12, 2018
		Total Hectares:	***2,295.17***	

TOM SURFACE LEASE

Hudbay Minerals	105O01-003	TOM SURFACE LEASE	120.68	Feb 28, 2022

JASON PROPERTY

Holder	Disposition No	Disposition Name	HECTARES	ANNIVERSARY DATE
JASON MINERAL CLAIMS				
Hudbay Minerals	Y 83274	JASON 33	19.12	Dec 31, 2017
Hudbay Minerals	Y 83275	JASON 34	4.95	Dec 31, 2017
Hudbay Minerals	Y 83276	JASON 41	19.05	Dec 31, 2017
Hudbay Minerals	Y 83277	JASON 42	18.94	Dec 31, 2017
Hudbay Minerals	Y 83278	JASON 43	20.19	Dec 31, 2017
Hudbay Minerals	Y 83279	JASON 44	22.37	Dec 31, 2017
Hudbay Minerals	Y 84507	JASON 85	19.43	Dec 31, 2017
Hudbay Minerals	Y 84508	JASON 86	12.71	Dec 31, 2017
Hudbay Minerals	Y 84509	JASON 87	13.94	Dec 31, 2017
Hudbay Minerals	Y 84510	JASON 88	13.98	Dec 31, 2017
Hudbay Minerals	Y 84511	JASON 89	17.47	Dec 31, 2017
Hudbay Minerals	Y 84512	JASON 90	13.26	Dec 31, 2017
Hudbay Minerals	Y 84513	JASON 91	11.26	Dec 31, 2017
Hudbay Minerals	Y 84514	JASON 92	16.69	Dec 31, 2017
Hudbay Minerals	Y 84515	JASON 115	20.64	Dec 31, 2017
Hudbay Minerals	Y 84516	JASON 116	16.34	Dec 31, 2017
Hudbay Minerals	Y 84517	JASON 123	18.94	Dec 31, 2017
Hudbay Minerals	Y 84518	JASON 124	18.56	Dec 31, 2017
Hudbay Minerals	Y 84519	JASON 131	19.58	Dec 31, 2017
Hudbay Minerals	Y 84520	JASON 132	16.24	Dec 31, 2017
Hudbay Minerals	Y 84521	JASON 133	11.49	Dec 31, 2017
Hudbay Minerals	Y 84522	JASON 134	0.67	Dec 31, 2017
Hudbay Minerals	Y 84525	JASON 137	2.09	Dec 31, 2017
Hudbay Minerals	Y 84530	JASON 84	4.52	Dec 31, 2017
Hudbay Minerals	Y 93952	JASON 161	11.74	Dec 31, 2017
Hudbay Minerals	Y 93953	JASON 162	17.88	Dec 31, 2017
Hudbay Minerals	Y 93954	JASON 163	16.83	Dec 31, 2017
Hudbay Minerals	Y 93955	JASON 164	13.63	Dec 31, 2017
Hudbay Minerals	Y 93956	JASON 165	15.44	Dec 31, 2017
Hudbay Minerals	Y 93957	JASON 166	13.02	Dec 31, 2017
Hudbay Minerals	Y 93958	JASON 167	19.40	Dec 31, 2017
Hudbay Minerals	Y 93959	JASON 168	18.89	Dec 31, 2017
Hudbay Minerals	Y 93960	JASON 169	21.14	Dec 31, 2017
Hudbay Minerals	Y 93961	JASON 170	12.21	Dec 31, 2017
Hudbay Minerals	Y 93962	JASON 171	12.81	Dec 31, 2017
Hudbay Minerals	Y 93963	JASON 172	12.52	Dec 31, 2017
Hudbay Minerals	Y 93964	JASON 173	18.11	Dec 31, 2017
Hudbay Minerals	Y 93965	JASON 174	23.54	Dec 31, 2017
Hudbay Minerals	Y 93966	JASON 175	17.52	Dec 31, 2017
Hudbay Minerals	Y 93967	JASON 176	16.97	Dec 31, 2017
Hudbay Minerals	Y 94471	JASON 135	0.40	Dec 31, 2017
Hudbay Minerals	Y 96192	Jason 1	11.91	Dec 31, 2017
Hudbay Minerals	Y 96193	Jason 2	16.99	Dec 31, 2017

