

**Technical Report  
on an  
Initial Resource Estimate  
for the  
Jumping Josephine Gold Prospect,  
South-eastern British Columbia, Canada**

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## **1.0 Summary**

This report is intended to provide details with respect to an initial resource estimation effort that was recently completed by APEX Geoscience Ltd. on the JJ (or “JJ Main”) gold prospect. The JJ Main gold prospect is located on the JJ (Jumping Josephine) property, which is located approximately 5km west of the town of Castlegar in south-eastern British Columbia, Canada (Figure 1). The property is being explored by Astral for disseminated and vein-controlled epithermal to mesothermal gold mineralization.

The majority of the JJ Property may be considered to be at an early (“grass-roots”) stage of exploration. However, exploration is at a more advanced stage at the JJ Main prospect, at which Astral has completed several drilling programs in recent years that have resulted in the identification of a significant zone of gold mineralization at the JJ Main prospect. This report is intended to provide details with respect to an initial resource estimate for the JJ Main prospect. No other reserves or resources currently exist elsewhere on the property.

### **1.1 Property**

The Jumping Josephine Property currently comprises 4 groups of claims totaling some 36,572.51ha, which includes 82 BC mineral claims and 7 crown granted mineral claims. The original Jumping Josephine claim group together with the Blueberry, Columbia-Rossland and Ridge claim groups will be referred to collectively throughout this report as the Jumping Josephine Property (“the Property” or “the JJ Property”).

The claims that comprise the property are well located. The crown granted claims have been legally surveyed and the majority of the BC mineral claims that comprise the remainder of the property were staked online relative to an established geographic grid. The Crown Granted Claims that comprise a portion of the property do not require annual assessment work, however, taxes are due annually in the amount of \$114.72. The BC mineral claims require annual assessment expenditures in order to maintain tenure. Including current credits, it is estimated that Astral will be required to conduct work totaling approximately \$202,700 in order to maintain its property through 2011 and in to early 2012.

Land use permits are required from the Provincial Government in order to conduct exploration activities. Astral has obtained all of the necessary permits in the past, has operated in accordance with permits and does not anticipate any significant issues in obtaining permits for planned activities in the future. There are no known environmental liabilities on the property.



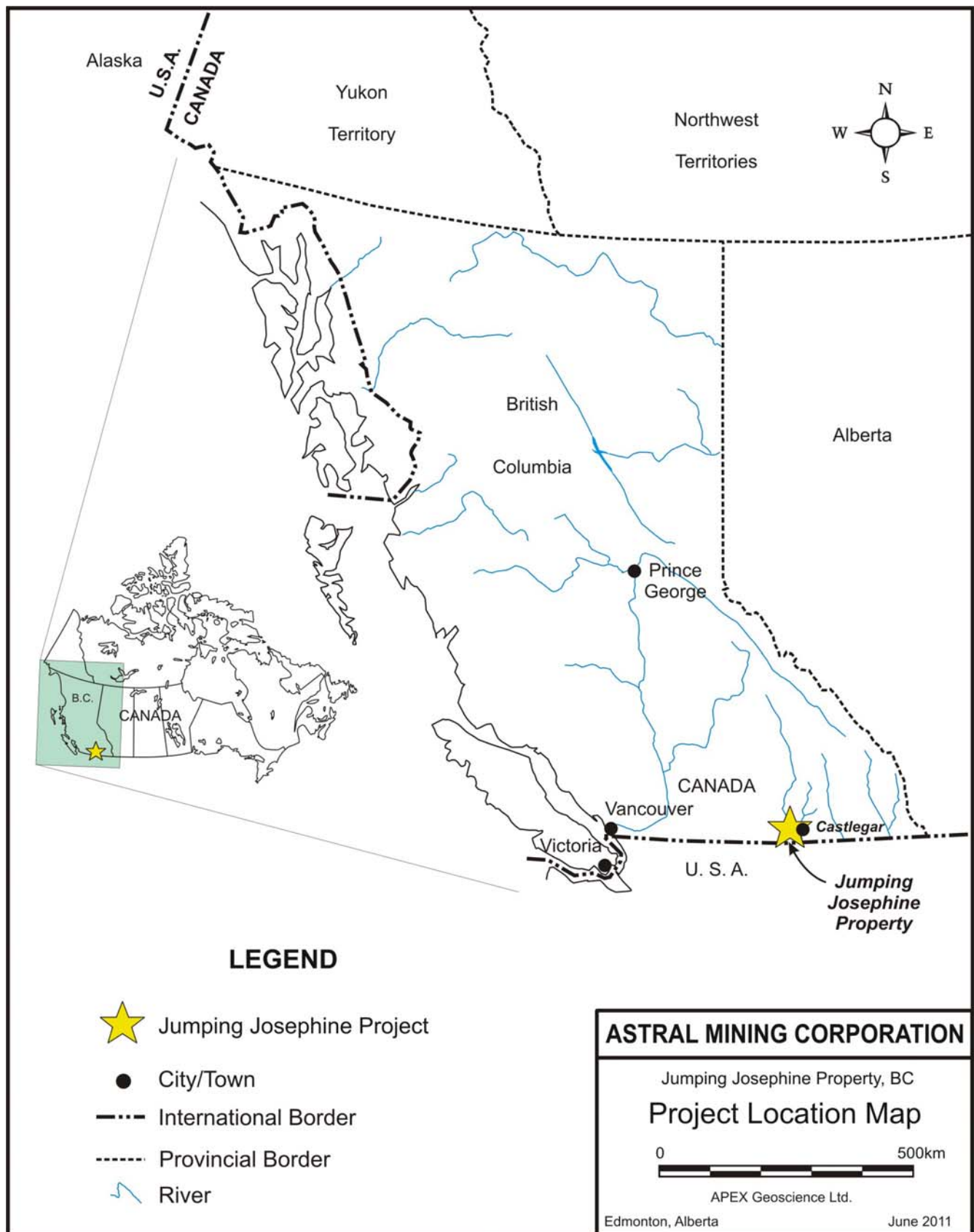


Figure 1

The JJ Main gold prospect occurs on what is referred to as the JJ claim group, which was the first group of claims in the area optioned by Astral from Kootenay Gold Inc. ("Kootenay"). The JJ claim group comprises 24 contiguous mineral claims that were assembled by Kootenay along with 7 crown granted mineral claims that were optioned to Kootenay by Mr. Ralph Englund ("Englund claims"). In total, the original JJ claim group totaled some 11,234.67ha. In 2009, Astral fulfilled its obligations under an option agreement, signed with Kootenay in April 2006, thus earning a 60% interest in the original JJ claim group and a Joint Venture was initiated although a formal J.V. agreement has not yet been signed. The Executrix of Mr. Englund's estate retains a 1.5% Net Smelter Royalty (NSR) on that portion of the property (crown granted claims), half of which (0.75%) can be purchased for \$500,000 and the JJ Joint Venture would retain a right of first refusal on the remaining 0.75%.

In July 2007, Astral added to the original JJ claim group by acquiring the "Blueberry" group of 19 BC mineral claims from Mineworks Ventures Incorporated ("Mineworks"). The Blueberry option agreement give Astral the right to acquire a 100% interest in the 7,147.0ha Blueberry claim group, adjacent to the original Jumping Josephine claims described above. Mineworks will retain a 2.5% NSR of this group of claims, 2.0% of which can be purchasable by Astral for \$2 million. As of the date of this report, the terms of this agreement had not yet been fulfilled but the agreement remains in effect.

In June 2008, Astral further increased its land position by acquiring the "Columbia-Rossland" group of 33 BC mineral claims from Mineworks. The Columbia-Rossland Option Agreement gave Astral the right to acquire a 100% interest in the 15,452ha group of claims, contiguous with the Blueberry and Jumping Josephine claim groups. As of the date of this report, the terms of this agreement had been fulfilled and the claims have been transferred to Astral. As with the Blueberry agreement, Mineworks retains a 2.5% NSR, 2.0% of which can be purchased by Astral for \$2 million.

In February 2010, Astral acquired 6 additional claims by option agreement from Mineworks known as the "Ridge" claims (2,739ha). As of the date of this report, the terms of this agreement had been fulfilled and the claims have been transferred to Astral. Again, Mineworks retains a 2.5% NSR, 2.0% of which can be purchased by Astral for \$2 million.

## **1.2 Exploration/Conclusions**

Exploration activities conducted on the "original" JJ Property by Kootenay Gold Inc. between 2003 and 2005 resulted in the discovery of a number of new gold showings on the property. In May 2006, Astral commenced their evaluation of the new gold

showings discovered by Kootenay and expanded exploration across the property. This work led to the identification of a significant zone of gold mineralization at the JJ Main showing, which has become the focus of recent exploration activities. The JJ Main prospect comprises a structurally controlled gold-bearing stockwork vein system.

A trenching program was conducted at the JJ Main showing in 2006 and identified gold mineralization at surface over a strike length of some 220m. The 2006 trenching program was successfully followed up by a sizeable drill program in 2007 that totaled 7734.31m of drilling in 69 holes at 4 prospects, including 6537.64m in 58 holes at the JJ Main showing. The 2007 exploration program conducted by Astral Mining was successful in outlining a significant zone of gold mineralization at the JJ Main prospect to a depth of some 225m below surface and along a strike length of approximately 700m (Turner 2008) with intersections grading up to 7.01gAu/t across 19.0m (see Astral Press Release – July 12, 2007).

In 2008, Astral completed a mainly in-fill drill program at the JJ Main prospect that totaled 5074.86m of drilling in 34 holes. Of these holes, 32 were completed within the area of mineralization identified by the 2007 drill program in order to decrease intercept spacing. One (1) drill hole was completed along strike from the main JJ prospect and one (1) hole was completed approximately 400m southeast across strike on what appears to be a parallel zone. Collectively these two step-out drill holes indicate the potential to increase the extent of gold mineralization at the property both along strike on the same structure that hosts the JJ Main prospect and elsewhere on the property on parallel structures and/or other related structures (Turner 2009).

In 2009, Astral completed a limited exploration program at the Jumping Josephine Property. With the JJ Main gold zone relatively well defined by drilling that was conducted in 2007 and 2008, Astral decided to evaluate other areas of its property with regional geochemical sampling. A total of 4689 wide-spaced soil geochemical samples was collected mainly on the JJ claim group and a total of 393 stream silt sediment samples was collected along drainages covering an area of approximately 140km<sup>2</sup> on the Columbia-Rossland claim group. In addition, a small trenching program was completed at the Highway prospect totaling 118 channel samples collected over 118m in 3 trenches. The regional soil and stream silt sampling efforts were conducted on Astral's behalf by Hendex Exploration Services Ltd., of Prince George BC, while the trenching was conducted by Astral.

The 2009 soil sampling effort provided wide-scale geochemical coverage of a large portion of the JJ claim group and connected several of the earlier prospect-scale soil sampling grids. Sample density was sufficient to highlight several areas of interest with

clusters of >90<sup>th</sup> percentile gold- and/or arsenic-in-soil anomalies that were recommended for follow-up investigation (Turner 2010). Concentrations of key elements, such as gold and arsenic, were generally low, particularly in the northern portion of the sample area, which is likely attributable to low bedrock concentrations in the area (low background) and possibly due to generally low sulphide concentrations such as that observed in the veins comprising the JJ Main stockwork zone. The 2009 stream sediment sampling program highlighted several areas on the Columbia-Rossland claim group that are recommended for follow-up investigation based on anomalous gold and arsenic values. No significant results were returned from the Highway prospect trenching program completed in 2009. There were no issues noted with respect to sampling methodologies or procedures, sample security or data verification.

Astral completed regional exploration in 2010 at the Jumping Josephine Property that resulted in the collection of 46 rock grab samples and 638 infill soil samples (Hillside, Big Sheep, Siren, Gravel Pit, Ridge and Mt. Crowe). In addition, 196m of trenching (in 11 trenches) was completed at the Hillside, Highway, Big Sheep and Siren prospects. Finally, a total of 5,557.7m of drilling in 36 drill holes was completed in late 2010 around the JJ Main prospect, including 1 drill hole that was completed beneath the currently defined JJ Main resource.

The last property visit completed by APEX predates the majority of the 2010 exploration program including the entire 2010 drill program. As a result, no further discussion of this work can be made. The principle author is planning to conduct another property visit this summer that will allow for a full discussion of this work in an upcoming Technical Report. The 2010 exploration program is not considered to be material to this report as it was not conducted at the JJ Main prospect, which is the subject of this report. A single drill hole from the 2010 drill program was completed at the JJ Main prospect but it did not yield a significant gold intersection and intersected the structure outside the currently reported resource area.

### **1.3 Geology and Mineralization**

The property is primarily underlain by granitic rocks correlated with the Middle Jurassic Nelson plutonic suite. These intrude metavolcanic and metasedimentary rocks of the Late Paleozoic Mount Roberts Formation. Alkaline intrusive rocks, correlated with the Coryell suite of intrusive rocks, generally surround the Nelson plutonic rocks; they are exposed along the north, west and south side of the JJ claim group and as numerous small stocks and north trending dykes throughout the area. The most dominant structures are north-trending, high-angle normal faults with generally minor

displacements. They cut all rock units, including the Eocene Coryell rocks and must therefore be Eocene to post-Eocene in age (Höy 2006).

Mineralization on the Jumping Josephine property is characterized by lode style quartz veins and silicified brittle shear zones. The majority of the historical work conducted on the property has been focused on the occurrences that comprise the Granville Mountain Camp in the southern project area on veins of this type. Auriferous quartz veins are the most prospective mineralization style on the property and Höy (2006) concluded that the Granville Mountain veins are discontinuous, en-echelon tension veins related to dextral motion along structures within and along the edges of the camp.

The stockwork quartz veins that comprise the JJ Main gold prospect exhibit a close association between gold mineralization and sulphide development. Sulphide mineralization in the JJ vein system comprises mainly arsenopyrite, with relatively minor pyrite and chalcopyrite, along with the base metal sulphides sphalerite and lesser galena. Within the veins, sulphides are generally coarse grained and exhibit variable abundances from <1% to >10% of the vein material. The monzonitic wall (host) rocks typically exhibit variable chlorite and sericite alteration with minor finely disseminated pyrite (~1-2%).

#### 1.4 JJ Main Prospect Resource Estimate

APEX Geoscience Ltd., on behalf of Astral Mining Corp, completed an initial geological modeling and resource estimate of the gold mineralization at the Jumping Josephine Deposit with the aim to determine the size of the resource that could be potentially extracted.

**Table 1. Mineral Resource Estimate for the Jumping Josephine Prospect (0.5g/t cut off)**

<b>Classification</b>	<b>Tonnage (tonnes)</b>	<b>Grade (g/t Au)</b>	<b>Gold Content (oz.)</b>
Measured	-	-	-
Indicated	363,000	2.95	34,000
<b>Total Measured + Indicated</b>	<b>363,000</b>	<b>2.95</b>	<b>34,000</b>
<b>Inferred</b>	<b>448,000</b>	<b>2.08</b>	<b>30,000</b>

Andrew Turner (P. Geol), Mike Dufresne (P.Geol) and Steve Nicholls (M AIG) of APEX Geoscience are the independent qualified persons, as defined by NI 43-101, responsible for the mineral resource estimate. The resource estimate of this advanced exploration project is classified as an Indicated and Inferred mineral resource,

consistent with the CIM definitions referred to in NI 43-101. The effective date of the mineral resource is March 24<sup>th</sup>, 2011. The mineral resource estimate is derived from a total of 71 diamond drill holes. The average drill hole spacing is 20 to 40 metres within the area of interest. A total of 564 composites of 1m length, capped at 30.0g/t Au were used for the estimation. The mineral resource was estimated by inverse distance squared within a 3 dimensional mineralization envelope of gold grades greater than or equal to 0.5g/t with similar geological characteristics in terms of alteration and mineralogy. A search ellipsoid of 30m x 30m x 4m orientated along strike (350°) was utilized for grade interpolation into 20m x 2m x 10m blocks. Block grades estimated from samples with an average distance of 15 to 40m away were classified as indicated, and with an average distance of 20 to 80m away were classified as inferred. A nominal density of 2.65g/cm<sup>3</sup> has been applied to all blocks.

## **1.5 Recommendations**

The Jumping Josephine property is a prospective exploration property with the potential to host an economic gold deposit. Recent exploration work programs conducted by Astral Mining Corporation have been successful in outlining a significant zone of gold mineralization at the JJ prospect, the immediate vicinity of which warrants further advanced exploration work.

It should be noted that the JJ Main prospect represents a relatively small portion of the overall land holdings of Astral that currently comprise the JJ Property. While continuing to advance the JJ Main gold prospect, Astral has also been evaluating the mineral potential of other parts of the JJ Property. A limited exploration program was conducted by Astral in 2010 to evaluate several other prospects. However, since the subject of this report is an initial resource estimation effort for the JJ Main gold prospect, specifically, and because APEX has not yet had an opportunity to conduct a site visit and thoroughly evaluate the 2010 exploration program, no recommendations with respect to regional exploration activities will be presented or discussed in this report. The reader is referred to the last Technical Report (Turner 2010), which was prepared by the principle author of this report and discusses detailed recommendations for continued regional exploration.

A significant amount of work is recommended for the Jumping Josephine Prospect. This work has been organized for the purposes of this report into discreet programs that will allow the maximum flexibility for Astral to conduct the programs it chooses based on corporate priorities and potential budgetary constraints. All of the work programs described below are warranted at this time, based on previous results, and none are contingent upon the results of any of the others. Proposed budgets for the



recommended work programs are provided in Appendix 2, all of which would represent an expenditure of approximately **\$550,000**.

### **1.5.1 JJ Main Prospect – Resource Evaluation**

The initial gold resource for the JJ Main Prospect presented in this report (see Table 1) is relatively small but is considered to be significant. Given the location of the resource and its relatively simple geometry, mineralogy and positive initial metallurgy, there is a reasonable potential for future development. As a result, in the opinion of APEX Geoscience, further evaluation of the resource with respect to economics and potential development is warranted. To this end, APEX recommends that a mining engineer familiar with this type of deposit be contracted to conduct a more detailed evaluation of the potential economics of the JJ Main resource and that a Scoping Study of the deposit be initiated. An evaluation of the JJ Main resource and the preparation of a formal Scoping Study is estimated to require 2-3 months of work with an estimated cost of **\$50,000**.

Bulk sampling is recommended for the JJ Main gold prospect, along with the initiation of a Scoping Study discussed above. However, it is recommended that this work be supervised and conducted under the direction of the engineering consultant conducting the Scoping Study such that it would provide them with information regarding the geotechnical qualities of the rock, produce additional material for detailed metallurgical work and the recovered mineralization could be properly tested (assayed) to provide information to test the validity of, or be used to update, the initial geological resource discussed in this report. Astral has announced its intention to conduct a bulk sampling program at the JJ Main prospect and that it is in the process of applying for permits for this work (see Astral Press Release – October 29, 2009). At present, permission for bulk sampling at the JJ Main Prospect has not been received. It is recommended that Astral renew its efforts to secure such a permit. APEX and Astral are not aware of any reason why such permission would not be granted. Since permission has not yet been received for this work, and the scale of bulk sampling has yet to be determined, a detailed cost estimate has not been completed. However, for planning purposes, APEX recommends that Astral budget between \$150,000 and \$250,000 for this work and the associated test work.

It should be noted that regardless of the outcome of a Scoping Study for the JJ Main Resource, further exploration is recommended as it has the potential to increase the currently defined resource. As a result, the following exploration activities are not contingent upon the results of the evaluation, or Scoping Study, or a possible Bulk Sampling program, discussed above.

### **1.5.2 JJ Main Prospect Area – Recommended Drill Program**

Further step-out drilling immediately adjacent to the JJ Main resource area is warranted in order to attempt to increase the current resource. Additional drilling around the prospect was recommended by the principle author of this report following the 2009 exploration season (Turner 2010) and, although Astral has since completed some additional drilling at and around the JJ Main Prospect (fall 2010), the majority of the targets identified by the principle author remain untested and still warrant testing as priority drill targets. Specifically, several >90<sup>th</sup> percentile Au (+/- As) soil anomalies located in the JJ Main area are recommended for drill testing and have the potential to identify new zones of mineralization that could expand the current JJ Main resource. A drill program comprising approximately 2000m of drilling in 10-12 holes is recommended at an estimated cost of **\$415,000**.

### **1.5.3 JJ Main Prospect Area – Recommended Trenching Program**

As described above, several >90<sup>th</sup> percentile Au (+/- As) soil anomalies located in the JJ Main area, but more than 500m from the actual prospect to the south and southwest, are recommended for trenching. A 3-4 week trenching program in the JJ Main area is estimated to require an expenditure of approximately **\$85,000**.

## **2.0 Introduction**

This document discusses the results of an initial geological modeling and resource estimation effort for the Jumping Josephine gold prospect (“JJ prospect” or “JJ Main prospect”), which is part of the Jumping Josephine (“JJ”) Property. The JJ Property comprises contiguous claim groups with different ownership structures. The portion of the JJ Property that hosts the JJ Main prospect is held by a Joint Venture owned 60% by the Astral Mining Corporation and 40% by Kootenay Gold. The purpose of this resource work is to provide Astral (and Kootenay) with a framework in which to assess future exploration and possible development activities.

Exploration at the JJ property has been indirectly supervised by Dr. David Terry, P.Geo., Director and previously Vice President of Exploration for Astral Mining Corporation and a Qualified Person as defined in National Instrument 43-101. Direct supervision of exploration in the field has been provided by Mr. Dale Brittliffe, P.Geo., formerly Astral Mining’s project geologist and current Vice President of Exploration.

This report was prepared by Andrew J. Turner, P.Geol., Michael Dufresne, M.Sc., P.Geol., and Steve Nicholls, M.AIG, independent consultants with APEX Geoscience Ltd. of Edmonton, Alberta. The data discussed in this report was provided by Astral

Mining Corporation and was examined by the principle author who conducted data verification.

The principle author, Mr. Turner, has conducted three (3) site visits to the JJ property with the most recent being conducted between September 7 and 10, 2010. During this site visit, the author examined drill sites and drill core and independently collected a total of 27 quartered drill core samples from 2 drill holes that were completed in 2008 at the JJ prospect. The resulting data is discussed in greater detail in the Data Verification section of this report but, briefly, visible gold was observed by the principle author in drill core during its re-sampling and the resulting data further confirmed the presence of gold.

Prior to the 2010 site visit, the principle author, Mr. Turner, completed two other Technical Reports with respect to the Jumping Josephine Property (Turner 2008 and Turner 2009) for which site visits were also conducted. In October 2007, following the initial trenching and drill testing of the JJ Main gold prospect, the principle author collected 6 rock grab samples from trenches and 6 quartered core duplicate samples from 2 (2007 JJ Main) drill holes. Also, in June 2009, the principle author conducted a second property visit and collected a further 6 quartered core duplicate samples from 5 other drill holes completed at the JJ Main prospect in 2008. All of these samples confirmed the presence of gold in bedrock and drill core at the JJ Main prospect. Visible gold was observed by the principle author both in trenches in the field as well as in drill cores obtained from the property during these sampling efforts.

### **3.0 Reliance On Other Experts**

This report, written by Mr. Andrew J. Turner, B.Sc., P.Geol., Mr. Michael Dufresne, M.Sc., P.Geol., and Mr. Steve Nicholls, M. AIG, all independent consultants with APEX Geoscience Ltd. of Edmonton, Alberta, Canada, is a compilation of proprietary and publicly available information as well as information obtained during property visits, which the principle author (Mr. Turner) conducted between October 22 and 24, 2007, between June 4 and 6, 2009, and between September 7 and 10, 2010. The authors' certification sheets are appended to this report.

The authors, in writing this report, have used as sources of information those publications listed in the references section. Government reports referenced by this report were prepared by a person (or persons) holding post secondary geology or related university degrees and, therefore, the information in those reports is assumed to be accurate. Those reports written by other geologists, prior to the implementation of

the standards relating to National Instrument 43-101, are also assumed to be accurate, based on a review conducted by the authors, although they are not the sole basis for this report.

## **4.0 Property Description And Location**

The Jumping Josephine Property is located in the Blueberry-Paulson summit area in the West Kootenay region of south-eastern British Columbia, Canada (Figures 1 and 2). The property straddles the boundary of four 1:50,000 scale National Topographic System (NTS) map sheets; 082E/01 – Grand Forks; 082E/08 – Deer Park; 082F/04 – Rossland-Trail; and 082F/05 – Castlegar. The property is roughly centered on UTM grid coordinates 431,000mE and 5,457,000mN (NAD 83, Zone 11), or Lat/Long 49°17'00"N / 117°56'30"W. Astral has adopted the UTM map projection system (datum NAD 83, Zone 11) as the basis for all geospatial data collection.

The property is bisected by Highway 3, which links Grand Forks to the west with Castlegar to the east. The eastern edge of the property is located within 5km of the town of Castlegar and the southern edge of the property is located approximately 16km north of the historic mining community of Rossland.

The JJ Property currently comprises 4 groups of claims totaling some 36,572.51ha, which includes 82 BC mineral claims and 7 crown granted mineral claims (Figure 3). The original Jumping Josephine claim group, which hosts the JJ Main prospect, is subject to an agreement with Kootenay Gold, whereas the Blueberry, Columbia-Rossland and Ridge claim groups were added by Astral by way of option agreements with Mineworks Ltd. For the purposes of this report the groups will be referred to collectively throughout this report as the Jumping Josephine Property ("the Property" or "the JJ Property"). The details of the claims that comprise the current JJ Property, as described below, are presented in Appendix 1.

The crown granted mineral claims that comprise a portion of the JJ Property represent historical mineral claims that have been legally surveyed and do not require annual assessment work. Annual taxes on the grants total \$114.72. The remainder of the property comprises BC mineral claims all but two of which (EAU 5 and EAU 6) were staked using the BC Government's online staking system relative to a clearly defined geographic grid. The two EAU claims predate the electronic staking system and were located on the ground and have since been surrounded by digitally staked claims. The BC mineral claims comprising the majority of the JJ Property require annual assessment expenditures in order to maintain tenure. It is estimated that Astral will be

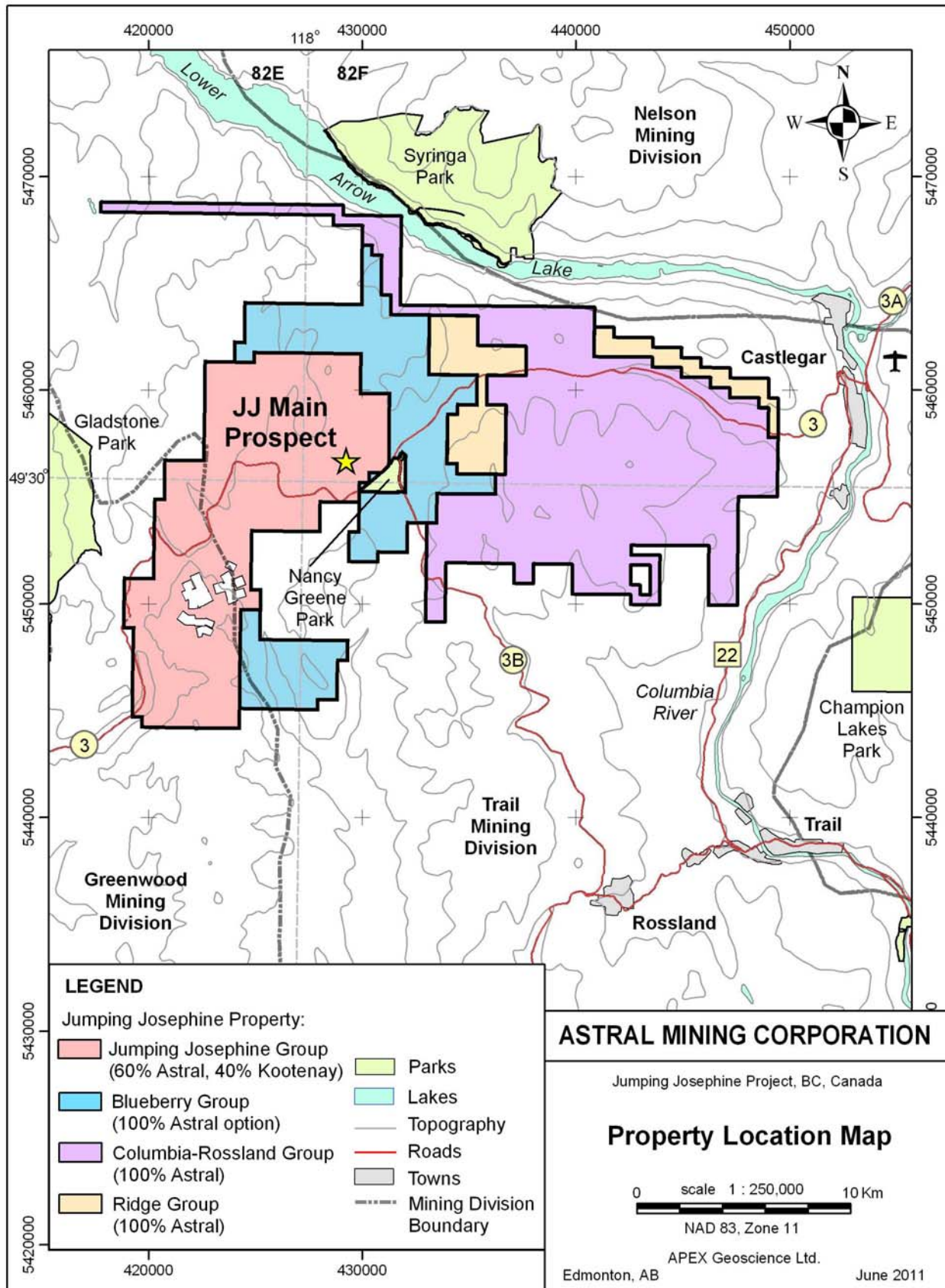


Figure 2



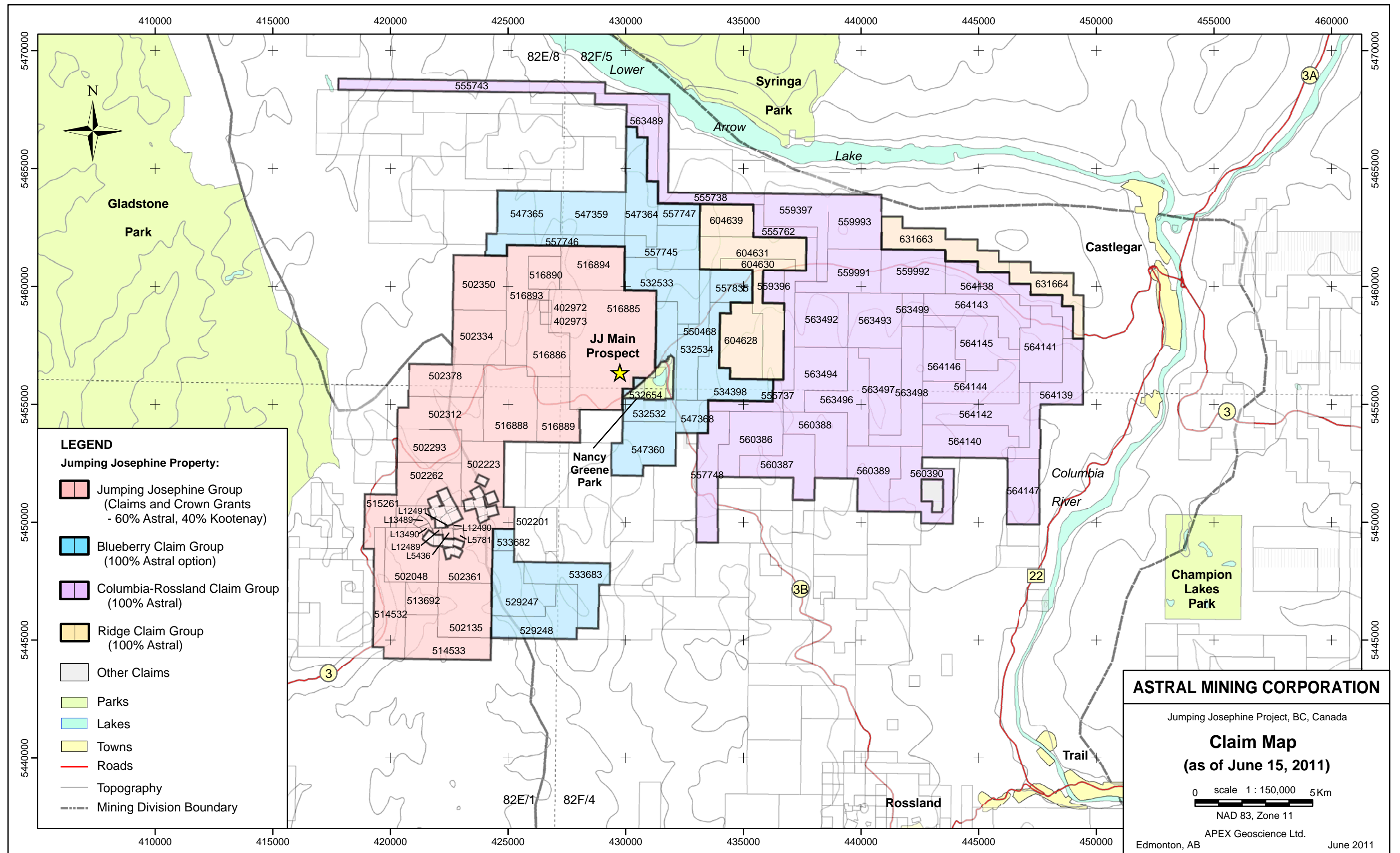


Figure 3



required to conduct and report exploration work totaling approximately \$202,700 (see Appendix 1) in order to maintain its property through 2011 and into early 2012.

The author is not aware of any environmental liabilities on the property. Historical production comprises small, largely non-mechanized mining operations with total production of less than 6,000 tonnes, none of which was processed on site (see the “History” section of this report for additional details with respect to historical and current prospect locations). To date there has been no production from, or development completed at, the JJ Main gold prospect.

Land use permits are required from the Provincial Government in order to conduct exploration activities in British Columbia. Astral has obtained all of the necessary permits to conduct exploration in the past, has operated in accordance with work permits and does not anticipate any significant issues in obtaining permits for planned activities in the future. Astral has announced its’ intention to conduct a bulk sampling program at the JJ Main prospect and that it is in the process of applying for permits for this work (see Astral Press Release – October 29, 2009). At present, permission for bulk sampling at the JJ Main Prospect has not been received but Astral is not aware of any reason why such permission would not be granted.

#### **4.1 JJ Claim Group**

The JJ Main gold prospect occurs on what is referred to as the JJ claim group, which was the first group of claims in the area optioned by Astral from Kootenay Gold Inc. (“Kootenay”). The JJ claim group comprises 24 contiguous mineral claims that were assembled by Kootenay along with 7 crown granted mineral claims that were optioned to Kootenay by Mr. Ralph Englund (“Englund claims”). In total, the original JJ claim group totaled some 11,234.67ha. In 2009, Astral fulfilled its obligations under an option agreement, signed with Kootenay in April 2006, thus earning a 60% interest in the original JJ claim group and a Joint Venture was initiated although a formal J.V. agreement has not yet been signed.

In early 2009, the JJ Joint Venture fulfilled all obligations with respect to a July 2008 amendment to the Kootenay-Englund (crown granted) claim agreement whereby no further work commitment was required on the Englund claims and a total of 100,000 Astral and 15,000 Kootenay shares were issued, along with cash payments totalling \$72,000 (60% Astral / 40% Kootenay), to the Executrix of Mr. Englund’s estate, which retains a 1.5% NSR, half of which (0.75%) can be purchased for \$500,000 and the JV will retain the right of first refusal on the remaining 0.75%.

On December 16, 2009, Astral announced a second option agreement with Kootenay whereby Astral could obtain Kootenay's remaining 40% interest in the JJ claim group in exchange for 4,000,000 Astral shares and a requirement to spend \$2,000,000 on exploration within 2 years (see Astral Press Release – January 22, 2010). Additional claims contiguous with the JJ Property, referred to as the “CP Midas claim group”, were also to be acquired by Astral from Kootenay under this agreement. However, Astral subsequently decided against finalizing this agreement (see Astral Press Release – November 26, 2010) and has not acquired the CP Midas claims but has maintained the original Joint Venture with Kootenay established in 2009 with respect to the JJ claim group (JJ Joint Venture - 60% Astral/40% Kootenay).

#### **4.2 Blueberry Claim Group**

In July 2007, Astral added to its land position in the area by acquiring the “Blueberry” group of 19 BC mineral claims from Mineworks Ventures Incorporated (“Mineworks”). The Blueberry option agreement gave Astral the right to acquire a 100% interest in the 7,147ha Blueberry claim group, adjacent to the original Jumping Josephine claims described above, by maintaining the (Blueberry) claims in good standing, issuing a total of 140,000 shares and make cash payments totaling \$75,000 over a four year period. Upon completion of these terms, Mineworks will retain a 2.5% Net Smelter Royalty, 2.0% of which can be purchasable by Astral for \$2 million.

On June 8, 2009 an amendment to the Blueberry and Columbia-Rossland Option Agreements (see below) was made whereby Mineworks accepted 60,000 Astral shares in lieu of cash option payments totaling \$30,000 that were due on July 1, 2009.

As of the date of this report, the terms of the Blueberry agreement had not yet been fulfilled but the agreement remains in effect.

#### **4.3 Columbia-Rossland Claim Group**

In June 2008, Astral further increased its land position by acquiring the “Columbia-Rossland” group of 33 BC mineral claims from Mineworks. The Columbia-Rossland Option Agreement gave Astral the right to acquire a 100% interest in the 15,452ha group of claims, contiguous with the Blueberry and Jumping Josephine claim groups, by maintaining the claims in good standing, issuing a total of 150,000 shares and making a \$15,000 payment on or before June 01, 2010. Astral has satisfied the terms of this agreement, as well as those of the amendment discussed above, and is now 100% owner of the Columbia-Rossland claims. Mineworks retains a 2.5% Net Smelter Royalty, 2.0% of which can be purchasable by Astral for \$2 million.

#### **4.4 Ridge Claim Group**

In February 2010, Astral staked the two (2) CP claims and acquired 6 additional claims from Mineworks known as the “Ridge” claims (2,739ha). The 2 CP claims (see Turner 2010) have since been allowed to lapse. However, the terms of the Ridge claim agreement have been satisfied and Astral is now 100% owner of the Ridge claims. Mineworks will retain a 2.5% NSR on the claims, reducible to 0.5% with cash payments of \$1,000,000 per percentage point.

### **5.0 Accessibility, Climate, Local Resources, Infrastructure and Physiography**

The JJ Main Prospect is located within approximately 40km, by paved highway, of Teck Cominco Limited’s Trail Smelter and is 30km by paved highway from the town of Castlegar to the east. The property boundary is less than 20km north of Trail and less than 5km west of the town of Castlegar. Rossland and Trail are historical mining centers and support a local skilled labour force. Castlegar hosts a range of light industrial services and accommodation options and can be accessed by regularly scheduled flights from Vancouver and Calgary.

The Crowsnest Highway (Hwy 3) provides excellent access to the property, and bisects the claims from east to west. An extensive network of good quality gravel logging roads provides vehicular access throughout the property. In some areas, tracks are overgrown though access may be quickly restored with relatively minor maintenance work. Logging has been conducted in many areas on the property by several companies as recently as 2007.

Average temperatures range from -10°C in winter to +35°C in the summer months and Hwy 3 is open year round. Weather conditions through the spring and summer months vary from clear, sunny and warm to overcast and rainy. Fall is characterized by clear, crisp days with increasing cloud cover bringing rain and snow with the onset of winter. Average precipitation is in the order of 4.0m of snow and 500mm of rain.

Elevations at the property range from 800m to 1800m above sea level, though most of the property is dominated by a rolling plateau situated between 1300m and 1500m of elevation. On the plateau in the northern half of the property, the terrain is characterized by low ridges and hills, with small swamps in local depressions. The southern and western portions of the property comprise the greatest elevation changes characterized by deep valleys draining the plateau. As previously mentioned, extensive

logging in the area has left a patchwork of clear cuts across the property. Elsewhere, the property is forested with spruce, pine, fir and larch.

## **6.0 History**

### **6.1 JJ Main Prospect**

There is no history of significant exploration at the JJ Main prospect prior to its recent discovery by prospecting conducted by Kootenay Gold. Prior to Kootenay Gold's involvement in the area, previous exploration by other companies was primarily focused on the known quartz vein and skarn occurrences covered by the small crown granted claims of the Granville Mountain camp located approximately 10km to the southwest. Previous work directed at these known showings identified some anomalies but none returned results that indicated to Astral sufficient potential for large scale mining. Prospecting work by Kootenay Gold during 2003-2005, which mainly examined areas around the old crown granted claims, was instrumental in revitalizing the property area and key showings such as JJ Main, JJ West, Pb-Zn Zone, Hillside, Borrow Pit and Big Sheep were all identified in this period. These occurrences, and the results from prospecting by Kootenay Gold, along with all other named prospect locations on the JJ Property, are shown in Figure 4.

Recent exploration completed on the property by, or on behalf of, Astral Mining Corporation is summarized in Table 2 and is described in greater detail in the Exploration section of this report.

### **6.2 JJ Property**

There is an extensive history of exploration and small scale development (mining) on and around what is now the Jumping Josephine Property. The majority of the historical work was focussed on base and precious metal-bearing quartz veins within the Granville Mountain Camp (see Figure 4), which saw small scale production of gold and silver, as well as some copper, lead and zinc, from several workings up to 1940 (see Table 3, from Terry and Britliffe, 2007). Following World War II, little work was completed on the Granville veins with the exception of Albion, which saw limited production. Sporadic exploration in the area resumed in the late 1960s and continued until the early 1990s and generally targeted known veins in the camp. Exceptions include the Wewa (Screeching Cat) Cu-Mo geochemical target, the Northwind Au showing and work completed on Crown Resources' Spruce Claims and Rex Silver Mines' Joy Claims, none of which resulted in any production. Pre-1940 production from the Granville Mountain Camp is summarized in Table 2.

Historical exploration work at the JJ Property, which was mainly focused on the showings of the Granville Mountain camp, identified some anomalies but none returned results to indicate sufficient potential for large scale mining. A chronological summary of historical exploration work at the JJ Property is tabulated below (Table 4 below, from Terry and Brittliff, 2007). A useful summary of pre-1985 exploration and production from the Granville Camp may be found in Assessment report #14733, (Crowe & Forbes, 1985). Early production is detailed in B.C. Ministry of Mines Annual Reports.

**Table 2. Summary of Recent Exploration Work by Astral on the JJ Property.**

Year	Owner	Work Completed	Quantity	Zone Covered
2006	Astral Mining Corporation/ Kootenay Gold (Terry and Brittliff, 2007)	Airborne Magnetics/EM	1330.55km	JJ claim group
		Soil Geochem	1754 samples	JJ Main, JJ West - including Borrow Pit, and Bonanza
		Trenching Geological Mapping	17 trenches, 775m	JJ Main Showing
2007	Astral Mining Corporation/ Kootenay Gold (Turner 2008)	Soil Geochem	426 samples	Big Sheep
		Trenching (mapping sampling)	9 trenches, 562m	JJ Main North, JJ West and Borrow Pit
		Drilling	6530.6m, 58 holes 553.4m, 9 holes 643.3m, 2 holes	JJ Main Albion/Dubrovnik Bonanza Pass
2008	Astral Mining Corporation/ Kootenay Gold (Turner 2009)	Trenching (mapping sampling)	4 trenches, 300m	Au-As, Ford
		IP Geophysical Survey	53.8 line-km	JJ Main
		Drilling	5074.9m, 34 holes	JJ Main
2009  (early 2010)	Astral Mining Corporation/ Kootenay Gold (Turner 2010)	Soil Geochem	1754 samples	North JJ Claim Group
		Stream Sediment Geochem	393 samples	Columbia-Rossland Claims
		Trenching (mapping sampling)	3 trenches, 118m	Highway
		Airborne Magnetics/EM	1330.55km	JJ Claims and CP-Midas claims *
2010	Astral Mining Corporation/ Kootenay Gold (this report)	Soil Geochem	638 samples	Big Sheep, Siren, Hillside, gravel Pit, Ridge, Mt. Crowe
		Prospecting (rock sampling)	46 samples	various locations
		Trenching	11 trenches, 196m	Hillside, Highway, Big Sheep, and Siren
		Drilling	210.7m, 1 hole 4830.0m, 32 holes 531.0m, 3 holes	JJ Main JJ Main area Big Sheep

\* CP-Midas Claims are no longer part of the JJ Property.

**Table 3. Historically Reported Production from The Granville Mountain Camp**

Minfile No	Name	Mined (tonnes)	Au (grams)	Ag (grams)	Cu (kg)	Pb (kg)	Zn (kg)	Production dates
082ESE039	Northwind	75	809	156	191	0	0	1918
082ESE083	Inland Empire (L.3880)	4,133	29,702	216,663	566	0	0	1912-1939
082ESE084	Berlin (L.11157)	383	2,302	21,399	0	0	0	1939-1940
082ESE085	Cascade (L.5000)	625	13,063	47,774	131	187	251	1902-1939
082ESE086	Albion No. 2 (L.12489)	541	4,418	25,255	0	365	337	1939-1964
082ESE087	Enterprise (L.14563)	24	871	8024	0	960	1,671	1932-1939
<b>Totals</b>		<b>5,781</b>	<b>51,165</b>	<b>319,271</b>	<b>888</b>	<b>1,512</b>	<b>2,259</b>	

**Table 4. Summary of Historical Exploration Work on the JJ Property**

Year(s)	Owner	Work Completed	Quantity	Zone Covered
1901-1912		Trenching Shaft sinking Underground Drifting		Berlin/Inland Empire
1912 -1940	Various	Trenching Shaft sinking Diamond Drilling Production Related Work	Production figures tabulated in Table 3 above	Granville Mountain Camp
1962	Northern Syndicate Ltd	Drilling  Trenching	3 holes,	Albion
1970	Placid Oil Company	Diamond Drilling	5 holes, 445.6 metres	Enterprise
1974	Ike Weibe (prospector)	Diamond Drilling	6 holes,	Albion & Dubrovnik
1974	Brascan Resources	Soil Geochemistry Magnetometer	80 samples 17 line miles	Wewa
1980	Boundary Gold Corp	Diamond drilling	8 holes, 1006 metres	Albion Alice L - Berlin
1981	E & B Explorations Ltd	Soil Geochemistry VLF/EM Geological Mapping Magnetometer	Report unavailable (though referred to in many texts)	Granville Camp Area
1983-1985	Prominent Resources	IP-resistivity survey Soil Geochemistry Diamond Drilling Geological Mapping Ground Magnetometer VLF/EM	1.63 line km 149 samples 9 holes, 416m Albion/Dubrovnik  5.2 line km ~3.9 line km	Albion & Dubrovnik & Inland Empire
1985	Rex Silver Mines	Grab Sampling Geological Mapping Gridding VLF/EM Magnetometer	22 Samples  19.375 line km 9.325 line km 7.475 line km	Joy 1-4 (Joy 1 Northwind area, Joy 2-4, Enterprise area of GMC)
1989	Boundary Gold Corporation	Diamond drilling	2 holes, 606 feet	Alice L - Berlin
1991-1992	Crown Resources	Airborne Magnetics Soil Geochemistry Magnetometer RC Drilling	288 line km 195 samples 10 line km 4 holes, 310.89m	Spruce Claims (Bonanza/Granville area)
1992-1994	Gold City Resources	Soil Geochemistry Magnetometer	80 samples 17 line miles	Spruce Claims (Bonanza/Granville area)
2003-2005	Kootenay Gold	Prospecting (Grab Sampling)  Geological Mapping/  Petrography	573 samples  Mapping in reports by K Dunne (2004) and Höy (2006)	JJ Property JJ Main, West, JJ Main, JJ West, PbZn Zone



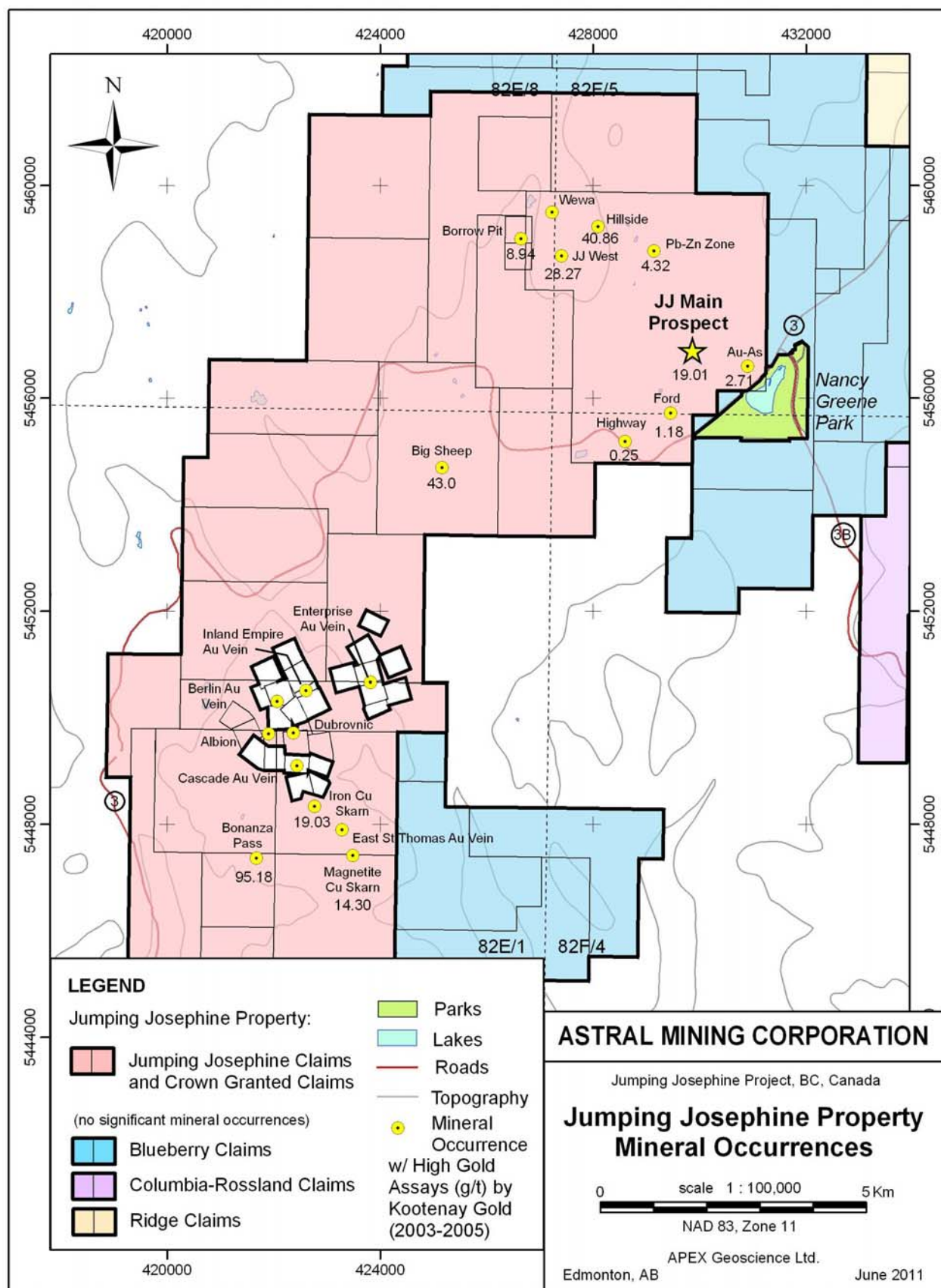


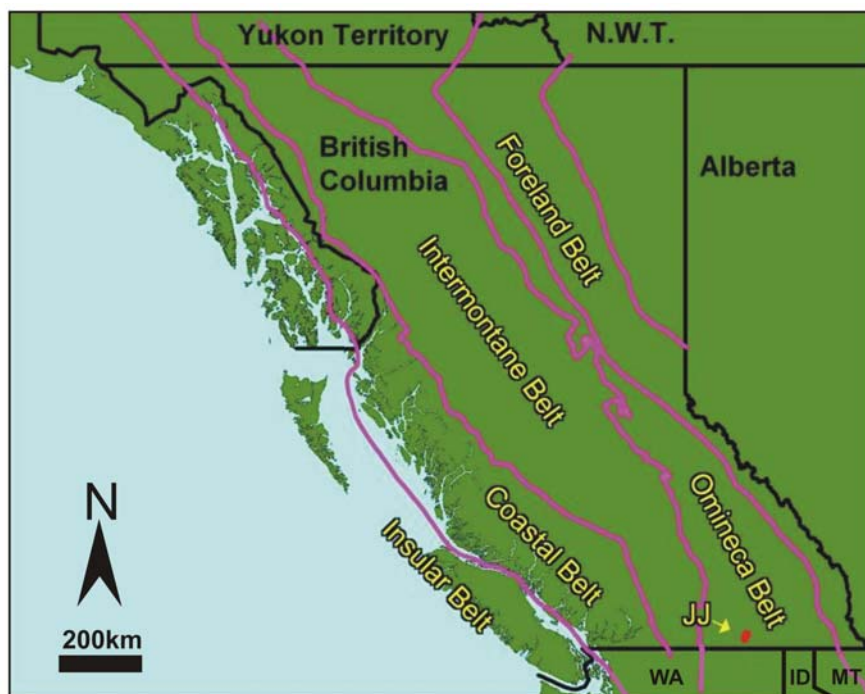
Figure 4

## 7.0 Geological Setting

The following sections regarding regional and property scale geology rely heavily on regional mapping and metallogenic studies on the Trail map sheet completed by Trygve Höy and Kathryn Dunne (1997, 2001). Subsequent reports by G.E Ray (2003), K Dunne (2004) and Trygve Höy (2006) on the JJ property for Kootenay Gold Inc. also provide comprehensive summaries of current geological understanding of the area.

### 7.1 Regional Geology

The Cordilleran geology of British Columbia has been separated into 5 major tectonic assemblages or belts. The Property is located within the Omineca Belt, (Figure 5) a Magmatic arc assemblage formed during accretion of Pacific island arc terrains on to the North American continent during early Mesozoic time. The southern Omineca belt in British Columbia is characterised by intense metamorphism and deformation resulting from compression and associated thrusting of Quesnellia rocks over the North American plate. Melting of down-thrust Kootenay Terrane and North American crustal material was followed by widespread intrusive activity along the belt. Mid-Jurassic plutonism resulted in regional uplift later followed by extensional tectonics and widespread emplacement of predominantly alkaline intrusives. The project area is located to the west of the Cretaceous Bayonne Magmatic Belt and is dominated by both Jurassic and Eocene age plutonic rocks (see Figure 6).



**Figure 5. Tectonic Belts of British Columbia.**



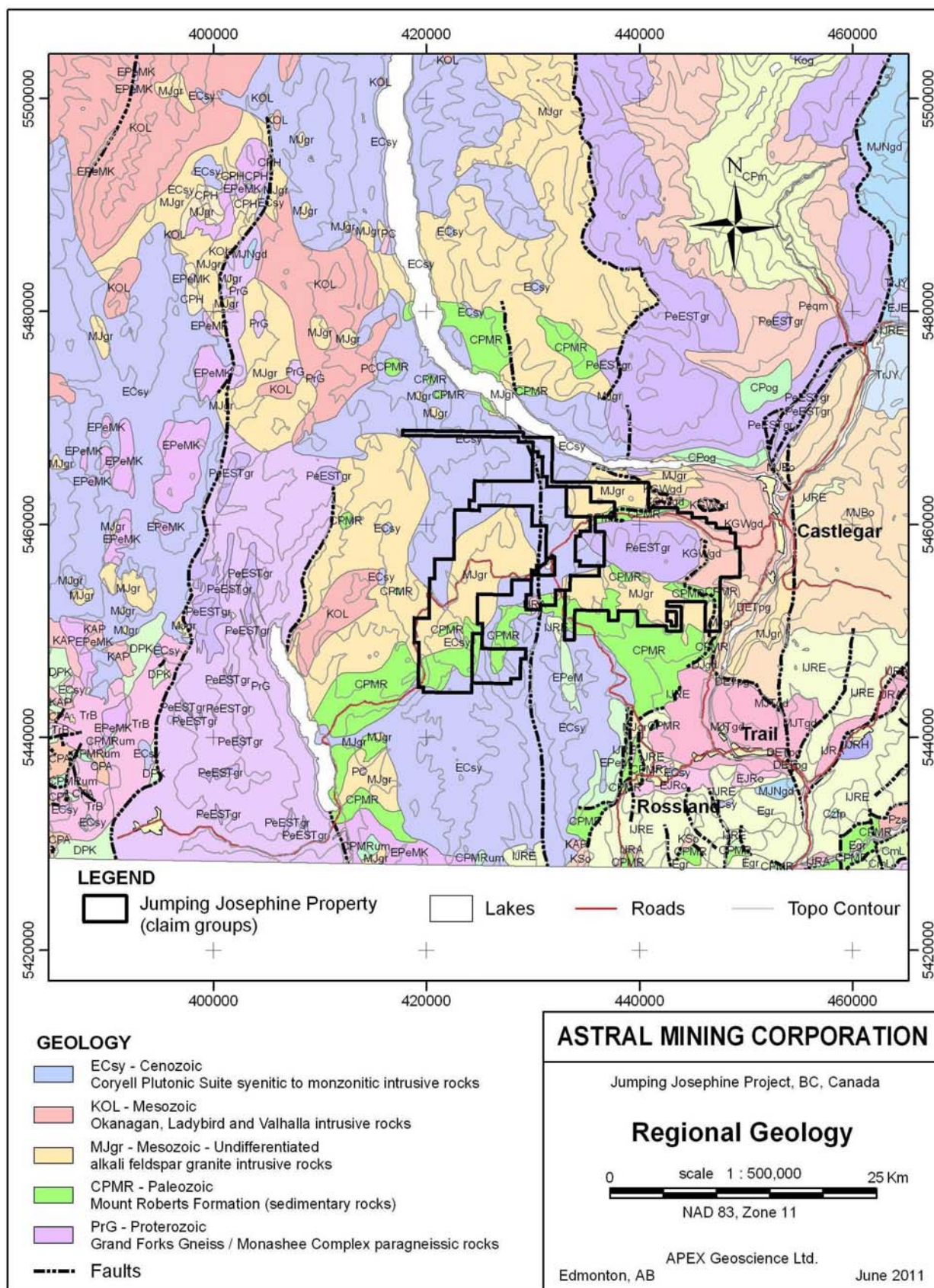


Figure 6

The area is included in the regional mapping and metallogenic study of the Trail map sheet by Höy and Dunne (1997, 2001) but this latter work focused mainly on the Rossland Group and the Rossland gold camp located immediately south of the project area.