Hudbay Minerals	Y 96194	Jason 3	1.13	Dec 31, 2017
Hudbay Minerals	Y 96195	Jason 4	11.31	Dec 31, 2017
Hudbay Minerals	Y 96198	Jason 7	20.51	Dec 31, 2017
Hudbay Minerals	Y 96199	Jason 8	21.49	Dec 31, 2017
Hudbay Minerals	Y 96200	Jason 9	20.04	Dec 31, 2017
Hudbay Minerals	Y 96201	Jason 10	21.07	Dec 31, 2017
Hudbay Minerals	Y 96202	Jason 11	20.93	Dec 31, 2017
Hudbay Minerals	Y 96203	Jason 12	21.70	Dec 31, 2017
Hudbay Minerals	Y 96204	Jason 13	20.59	Dec 31, 2017
Hudbay Minerals	Y 96205	Jason 14	19.64	Dec 31, 2017
Hudbay Minerals	Y 96206	Jason 15	21.14	Dec 31, 2017
Hudbay Minerals	Y 96207	Jason 16	19.86	Dec 31, 2017
Hudbay Minerals	Y 96208	Jason 17	5.71	Dec 31, 2017
Hudbay Minerals	Y 96209	Jason 18	12.56	Dec 31, 2017
Hudbay Minerals	Y 96210	JASON 19	7.36	Dec 31, 2017
Hudbay Minerals	Y 96211	JASON 20	1.78	Dec 31, 2017
Hudbay Minerals	Y 96212	Jason 21	20.03	Dec 31, 2017
Hudbay Minerals	Y 96213	Jason 22	18.78	Dec 31, 2017
Hudbay Minerals	Y 96214	Jason 23	20.15	Dec 31, 2017
Hudbay Minerals	Y 96215	Jason 24	14.09	Dec 31, 2017
Hudbay Minerals	Y 96216	Jason 25	14.60	Dec 31, 2017
Hudbay Minerals	Y 96217	Jason 26	8.75	Dec 31, 2017
Hudbay Minerals	Y 96218	Jason 27	15.09	Dec 31, 2017
Hudbay Minerals	Y 96219	Jason 28	12.25	Dec 31, 2017
Hudbay Minerals	Y 96220	Jason 29	6.05	Dec 31, 2017
Hudbay Minerals	Y 96221	Jason 30	5.56	Dec 31, 2017
Hudbay Minerals	Y 96222	JASON 31	19.49	Dec 31, 2017
Hudbay Minerals	Y 96223	JASON 32	10.22	Dec 31, 2017
Hudbay Minerals	Y 96224	Jason 35	14.91	Dec 31, 2017
Hudbay Minerals	Y 96225	Jason 36	14.80	Dec 31, 2017
Hudbay Minerals	Y 96226	Jason 37	14.39	Dec 31, 2017
Hudbay Minerals	Y 96227	Jason 38	21.00	Dec 31, 2017
Hudbay Minerals	Y 96228	JASON 39	19.40	Dec 31, 2017
Hudbay Minerals	Y 96229	JASON 40	19.37	Dec 31, 2017
Hudbay Minerals	Y 97986	Jason 45	22.25	Dec 31, 2017
Hudbay Minerals	Y 97987	Jason 46	18.54	Dec 31, 2017
Hudbay Minerals	Y 97988	Jason 47	20.25	Dec 31, 2017
Hudbay Minerals	Y 97989	Jason 48	20.67	Dec 31, 2017
Hudbay Minerals	Y 98244	Jason 49	19.77	Dec 31, 2017
Hudbay Minerals	Y 98245	Jason 50	21.30	Dec 31, 2017
Hudbay Minerals	Y 98246	Jason 51	19.11	Dec 31, 2017
Hudbay Minerals	Y 98247	Jason 52	20.01	Dec 31, 2017
Hudbay Minerals	Y 98248	Jason 53	20.98	Dec 31, 2017
Hudbay Minerals	Y 98249	Jason 54	19.83	Dec 31, 2017
Hudbay Minerals	Y 98250	Jason 55	16.87	Dec 31, 2017
Hudbay Minerals	Y 98251	Jason 56	21.81	Dec 31, 2017
Hudbay Minerals	Y 98252	Jason 57	19.60	Dec 31, 2017