The oldest rocks in the vicinity of the JJ Property are Palaeozoic age Mount Roberts Formation rocks of the Harper Creek sub-terrane which hosts the intrusive rocks underlying most of the area.

Plutonic rocks common throughout the Nelson-Rossland area include large Middle Jurassic (160-170Ma) batholiths east of the Property such as the Bonnington, and Trail plutons and the Nelson batholith, as well as numerous smaller unnamed stocks. Typically, the Middle Jurassic plutons are complex, with early alkaline phases followed by calcalkaline phases and, finally, two mica granites (Höy and Dunne 2001). They are continental arc granitoids that have undergone considerable crustal contamination (Ghosh, 1995, *in* Höy and Dunne 2001). In the Nelson-Rossland area, such plutons often possess mineralized veins or skarns about their margins (Höy and Dunne 2001). Extension-related Eocene aged Coryell intrusions cover much of southern British Columbia. These rocks include alkalic plutons and batholiths and locally-associated alkaline volcanism (Höy 2006). These rocks have been the focus of considerable exploration for epithermal style mineralisation in the area. This is due, in part, to the successful exploitation by Echo Bay Mines (now Kinross Gold Corp.) of the K-2 and Emanuel Creek gold deposits in the Republic Graben in northern Washington State (Höy 2006).

Eocene extension produced several shallow-dipping, north-trending faults with normal displacement of up to tens of kilometres. Some of these faults expose Proterozoic crystalline basement in their footwall.

## **7.2 Project Area Geology**

The JJ Project area was mapped by Höy (2006) and his map is displayed (Figure 7). Earlier mapping includes work by K Dunne (2004), who recognised several distinct phases within the Nelson intrusives at JJ.

The property is primarily underlain by granitic rocks correlated with the Middle Jurassic Nelson plutonic suite. These intrude metavolcanic and metasedimentary rocks of the Late Paleozoic Mount Roberts Formation. Alkaline intrusive rocks correlated with the Coryell suite intrusives generally surround the Nelson plutonic rocks; they are exposed along the north, west and south side of the JJ claims and as numerous small stocks and north trending dykes throughout the area.



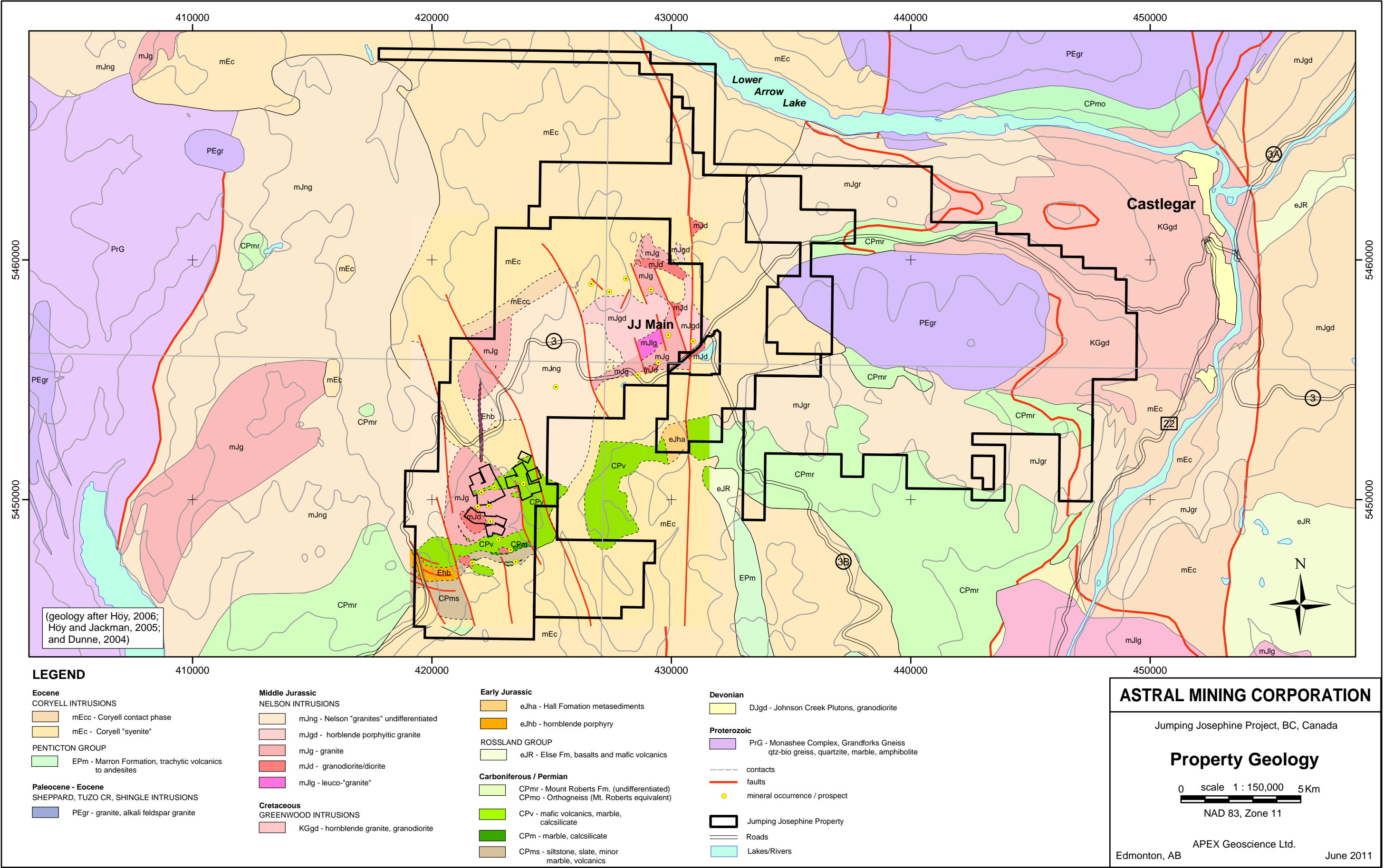


Figure 7

The most dominant structures are north-trending, high-angle normal faults with usually only minor displacements. They cut all rock units, including the Eocene Coryell rocks and must therefore be Eocene to post-Eocene in age (Höy 2006).

Metasedimentary and metavolcanic rocks are only exposed in the southern part of the claim block. The age of these rocks is not known, but Höy (2006) recognises a similarity to parts of the Carboniferous-Permian Mount Roberts Formation, exposed in the Rossland area to the east and has therefore correlated these rocks.

### **7.2.1 Mt. Roberts Formation**

The Mount Roberts Formation on the property comprises a succession of mafic volcanoclastic rocks (CPv), clastic metasedimentary rocks (CPs) and calcareous units (CPc) (Figure 7) and these units are largely interlayered. The Mount Roberts succession trends east-west across the southern extent of the property and dips variably to the north and south.

Unit CPv hosts the Inland Empire and Enterprise veins and the Iron Creek skarn. It is the host unit for the Middle Jurassic plutons that contain most of the veins in the Granville Mountain gold camp. Northern exposures of Unit CPv, east of the camp, comprise mainly mafic volcanoclastic units, with some metasedimentary interlayers.

The unit CPs is a metasedimentary assemblage including argillites, siltstones, minor metavolcanics and calcareous units including limestone and marble. Höy (2006) identified marble/limestone units large enough to be mapped as unit CPc.

CPc includes white marble, grey limestone and calcsilicate gneisses. In places the limestones have been altered to skarns, mineralized examples include the East St Thomas and Magnetite skarns.

### **7.2.2 Nelson Intrusive Rocks**

Nelson age plutonic rocks underlie most of the project area and include several distinctive phases as shown on the geological map (Figure 7).

Nelson "Granite" undifferentiated (*mJng*) would be better named Granodiorite or Quartz Monzonite and hosts the JJ Main and Pb-Zn showings in the northeast of the property. The rock is fine to medium grained, equigranular with dominantly white feldspar, approximately 20-26% quartz and up to 15% mafic minerals including biotite and hornblende (Dunne 2004). The rock is common in the northern half of the property and is selectively altered to a greenish-brown, fine-grained sericite. This phase hosts



several zones of mineralization and is intruded by the later, barren hornblende porphyritic granite (*mJgd*).

The Hornblende porphyritic granite (*mJgd*) underlies a large portion of the northern project area and is pale coloured, medium to coarse-grained containing dominantly white (plagioclase) feldspar, 15-20% translucent quartz, around 5-7% hornblende megacrysts to 1.5cm, and local K-feldspar megacrysts to 2cm (Dunne 2004). This rock is generally un-mineralized and is thought to intrude earlier, mineralized, Nelson age granodiorite/monzonite.

Diorite (*mJd*) is seen throughout the project area as phases within or in contact with granodiorite. This rock is fine-grained, seriate, inequigranular with white feldspar and up to 50% mafic minerals. The rock is slightly magnetic.

Breccia zones (*Bx*) identified by Dunne (2004) comprise clusters of dome like outcrops within *mJgd* and *mJd* phases of Nelson intrusions, are roughly circular in plan view. In some outcrops, rounded and milled fragments have weathered out of the rock. It is possible that these zones represent diatremes.

### **7.2.3 Coryell Intrusions**

Dunne recognised three main phases within Coryell suite rocks seen in the project area.

Quartz Syenite/Quartz Monzonite rocks seen in the northwestern and southern portion of the project area are coarse grained and contain up to 80% K Feldspar, 10% quartz and 5-7% mafic minerals (Dunne 2004). This rock type was seen to host the JJ West showing, though it is possible that this is another phase of the Nelson intrusions.

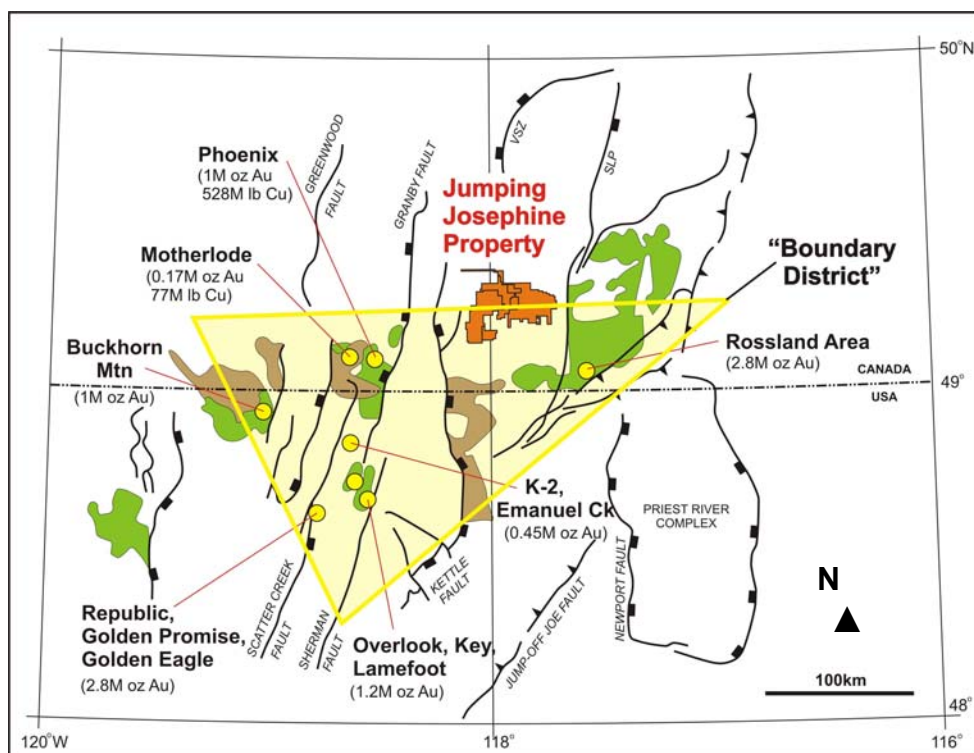
The Border phase granite is seen in the northeast portion of the map and may represent the edge of a Coryell or Nelson age pluton to the east. Dunne (2004) recognised this 'granite' in the northeast of the property which varies from inequigranular to hornblende porphyritic with dominantly white feldspar and approximately 20% each of quartz and mafic phases (hornblende > biotite). In some locations, it may be termed intrusion breccia, as the granite has been observed to contain subangular to subrounded blocks of diorite and granodiorite. This unit is probably a phase of the Coryell syenite intrusions. Porphyry dykes, include pinkish-grey, porphyritic containing over 30% K-Feldspar phenocrysts to 1.5cm and virtually no quartz phenocrysts. These dykes are often resistant to erosion and are seen as low ridges and hillocks on JJ. At JJ Main, dykes of this type are seen to intrude late-stage north-south faults which offset mineralization.

### 7.2.4 Hypabyssal Dykes

Tertiary intrusions abound on the JJ property and are seen to cut most lithologies including coryell porphyritic dykes. Dykes encountered during 2006 work include fine-grained, greenish 'basalt' dykes, biotite rich, lamprophyre dyke and fine-grained, equigranular 'diabase' dykes. Typically these dykes range up to 5m wide though usually are less than 2m and generally possess a north-south orientation with near vertical dips.

## 8.0 Deposit Types

The Jumping Josephine Property is located in an area with several significant gold (and other metal) deposits that straddle the British Columbia – Washington border known as the "Boundary District" (Figure 8). The Boundary District is host to a number of different styles of gold mineralization that appear to be related to extensional volcanism/magmatism in the Eocene. Currently, the most advanced of the deposits in the district is the Buckhorn Mountain deposit (Kettle River Operations) owned and operated by Kinross Gold Corporation where gold production commenced in 2008 ([www.Kinross.com](http://www.Kinross.com)).



**Figure 8. Jumping Josephine Property Relative to the 'Boundary Gold District' and Eocene Graben-Filling Sediments and Volcanics (modified after Caron, 2003).**

Gold mineralization at the JJ Main prospect is hosted within auriferous quartz veins comprising a quartz stockwork vein system within an apparent shear zone hosted by mid-Jurassic intrusive. Surface samples from the JJ Main showing have returned gold values up to 133.91g/t Au and show a general Pb-Ag-Sb-As association and to a lesser extent Hg-Cd-Cu (Terry and Brittliffe, 2007).

Elsewhere on the property, gold is similarly hosted within quartz veins and stockwork vein system hosted by intrusive rocks and/or older Mount Roberts Formation rocks. Veins are most often seen as laterally extensive, locally lensoid to tabular or sheeted bodies with minimal adjacent wall rock alteration. There is some evidence supporting Granville Mountain-type veins as en-echelon style extension veins associated with dextral faulting/shearing along north-south trending structures (Höy 2006).

Gold emplacement at the JJ Property is thought to be related to the Eocene magmatic episode (Dunne 2004, Höy 2006) and may have occurred during the early stages of widespread extensional faulting that accompanied it. Recent airborne survey magnetic data (Terry and Brittliffe, 2007) places the JJ Main Zone within a large circular magnetic feature, roughly 2km in diameter, which Astral interprets as a possible buried intrusive stock – a potential magmatic source of the siliceous gold-bearing mineralizing fluids for JJ Main (Figure 9). The JJ Main stockwork zone itself corresponds with a distinct, laterally extensive, northeast-trending linear magnetic low feature centered above the inferred stock, and represents a possible structural conduit for fluids emanating from the buried intrusion. The possible magmatic origin of mineralizing fluids and the aeromagnetic anomaly coincident with the JJ Main showing leads Astral to favor an intrusion-related gold genetic model (i.e. Tintina Gold Province of the Yukon Territory and Alaska) for the Project.

The Intrusive Related Gold System (IRGS) classification covers an assortment of mineralization styles drawn from a range of deposit models and as a result, definitive characteristics are poorly defined at this point (Hart 2004). Geochemistry of the JJ mineralization does not show elevated Bi or W/Sn as in the Cretaceous Yukon/Alaskan examples, though the IRGS model and, in particular, a plutonic related gold quartz vein model may provide a useful analogy for mineralization at JJ. A magmatic source of mineralizing fluids is strongly suspected at JJ Main, and geophysical evidence suggests a favorable spatial and structural relationship between exposed mineralization and the apex of a possible buried causative stock.



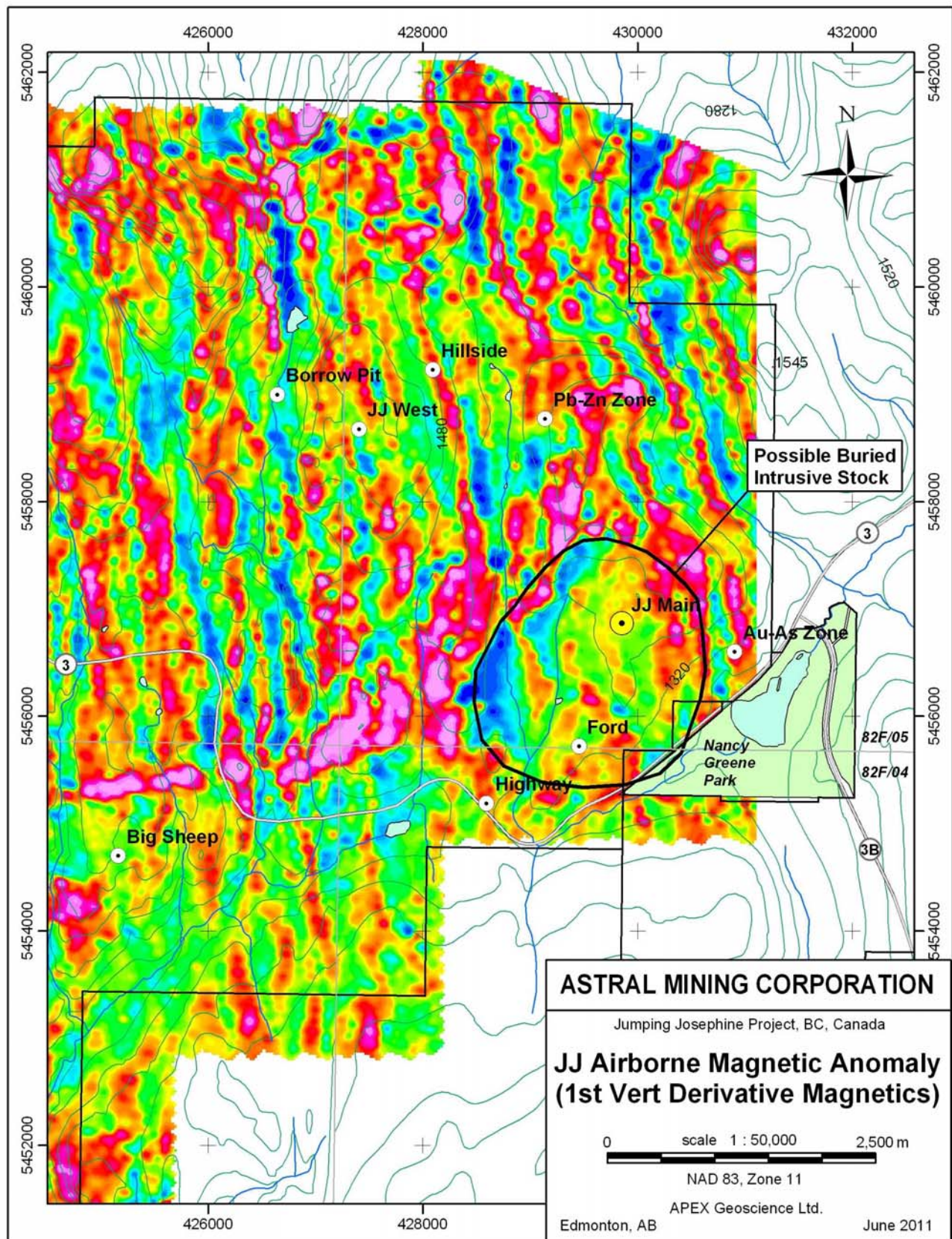


Figure 9

## 8.1 Analogies

Apart from the other gold deposits and camps of the Boundary District, deposit analogies, particularly for the JJ Main prospect, include the intermediate level (2-3km depth), proximal style Dolphin (1.5Moz Au) and Ryan Lode (2.4Moz Au) mid-Cretaceous intrusive related deposits of the Fairbanks district, Alaska as described in (Flanigan *et al* 2000). The resource figures for the Dolphin and Ryan Lode deposits are anecdotal (from Flanigan *et al* 2000) and not necessarily 43-101 or CIM compliant and have not been evaluated by the authors of this report.

Dolphin is a porphyritic stock with shear hosted Au-As-Sb and displays strong relationship with the host intrusion (Flanigan *et al* 2000). Hosted by a small granodiorite/tonalite stock, mineralization is in quartz±carbonate±albite veins and is Au dominant with elevated As, Sb, Ag and Pb, with weakly anomalous Bi and Te. Sericite alteration is common throughout the stock, but most intense in veined fractures (Flanigan *et al* 2000).

Mineralization at Ryan Lode is also shear hosted, and occurs within the intrusion and the surrounding country rocks (amphibole grade pelitic schist) (Flanigan *et al* 2000). As with Dolphin, Ryan Lode is a gold deposit with arsenopyrite as the dominant sulphide. JJ is further from this example as Bi and Te concentrations are generally high and there is a stronger propylitic and albitic alteration reported than seen at JJ. Sericite alteration is pervasive, and is most intense in the gold-bearing shear zones (Flanigan *et al* 2000).

Characteristics of JJ showings vary from Au-As dominant low sulphide types (<5%) within sheeted veins in tensional zones, often adjacent to coincident lamprophyre dykes (JJ Main), and more distal styles, including Au dominant, strong As association and/or Sb with increasing Pb-Zn content (JJ West, Pb-Zn Zone).

## 9.0 Mineralization

Mineralization on the Jumping Josephine property is characterized by lode style quartz veins and silicified brittle shear zones (quartz stockwork vein systems). The majority of the historical work conducted on the property has been focused on the occurrences that comprise the Granville Mountain Camp in the southern half of the JJ claim group on veins of this type. A detailed summary of these occurrences and the auriferous vein-style mineralization they comprise can be found in a previous technical report on the JJ property completed by Terry and Brittliffe (2007). Auriferous quartz veins are the most prospective mineralization style on the property and Höy (2006) concluded that the

Granville Mountain veins are discontinuous, en-echelon tension veins related to dextral motion along structures within and along the edges of the camp.

The stockwork quartz veins that comprise the JJ Main prospect, which have now been observed in numerous drill intersections and surface trenches, exhibit a close association between gold mineralization and sulphide development and are hosted by plutonic rocks of the Nelson Suite. Sulphide mineralization in the JJ vein system comprises mainly arsenopyrite, with relatively minor pyrite and chalcopyrite, along with the base metal sulphides sphalerite and lesser galena. Within the veins, sulphides are generally coarse grained and exhibit variable abundances from <1% to >10% of the vein material. The JJ Main prospect is hosted by monzonitic rocks that typically exhibit variable chlorite and sericite alteration with minor finely disseminated pyrite (~1-2%).

Other styles of mineralization observed on the JJ Property include minor magnetite and garnet skarns that are developed in the area within limey portions of the Mount Roberts formation, which also hosts the majority of the Granville camp vein occurrences. Also, the Wewa (or Screeching Cat) prospect in the northern project area was the subject of an evaluation for porphyry style Cu-Mo mineralization during the early 1970s, though work was discontinued after two years with no significant results.

Prospecting by Kootenay Gold since 2003 has resulted in the discovery of several showings including Bonanza Pass, JJ Main, JJ West, Pb-Zn Zone, Borrow Pit and the Au-As zone (see Figure 4). The respective styles of mineralization of these prospects is discussed in a previous technical report on the property (Turner, 2008). Recent prospecting by Kootenay and Astral has also identified several new prospects including the Big Sheep, Hillside, Highway and Ford gold occurrences, limited sampling of which has yielded assays of up to 43.0gAu/t, 40.9gAu/t, 5.0gAu/t and 1.18gAu/t, respectively. All of these new prospects comprise float and/or outcrop samples with quartz stockwork veining and minor sulphide mineralization (+/- arsenopyrite) similar to the style of mineralization observed at the JJ Main prospect.

## **10. EXPLORATION**

Astral Mining Corporation has been conducting exploration at the Jumping Josephine Property since early 2006 following the execution of their original option agreement with Kootenay Gold Inc. The entry of Astral into a Joint Venture agreement with Kootenay on the original JJ claim group was largely attributable to the results that Kootenay had achieved in prospecting programs completed between 2002 and 2005, which resulted in the identification of gold occurrences away from the historical Granville Mountain camp, located in the southern portion of the (JJ) claim group (see Figure 4). The most significant of the “new” occurrences was a cluster of sample that ran between 2.08g/t and 19.01g/t Au over an apparent strike length of some 150m that were collected in 2005 by Kootenay Gold at what is now known as the JJ Main Prospect.

This report is intended to support a recent resource estimation effort at the JJ Main gold prospect, which is part of a larger property being explored for similar mineralization by Astral Mining Corporation. As a result of this report’s focus on the JJ Main prospect, specifically, the following section will discuss recent exploration conducted at and immediately adjacent to the JJ Main prospect. Astral has, however, been conducting exploration elsewhere on the larger JJ Property and this work will be summarized in following section. For additional details on regional exploration conducted by Astral at the JJ Property, the reader is referred to previous Technical Reports that have been prepared by the principle author (Turner 2008, 2009 and 2010), which are available for review on Sedar ([www.sedar.com](http://www.sedar.com)).

### **10.1 2006 Exploration**

In May 2006, Astral commenced evaluating the new gold showings discovered by Kootenay Gold on the JJ Property. Exploration activities completed by Astral in 2006 included a 1330.55 line-kilometer airborne geophysical survey (Aeroquest) over the JJ claim group, soil sampling grids over three areas (JJ Main, JJ West and Bonanza) totaling some 1754 samples and further property-wide reconnaissance prospecting and grab sampling and the excavation of seventeen trenches totaling 775m in length at the JJ Main Prospect.

The airborne geophysical survey identified several interesting magnetic anomalies for follow-up ground investigation and provided a context for other data collected in the field (see Figure 9). The soil surveys at all 3 target areas listed above identified Au-As-Sb anomalies of interest for further investigation. The trenching at the JJ Main prospect was successful in exposing a significant gold-mineralized quart-stockwork vein system over a strike length of some 150m (see Figure 10 and Table 5, from Terry and Brittliffe, 2007).



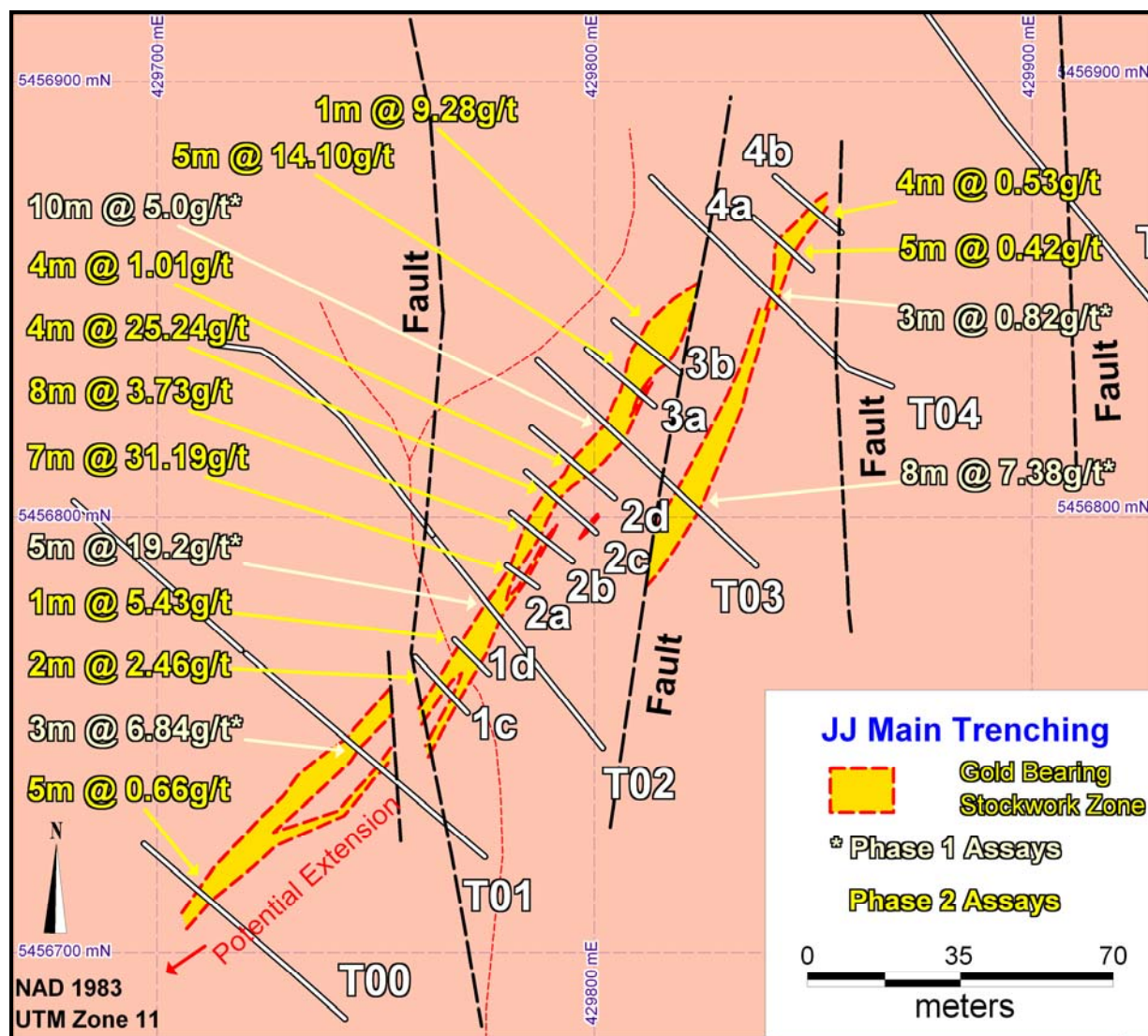


Figure 10. Significant Intervals from the 2006 JJ Main Trenching Program (from Terry and Brittliffe, 2007).