Hudbay Minerals	Y 98253	Jason 58	20.08	Dec 31, 2017
Hudbay Minerals	Y 98254	Jason 59	18.71	Dec 31, 2017
Hudbay Minerals	Y 98255	Jason 60	18.13	Dec 31, 2017
Hudbay Minerals	Y 98256	Jason 61	13.63	Dec 31, 2017
Hudbay Minerals	Y 98257	Jason 62	13.67	Dec 31, 2017
Hudbay Minerals	Y 98258	Jason 63	20.61	Dec 31, 2017
Hudbay Minerals	Y 98259	Jason 64	19.84	Dec 31, 2017
Hudbay Minerals	Y 98260	Jason 65	19.27	Dec 31, 2017
Hudbay Minerals	Y 98261	Jason 66	19.09	Dec 31, 2017
Hudbay Minerals	Y 98262	Jason 67	19.71	Dec 31, 2017
Hudbay Minerals	Y 98263	Jason 68	20.01	Dec 31, 2017
Hudbay Minerals	Y 98264	Jason 69	19.30	Dec 31, 2017
Hudbay Minerals	Y 98265	Jason 70	19.97	Dec 31, 2017
Hudbay Minerals	Y 98266	Jason 71	20.35	Dec 31, 2017
Hudbay Minerals	Y 98267	Jason 72	20.52	Dec 31, 2017
Hudbay Minerals	Y 98268	Jason 73	20.24	Dec 31, 2017
Hudbay Minerals	Y 98269	Jason 74	20.06	Dec 31, 2017
Hudbay Minerals	Y 98270	Jason 75	21.28	Dec 31, 2017
Hudbay Minerals	Y 98271	Jason 76	20.14	Dec 31, 2017
Hudbay Minerals	Y 98272	Jason 77	21.18	Dec 31, 2017
Hudbay Minerals	Y 98273	Jason 78	19.32	Dec 31, 2017
Hudbay Minerals	Y 98274	Jason 79	18.43	Dec 31, 2017
Hudbay Minerals	Y 98275	Jason 80	16.95	Dec 31, 2017
Hudbay Minerals	Y 98276	Jason 81	6.17	Dec 31, 2017
Hudbay Minerals	Y 98277	Jason 82	4.46	Dec 31, 2017
Hudbay Minerals	Y 98278	Jason 93	18.84	Dec 31, 2017
Hudbay Minerals	Y 98279	Jason 94	20.84	Dec 31, 2017
Hudbay Minerals	Y 98280	Jason 95	18.56	Dec 31, 2017
Hudbay Minerals	Y 98281	Jason 96	18.51	Dec 31, 2017
Hudbay Minerals	Y 98282	Jason 97	20.64	Dec 31, 2017
Hudbay Minerals	Y 98283	Jason 98	18.98	Dec 31, 2017
Hudbay Minerals	Y 98284	Jason 99	21.35	Dec 31, 2017
Hudbay Minerals	Y 98285	Jason 100	20.54	Dec 31, 2017
Hudbay Minerals	Y 98286	Jason 101	20.80	Dec 31, 2017
Hudbay Minerals	Y 98287	Jason 102	20.40	Dec 31, 2017
Hudbay Minerals	Y 98288	Jason 103	20.08	Dec 31, 2017
Hudbay Minerals	Y 98289	Jason 104	20.47	Dec 31, 2017
Hudbay Minerals	Y 98290	Jason 105	20.49	Dec 31, 2017
Hudbay Minerals	Y 98291	Jason 106	19.95	Dec 31, 2017
Hudbay Minerals	Y 98292	Jason 107	15.20	Dec 31, 2017
Hudbay Minerals	Y 98293	Jason 108	16.43	Dec 31, 2017
Hudbay Minerals	Y 98294	Jason 109	21.03	Dec 31, 2017
Hudbay Minerals	Y 98295	Jason 110	18.85	Dec 31, 2017
Hudbay Minerals	Y 98296	Jason 111	19.37	Dec 31, 2017
Hudbay Minerals	Y 98297	Jason 112	21.34	Dec 31, 2017
Hudbay Minerals	Y 98298	Jason 113	10.48	Dec 31, 2017
Hudbay Minerals	Y 98299	Jason 114	15.88	Dec 31, 2017

Hudbay Minerals	Y 98300	Jason 117	18.53	Dec 31, 2017
Hudbay Minerals	Y 98301	Jason 118	21.62	Dec 31, 2017
Hudbay Minerals	Y 98302	Jason 119	20.45	Dec 31, 2017
Hudbay Minerals	Y 98303	Jason 120	19.93	Dec 31, 2017
Hudbay Minerals	Y 98304	Jason 121	7.41	Dec 31, 2017
Hudbay Minerals	Y 98305	Jason 122	4.54	Dec 31, 2017
Hudbay Minerals	Y 98306	Jason 125	21.27	Dec 31, 2017
Hudbay Minerals	Y 98307	Jason 126	19.08	Dec 31, 2017
Hudbay Minerals	Y 98308	Jason 127	21.02	Dec 31, 2017
Hudbay Minerals	Y 98309	Jason 128	19.22	Dec 31, 2017
Hudbay Minerals	Y 98310	Jason 129	19.58	Dec 31, 2017
Hudbay Minerals	Y 98311	Jason 130	20.94	Dec 31, 2017
Hudbay Minerals	Y 98312	Jason 141	21.70	Dec 31, 2017
Hudbay Minerals	Y 98313	Jason 142	20.04	Dec 31, 2017
Hudbay Minerals	Y 98314	Jason 143	20.36	Dec 31, 2017
Hudbay Minerals	Y 98315	Jason 144	19.84	Dec 31, 2017
Hudbay Minerals	Y 98316	Jason 145	20.09	Dec 31, 2017
Hudbay Minerals	Y 98317	Jason 146	19.59	Dec 31, 2017
Hudbay Minerals	Y 98318	Jason 147	19.74	Dec 31, 2017
Hudbay Minerals	Y 98319	Jason 148	17.67	Dec 31, 2017
Hudbay Minerals	Y 98320	Jason 149	18.66	Dec 31, 2017
Hudbay Minerals	Y 98321	Jason 150	18.29	Dec 31, 2017
Hudbay Minerals	Y 98322	Jason 151	18.67	Dec 31, 2017
Hudbay Minerals	Y 98323	Jason 152	17.48	Dec 31, 2017
Hudbay Minerals	Y 98324	Jason 153	18.75	Dec 31, 2017
Hudbay Minerals	Y 98325	Jason 154	18.92	Dec 31, 2017
Hudbay Minerals	Y 98326	Jason 155	19.76	Dec 31, 2017
Hudbay Minerals	Y 98327	Jason 156	18.37	Dec 31, 2017
Hudbay Minerals	Y 98328	Jason 157	19.80	Dec 31, 2017
Hudbay Minerals	Y 98329	Jason 158	20.45	Dec 31, 2017
Hudbay Minerals	Y 98330	Jason 159	18.05	Dec 31, 2017
Hudbay Minerals	Y 98331	Jason 160	21.04	Dec 31, 2017
Hudbay Minerals	YA07470	Ace 1	0.44	Dec 31, 2017
Hudbay Minerals	YA07471	Ace 2	1.31	Dec 31, 2017
Hudbay Minerals	YA07472	Ace 3	9.85	Dec 31, 2017
Hudbay Minerals	YA07473	Ace 4	9.33	Dec 31, 2017
Hudbay Minerals	YA07474	Ace 5	3.83	Dec 31, 2017
Hudbay Minerals	YA07475	Ace 6	4.94	Dec 31, 2017
Hudbay Minerals	YA07476	Ace 7	3.56	Dec 31, 2017
Hudbay Minerals	YA07477	Ace 8	2.03	Dec 31, 2017
Hudbay Minerals	YA07478	Ace 9	0.62	Dec 31, 2017
Hudbay Minerals	YA07479	Ace 10	1.74	Dec 31, 2017
Hudbay Minerals	YA07480	Ace 11	1.47	Dec 31, 2017
Hudbay Minerals	YA07481	Ace 12	1.78	Dec 31, 2017
Hudbay Minerals	YA07482	Ace 13	0.43	Dec 31, 2017
Hudbay Minerals	YA07483	Ace 14	1.77	Dec 31, 2017
Hudbay Minerals	YA07484	Ace 15	1.67	Dec 31, 2017