**Table 5. Significant Intervals from 2006 JJ Main Trenching Program  
(from Terry and Brittliffe, 2007).**

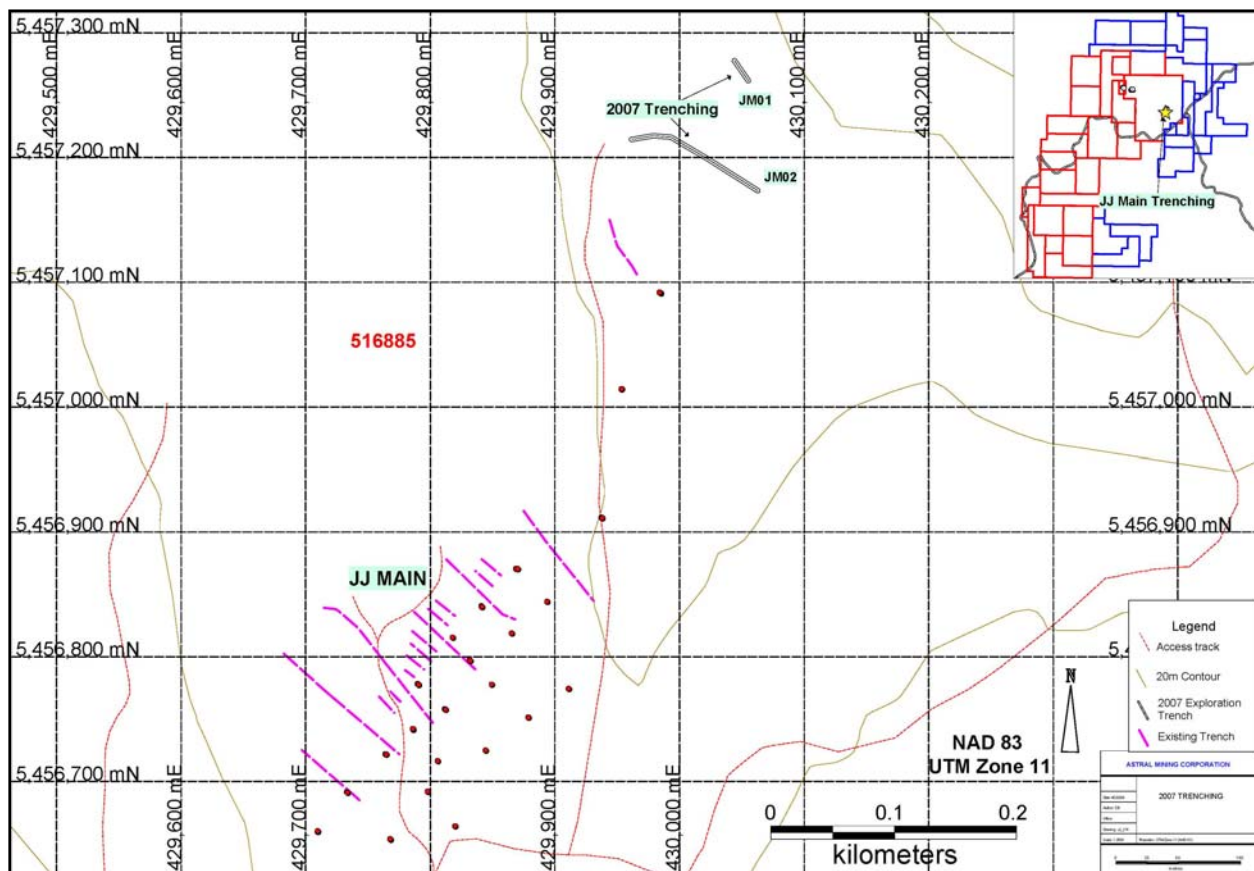
Phase	Trench ID	From (m)	To (m)	Interval (m)	30gm Fire Assay gold (g/t)	Metallic Screen Assay Gold (g/t)
1	Trench 1	41	43	2	1.86	0.98
		32	35	3	3.99	6.84
1	Trench 2	20	25	5	21.43	19.20
1	Trench 3	16	26	10	5.01	5.05
		44	52	8	3.18	7.38
1	Trench 4	38	41	3	0.51	0.82
2	Trench 0	17	21	5		0.66
2	Trench 1c	8	10	2		2.46
2	Trench 1d	8	9	1		5.43
2	Trench 2a	0	7	7		31.19
	(inc)	2	3	1		133.91
	(inc)	5	6	1		71.55
	(inc)	6	7	1		9.71
2	Trench 2b	7	15	8		3.73
	(inc)	12	14	2		8.13
2	Trench 2c	6	10	4		25.24
	(inc)	6	8	2		46.21
	(inc)	7	8	1		66.91
	(and)	13	14	1	3.59	
2	Trench 2d	9	13	4		1.01
		18	19	1	3.80	
2	Trench 3a	12	17	5		14.1
	(inc)	15	16	1		65.32
2	Trench 3a	13	14	1		9.28
2	Trench 4a	10	15	5		0.42
2	Trench 4b	10	14	4		0.53

## 10.2 2007 Exploration

Exploration activities completed by Astral in 2007 included a limited soil sampling program at the Big Sheep prospect (426 samples) and 562m of trenching completed at the JJ Main, Borrow Pit and JJ West prospects. The main focus of the 2007 exploration program, however, was a significant drill program that totaled 7727.23m of drilling in 69 holes at 3 prospect areas, including 6530.56m in 58 holes at the JJ Main Prospect.

The reader is referred to Turner (2008) for additional details with respect to the 2007 JJ Property exploration program conducted by Astral Mining Corporation, which is available for review on SEDAR ([www.sedar.com](http://www.sedar.com)).

Trenching in the vicinity of the JJ Main prospect in 2007 sought to test a potential new zone of mineralization and quartz stockwork development identified by mapping and prospecting approximately 400m northeast along strike from the JJ Main prospect (as defined by the area trenched in 2006). Previous surface sampling in this new area had identified a zone of veined/silicified monzonite in subcrop and rock samples from this area revealed arsenopyrite, pyrite and rare galena within thin quartz veins cutting silicified monzonite returning values of up to 0.5g/t Au. Two (2) trenches were excavated roughly perpendicular to the expected strike of the JJ zone. The northern trench, 07JM01, centered on a small zone of subcrop and returned the highest grade assays of the program at 0.40g/t Au over 3.0m, including a maximum value of 0.63g/t Au over 1.0m. No significant mineralization was encountered in the second (southern) trench (see Figure 11 and Table 6).



**Figure 11. JJ Main Prospect 2007 Trench Locations.**

**Table 6. 2007 JJ Main area Trench Sampling Summary.**

Trench ID	Length	Sample From	Sample To	Sample Count	Max Gold Value (ppm)
<b>JJ Main (NW-ext'n)</b>					
JM01	19m	JJD1195	JJD1213	19	0.63
JM02	114m	JJD1214	JJD1327	114	0.05

During 2007, the main focus of Astrals' exploration program was the completion of a significant drill program that comprised a total of 7727.23m of drilling in 69 holes at 3 prospect areas, including;

- 6530.56m in 58 holes at the JJ Main prospect
- 553.38m in 9 holes at the historical Albion and Dubrovnik targets, and
- 643.29m in 2 holes at the Bonanza Pass Zone

No significant results were identified at the Albion, Dubrovnik or Bonanza targets but a significant zone of gold mineralization was identified at the JJ Main prospect beneath the 2006 trench area to a depth of up to 225m and over a strike length of approximately 700m with intersections grading up to 7.01gAu/t across 19.0m (see the Drilling section of this report for additional details).

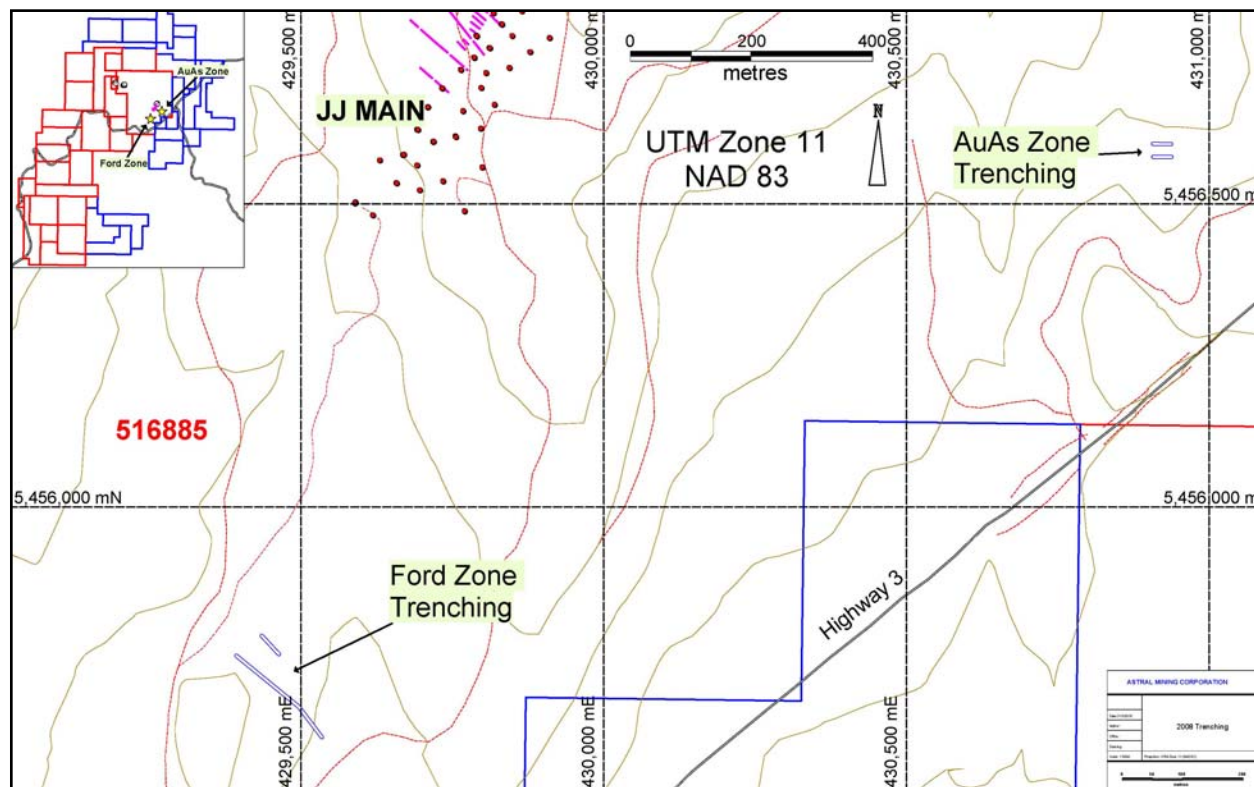
### 10.3 2008 Exploration

Exploration activities completed by Astral in 2008 included a limited 300m trenching program at two locations (Au-As and Ford prospects) and a 53.8 line-km IP (Induced Polarization) geophysical survey over the JJ Main Prospect. The main focus of the 2008 exploration program was a mainly in-fill drill program conducted at the JJ Main Prospect, which totaled some 5074.86m of drilling in 34 holes.

The reader is referred to Turner (2009) for additional details with respect to the 2008 JJ Property exploration program conducted by Astral Mining Corporation, which is available for review on SEDAR ([www.sedar.com](http://www.sedar.com)).

Four trenches totaling 300m were excavated at two locations, the Au-As Showing and the Ford Showing (Figure 12 and Table 7). Trenching at the Au-As zone was designed to test a gold-bearing, arsenopyrite-rich zone exposed in a low escarpment where grab sampling in 2007 returned assays up to 2.71g/t Au. The trenches exposed relatively unaltered, fine grained monzonite cut by numerous lamprophyre dykes. No significant

gold mineralization was detected in trench 08AU6600 and thirty-one (31) samples were taken from along the length of the trench with a maximum value of 20 ppb Au. No significant mineralization was observed in the second, southern trench and so no samples were collected.



**Figure 12. 2008 Trench Locations, Ford and Au-As Prospects.**

**Table 7. 2008 Trench Sampling Summary.**

Trench ID	Length	Sample From	Sample To	Sample Count	Max Gold Value (ppm)
<b>Au-As</b>					
08Au6600	31	08T037	08T067	31	0.02
08Au5960	30	N/A	N/A	0	N/A
<b>Ford</b>					
08FD01	42	08T001	08T036	36	0.20
08FD02	197	08T068	08T125	58	N/A

At the Ford prospect, a single anomalous grab sample has returned an assay of 1.18g/t Au coincident with a broad, low level arsenic soil anomaly. Field checks revealed sub-cropping monzonite host rocks containing milky quartz veining with minor disseminated pyrite. The two 2008 Ford prospect trenches exposed monzonite, granodiorite and hornblende-porphyritic granite. The north-western extremities of both trenches showed evidence of a fault zone. The highest gold value from trench 08FD001 was 200ppb originating from the south-eastern contact of the observed fault zone. Some 58 samples were collected from trench 08FD002, however, no significant alteration, veining or mineralization was observed and thus these samples were not submitted for analysis. Astral plans to submit these samples during the 2009 field season.

SJ Geophysics Ltd. of Delta, BC was contracted by Astral Mining Corporation to conduct a 3D Induced Polarization (IP) survey on the Jumping Josephine Property. The survey was conducted between May 21 and June 8, 2008. The survey included data collection along a coarse grid that comprised 15 lines totaling 32.8 line-km encompassing a fine grid comprising 17 lines totaling 21.0 line-km. The survey resulted in the calculation of chargeability, resistivity and (its reciprocal) conductivity data. No interpretive work was performed by SJ Geophysics Ltd. and the data has not yet been examined for interpretation by a geophysicist. The following comprise observations made by the author based on a preliminary examination of the data. A more complete interpretation of the 2008 IP geophysical data by a professional geophysicist is recommended.

Of particular interest is the excellent correlation between the JJ Main Prospect and a significant “bull’s-eye” illustrated in the 400m (deep) chargeability anomaly (Figure 13). This anomaly may reflect disseminated pyrite within an alteration zone that may in turn be associated with the buried intrusive stock thought by Astral to underlay the area and that may be the source of gold mineralization. Several of the 3D-IP chargeability “level plans”, and several of the resistivity plans, show indications of the northeast-striking structural trend which hosts the JJ Prospect extending to the edge of the IP grid. This trend appears to host the recently identified Highway prospect. The data also appears to indicate the presence of a parallel trend to the southeast (Figure 14).



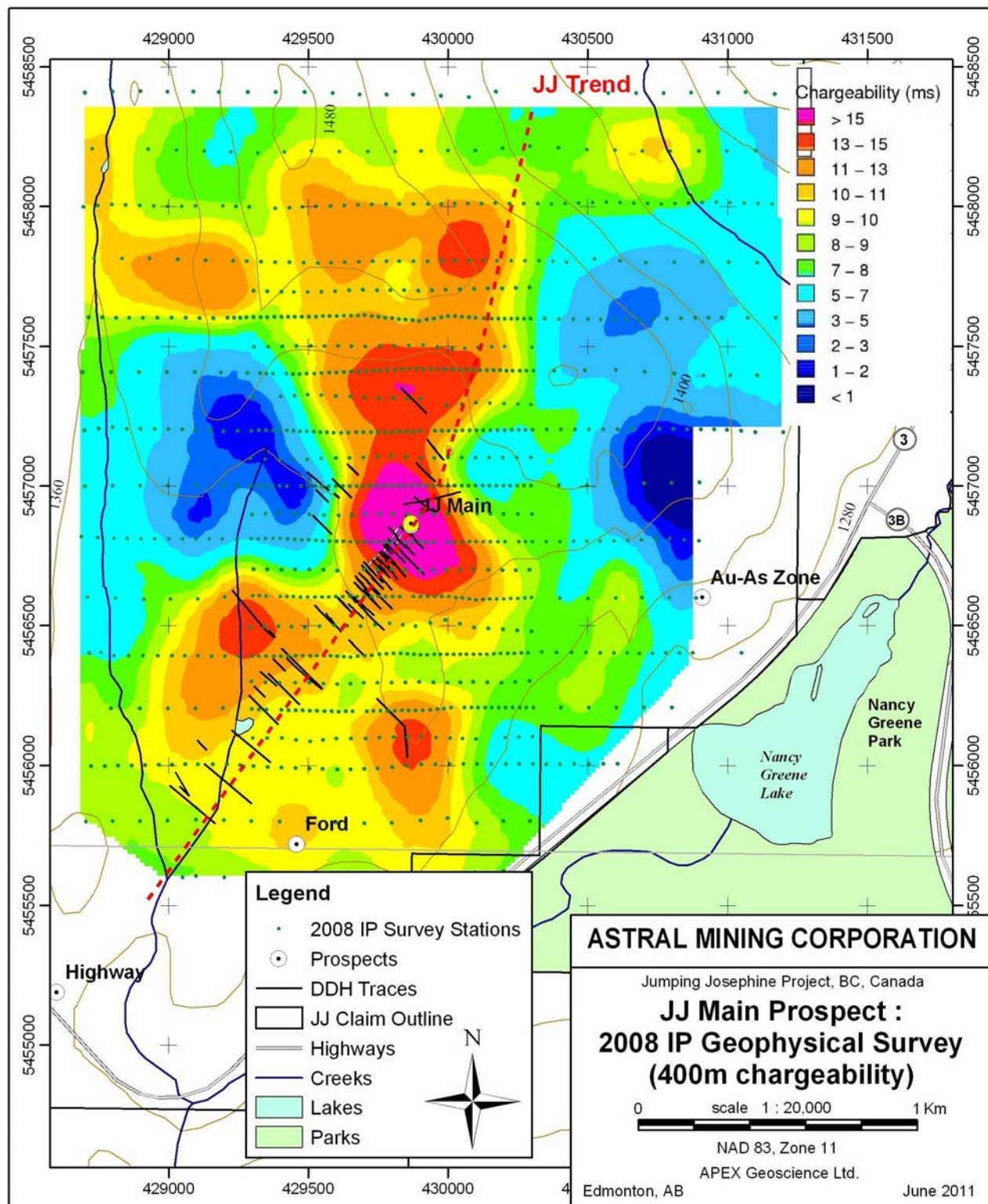


Figure 13

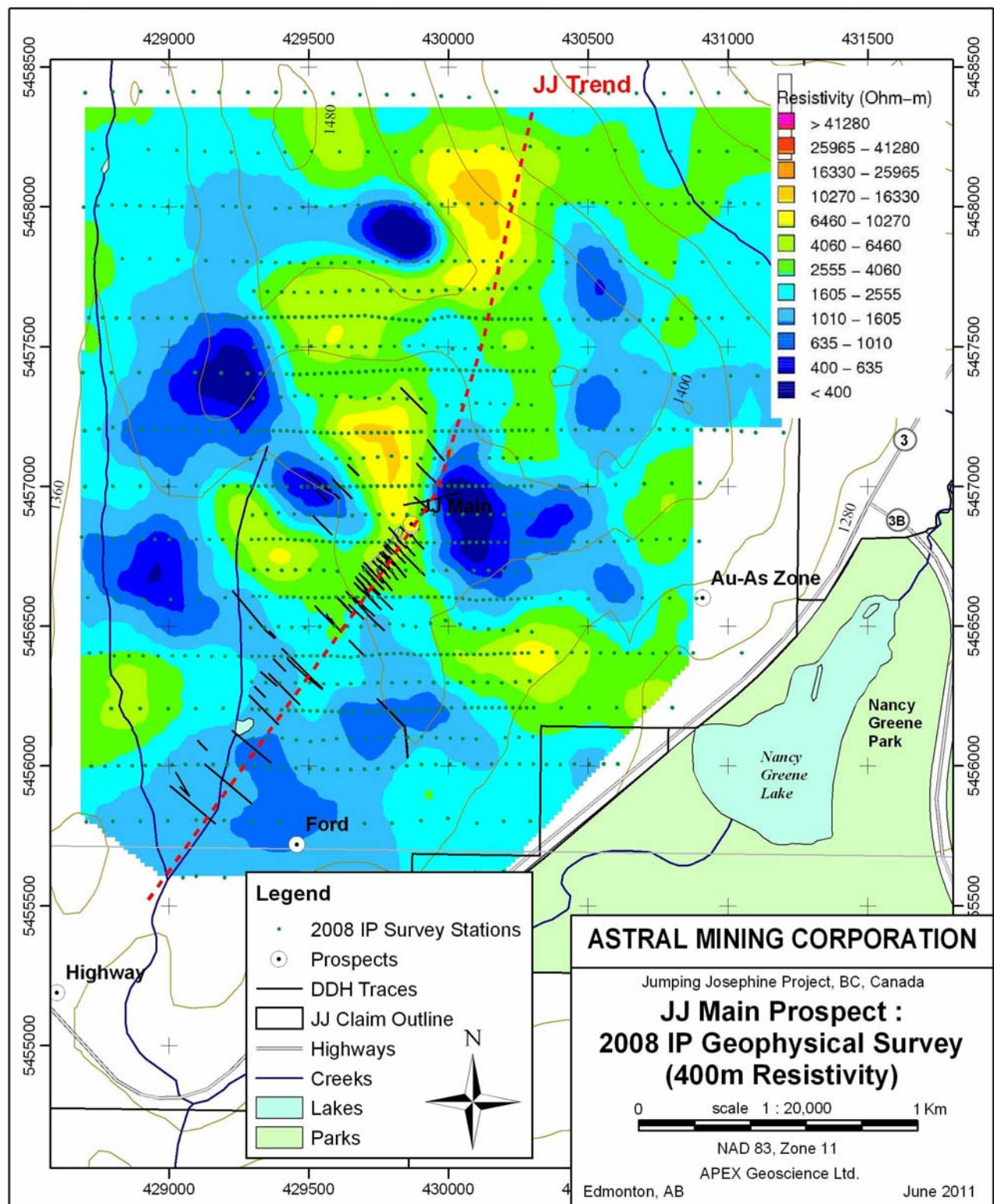


Figure 14



#### **10.4 2009 Exploration**

Astral completed a limited exploration program during 2009 at the Jumping Josephine Property. With the JJ Main gold zone relatively well defined by drilling conducted in 2007 and 2008, the company decided to evaluate other areas of its property with regional geochemical sampling. A total of 4689 wide-spaced soil geochemical samples was collected mainly on the JJ claim group and a total of 393 stream silt sediment samples was collected along drainages covering an area of approximately 140km<sup>2</sup> on the Columbia-Rossland claim group. In addition, a small trenching program was completed at the Highway prospect totaling 118 channel samples collected over 118m in 3 trenches. The regional soil and stream silt sampling efforts were conducted on Astral's behalf by Hendex Exploration Services Ltd., of Prince George, BC, while the trenching was conducted by Astral.

A total of 4689 soils samples was collected from 19 claims on a 100m x 100m diamond pattern grid. Sample locations were predetermined and were located in the field by GPS with latitude provided to the samplers in order to locate areas where soil was accessible. The aim of the soil sampling program was to expand coverage along the JJ Main trend southwest and northwest and to complement previous sampling conducted around the Big Sheep, Bonanza, JJ West and Pb-Zn zones.

As a result of the 2009 soil survey, several new geochemical anomalies of interest were identified along with some extensions of previously identified anomalies. In general, the 2009 soil survey supported previous rock and soil sampling results as the majority of the gold and related element (Ag, As) anomalies are located at, or adjacent to, previously identified occurrences.

For example, Figure 15 illustrates compiled Au soil geochemistry (2009 samples plus previous sampling) and it can easily be observed that the majority of the significant (>90<sup>th</sup> percentile) gold anomalies are located close to known occurrences. Perhaps the most obvious anomaly is the 2.2km x 1.2km northwest trending clustering of >90<sup>th</sup> percentile gold values at the Bonanza Pass prospect area, along with significant clusters at the Iron-Cu Skarn prospect area approximately 1.5km northeast of the Bonanza Pass prospect, and a 7-800m long cluster of anomalous samples located west and southwest of the Magnetite Cu Skarn Prospect.

It should be noted that the Bonanza Pass areas is underlain by mainly Mt. Roberts Formation sediments and volcanics, whereas the sampling conducted on the northern half of the JJ claim group covers primarily Nelson Suite intrusive rocks, and thus a higher background Au level in soils at the Bonanza Pass area would be expected. A detailed statistical evaluation of the 2009 soil and stream sediment data is warranted

and should be conducted in the context of regional sampling efforts conducted by the BC Geological Survey as well as any available information with respect to local glacial indicators and thus potential dispersion patterns/directions. For the current review, as a 'first pass', previous soil sample data has been added to recent 2009 soil sample data since their respective analytical methods are similar and with comparable sensitivities and thresholds of detection for gold and other elements.

On the northern soil sample block, the JJ prospect, which was soil sampled previously, exhibits an excellent >90<sup>th</sup> percentile gold anomaly with respect to the full data set. However, the new 2009 soil sample data collected around the previous grid samples exhibits only a weak suggestion of a trend along strike from JJ Main to the southwest toward the Highway prospect. Instead, there is a strong indication of potential offsets to the south where there appears to be a more significant clustering of gold anomalies immediately east, and south, of the Ford prospect. Also of interest are several discreet clusters of gold anomalies west of the JJ Main prospect toward the Big Sheep prospect and there are interesting clusters of gold-in-soil anomalies located approximately 1km northwest of the Borrow Pit prospect as well as small but discreet gold anomaly clusters northeast of the Hillside and Pb-Zn prospect areas. All of the gold anomalies described above will require detailed prospecting and are recommended for more detailed follow up soil sampling.

In addition to the gold-in-soil anomalies described above, there are a number of discreet and significant As anomalies, which may indicate the presence of vein mineralization similar to that observed at the JJ Main prospect where gold is closely associated with arsenopyrite (Figure 16). As anomaly clusters highlight the area immediately south and southeast of the Bonanza Pas prospect, a large area immediately southeast of the Big Sheep prospect and support the gold-in-soil anomalies extending from the JJ Main prospect south past the Ford prospect as well as southwest through the Highway prospect. However, there is very little support in the As soil data for a potential northeast extension of the JJ Main zone, at surface at least. Also of note is a significant As-in-soil anomaly that occurs northwest of the Borrow Pit prospect, which supports a gold-in-soil anomaly discussed above, and a discreet cluster of As anomalies south of Nancy Greene Park that Astral has identified as the Siren area. All of the As-in-soil anomalies described above are recommended for detailed prospecting and are recommended for more detailed follow up soil sampling.