Hudbay Minerals	YA07485	Ace 16	2.65	Dec 31, 2017
Hudbay Minerals	YA07486	Ace 17	2.58	Dec 31, 2017
Hudbay Minerals	YA07487	Ace 22	6.43	Dec 31, 2017
Hudbay Minerals	YA07488	Ace 23	2.23	Dec 31, 2017
Hudbay Minerals	YA07489	Ace 24	3.31	Dec 31, 2017
Hudbay Minerals	YA07490	Ace 31	11.92	Dec 31, 2017
Hudbay Minerals	YA07491	Ace 32	9.76	Dec 31, 2017
Hudbay Minerals	YA07492	Ace 36	0.17	Dec 31, 2017
Hudbay Minerals	YA07493	Ace 37	1.40	Dec 31, 2017
Hudbay Minerals	YA07494	Ace 38	4.21	Dec 31, 2017
Hudbay Minerals	YA11526	ACE 18	3.35	Dec 31, 2017
Hudbay Minerals	YA11527	ACE 19	7.30	Dec 31, 2017
Hudbay Minerals	YA11528	ACE 20	0.63	Dec 31, 2017
Hudbay Minerals	YA11529	ACE 21	0.97	Dec 31, 2017
Hudbay Minerals	YA11530	ACE 25	4.32	Dec 31, 2017
Hudbay Minerals	YA11531	ACE 26	9.13	Dec 31, 2017
Hudbay Minerals	YA11532	ACE 27	14.58	Dec 31, 2017
Hudbay Minerals	YA11533	ACE 28	10.52	Dec 31, 2017
Hudbay Minerals	YA11534	ACE 29	11.98	Dec 31, 2017
Hudbay Minerals	YA11535	ACE 30	6.49	Dec 31, 2017
Hudbay Minerals	YA11536	ACE 33	13.26	Dec 31, 2017
Hudbay Minerals	YA11537	ACE 34	2.02	Dec 31, 2017
Hudbay Minerals	YA11538	ACE 35	16.77	Dec 31, 2017
Hudbay Minerals	YA11539	ACE 39	5.34	Dec 31, 2017
Hudbay Minerals	YA11540	ACE 40	3.69	Dec 31, 2017
Hudbay Minerals	YA11541	MIKE 4	15.92	Dec 31, 2017
Hudbay Minerals	YA11542	MIKE 5	18.51	Dec 31, 2017
Hudbay Minerals	YA11543	MIKE 6	20.03	Dec 31, 2017
Hudbay Minerals	YA11544	MIKE 7	19.37	Dec 31, 2017
Hudbay Minerals	YA11545	MIKE 8	19.44	Dec 31, 2017
Hudbay Minerals	YA11546	MIKE 9	9.21	Dec 31, 2017
Hudbay Minerals	YA11547	MIKE 10	20.92	Dec 31, 2017
Hudbay Minerals	YA15148	Jason 189	3.42	Dec 31, 2017
Hudbay Minerals	YA15149	Jason 190	1.20	Dec 31, 2017
Hudbay Minerals	YA15150	Jason 191	19.93	Dec 31, 2017
Hudbay Minerals	YA20135	JASON 177	2.45	Dec 31, 2017
Hudbay Minerals	YA20136	JASON 178	14.17	Dec 31, 2017
Hudbay Minerals	YA20137	JASON 179	11.27	Dec 31, 2017
Hudbay Minerals	YA20138	JASON 180	10.38	Dec 31, 2017
Hudbay Minerals	YA20139	JASON 181	2.85	Dec 31, 2017
Hudbay Minerals	YA20140	JASON 182	1.12	Dec 31, 2017
Hudbay Minerals	YA20141	JASON 183	5.65	Dec 31, 2017
Hudbay Minerals	YA20142	JASON 184	3.36	Dec 31, 2017
Hudbay Minerals	YA20143	JASON 185	5.83	Dec 31, 2017
Hudbay Minerals	YA20144	JASON 186	13.58	Dec 31, 2017
Hudbay Minerals	YA20145	JASON 187	10.25	Dec 31, 2017
Hudbay Minerals	YA20146	JASON 188	9.62	Dec 31, 2017

Hudbay Minerals	YA35586	JASON 192	1.30	Dec 31, 2017
Hudbay Minerals	YA35587	JASON 193	6.73	Dec 31, 2017
Hudbay Minerals	YA35588	JASON 194	4.65	Dec 31, 2017
Hudbay Minerals	YA35589	JASON 195	3.69	Dec 31, 2017
Hudbay Minerals	YA35590	JASON 196	8.26	Dec 31, 2017
Hudbay Minerals	YA35591	JASON 197	13.68	Dec 31, 2017
Hudbay Minerals	YA38265	Jason 198	8.31	Dec 31, 2017
Hudbay Minerals	YA38266	Jason 199	9.22	Dec 31, 2017
Hudbay Minerals	YA38267	Jason 200	2.69	Dec 31, 2017
Hudbay Minerals	YA38268	Jason 201	1.30	Dec 31, 2017
Hudbay Minerals	YA38269	Jason 202	4.04	Dec 31, 2017
Hudbay Minerals	YA38270	Jason 203	2.93	Dec 31, 2017
Hudbay Minerals	YA38271	Jason 204	0.45	Dec 31, 2017
Hudbay Minerals	YA38272	Jason 205	0.79	Dec 31, 2017
Hudbay Minerals	YA38273	Jason 206	2.13	Dec 31, 2017
Hudbay Minerals	YA38274	Jason 207	0.04	Dec 31, 2017
Hudbay Minerals	YA38275	Jason 208	1.28	Dec 31, 2017
Hudbay Minerals	YA38276	Jason 209	1.15	Dec 31, 2017
Hudbay Minerals	YA38277	Jason 210	1.00	Dec 31, 2017
Hudbay Minerals	YA38278	Jason 211	1.03	Dec 31, 2017
Hudbay Minerals	YA38279	Jason 212	6.35	Dec 31, 2017
Hudbay Minerals	YA38280	Jason 213	7.64	Dec 31, 2017
Hudbay Minerals	YA38281	Jason 214	7.18	Dec 31, 2017
Hudbay Minerals	YA38282	Jason 215	5.31	Dec 31, 2017
Hudbay Minerals	YA38283	Jason 216	1.95	Dec 31, 2017
Hudbay Minerals	YA38284	Jason 217	1.63	Dec 31, 2017
Hudbay Minerals	YA38285	Jason 218	0.13	Dec 31, 2017
Hudbay Minerals	YA38286	Jason 219	0.37	Dec 31, 2017
Hudbay Minerals	YA38287	Jason 220	1.24	Dec 31, 2017
Hudbay Minerals	YA38288	Jason 221	3.03	Dec 31, 2017
Hudbay Minerals	YA38289	Jason 222	5.15	Dec 31, 2017
Hudbay Minerals	YA41288	Jason 223	5.42	Dec 31, 2017
Hudbay Minerals	YA41289	Jason 224	6.22	Dec 31, 2017
Hudbay Minerals	YA41290	Jason 225	1.22	Dec 31, 2017
Hudbay Minerals	YA41291	Jason 226	1.32	Dec 31, 2017
Hudbay Minerals	YA41292	Jason 227	1.67	Dec 31, 2017
Hudbay Minerals	YA41293	Jason 228	3.00	Dec 31, 2017
Hudbay Minerals	YA41294	Jason 229	1.24	Dec 31, 2017
Hudbay Minerals	YA41295	Jason 230	3.95	Dec 31, 2017
Hudbay Minerals	YA41296	Jason 231	0.77	Dec 31, 2017
Hudbay Minerals	YA41297	Jason 232	2.30	Dec 31, 2017
Hudbay Minerals	YA41298	Jason 233	5.47	Dec 31, 2017
Hudbay Minerals	YA41299	Jason 234	6.07	Dec 31, 2017
Hudbay Minerals	YA41300	Jason 235	4.79	Dec 31, 2017
Hudbay Minerals	YA41301	Jason 236	4.89	Dec 31, 2017
Hudbay Minerals	YA41302	Jason 237	1.98	Dec 31, 2017
Hudbay Minerals	YA41303	Jason 238	3.52	Dec 31, 2017