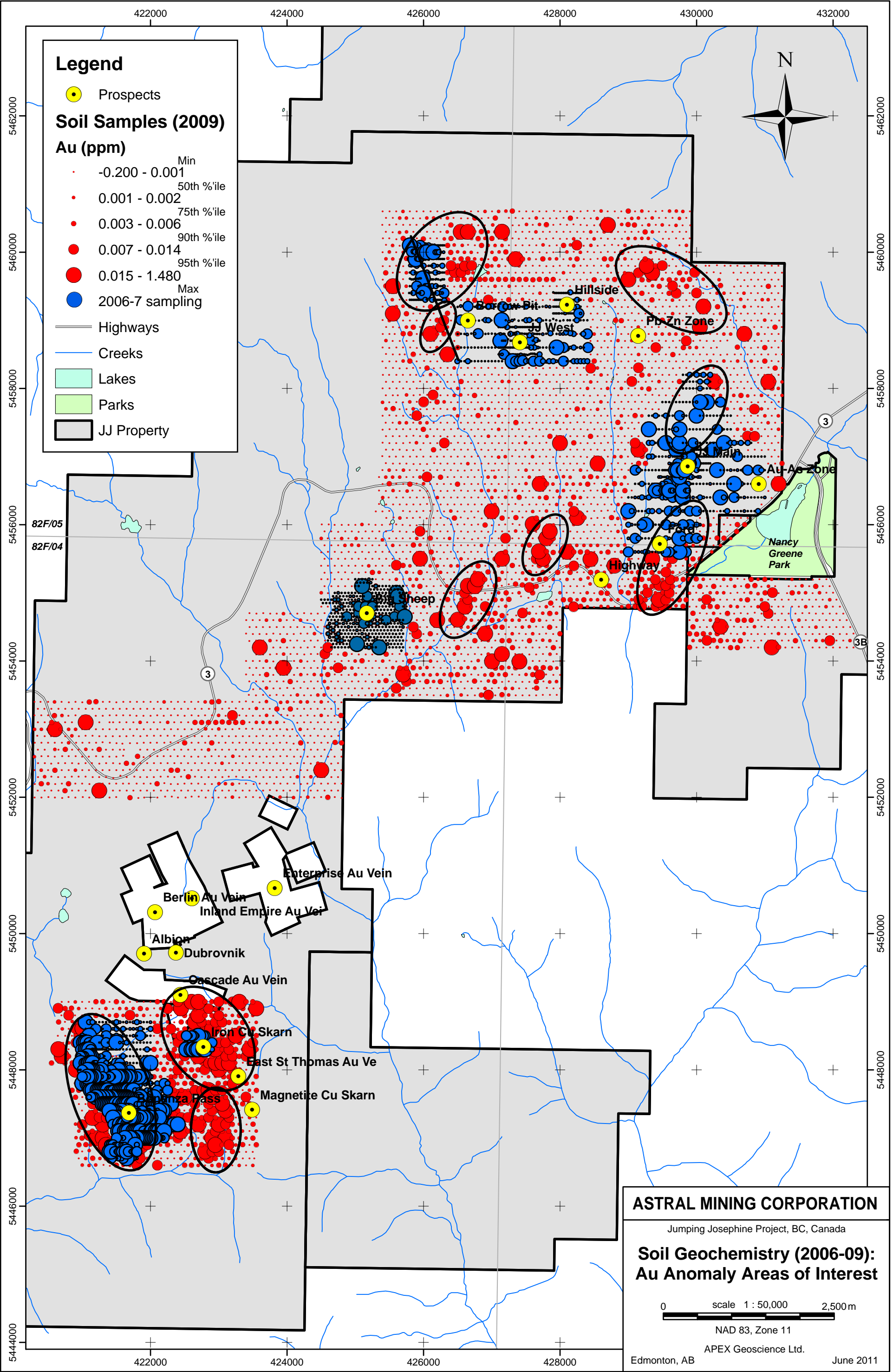


Figure 15

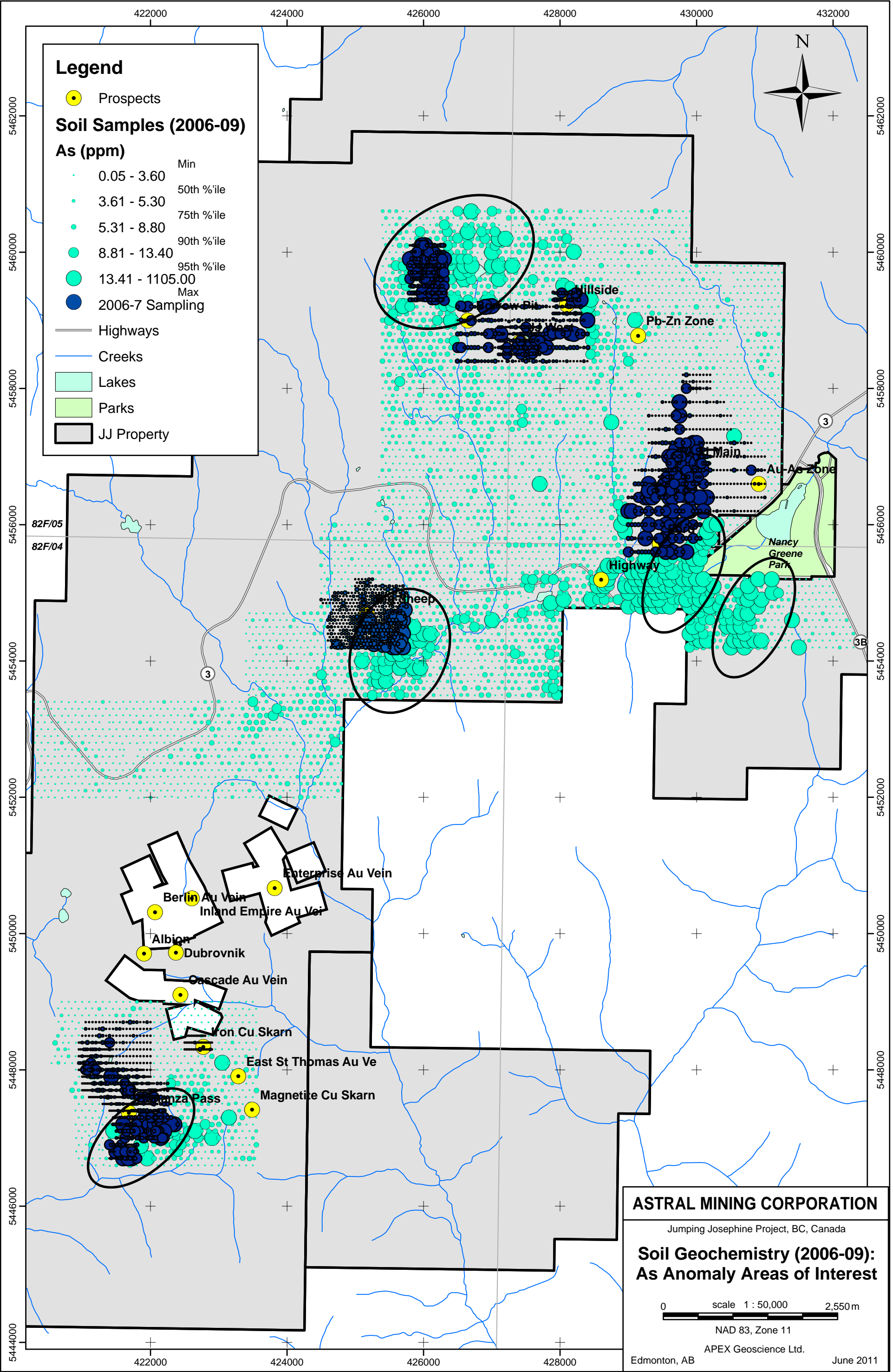


Figure 16

In September 2009, property scale silt sampling was conducted by Hendex over portions of Astral's Columbia-Rossland claim group east of the original Jumping Josephine claims. Sampling targeted main drainages on the claims with the aim of identifying anomalous areas suitable for follow-up work. A total of 393 samples was collected at a nominal spacing of 100m from streams on 22 claims from the Columbia-Rossland claim group.

A number of Gold and Arsenic (stream sediment) anomalies were identified and a preliminary examination of the data indicates that the majority of these anomalies are located in the southern portion of the sample area and appear to be associated with Mt. Roberts Formation rocks and/or Jurassic Nelson plutons. This area was highlighted for follow-up investigation with regional soil sediment sampling and prospecting (Turner 2010).

In September 2009, a small trenching program was completed by Astral that was focused on the Highway prospect where previous grab sampling had returned assays of up to 5g/t Au. A total of 118m of trenching was completed in 3 trenches (Figure 17). The trenches exposed variably altered felsic intrusive rocks (granites to monzo-granites) with minor silicification and sulphide mineralization. Alteration was generally weak with the most intense located near the north end of trench 2, where a high assay of 224ppb Au was returned over a 1m interval.

### **10.5 2010 Exploration**

Astral completed an exploration program in the fall of 2010 at the Jumping Josephine Property. A prospecting program around the property resulted in the collection of 46 rock grab samples. A total of 638 soil samples was collected at 6 prospects (Hillside, Big Sheep, Siren, Gravel Pit, Ridge and Mt. Crowe). In addition, 196m of trenching (in 11 trenches) was completed at the Hillside, Highway, Big Sheep and Siren prospects. Finally, a total of 5,557.7m of drilling in 36 drill holes was completed in late 2010 around the JJ Main prospect, including 1 drill hole that was completed beneath the currently defined JJ Main resource.

The last property visit completed by APEX predates the majority of the 2010 exploration program including the entire 2010 drill program. As a result, no further discussion of this work can be made. The principle author is planning to conduct another property visit this summer that will allow for a full discussion of this work in an upcoming Technical Report. The 2010 exploration program is not considered to be material as it was not conducted at the JJ Main prospect, which is the subject of this report, with the



exception of a single drill hole that was completed beneath the JJ Main resource area but did not yield a significant gold intersection.

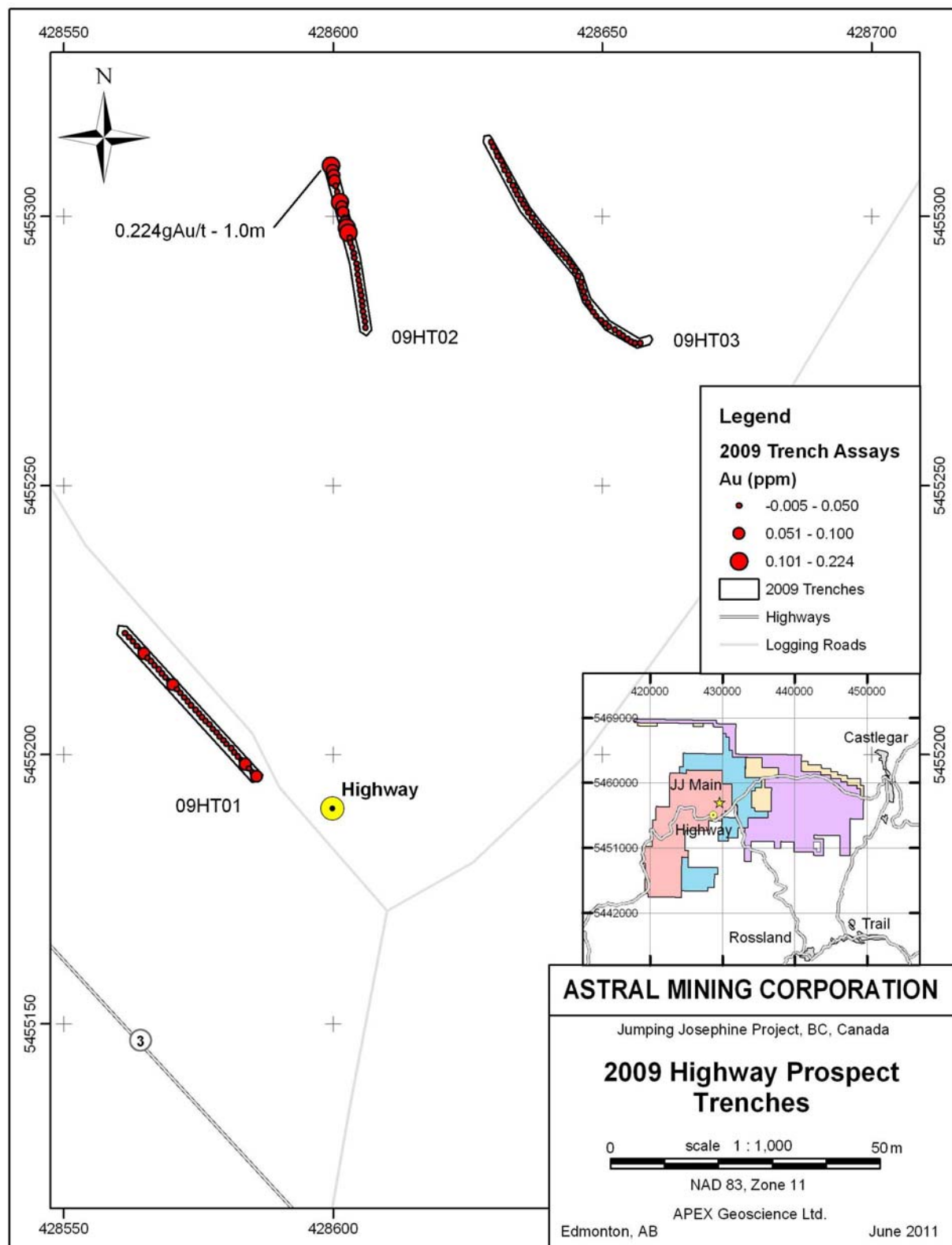


Figure 17

## **11.0 DRILLING**

To date, the majority of the drilling conducted by Astral Mining Corporation at the JJ Property has been focused on the JJ Main Prospect (see Table 8). Drilling at the JJ Property through the end of 2010 totaled some 18,380.89m in 139 holes. However, this includes a total of 5,571.7m of drilling in 36 holes that was completed in the fall of 2010. As previously discussed, the 2010 JJ Property drill program was completed after the most recent property visit was conducted by the principle author and is therefore not discussed in this report. Furthermore, the 2010 drilling data has not been included in the initial modeling and resource estimation effort at the JJ Main prospect, which is the focus of this report.

The total drilling meterage completed at the property prior to 2010 was 12,809.2m in 103 holes at 4 prospects (see Table 8). In 2007, a total of 1196.67m in 11 holes was completed at the Albion, Dubrovnic and Bonanza prospects in the Grenville camp area. The drilling conducted at the 3 Grenville Mining camp prospects in 2007 yielded no significant results.

The remainder of the 2007 and 2008 drilling was completed at the JJ Main prospect and totaled 11,612.5m drilled in 92 holes. This drilling outlined a significant zone of gold mineralization over a strike length of approximately 400m and to a depth of approximately 225m with an average thickness of approximately 5m. The data from these 92 holes has been verified by the principle author, which includes site visits completed in 2007 and 2008, and has been found to be acceptable for use in the geological modeling and resource estimation effort for the JJ Main prospect, which is the focus of this report.

The reader is referred to Turner 2008 and 2009 for additional details with respect to the 2007 and 2008 JJ Property drill programs conducted by Astral Mining Corporation, which are available for review on SEDAR ([www.sedar.com](http://www.sedar.com)). No drilling was completed at the property in 2009 and, as previously discussed, the 2010 JJ drill program will be discussed in a future Technical Report following a site visit to be completed later this summer.



**Table 8. Summary of Drilling Completed by Astral Mining Corporation.**

Year	Prospect	Drill Holes	Meterage
<b>2007</b>	JJ Main	58	6,537.64 m
	Albion	5	370.44 m
	Dubrovnic	4	182.94 m
	Bonanza	2	643.29 m
		<b>69</b>	<b>7,734.31 m</b>
<b>2008</b>	JJ Main	<b>34</b>	<b>5,074.86 m</b>
<b>2007-08</b>	<b>Total</b>	<b>103</b>	<b>12,809.17 m</b>
<b>2007-08</b>	<b>JJ Main</b>	<b>92</b>	<b>11,612.50 m</b>
<b>2010</b>	JJ Main	33	5,040.72 m
	Big Sheep	3	531.00 m
		<b>36</b>	<b>5,571.72 m</b>
<b>Grand Total</b>		<b>139</b>	<b>18,380.89 m</b>

### 11.1 JJ Main Drilling

As described above, in the Mineralization section of this report, the stockwork quartz veins that comprise the mineralized zone at the JJ Main prospect, which are hosted by plutonic rocks of the Nelson Suite, exhibit a close association between gold mineralization and sulphide development. Sulphide mineralization in the JJ vein system comprises mainly arsenopyrite, with relatively minor pyrite and chalcopyrite, along with other base metal sulphides sphalerite and lesser galena. Within the veins, sulphides are generally coarse grained and exhibit variable abundances from <1% to >10% of the vein material. The monzonitic wall rocks typically exhibit variable chlorite and sericite alteration with minor finely disseminated pyrite (~1-2%).

The locations of drill holes at the JJ Main prospect are shown in Figure 18. A typical cross-sectional view of the JJ Main stockwork zone is presented in Figure 19 (section 10020N), and long-section with pierce points and contoured grade-thickness values is presented in Figure 20. These figures illustrate the extent of mineralization and the extent to which the JJ Main prospect has thus far been drill tested. A complete list of significant intersections from the 2007 and 2008 drill programs at the JJ Main prospect are presented in Tables 9 and 10.

**Table 9. 2007 JJ Main Prospect Significant Intersections.**

Drill Hole	From (m)	To (m)	Interval (m)	Au (g/t)		Drill Hole	From (m)	To (m)	Interval (m)	Au (g/t)
07JD001	6	16	10	9.95		07JD040	64	65	1	3.09
(including)	7	9	2	42.61		07JD041	100	105	5	0.54
07JD002	10	19	9	1.34		07JD042	124	127	3	1.82
(including)	10	12	2	2.52		07JD043	28	31	3	13.83
(including)	17	19	2	2.40		(including)	29	30	1	35.60
07JD003	32	34	2	2.81		07JD043	35	37	2	3.59
07JD004	24	29	5	2.04		07JD044	47	52	5	3.94
07JD006	11	17	6	3.49		(and)	55	56	1	3.07
07JD007	18	21	3	10.41		07JD045	120	121	1	4.73
(including)	18	19	1	16.91		(and)	127	132	5	1.44
07JD008	3	6	3	0.69		07JD046	128	134	6	8.28
07JD009	6	8	2	0.92		(including)	128	129	1	43.50
07JD010	37	40	3	6.08		07JD047	40	43	3	4.04
(including)	39	40	1	15.19		07JD048	54	62	8	12.44
07JD011	35	37	2	1.43		(including)	56	59	3	26.90
07JD012	28	36	8	3.06		07JD049	88	89	1	4.52
(including)	35	36	1	11.32		(and)	97	99	2	2.08
07JD013	46	65	19	7.01		07JD050	no significant intersection			
(including)	48	53	5	16.42		07JD051	58	63	5	7.96
(including)	56	60	4	7.53		(including)	60	61	1	32.40
07JD014	77	78	1	3.07		07JD052	70	71	1	1.40
07JD015	105	108	3	0.68		(and)	73	74	1	2.62
07JD016	91	101	10	1.17		07JD053	123	133	10	0.62
(including)	92	93	1	4.14		07JD054	159	160	1	1.55
07JD017	83	84	1	0.34		07JD055	78	79	1	2.50
07JD018	20	24	4	0.42		07JD056	93	94	1	2.57
07JD019	Core lost in transport accident					07JD057	53	54	1	1.72
07JD020	58	59	1	0.38		07JD058	90	95	5	0.63
07JD032	29	33	4	15.18		07JD059	36	37	1	0.69
(including)	29	30	1	56.40		07JD060	no significant intersection			
07JD033	32	34	2	3.81		07JD061	no significant intersection			
(including)	37	38	1	4.83		07JD062	21	22	1	1.10
(including)	42	45	3	3.25		07JD063	5	6	1	1.53
07JD034	101	106	5	7.74		07JD064	no significant intersection			
(including)	102	104	2	15.99		07JD065	no significant intersection			
07JD035	94	104	10	1.96		07JD066	no significant intersection			
(including)	94	97	3	2.78		07JD067	83	84	1	0.78
07JD036	145.91	151.25	5.34	1.48		07JD068	218	219	1	5.96
07JD037	26	28	2	2.55		(and)	256	257	1	1.78
07JD038	32	36	4	3.85		07JD069	239	240	1	0.39
(including)	35	36	1	8.16						
07JD039	76	80	4	7.48						
(including)	77	79	1	26.70						

**Table 10. 2008 JJ Main Prospect Significant Intersections.**

Drill Hole	From (m)	To (m)	Interval (m)	Au (g/t)
08JD070	5.38	12.88	7.5	10.05
(including)	5.38	7.38	2	34.10
08JD071	7.26	14.26	7	3.93
(including)	7.26	8.26	1	10.15
08JD072	28.8	32.8	4	13.23
(including)	30.8	32.8	2	23.81
08JD073	37.5	39.5	2	7.01
(including)	37.5	38.5	1	12.60
08JD074	11	19	8	8.31
(including)	11	14	3	20.98
08JD075	16	31.3	15.3	0.71
08JD076	30.5	37.3	6.8	0.84
08JD077	37.5	54.5	17	1.50
(incl)	49.5	50.5	1	15.90
08JD078	40	49	9	3.94
(incl)	41	42	1	13.75
08JD079	54	71	17	1.25
(incl)	64	67	3	2.58
08JD080	102	103	1	1.31
08JD081	30	37	7	2.43
08JD082	44.5	48	3.5	11.24
08JD083	51	59	8	1.71
(and)	67	68	1	2.48
08JD084	61	65	4	1.60
08JD085	74	84	10	1.01
08JD086	104	119	15	1.24
08JD087	144	147	3	1.00
08JD088	127	129	2	3.42
08JD089	140	141	1	6.77
08JD090	164	172	8	1.84
(and)	180	183	3	3.34
08JD092	118	122	4	21.04
(incl)	119	120	1	50.20
08JD093	122.1	124	1.9	1.10
08JD094	167	169	2	2.96
08JD095	61	65	4	4.08
08JD096	74	80	6	8.73
08JD097	98.5	102	3.5	3.30
(and)	110	112	2	1.70
08JD098	37	38	1	0.22
08JD099	170	188	18	1.14
(incl)	172	176	4	2.46
08JD100	227	228	1	5.72
(and)	232	236	4	1.17

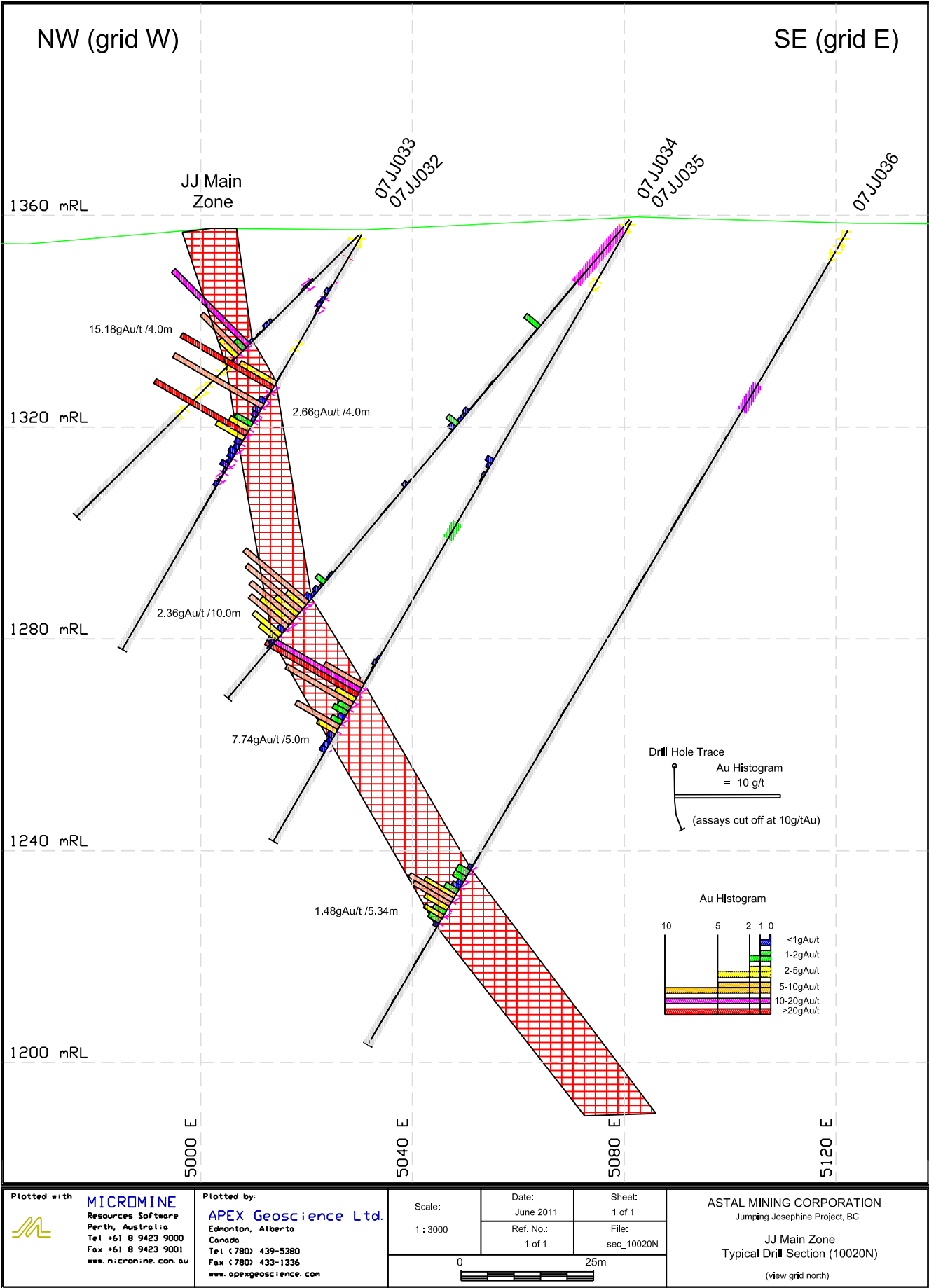


Figure 19

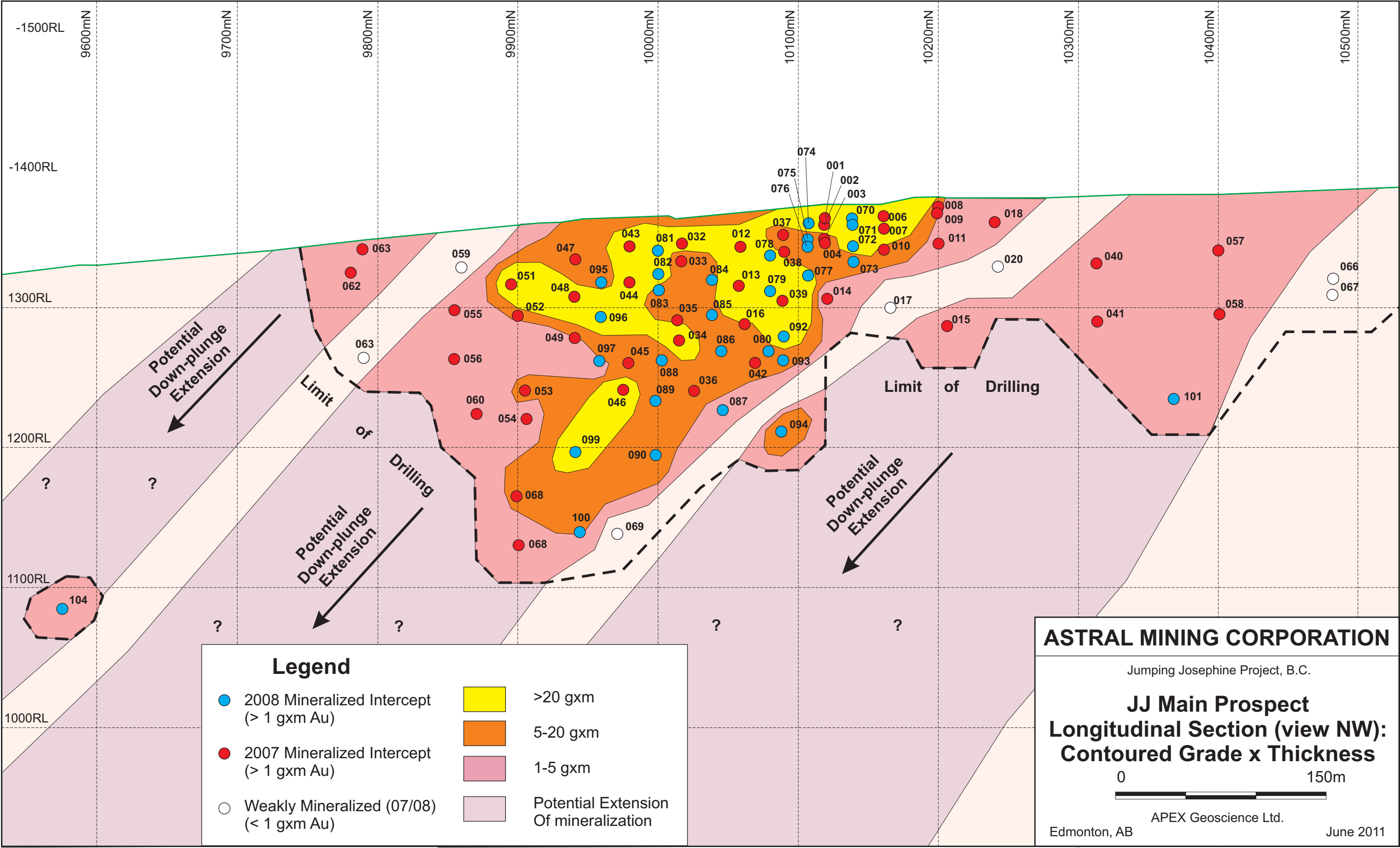


Figure 20

The JJ Main stockwork quartz-vein system has been intersected over a strike length of some 700m and to a depth of approximately 225m. As illustrated in Figure 19, the quartz stockwork zone dips slightly to the southeast (grid E) and is variable in thickness but is generally between 10m and 12m wide. However, gold mineralization may vary within the stockwork zone. Samples are restricted by lithological contacts and are also limited to core lengths of no greater than 1m, which, in the opinion of APEX, is appropriate for the style of mineralization being tested.