Hudbay Minerals	YA41304	Jason 239	4.05	Dec 31, 2017
Hudbay Minerals	YA41305	Jason 240	2.67	Dec 31, 2017
Hudbay Minerals	YA00024	MIKE 1	1.56	Dec 31, 2017
Hudbay Minerals	YA00025	MIKE 2	20.03	Dec 31, 2017
Hudbay Minerals	YA00805	MIKE 3	2.02	Dec 31, 2017
		Total Hectares:	***3,528.20***	

Appendix 2 Glossary of Technical Terms and Abbreviations

%	percent
3D	Three-dimensional model or data
Ag	Silver
ASCII	Digital computer code containing text data
assay	The laboratory determination of elevated values of a particular element of economic interest
AAS	Atomic absorption spectroscopy – an instrumental method of determining the concentration of an element in solution following an acid digestion
anticline	A fold in which the stratigraphically oldest rocks occur with the core
aqua regia	A molar ratio of 1 part nitric acid to 3 parts hydrochloric acid used to dissolve materials for assays or analyses
arsenopyrite	A metallic mineral containing arsenic, iron and sulphur
Au	Gold
azimuth	Compass direction (from north)
Ba	Barium
barite	A mineral composed of barium and sulphur; the main source of barium
Bulk density	A measure of the weight of a material divided by its volume
ºC	Celsius degrees
carbonaceous	Containing a significant amount of carbon
Carlin-style	A style of epigenetic gold deposit found along the Carlin Trend, Nevada
celsian	An uncommon barium feldspar
chalcopyrite	A metallic mineral consisting of copper and sulphur; the main source of copper
cm	centimetre
coefficient of variation (CV)	In statistics, the normalized variation value in a sample population
collar	The top of a drill hole or the entrance to a mine
compositing	In sampling and resource estimation, process designed to carry all samples to certain equal length
core sampling	In exploration, a sampling method of obtaining rock samples from a drill hole core for assay
CRM	Certified Reference Material which is rock sample or powder with precisely known amounts of elements such as Zn, Pb and Ag which is used as a blind control submitted to a laboratory with a rock sample submission to check on the precision of the resulting assays and analyses.
CSV	Digital computer file containing comma-separated text data

d	Diameter
debris flow	The mass movement of sediment, rock and water that such as during a landslide
diamictite	A sedimentary rock consisting of a chaotic collection of clasts within a finer-grained matrix; generally indicative of submarine landslides. Sometimes referred to as debris flow deposits.
digestion	The way a geochemical sample is dissolved for analysis
digital terrain model	Three-dimensional wireframe surface computer model, for example, topography (DTM)
exhalative	Material "exhaled" or ejected from a submarine hydrothermal vent, sometimes referred to as "black and white smokers"
fault	A break in rocks along which there has been movement, usually along a roughly planar surface
fold	The geometric tilting and bending of layered rocks during tectonic compression
finish	The final analysis method during assaying or geochemical analysis
FROM	Beginning of a drill interval
g	gram
Galena	A mineral composed of lead and sulphur; the main source of lead
geochemical sampling	In exploration, the main method of sampling rocks, soils or other natural materials for determination the presence of metals or other elements.
geometallurgy	A system of domaining a mineral deposit based on its geochemical and mineralogical characteristics that have a bearing on mineral processing
GPS	Global Positioning System to determine a location based on a network of geostationary satellites
gravimetric	The determination of the amount of an element or compound based on its weight
growth fault	A normal fault along which movement occurs during the deposition of overlying sediments
GSC	Geological Survey of Canada, a federal government agency which conducts geological mapping, geochemical sampling and other campaigns to generate information for the benefit of the mining industry and academia.
histogram	Diagrammatic representation of data distribution by calculating frequency of occurrence
hydrothermal	A process of mineral deposit formation involving heated water.
ICP	Inductively-couple plasma – a device used to atomise compound in solution for chemical analysis following an acid digestion.
intrusive	An igneous rock that has been intruded into the Earth's crust

IP	Induced polarisation geophysical survey in which an electrical current is transmitted through the ground and the chargeability of metallic minerals is determined.
kg	kilogram
km	kilometre
lognormal	Relates to the distribution of a variable value, where the logarithm of this variable is a normal distribution
m	meter
M	million or mega (10^6)
MMI	Mobile metal ion; refers to a geochemical method that detects elements that appear to migrate vertically from buried mineral deposits or other metallic sources
macro	A set of MICROMINE commands written as a computer program for reading and handling data
mean	Arithmetic mean
median	Number occupying the middle position in a data set
ml	millilitre
ml/l	millilitre per litter
mm	millimetre
monzonite	A coarse-grained intrusive igneous rock containing approximately equal amounts of orthoclase and plagioclase feldspar
MS	Mass spectrometry – the separation of elements in chemical analysis based on mass and charge
Mt	million tonnes
NI 43-101	Canadian National Instrument 43-101, a federal regulation governing public disclosure by the mining industry
NSR	Net smelter return
OES	Optical emission spectroscopy - the emission of electromagnetic radiation from elements at a characteristic wavelength
overburden	All material above bedrock
Pb	Lead
percentile	In statistics, one one-hundredth of the data. It is generally used to break a database down into equal hundredths
population	In geostatistics, a population formed from grades having identical or similar geostatistical characteristics. Ideally, one given population is characterized by a linear distribution
ppm	Parts per million
pyrite	A sulphide mineral comprised of iron and sulphur with a characteristic chemical composition and structure
pyrrhotite	A sulphide mineral comprised of iron and sulphur
Pyrobitumen	A solid organic material similar in composition to bitumen
QAQC	Quality Assurance / Quality Control
RL	Elevation of the collar of a drill hole, a trench or a pit bench above a designated datum
sample	A piece of material such as a rock or soil collected for

	chemical analysis
scatter plot	Diagrammatic representation of measurement pairs about an orthogonal axis
SEDEX	Sedimentary exhalative deposit
SG	Specific Gravity
silicification	A style of hydrothermal alteration in which silica is added and hardens a rock
sphalerite	A mineral composed of zinc, (iron) and sulphur; the main source of zinc
standard deviation	Statistical value of data dispersion around the mean value
stratigraphy	Refers to the order in which sedimentary and volcanic rocks have been deposited
t	tonne
t/m^3	tonne per cubic meter
tetrahedrite	A sulfosalt mineral containing copper, antimony, iron and sulphur
TO	End of a drill interval
TSX-V	TSX-Venture Stock Exchange based in Toronto
turbidites	Sedimentary rocks deposited from submarine landslides as the sediment settles out of the water column
uncomformable	
variance	In statistics, the measure of dispersion around the mean value of a data set
volcanic	An igneous rock that has been erupted onto the Earth's surface
wireframe model	3D surface defined by triangles
X	Coordinate of the longitude of a drill hole, a trench collar, a pit bench or other item
XRF	X-ray fluorescence; an analytical method
Y	coordinate of the latitude of a drill hole, a trench collar, a pit bench or other item
yr	year
Zn	Zinc

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