In 2008, Astral completed a mainly in-fill drill program at the JJ Main prospect that totalled 5074.86m of drilling in 34 holes (see Table 8). Of these holes, 31 were completed within the area of mineralization identified by the 2007 drill program in order to decrease intercept spacing. One (1) drill hole (08JD104) was completed along strike from the main JJ prospect and intersected 0.32gAu/t over 11.0m, while another hole (08JD102) was completed approximately 400m southeast across strike on what appears to be a parallel zone and intercepted a stockwork zone that assayed 0.36gAu/t over 2.5m. Although not exceptional in grade, the presence of stockwork quartz veining and anomalous to weakly mineralized gold values indicate the potential to increase the extent of gold mineralization at the JJ Main prospect area both along strike on the same structure that hosts the JJ Main prospect and elsewhere on the property on parallel structures and/or other related structures (i.e. splays off, or offsets of, the JJ Main structure).

## **12.0 Sampling Methodology and Approach**

Since the acquisition of the claim groups that now comprise the Jumping Josephine property, Astral has applied several different types of geological and geochemical sampling methodologies including stream sediment sampling, soil sampling, rock sampling (rock grab samples by prospecting), rock channel (trench) sampling and drill core sampling. A detailed discussion of the various sampling methodologies and approaches taken by Astral, as well as its consultants and contractors, is presented in previous Technical Reports on the property (see Turner 2009 and 2010), which are available for viewing on Sedar ([www.sedar.com](http://www.sedar.com)). However, the objective of all geochemical sampling completed by Astral has been to identify areas on the property with elevated gold and base metal concentrations to narrow the search for zones of mineralization.

The focus of this report is geological modeling and resource estimation effort conducted for the JJ Main prospect, which was completed using the results from drill programs conducted in 2007 and 2008. As a result, the following section will focus on Astral's drill



core sampling methodologies and procedures. All drill core logging and sampling has been conducted and supervised by Astral employees and has been observed and reviewed by the principle author of this report during three (3) different site visits.

The drill hole database utilized by APEX Geoscience Ltd. to perform the initial geological modelling and resource estimation work on the JJ Main Prospect comprised 104 drill holes that were completed in 2007 and 2008. The 2007 drilling was conducted by Blackhawk Drilling of Smithers, BC, while the 2008 drilling was completed by Matrix Drilling of Kimberley, BC.

Additional drilling comprising 36 holes was completed by Astral at the JJ Property in late 2010. Results from the 2010 drilling were not included in the 'resource estimation' drill database used by APEX because the holes were drilled after the last site visit had been conducted by the principle author, which was conducted in September 2010, and because the 2010 drill holes were completed outside the resource area, with the exception of one hole (10JD135). In the opinion of APEX Geoscience, the exclusion of this drill hole is not considered to be significant as it did not contain significant mineralization and intersected the JJ Main structure well beneath (outside of) the modelled resource below an area where the model was already predicting low gold grades.

The 2007 and 2008 drill programs produced HQ (2.5", 63.5mm diameter) core. With coarse gold common throughout the JJ Main zone, the large core size is beneficial as it increases sample size to help decrease the "nugget effect" caused by the presence of coarse gold. Core logging, sample layout, all core splitting/cutting and sample collection was conducted by Astral employees. The author is not aware of any factors related to the drilling and, more specifically, core recovery that would materially impact the reliability of results.

Drill holes were located relative to a local flagged grid and confirmed by handheld GPS. Drill hole azimuth was also established relative to the local grid and was confirmed by compass by the geologist. The 2007 and 2008 drill collars at the JJ Main prospect were surveyed by differential GPS in 2008. It is the opinion of the author that the 2007 and 2008 drill hole collars are well located in local and UTM space. A survey tool was utilized to provide downhole orientation information and so the location of mineralized intervals in three dimensional space is also considered to be good.

In 2007, core was transported on a daily basis from the rig to Astral's house in Rossland for logging/sampling. In 2008, Astral relocated its field base of operations to a fenced and gated yard in Castlegar, which they continue to use. Core logging was conducted

by Astral employees who were responsible for the processing of the core from the drill to the core rack. The logging geologist conducted the geological examination (logging) and supervised core cutting and sampling. All core logging information (geological, geotechnical, etc.) was input directly into MS Excel spreadsheets.

Prior to geological logging, basic geotechnical data was collected comprising mainly the logging of the core recovery and overall rock quality (RQD). During this process, blocks marked with downhole depths by the drillers were checked and discrepancies were discussed and fixed to the satisfaction of the logging geologist.

Sample intervals were determined by the logging geologist following the completion of geological and geotechnical core logging. The basic approach to core sampling, particularly at JJ Main, was to insure that all silicified, quart veined and brecciated zones were sampled. Sampling focussed upon mineralized and/or altered zones that were, in most cases, well bracketed by samples of apparently (visually) un-mineralized and unaltered rock. A sampling protocol was established by Astral whereby sample intervals were limited to 1.0m in length so as to eliminate sample bias, but was somewhat flexible in order to insure that geological boundaries were respected.

A rock saws was utilized to cut core for sampling. Sample intervals were clearly marked on the core by the logging geologist and a cutting/splitting line was marked along the entire length of each sample interval. The sampler was properly instructed as to the correct procedures for sampling to insure a) that sample intervals were adhered to, b) that each core sample number matched that on the corresponding sample bag, and c) that samples comprised the core from one side of the core and that the other side was properly replaced in the core box. Also, samplers were instructed to notify the logging geologist as soon as any inconsistencies with sample numbers were noticed. As a further quality control measure, the logging geologists conducted spot checks during the sample cutting and sampling process to insure that proper procedures were being followed.

As with other sample media, core samples were organized and catalogued, and then groups of samples were given a shipment number and were placed in poly woven “rice” bags and marked for shipment to laboratories in Vancouver, BC. There were no significant issues reported with respect to sample shipments or sample security during the 2007 and 2008 exploration programs.

The initial drill core samples from the 2007 JJ drill program were sent for analysis at Acme Laboratories in Vancouver. Midway through the 2007 drill program, due to

congestion at the Acme lab, samples were re-directed to ALS labs in Vancouver. All of the 2008 drill core samples were sent to ALS for analysis.

Based on a visual analysis of the core, samples were designated as “high-grade” or “low-grade”. The former represented visibly mineralized and likely mineralized, or highly altered, intervals as well as several apparently un-mineralized samples adjacent to such intervals. All such “high-grade” samples were sent for gold analysis by the metallic screen fire assay technique. All other samples (identified as “low-grade”) were analyzed by standard 30g Fire Assay with Atomic Absorption (AA) finish. The metallic screen technique at Acme involved the screening of a full 500g of sample pulp to 100mesh (150micron). The entire coarse fraction is weighed and assayed to determine the amount of coarse gold in the sample. Twin 30g fire assays with AA finish are completed on the minus fraction. These results are weight-averaged to determine the final assay of the sample. The metallic screen gold assay procedure conducted on 2007 and 2008 “high-grade” core samples at ALS was the same as that conducted at Acme except that a full 1kg of sample was analysed (screened). A 30 element ICP-MS analysis was also completed on all 2007 and 2008 drill core samples.

## **13.0 Sample Preparation, Analyses and Security**

### **13.1 Soil Sediment Samples**

Soil sampling conducted prior to 2009 was conducted by Astral staff. Soil sampling in 2009 was completed by staff with Hendex Exploration Services Ltd. (Hendex) of Prince George, BC, on behalf of Astral. Samples were collected in the field from the “b” (enriched) soil horizon and placed in standard paper soil sample bags marked with individual sample numbers and locations were determined by hand-held GPS and recorded along with other site observations and sample descriptions. Samples were returned daily to base for drying and preparation for shipping. Groups of samples were catalogued and placed in poly-woven rice bags and were shipped via transport company directly to ALS Laboratories (an ISO 17025 accredited organization) in North Vancouver, BC. The samples were analyzed for a 51 element suite of elements by ALS’ ME-MS41 method and for trace level gold by ALS’ Au-TL42 method, which incorporates aqua regia digestion of a 15g sample with ICP-MS finish. No issues were noted with respect to sample security between collection and analysis and, in the opinion of APEX, the procedures employed are adequate for maintaining sample integrity and security.

### **13.2 Stream Silt Samples**

Stream silt sampling was also conducted in 2009 by Hendex on behalf of Astral. Samples were collected in the field and were returned to Castlegar for drying at Astral’s

secure yard. Samples were collected in the field from stream fines placed in standard paper (soil) sample bags marked with individual sample numbers. Locations were determined by hand-held GPS and recorded along with other site observations and sample descriptions. Once dried, samples were catalogued and packed in polywoven rice bags for shipping via bus directly to ALS Laboratories in North Vancouver, BC. The samples were analyzed for trace level 37 element suite (ME-MS41L) and gold by fire assay, ICP-AES finish. No issues were noted with respect to sample security between collection and analysis and, in the opinion of the author, the procedures employed are adequate for maintaining sample integrity and security.

### **13.3 Channel (Trench) Samples**

Since 2006, all trench samples have been collected under the supervision of Astral staff. Individual trench samples were placed in plastic sample bags, with sample tags placed inside and sample numbers written in permanent ink on the outside, and were secured with plastic cable ties. Sample locations were surveyed in the field at the JJ Main prospect and were determined by hand-held GPS as other locations. Samples were organized and catalogued prior to shipping to the laboratory. Once organized, groups of samples were given a shipment number and were placed in poly-woven “rice” bags and marked for shipment to the laboratory and sealed with plastic cable ties. There were no issues reported with respect to sample shipments or sample security during the 2009 exploration program and, in the opinion of the author, the procedures employed by Astral are adequate for maintaining sample integrity and security.

The 2009 trench samples were sent for analysis to ALS Chemex Laboratories, North Vancouver, BC, and were analyzed by multi-element *aqua regia* ICP-AES analysis for a suite of elements. Trench samples were assayed for gold using a 30 gram fire assay technique with Atomic Absorption (AA) finish. Sample preparation protocol included initial weight recording, crushing of the entire sample to 90% passing 2mm and the collection of a 1000g sub-sample for pulverization. The 1kg crushed sub-sample was pulverized to 85% passing 75µm (200 mesh) and a 30g sub-sample of the resulting pulp was selected for assaying. In the opinion of the author, this approach is acceptable for a ‘first pass’ gold assay technique as samples assaying in excess of 3g/t Au were re-analyzed by a gravimetric fire assay using material from the original sample pulp.

There were no specific quality assurance or quality control measures employed by Astral with respect to the analyses conducted through 2009 on soil, stream silt sediment, or rock channel (trench) samples. Astral does, however, employ a strict QA/QC protocol with respect to all drill core sample collection and analysis that includes the insertion of standard reference materials and blank samples into the sample stream.

### **13.4 Drill Core Samples**

The initial drill core samples from the 2007 JJ drill program were sent for analysis at Acme Laboratories in Vancouver. Based on visual analysis visibly mineralized, likely mineralized or highly altered intervals, and several apparently un-mineralized samples adjacent to such units, were classified as being “high-grade” and were sent for gold analysis by the metallic screen fire assay technique. All other samples were identified as “low-grade” and were analyzed by standard 30g Fire Assay with a wet chemical finish by Atomic Absorption (30g FA-AA). The metallic screen technique at Acme involved the screening of a full 500g of sample pulp to 100mesh (150micron). The entire coarse fraction is weighed and assayed to determine the amount of coarse gold in the sample. Twin 30g fire assays with AA finish are completed on the minus fraction. These results are weight-averaged to determine the final assay of the sample. A 30 element ICP-MS analysis was also completed on these samples.

Midway through the 2007 drill program, due to congestion at the Acme lab, samples were re-directed to ALS labs in Vancouver. Also, all drill core and trench samples from the 2008 exploration program were sent to ALS for analysis. The main difference in the analytical techniques employed at Acme and at ALS was that ALS conducted a 1kg metallic screen gold assay procedure.

The metallic screen technique is considered to be the most reliable technique, in comparison to other fire assay techniques, particularly when dealing with samples that exhibit coarse gold such as is the case with mineralized samples from the JJ Main prospect. This is primarily due to the increased sample size which helps to reduce assay variation caused by the “nugget effect”. Also helping to reduce variability by increasing sample size, with respect to drill core samples, is the fact that both the 2007 and 2008 drill programs conducted at the property by Astral produced relatively large diameter (2.5”, 63.5mm) “HQ” drill core.

Individual drill core samples were placed in plastic sample bags, with sample tags placed inside and sample numbers written in permanent ink on the outside, and were secured with plastic cable ties. Samples were organized and catalogued prior to shipping to the laboratory. Once organized, groups of samples were given a shipment number and were placed in poly woven “rice” bags and marked for shipment to the laboratory and sealed with plastic cable ties. There were no significant issues reported with respect to sample shipments or sample security during the 2007 and 2008 exploration programs. In the opinion of APEX Geoscience, the sampling protocols and analytical techniques employed by Astral are adequate and appropriate for the type of mineralization being explored.

## **14. Data Verification**

This report was prepared by Andrew J. Turner, P.Geol., Michael Dufresne, M.Sc., P.Geol., and Steve Nicholls, M. AIG, all independent consulting geologists with APEX Geoscience Ltd. of Edmonton, Alberta. The primary focus of this report is an initial geological modeling and resource estimation effort for the JJ Main gold prospect, which was drilled in 2007 and 2008 by Astral Mining Corporation. The data discussed in this report was provided by Astral and was examined by the principle author (Mr. Turner) who conducted data verification. No significant errors were identified in Astral's exploration databases.

### **14.1 Non-Analytical Data Verification**

In the opinion of APEX Geoscience Ltd., Astral has instituted and observed industry standard procedures that are acceptable for insuring accuracy of non-analytical data pertaining to exploration work it has conducted and/or supervised at the JJ Property. This includes a system of checks and double-checks on drill hole locations and initial orientations, regular spot checks on core logging and sampling procedures by the project supervisor and differential GPS surveying of drill collars and trench locations. As part of previous site visits conducted by the principle author, random checks on drill hole collar locations, as well as trench sample locations, was made using a hand-held GPS. Furthermore, an examination of core logging/sampling facilities and procedures failed to identify any significant issues.

### **14.2 Analytical Data Verification**

Drill core samples from the 2007 JJ drill program were initially analyzed by Acme Analytical Laboratories of Vancouver, BC. However, due to turnaround time issues, Astral decided to change assay labs part-way through the 2007 drill program in favor of ALS Laboratories in North Vancouver, BC. In preparation of a Technical Report on the JJ Property following the 2007 drill program (Turner 2008), the principle author was granted access to original Acme analytical certificates and digital ALS certificates via their online webtrieve system. A comparison of assay certificates and Astral's drill database at the time found no errors.

Samples from the 2008 JJ drill program were analyzed at ALS and in preparation of a second Technical Report on the property (Turner, 2009) the principle author was again granted access to Astral's digital assay certificates via ALS' online webtrieve system. A comparison of 2008 assay certificates and Astral's drill database conducted at that time found no errors.



### **14.3 QA/QC**

During the 2007 and 2008 drill programs at the JJ Property, Astral employed a comprehensive QA/QC protocol with respect to the (gold) analysis of all drill core samples. During the 2007 and 2008 drill programs, Astral employed a protocol whereby standard reference materials (standard and blank pulps) were purchased and inserted by the logging geologist into the drill core sample stream at a frequency of approximately 1 standard and 1 blank in every 20 samples, which is sufficient given that most laboratories fire assay in batches of more than 20 samples (normally 24 samples/batch).

However, the standard reference materials purchased by Astral and inserted in the 2007 and 2008 drill core sample streams, although supplied with certificates identifying the expected concentration of gold in each, were not supplied with a clear and well supported analytical range for determining “pass” and “fail” for individual analyses. As a result, several assays of standard samples that should have been identified as problematic by Astral (i.e. extremely low or high assays) went undetected during both drilling campaigns. These issues were noted by the principle author at the conclusion of both the 2007 and 2008 drill programs (see Turner 2008 and 2009), and Astral has since switched to different standard reference materials that are provided with a clear analytical range for determining “pass” and “fail” on individual assay results. As a result, subsequent to the 2008 JJ drill campaign, Astral was able to identify problematic standard sample assays as soon as they were received from the laboratory and ask for core samples around such standards to be re-assayed.

With respect to the standard reference materials inserted in the 2007 and 2008 JJ drill sample stream, the principle author conducted an analysis of their assay results relative to their certified value and determined (see Turner 2009), that the suggested expected analytical range for most of the standards was too narrow. The analytical range for the 2007 and 2008 Astral standards was adjusted based on a comparison with the analytical ranges of standards of similar gold concentrations prepared by a different supplier for which a greater amount of round robin test data was available for review. Extensive round robin testing provides a sound statistical basis not only for determining the expected gold grade of a standard, but also for the calculation of its acceptable analytical range based on the inter-lab standard deviation, or the so-called “2SD” value. Based on this approach, a total of 9 significant (outside 3 standard deviation) “failed” standards, out of a total of 101 standard sample assays, were identified in the 2007 JJ drill core assays and 6 significant “failed” standards, out of a total of 94 standard sample assays, were identified in the 2008 JJ drill core assays. Graphs of the 2007 and 2008 standard sample assays relative to expected ranges are presented in Appendix 2.

No errors or significant issues were identified in the analyses of the nearly 200 blank pulp samples inserted in the 2007 and 2008 drill core sample stream by Astral.

The principle author has conducted a detailed examination of the location of the “failed” 2007 and 2008 standard samples relative to actual sample assays within JJ drill database that was used by APEX in the resource estimation effort for the JJ Main prospect discussed in an upcoming section of this report. This analysis found that the majority of the “failed” standards occurred either in drill holes completed elsewhere (not at the JJ Main prospect) or in portions of drill holes at the JJ Main prospect above or below the main mineralized zone. As a result of this analysis, and an examination of the results of check assays discussed in the following sections of this report, APEX determined that the Astral drill database was acceptable for use in the resource estimation effort for the JJ Main gold prospect discussed in an upcoming section of this report.

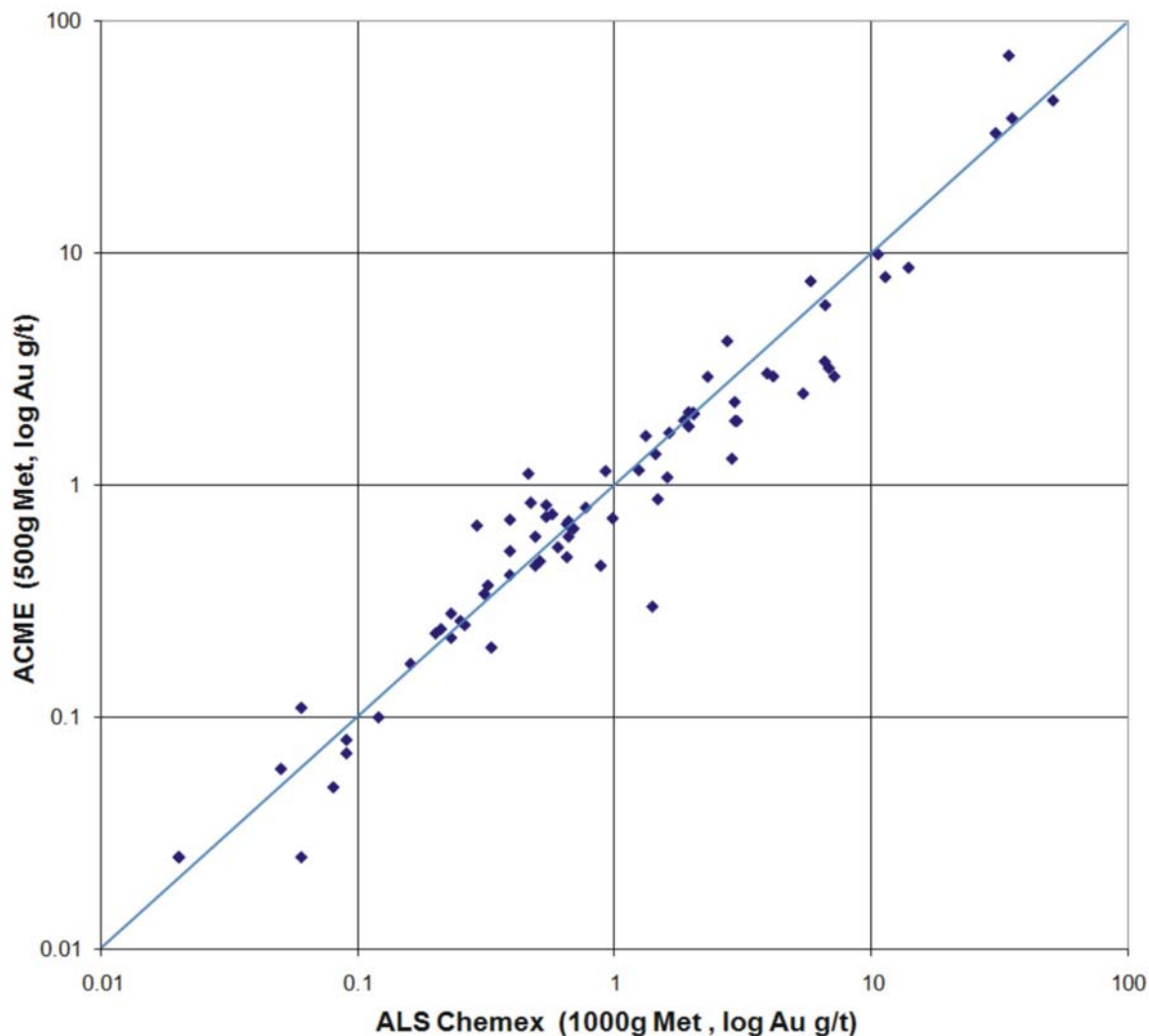
#### **14.3.1 2007 Check Assays**

In order to examine the overall accuracy of the 2007 drill core assay database and to perform an initial check on the drill core samples surrounding the 9 significant standard sample “failures” described above, a check assay program was completed. Of the 9 significant standard failures, 7 were the result of assays performed at Acme Labs. As a result, it was decided that several batches of samples surrounding the worst of these failed standards would be check-assayed by ALS. Coarse reject material from a total of 76 samples from five (5) 2007 JJ Main drill holes were sent by Acme to ALS where they were assayed by the same technique (metallic screen). The resulting ALS data was analyzed and was found to correspond very well to the original Acme analyses (see Figure 21). The 76 check assayed samples yielded a correlation coefficient of 0.921 which, in the opinion of APEX, is a reasonable correlation given the coarse nature of the gold in the JJ Main mineralized zone and is a good indication of the validity of the gold assays within the JJ drill assay database.

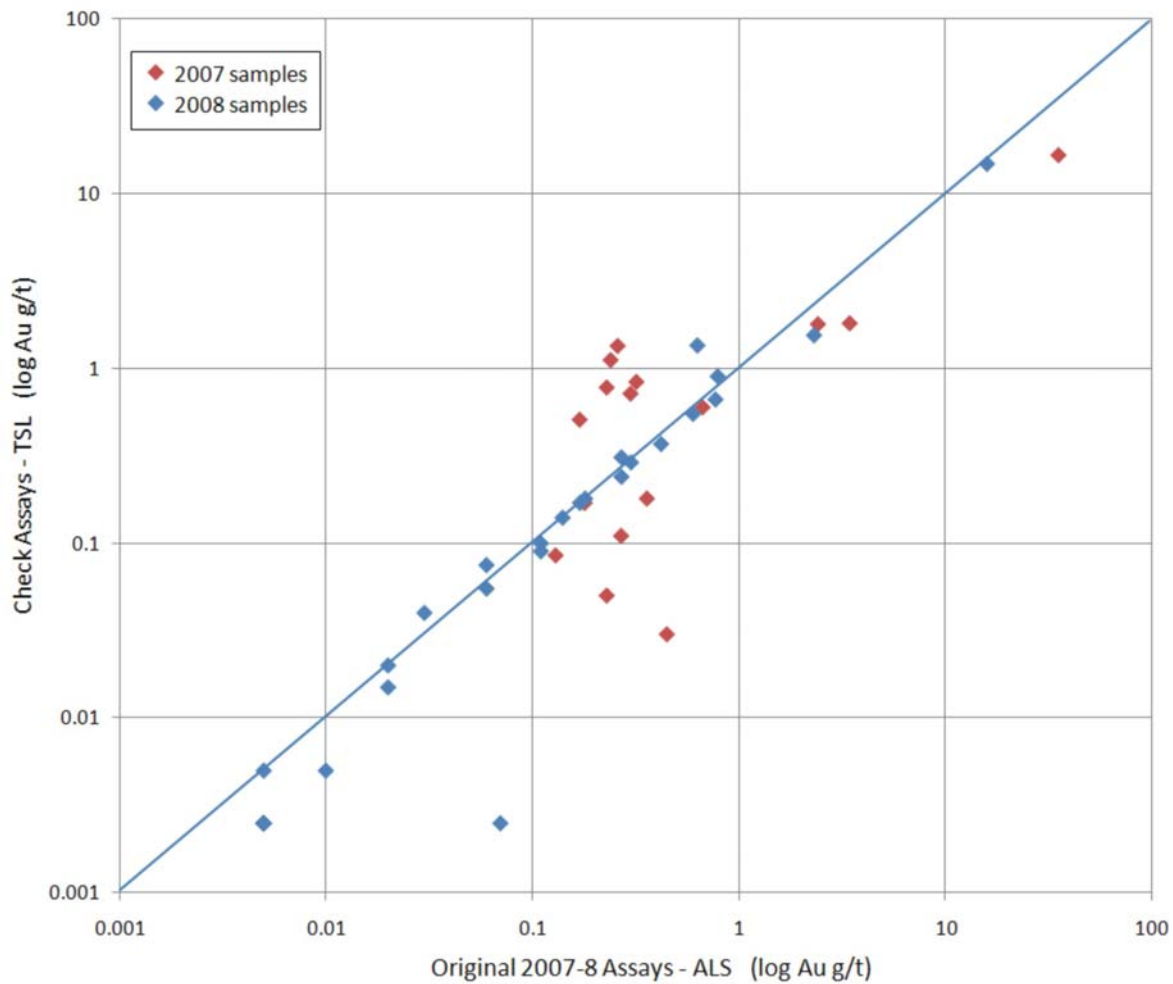
#### **14.3.2 2008 Check Assays**

Similarly, In order to examine the overall accuracy of the 2008 drill core assay database and to perform an initial check on the drill core samples surrounding the 6 significant 2008 standard sample “failures” described above, a check assay program was completed following the 2008 JJ drill program. Coarse reject material from a total of 30 samples from 3 drill holes completed in 2008, along with 16 samples from 2 additional drill holes with problematic standard sample assays completed in 2007, were selected by the principle author for checking based on a further analysis of the QAQC data. Again, coarse reject material for the selected samples was retrieved by ALS, who

performed the original assays, and was sent for analysis at TSL Laboratories in Saskatoon, SK. The resulting TSL data was analyzed and was found to correspond very well to the original ALS analyses. The 46 check assayed samples showed excellent correlation (see Figure 22) and yielded a correlation coefficient of 0.948, which in the opinion of APEX, is a reasonable correlation given the coarse nature of the gold in the JJ Main mineralized zone and is a further good indication of the validity of the gold assays within the JJ drill assay database.



**Figure 21. 2007 Check Assay Results (n = 76, Correlation = 0.921).**



**Figure 22. 2007 and 2008 Check Assay Results (2007 n = 16, 2008 n = 30, overall Correlation = 0.948).**

### 14.3.3 Metallic Screen Assays

It should be noted that throughout the 2007 and 2008 drill programs, Astral maintained a strict sampling protocol with respect to mineralized drill core. This protocol resulted in the analysis of all mineralized samples, and immediately adjacent un-mineralized “wall-rock” intervals as defined by the presence or absence of quartz veining, silicification and/or sulphide mineralization, by a metallic screen fire assay procedure. This is considered to be a very accurate assay procedure, particularly for gold deposits where coarse gold, or the so-called “nugget effect”, can cause significant sample variation or sample bias when assaying by other techniques.

The main advantage of the metallic screen fire assay technique is that it analyses the gold content of a large amount of sample material. A standard fire assay involves the extraction and subsequent measurement of gold from 30g to 50g of sample material. The metallic screen assays performed at Acme during the early 2007 JJ drill program (drill holes 07JD001 to 032) used a 500g sample for analysis. All subsequent metallic screen analyses, which were performed at ALS, used 1000g of sample material. The process involves the screening of the entire sample pulp (either 500g or 1000g in this case) through a 100 mesh (150 micron) screen with the entire coarse (plus) fraction being fire assayed to measure the coarse gold content, which is then weight-averaged against the average of twin (2) 30g standard fire assays of the fine (minus) fraction. Astral's use of the metallic screen fire assay procedure for all of the mineralized and adjacent un-mineralized samples at the JJ Main prospect is another good indication of the quality and validity of the gold assays within Astral's drill database.

As a result of the reviews conducted by the principle author with respect to Astral's analytical and non-analytical drill databases, APEX Geoscience Ltd. considers the data to be reliable and accurate and suitable for use in the initial modeling and resource estimation effort for the JJ Main Prospect discussed in an upcoming section of this report.

## **15.0 Adjacent Properties**

Properties adjacent to Jumping Josephine include those of the Burnt Basin mining camp, located 1km west of the southern Jumping Josephine claims. The group is underlain by igneous intrusive, volcanic and sedimentary rocks. As with the Granville Mountain Camp, the Burnt Basin Camp was a minor historical silver-gold, lead-zinc producer. Production was predominantly from Pb-Zn skarns, Au skarns and small magnetite/sulphide replacement bodies rather than fissure infill quartz veins, though some gold-silver was won from this area. Mineralization at Burnt Basin is usually within limey portions of Mount Roberts Formation rocks. Mineralized quartz veins have also been reported from this group, often adjacent to porphyritic dykes. A special feature of this group of claims is the recorded presence of platinum in sulphides, with assays from quartz vein material from the Mother Lode (L1508) ranging from trace to 8.57ppm platinum (Minfile 082ESE081).



Some work was completed in 1986 by Westrim Resources Inc, on Minfile 082ESE081 - Mother Lode (L1508), 082ESE169 - Eva Bell (L2031) and 082ESE099 - Halifax (L3043). Work included Trenching, drilling at Mother Lode and detailed geochemistry surveys at Eva Bell and Halifax. This work concluded that the Mother Lode quartz veins were discontinuous and therefore of limited tonnage potential.

Historically recorded production from the Burnt Basin Mining Camp includes;

Name	Minfile No	Production Dates	Tonnes	Ag (g)	Au (g)	Zn (kg)	Pb (kg)	Cd (kg)
Eva Bell	082ESE169	1972-76	2,579	133,058	1,058	92,893	56,930	544
Halifax	082ESE099	1948-49	26	8,491		4,188	3,917	

Located 5 km north of the northern boundary of Jumping Josephine is the historical Mountain Chief mine (Minfile 082ESE105). First staked in 1903, the property hosts structurally controlled Cu (+/-PbZn) skarn mineralization within altered, silicified limestones of the Mt. Roberts Formation. Limestone caps the hills in the area and represents a roof pendant surrounded by syenitic intrusives of the Eocene age Coryell suite. The old mine area is situated on a north-facing hillside 2km south of the township of Renata, located on the west bank of Lower Arrow Lake. The property was explored and developed intermittently by several operators from 1903 until 1962. Work at the site included underground development, installation of a 990m aerial tramline and the mine reportedly produced 1080 tons of ore at an average grade of 3.5% Cu and 2.8oz/ton Ag between 1917 and 1922 (Assessment report 20141 pp 5).

Recent modern exploration at Mountain Chief is limited and includes a VLF-EM survey, trenching and geological mapping completed by Alpine West Mineral Exploration Services in 1990. Results of the geophysical work saw two parallel northwest trending anomalies coinciding with areas of known mineralization. The report concluded that mineralization occurred along the contact between syenite intrusives and the black limestones. Cross-cutting faults were mentioned as a possibly limiting the lateral extent of mineralized zones.

In recent years, many of the deposits that comprise the Boundary district, as described in an earlier section of this report, have been acquired by Kinross Gold Corporation. Currently, the most advanced of the deposits in the district is the Buckhorn Mountain deposit (see Figure 8), which is owned and operated by Kinross and was put into production in late 2008 (see [www.kinross.com](http://www.kinross.com)).

## **16.0 Mineral Processing And Metallurgical Testing**

Approximately 100kg of mineralized core was sent in May, 2009, to G&T Metallurgical Services Ltd. of Kamloops, BC, for preliminary metallurgical test work. It was Astral's intention to conduct a preliminary investigation of the amenability of the JJ Main prospect mineralization to various gold extraction methods. The following excerpts were taken from a report presented to Astral on metallurgical testwork conducted on samples of JJ Main mineralization by G&T Metallurgical Services Ltd., Kamloops, BC. (Mehrfert and Shouldice, 2009);

“Three composites were tested in this program, ranging in gold content between 0.6 to 12.0 g/tonne. The samples also contained a significant amount of arsenic, averaging approximately 0.35 percent. The sulphide mineral content of the samples was relatively low at 1.8 percent, with arsenopyrite accounting for approximately 60 percent of the total sulphide mineral content.

It was suspected that coarse gold was present in the samples, so a program of assaying screened samples was used to determine the gold content of each composite. Elevated gold values in the screen oversize indicated that coarse metallic gold was present in the Medium and High grade composites.

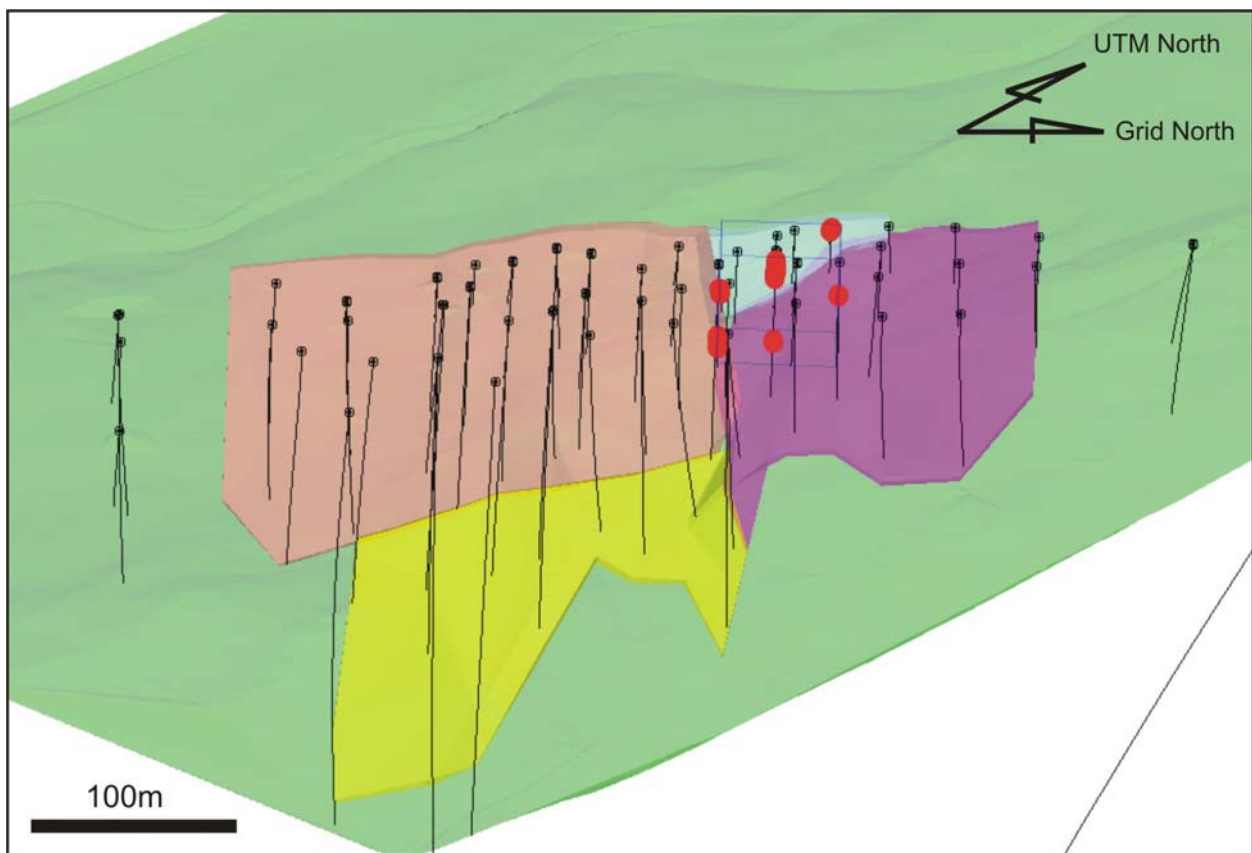
Flotation, gravity concentration, and cyanide leach processing methods were tested on each of the composites. Gold recoveries were very good in all circuit flowsheets, although the presence of arsenopyrite will likely influence the choice of the processing method.

Gravity concentration followed by cyanide leaching appears to be a suitable method for processing the Jumping Josephine ores. On average, 63 percent of the gold was recovered into the gravity concentrates, which may be saleable without additional processing. The gravity circuit tails leached well with sodium cyanide, resulting in average combined gravity and leach circuit gold recoveries of 94 percent.

A straight cyanide leach circuit may also be employed, which would simplify the processing plant. Whole ore leach tests on the Medium and High grade composites produced gold recoveries averaging 97 percent following a 48 hour leach period. The Low grade composite did not respond as well to the leaching process. With this composite only 63 percent of the gold was recovered.

More test work is recommended to expand on this very preliminary metallurgical assessment. Additional testing should include more selective froth flotation work, varying primary grinds to review the effect on leach kinetics, and investigating the variability of metallurgical properties within the deposit.”

The location of the samples the JJ Main gold prospect that were composited by Astral for analysis by G&T Metallurgical Services is illustrated in Figure 23. In the opinion of the principle author, the preliminary metallurgical testwork conducted by G&T Metallurgical Services Ltd. on samples of JJ Main mineralization has yielded encouraging results. Furthermore, it is the opinion of the author that the three composite samples submitted for analysis by Astral, which comprised low, medium and high gold grades (0.60, 3.30 and 12.0g/t Au, respectively) were representative of the JJ Main zone of mineralization.



**Figure 23. JJ Main Prospect (orthogonal view grid west) Showing the Location of 2008 Drill Core Samples Submitted for Metallurgical Testwork by G&T Metallurgical Services Ltd., Kamloops, BC. (samples are shown relative to drill hole traces, topography and the JJ Main Resource)**

## 17.0 Mineral Resource and Mineral Reserve Estimates

### 17.1 Summary

Apex Geoscience Ltd., on behalf of Astral Mining Corp, completed an initial geological modeling and resource estimate of the gold mineralization at the Jumping Josephine Deposit with the aim to determine the size of the resource that could be potentially extracted. The results of this work are presented in **Table 11**.

**Table 11. Mineral Resource Estimate for the Jumping Josephine (0.5g/t cut off)**

<b>Classification</b>	<b>Tonnage (tonnes)</b>	<b>Grade (g/t Au)</b>	<b>Gold Content (oz.)</b>
Measured	-	-	-
Indicated	363,000	2.95	34,000
<b>Total Measured + Indicated</b>	<b>363,000</b>	<b>2.95</b>	<b>34,000</b>
<b>Inferred</b>	<b>448,000</b>	<b>2.08</b>	<b>30,000</b>

Andrew Turner (P. Geol), Mike Dufresne (P.Geol) and Steve Nicholls (M AIG) of APEX Geoscience are the independent qualified persons, as defined by NI 43-101, responsible for the mineral resource estimate. The resource estimate of this advanced exploration project is classified as an indicated and inferred mineral resource, consistent with the CIM definitions referred to in NI 43-101. The effective date of the mineral resource is March 24<sup>th</sup>, 2011. The mineral resource estimate is derived from a total of 71 diamond drill holes. The average drill hole spacing is 20 to 40 metres within the area of interest. A total of 564 composites of 1m length, capped at 30.0g/t Au were used for the estimation. The mineral resource was estimated by inverse distance squared within a 3 dimensional mineralisation envelope of gold grades 0.5g/t with similar geological characteristics in terms of alteration and mineralogy. A search ellipsoid of 30m x 30m x 4m orientated along strike (350°) was utilised for grade interpolation into 20m x 2m x 10m blocks. Block grades estimated from samples with an average distance of 15 to 40m away were classified as indicated, and with an average distance of 20 to 80m away were classified as inferred. A nominal density of 2.65g/cm<sup>3</sup> has been applied to all blocks.

### 17.2 Introduction

APEX Geoscience was asked by Astral Mining to conduct a mineral resource estimate for the Jumping Josephine gold prospect. This is the first mineral resource estimation for the Jumping Josephine Deposit. Data used in this effort was provided by Astral and loaded into Micromine<sup>®</sup> software for analysis. Previous Technical Reports on the

property completed by APEX were reviewed during this work (Turner 2008, 2009 and 2010).

### **17.3 Data**

#### **17.3.1 Database**

The drilling database used is current up to 12<sup>th</sup> November 2010 and incorporated all diamond drill core samples. All data was placed into micromine format. The four main files (date types) utilized were:

- APEX\_JJCOLL – Collar file
- APEX\_JJSURV – Survey file
- APEX\_JJLITH – Geology file
- APEX\_JJASSAYS – Sample Assay file

There were a total of 103 diamond drill holes within the database provided by Astral of which 71 were used in the resource estimation. The drill spacing ranged from 20m to 40m. The sample file provided comprised 3908 samples of variable length but when composited there were on 564 samples used for the estimation.

#### **17.3.2 Collar Coordinates**

Drill holes were located relative to a local flagged grid and confirmed by handheld GPS. Drill hole azimuth was also established relative to the local grid and was confirmed by compass by the geologist. All drill collars at the JJ Main prospect were surveyed by differential GPS in June of 2009. It is the opinion of the author that the 2008 drill hole collars are well located in local and UTM space. A survey tool was utilized by the drilling companies to provide downhole orientation information.

#### **17.3.3 Sampling/Assaying**

See the **Sample Preparation, Analyses and Security** section of this report.

#### **17.3.4 Downhole Surveys**

Of the 71 diamond holes drilled into the resource area and utilized in the resource estimate, the majority have had down hole surveys conducted at regular intervals. Besides the collar survey which was conducted by a compass and clinometer the remainder of the surveys were collected via a digital REFLEX camera. Depending on the year the frequency of the down hole surveys varied.

From examination of the down hole surveys within the resource area, surveys were generally collected at between 100 to 200m intervals down hole. There is very little in

the amount of movement in dip and azimuth between these surveys, so the need of more frequent surveys being collected is probably not warranted. Of the 71 drill holes there were 14 drill holes that have only had a collar survey that was collected. There were 3 holes drilled in 2008 and 11 drilled in 2007. Considering the minimal amount of movement within the holes that have been surveyed, the use of these 14 unsurveyed holes is deemed acceptable. It is recommended that all future drilling have surveys collected at 100m intervals.

### **17.3.5 Quality Control**

See the **Data Verification** section of this report.

## **17.4 Geological Modeling**

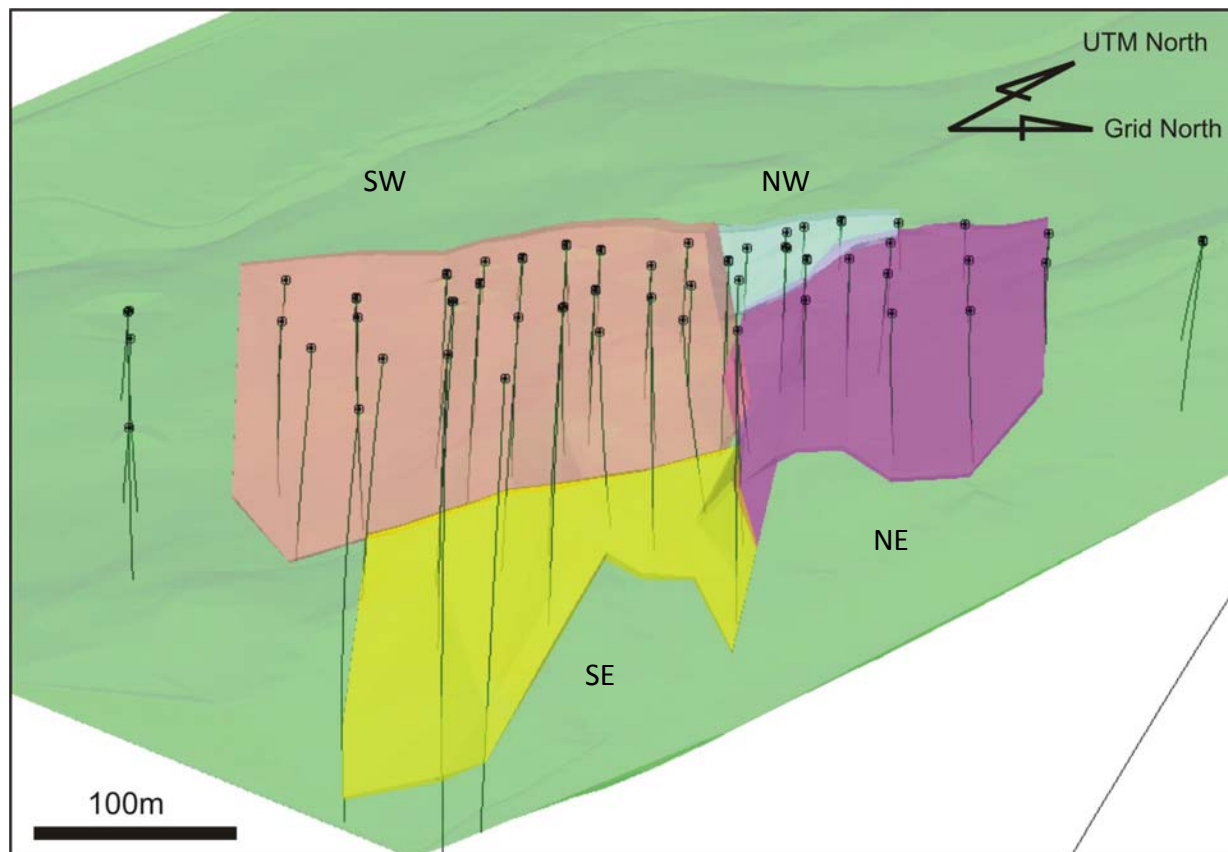
### **17.4.1 Wireframing**

An initial lode/mineralization interpretation was completed by the principle author (Mr. Andrew Turner) having gained familiarity with the local geology and mineralization of the Jumping Josephine deposit through his involvement with the property as an independent Qualified Person authoring earlier Technical Reports on the property (Turner 2008, 2009, 2010), which included the completion of three (3) site visits to the property. This initial interpretation was refined to form a well constrained grade shell within the JJ stockwork vein system which was used for the current resource estimation.

The lode interpretation involved wireframing the majority of mineralization greater than 0.5g/t Au. The aim was to identify and wireframe any mineralization that had possibilities of future extraction by open pit mining. Thus, a loose 0.5g/t lower cut was used to constrain the wireframes. If large intervals of low grade samples were found to lie between assays at, or above, the 0.5g/t threshold such that significant dilution resulted in the overall composite, then such assays were excluded from the wireframe. It is considered unlikely that these widely spaced “stranded” 0.5 to 0.8g/t Au samples would ever be considered economic on their own. The interpretation was conducted on east/west sections looking north on 20m spaced sections (+/- a 10m window).

All available drilling data was used to conduct and guide the lode wireframe interpretation. Apparent offsets observed on sections, along with the extrapolation of faults observed at surface identified in previous trenching efforts at the JJ Main Prospect, lead to a structural interpretation whereby the JJ Main mineralized structure (stockwork vein system) was broken into 4 discreet lodes (see Figure 24). The lodes were extrapolated to and trimmed against modeled fault surfaces. Furthermore, at depth, the lodes were interpreted to 20 to 30 metres down dip and 10 to 20 metres along strike or halfway to the next drill hole.





**Figure 24. JJ Main Resource Lodes with Drillhole Traces and DTM  
(orthogonal view to grid west).**

#### **17.4.2 Statistics - Drill Hole Flagging and Compositing**

Drillhole samples that were situated within the interpreted mineralized wireframes were selected and flagged with the wireframe name/code. The flagged samples were checked visually next to the drill hole to check the automatic flagging process worked correctly. All samples were correctly flagged and there was no need to manually flag or remove any samples.

A review of the sample lengths was conducted looking at the sample width of the diamond drilling data. The results showed a variable sample length from 0.5m to 2.0m in length. However, 542 samples, or 96.3% of the data, were one metre in length (see Figure 25). In light of this it was decided that the remainder of the samples would be downhole composited to 1m in length. Once complete, the compositing produced 564 samples with 557 samples (98.8%) being 1m in length (see Figure 26).

The composited samples were used for all sample statistics, top cuts, estimation input file and validation comparisons.

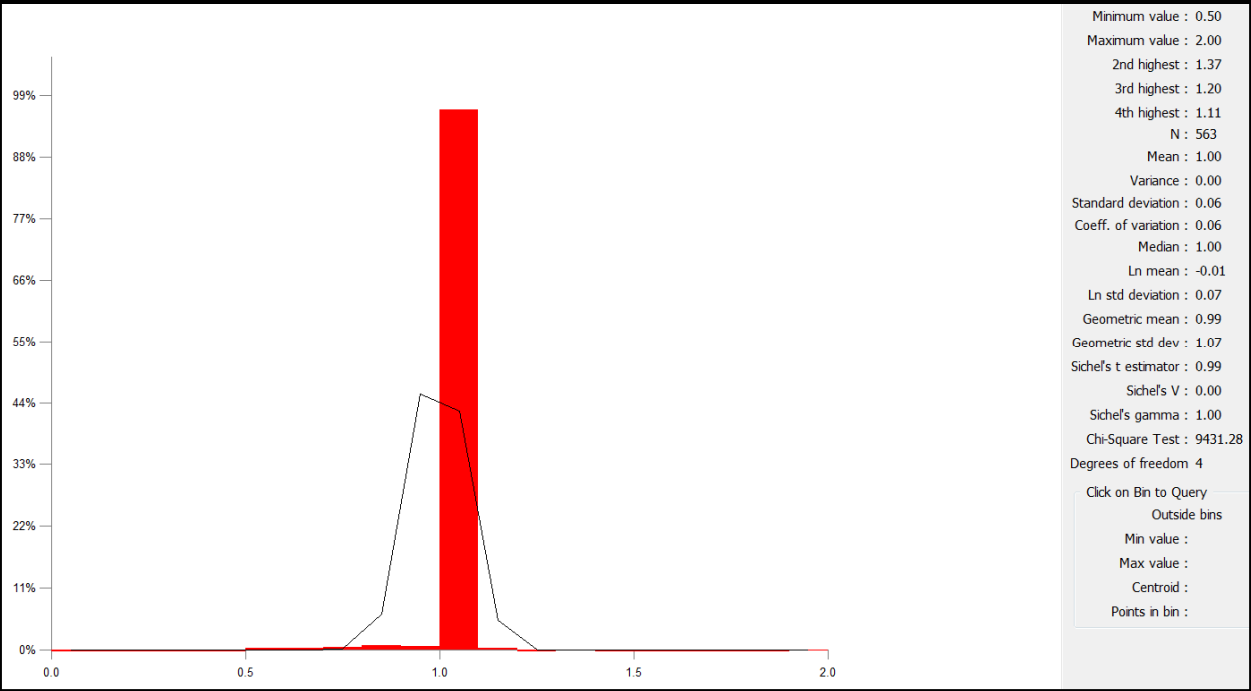


Figure 25. Histogram of Sample Length Prior to Compositing.

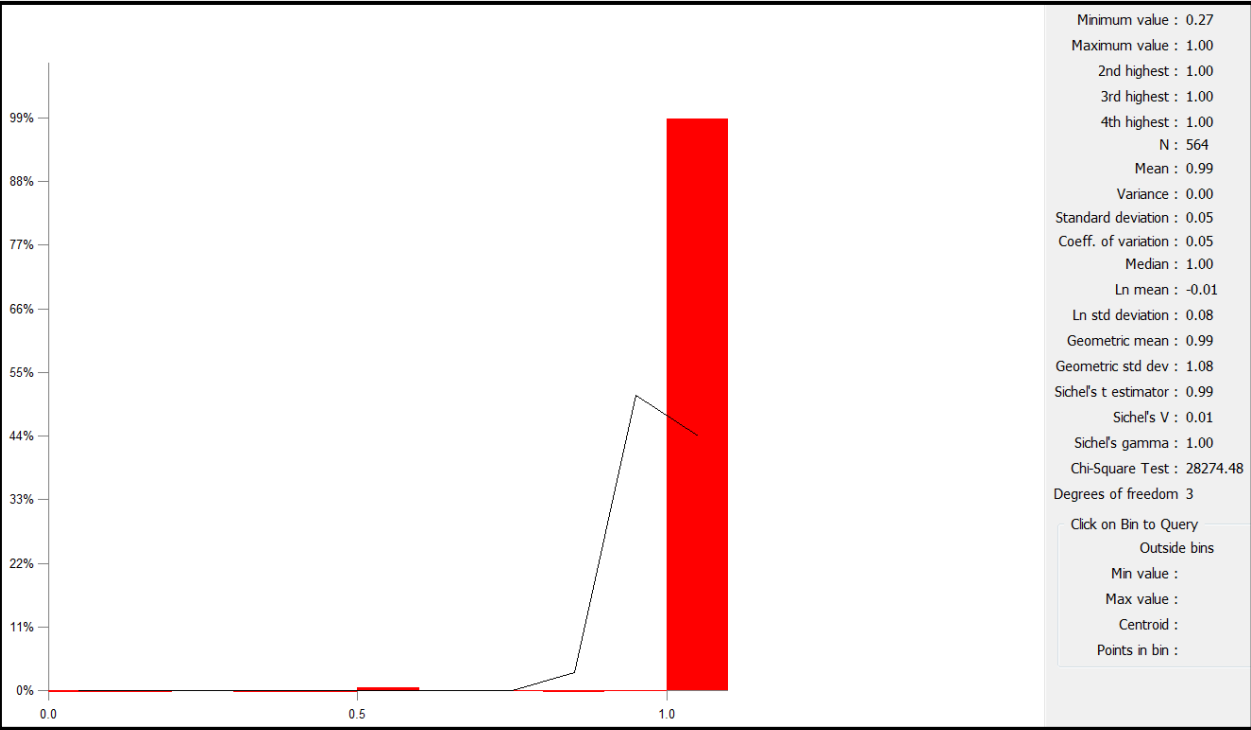


Figure 26. Histogram of Sample Length After Compositing.

### 17.4.3 Summary of Statistics

Upon completion of the visual check of the flagging process and the completion of the compositing work discussed above, the sample database was considered ready for use in the resource estimation work and the following statistics were generated (**Table 12**). A lode by lode break down of top cut versus uncut sample statistics is shown in (**Table 13**).

**Table 12. Comparison of Composited (1mDH) Samples Versus Un-composited Samples Within All Lodes.**

	Un Composited	Composited
Number	563	564
Minimum	-0.05	-0.05
Maximum	61.8	61.8
Mean	2.994	2.99
Median	0.91	0.91
Std Dev	7.35	7.29
Variance	54.029	53.141
Std Error	0.013	0.013
Coeff Var	2.455	2.438
Log Num	555	557
Geom	1.089	1.09
Log Min	-2.996	-3.124
Log Max	4.124	4.124
Log Mean	0.086	0.086
Log S Dev	1.27	1.273
Log Var	1.614	1.621
Sichel		
Mean	2.432	2.443
V	1.611	1.618
Gamma	2.232	2.24
Percentiles		
10	0.23	0.23
20	0.4	0.4
30	0.55	0.552
40	0.67	0.67
50	0.91	0.91
60	1.2	1.208
70	1.651	1.658
80	2.648	2.716
90	5.677	5.676
95	11.272	11.584
97.5	26.678	26.08
99	44.277	44.256

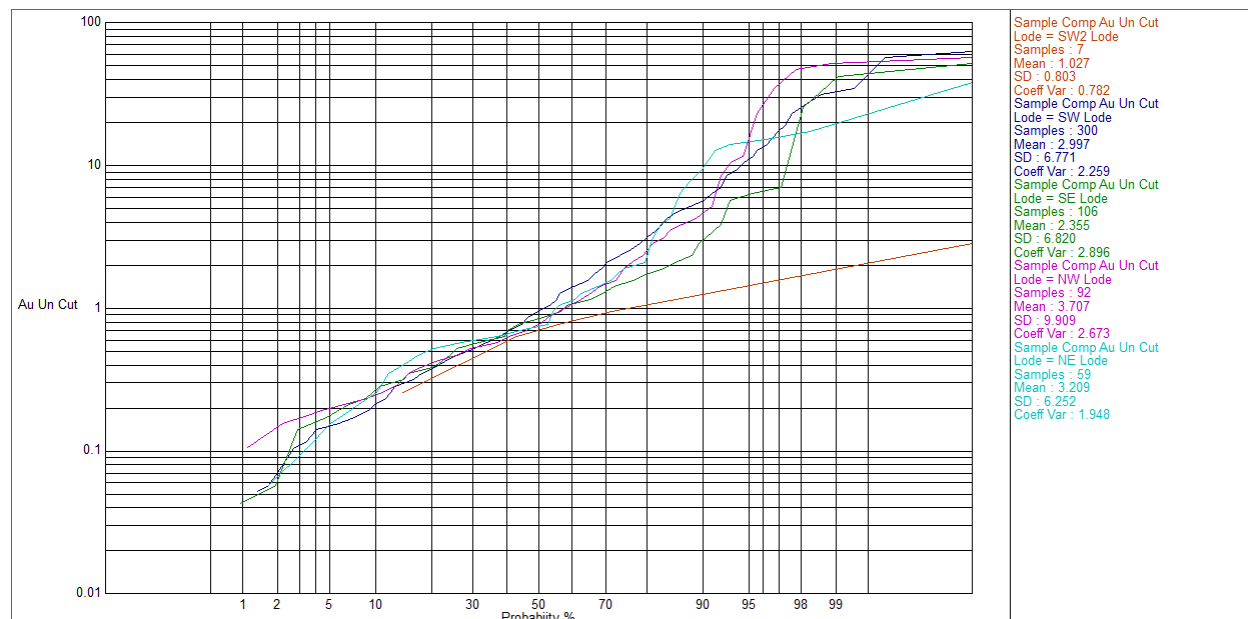
**Table 13. Comparison of Composited (1mDH) Lode Statistics.**

No Top Cuts Applied						Top Cuts Applied					
Lode	NE	NW	SE	SW	SW2	Lode	NE	NW	SE	SW	SW2
Number	59	92	106	300	7	Number	59	92	106	300	7
Minimum	0.06	-0.05	-0.05	-0.05	0.26	Minimum	0.06	-0.05	-0.05	-0.05	0.26
Maximum	37.9	57.5	50.2	61.8	2.74	Maximum	30	30	30	30	2.74
Mean	3.209	3.707	2.355	2.997	1.027	Mean	3.075	2.964	2.037	2.757	1.027
Median	0.77	0.78	0.88	0.98	0.735	Median	0.77	0.78	0.88	0.98	0.735
Std Dev	6.252	9.909	6.82	6.771	0.803	Std Dev	5.54	6.492	4.8	5.184	0.803
Variance	39.083	98.197	46.51	45.847	0.645	Variance	30.691	42.144	23.04	26.871	0.645
Std Error	0.106	0.108	0.064	0.023	0.115	Std Error	0.094	0.071	0.045	0.017	0.115
Coeff Var	1.948	2.673	2.896	2.259	0.782	Coeff Var	1.802	2.19	2.357	1.88	0.782
Log Num	59	91	104	296	7	Log Num	59	91	104	296	7
Geom	1.182	1.103	0.945	1.131	0.826	Geom	1.178	1.082	0.937	1.125	0.826
Log Min	-2.813	-2.254	-3.124	-2.996	-1.347	Log Min	-2.813	-2.254	-3.124	-2.996	-1.347
Log Max	3.635	4.052	3.916	4.124	1.008	Log Max	3.401	3.401	3.401	3.401	1.008
Log Mean	0.168	0.098	-0.057	0.124	-0.191	Log Mean	0.164	0.079	-0.065	0.118	-0.191
Log S Dev	1.306	1.294	1.121	1.322	0.706	Log S Dev	1.296	1.24	1.092	1.306	0.706
Log Var	1.705	1.675	1.256	1.749	0.499	Log Var	1.678	1.538	1.193	1.706	0.499
Sichel						Sichel					
Mean	2.702	2.501	1.757	2.688	1.008	Mean	2.658	2.302	1.689	2.614	1.008
V	1.676	1.657	1.244	1.743	0.428	V	1.65	1.521	1.181	1.7	0.428
Gamma	2.286	2.267	1.86	2.376	1.22	Gamma	2.257	2.128	1.803	2.325	1.22
Percentiles						Percentiles					
10	0.27	0.244	0.23	0.2	0.26	10	0.27	0.244	0.23	0.2	0.26
20	0.5	0.424	0.4	0.38	0.42	20	0.5	0.424	0.4	0.38	0.42
30	0.62	0.536	0.568	0.54	0.66	30	0.62	0.536	0.568	0.54	0.66
40	0.69	0.626	0.638	0.69	0.66	40	0.69	0.626	0.638	0.69	0.66
50	0.77	0.78	0.88	0.98	0.735	50	0.77	0.78	0.88	0.98	0.735
60	1.188	1.16	1.088	1.43	0.83	60	1.188	1.16	1.088	1.43	0.83
70	1.589	1.534	1.316	2.03	0.9	70	1.589	1.534	1.316	2.03	0.9
80	2.326	2.58	1.778	3.07	1.054	80	2.326	2.58	1.778	3.07	1.054
90	10.008	4.934	3.022	5.79	1.627	90	10.008	4.934	3.022	5.79	1.627
95	15.226	15.68	6.226	11.32	2.184	95	15.226	15.68	6.226	11.32	2.184
97.5	16.43	42.204	14.011	21.058	2.462	97.5	16.43	30	14.011	21.058	2.462
99	25.516	51.474	42.474	35.27	2.629	99	22.277	30	29.784	30	2.629

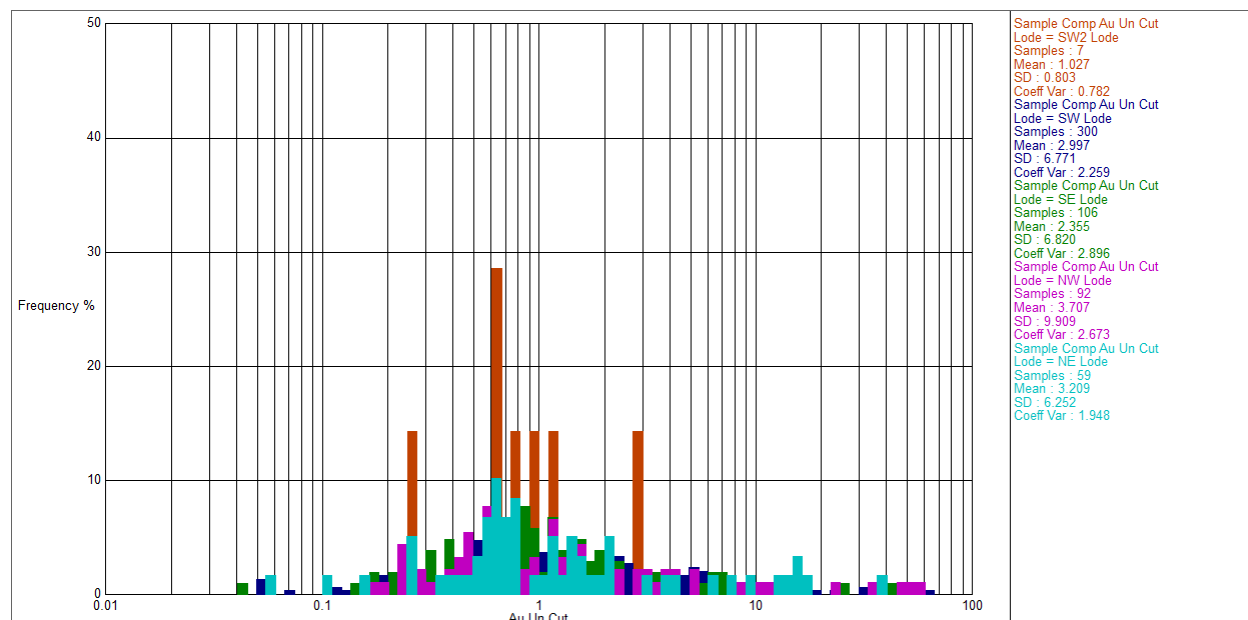
#### 17.4.4 Domains

The statistics of each of the lodes was examined to determine if they could be treated as one domain and estimated as a whole. Apart from Lode SW2 which only has seven samples (too small a population to be representative), the lodes all show similar grade populations (see **Figures 27 and 28**, and **Table 13**). Lode SW2 is really a part of the SW lode that was broken apart due to excessive internal dilution. Considering the similarity of the grade populations between the lodes it was decided to treat them all as

one domain for estimation purposes. This make geological sense as the individual lodes were once part of one continuous system that has simply been disrupted by post-mineral faulting into its present day (wireframed) configuration.



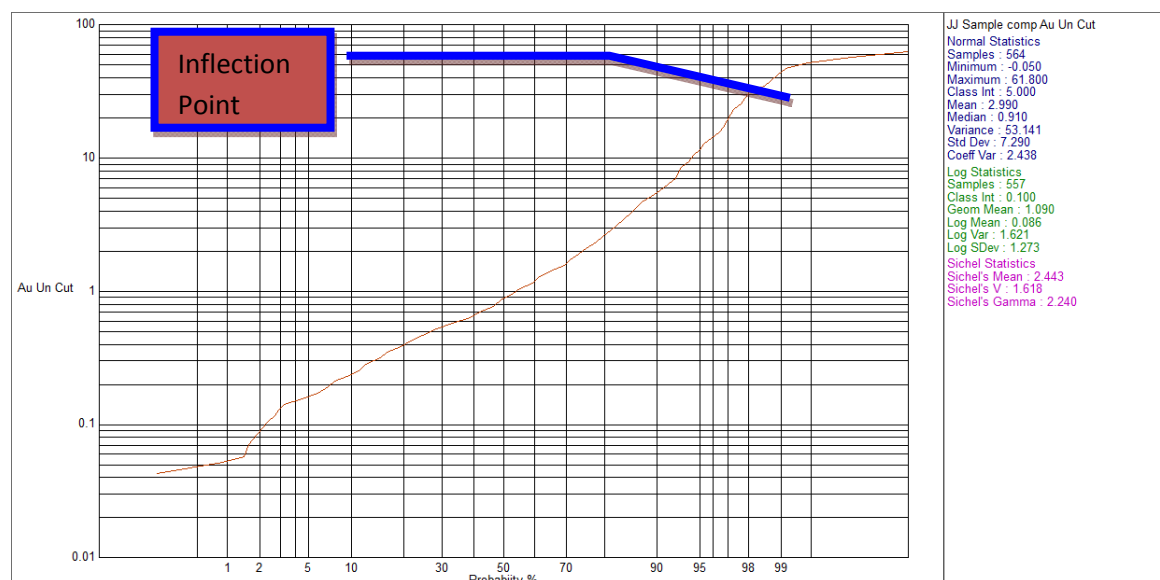
**Figure 27. Log Probability Plot of Sample Statistics Within Each Lode.**



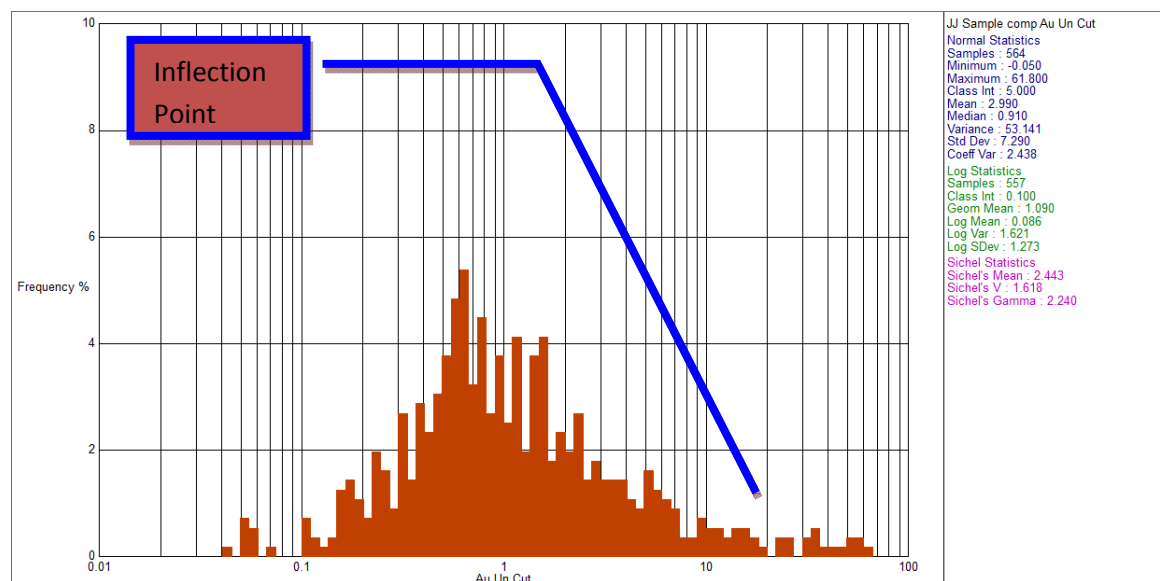
**Figure 28. Log Histogram of Sample Statistics Within Each Lode.**

### 17.4.5 Top Cut / Cap

The composited sample data within the lode wireframes were used for the top cut analysis. The grade distribution at Jumping Josephine is not as high compared to other deposits but capping the data is still recommended to limit the influence of very high assays. In looking at **Figure 29** and **Figure 30** of the un-cut sample data within the lode wireframes they show only a slight inflection point at about 30g/t, which is the 98<sup>th</sup> percentile and was chosen as the top cut value. Only 13 of the 564 composite samples required cutting. The overall effect of top cutting the data has had minimal effect on the overall expected resource. Comparative statistics are presented in **Table 14**.



**Figure 29. Log Probability Plot of all Samples Within Wireframes.**



**Figure 30. Log Histogram of 1m Composited Sample Data**



**Table 14. Composited Sample Statistics of Capped and Un-Capped Samples.**

	Un Cut	Top Cut (30g/t)
<b>Number</b>	564	564
<b>Minimum</b>	-0.05	-0.05
<b>Maximum</b>	61.8	30
<b>Mean</b>	2.99	2.667
<b>Median</b>	0.91	0.91
<b>Std Dev</b>	7.29	5.357
<b>Variance</b>	53.141	28.693
<b>Std Error</b>	0.013	0.009
<b>Coeff Var</b>	2.438	2.008
<b>Log Num</b>	557	557
<b>Geom</b>	1.09	1.081
<b>Log Min</b>	-3.124	-3.124
<b>Log Max</b>	4.124	3.401
<b>Log Mean</b>	0.086	0.078
<b>Log S Dev</b>	1.273	1.25
<b>Log Var</b>	1.621	1.562
<b>Sichel</b>		
<b>Mean</b>	2.443	2.352
<b>V</b>	1.618	1.559
<b>Gamma</b>	2.24	2.175
<b>Percentiles</b>		
<b>10</b>	0.23	0.23
<b>20</b>	0.4	0.4
<b>30</b>	0.552	0.552
<b>40</b>	0.67	0.67
<b>50</b>	0.91	0.91
<b>60</b>	1.208	1.208
<b>70</b>	1.658	1.658
<b>80</b>	2.716	2.716
<b>90</b>	5.676	5.676
<b>95</b>	11.584	11.584
<b>97.5</b>	26.08	26.08
<b>99</b>	44.256	30

## 17.5 Block Modeling

### 17.5.1 Block Model Extents and Block Size

**Table 15** presents the coordinate ranges and block size dimensions used to build 3-D block models from the mineralization wireframes (grade-shells). Sub blocking was used to more effectively honor the volumes and shapes created during the geological interpretation of the mineralized lodes. No rotation has been applied to the block model due to the strike if the ore body being just off grid north (350°). There were a total number of 9806 blocks.

**Table 15. Block Model Extents and Cell Dimensions.**

Deposit	Block Model Dimensions	Northing	Easting	RL
Jumping Josephine	Minimum	9800	4900	1000
	Maximum	10300	5200	1400
	Parent Cell Size	20	2	10
	Sub Blocking Cell Size	4	4	4

Upon setup of the block model the volumes of each lode was cross checked with the volume of the wireframes to check there was no significant discrepancies between the two. The block volume was only 0.04% different from the wireframe volume. Refer to **Table 16** for a comparison.

**Table 16. Block Model - Wireframe Volume Comparison.**

Lode	Wireframe Volume	Block Volume	% Difference
NE Lode	39256	39313	0.14%
NW Lode	14767	14925	1.06%
SE Lode	87488	87594	0.12%
SW Lode	161546	161356	-0.12%
SW2 Lode	3185	3163	-0.71%
<b>TOTAL</b>	<b>306242</b>	<b>306350</b>	<b>0.04%</b>

### 17.5.2 Density Assignments

There were no direct drill core density measurements available at the time of the resource estimation. However, because the mineralization is located within a quartz stockwork vein system hosted within an altered monzo granite, a nominal **SG of 2.65g/cm<sup>3</sup>** was considered to be reasonable. It is recommended that physical density measurements be conducted on JJ core samples to refine future resource estimations.

### 17.5.3 Topography, Mining and Geological Surfaces

A surface DTM was used to cut the lode wireframes at surface. The block model was then constrained to the DTM-trimmed lode wireframes. It should be noted that there are discrepancies between the DTM and the drill hole collars of up to 2.5 metres. Since drill hole collar locations have been properly surveyed, it is likely that the error lies with the DTM. It is recommended that a topographic survey over the deposit be conducted.

Other than the fault surfaces used to constrain the lodes, no geological surfaces were used to constrain the model and thus no lithologic data has been coded to the block model. There are no historical open pit or underground workings to remove from the block model.

## 17.6 Grade Estimation

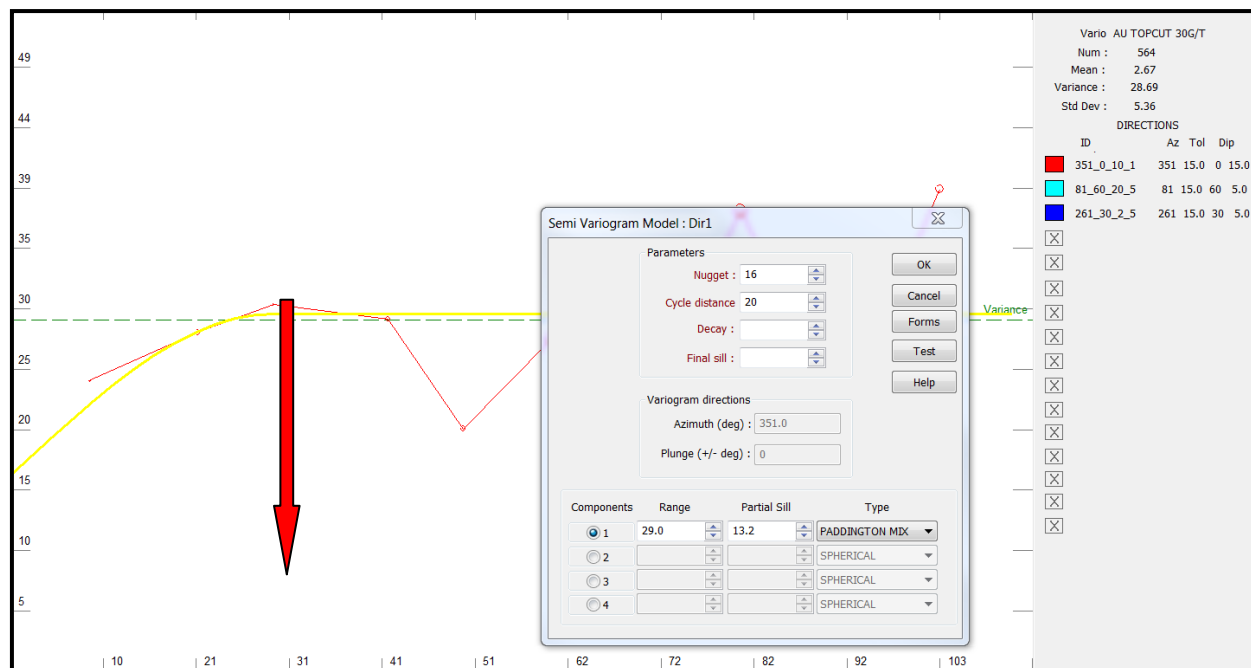
Both Inverse Distance to the power of 2 (ID2) and Ordinary Kriging (OK) were used for the grade estimation method. Both methods were run as a comparison to determine which method honored the input data best. Both compared well. The final model has both ID2 and OK within but it is recommended that ID2 be used for future reporting and feasibility studies. The final block model is called “JJ\_Block\_Model\_Mar2011\_APEX” and is in Micromine® “.DAT” format.

### 17.6.1 Search Parameters

The search directions and size of the ellipsoids used in the estimation were largely based on the variography. The modelled variography ranges of the sill included:

- Direction 1 30m (see Figure 31)
- Direction 2 30m
- Direction 3 4m

The variography indicated the primary direction of 351° strike and a 0° plunge. Comparing this with actual average strike of the lodes of 346° it is very close. Considering this the ranges generated from the variography looks geologically sound. It was proposed that a 50° plunge to the south should be considered but from examination of the variography better continuity was obtained from a shallower to no plunge at all. The interpreted structures that cut and offset mineralisation also have a shallow 10° plunge to the south.



**Figure 31. Directional Variogram (No Transformation) of Direction One (Strike and Plunge).**

There were four passes of the ID2/OK estimation used for each block. The number of samples, number of drill holes and search ellipsoid radius is tabulated below (**Table 17**):

**Table 17. Search Ellipsoid Criteria for ID2**

Run Number	Minimum No. of Samples	Minimum No. of Holes	Factor x Radius	Radius		
				X	Y	Z
1	12	3	1	4	30	30
2	8	2	2	8	60	60
3	2	1	3	12	90	90
4	1	1	30	120	900	900

### 17.6.2 Interpolation Parameters

The Jumping Josephine estimation was calculated separately for each lode and the samples used in the estimation were only derived from the lode. The lodes were hard boundaries. The blocks within each lode were coded with the lode name, as were the sample data.

The lodes at Jumping Josephine are quite linear and straight with the exception of the northern end of NE Lode. All lodes are slightly offset from each other by a number of crossing faults, but it is believed that this fault displacement was post mineralisation. In light of this, only two search ellipsoids were used in the estimation. Refer to **Table 18** for the search ellipsoids used.

**Table 18. Search Ellipsoids and Co-ordinate Constraints.**

Lode	Search Ellipse Name	Co-Ordinate Constraints	AZ	Dip	Plunge
NW Lode	JJ Ellipsoid	9800 – 10300N	350	-70	-6S
SW Lode	JJ Ellipsoid	9800 – 10300N	350	-70	-6S
SW2 Lode	JJ Ellipsoid	9800 – 10300N	350	-70	-6S
SE Lode	JJ Ellipsoid	9800 – 10300N	350	-70	-6S
NE Lode	JJ Ellipsoid	9800 – 10160N	350	-70	-6S
NE Lode	JJ Ellipsoid Nth	10160 – 10300N	336	-70	-6S

## 17.7 Model Validation

### 17.7.1 Visual Validation

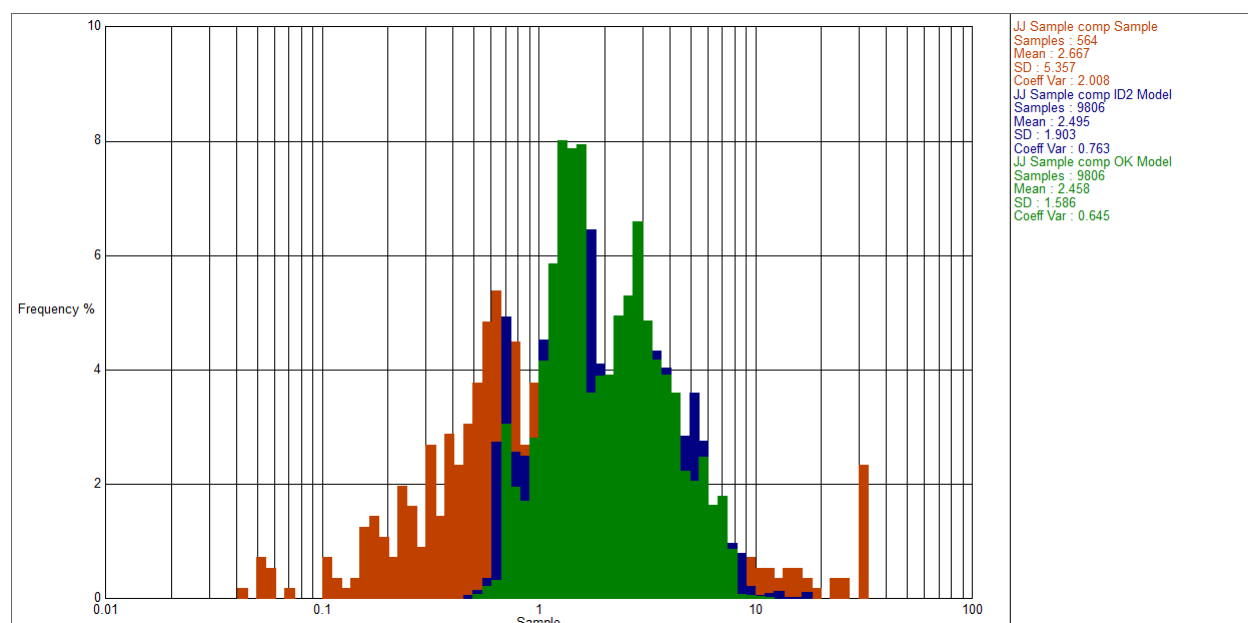
The blocks were visually validated on cross section comparing block grade versus the sample grade. Along with this the block and sample data were compared by lode, northing, and RL. These can be seen in Figures 33, 34 and 35.

### 17.7.2 Statistical Validation

Tables 19 and 20 and Figure 32 show the overall statistics of the cut sample data versus the block model data. In all of these it shows the mean grade of the model is slightly lower than the sample data. This is what you would expect. The model data tends to have a reduce dispersion (narrowing of the base of the histogram curve) of the block grades resulting from the grade estimation process. Lower high end grades compared to the sample data and higher low end grades compared to the sample data. This is expected with the overall smoothing of the estimation process.

**Table 19. Global Average of Model vs. Cut Sample Comparison.**

Type	Average Grade (g/t Au)
Sample File	2.67
ID2 Model	2.50
OK Model	2.46



**Figure 32. Log Histogram of Model vs. Cut Sample Data.**

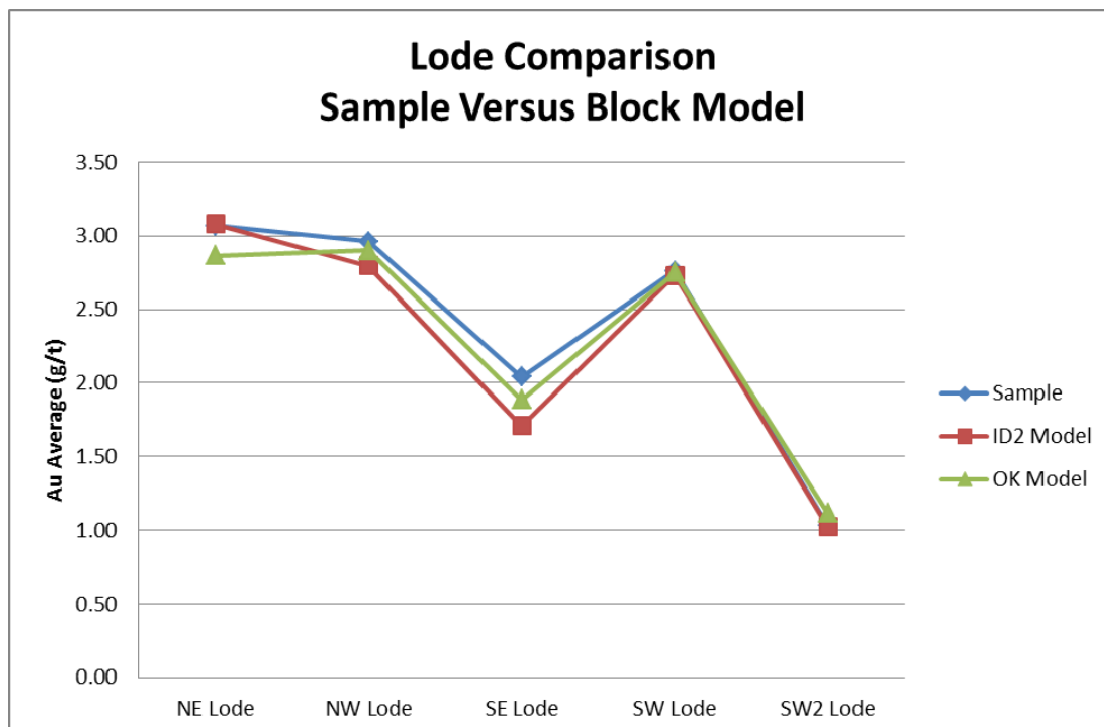
**Table 20. Summary Statistics of Model vs. Cut Sample Data (top cut applied).**

	Sample	ID2 Model	OK Model
<b>Number</b>	564	9806	9806
<b>Minimum</b>	-0.05	0.495	0.537
<b>Maximum</b>	30	18.105	11.891
<b>Mean</b>	2.667	2.495	2.458
<b>Median</b>	0.91	1.765	1.954
<b>Std Dev</b>	5.357	1.903	1.586
<b>Variance</b>	28.693	3.62	2.516
<b>Std Error</b>	0.009	0	0
<b>Coeff Var</b>	2.008	0.763	0.645
<b>Log Num</b>	557	9806	9806
<b>Geom</b>	1.081	1.967	2.047
<b>Log Min</b>	-3.124	-0.703	-0.622
<b>Log Max</b>	3.401	2.896	2.476
<b>Log Mean</b>	0.078	0.676	0.716
<b>Log S Dev</b>	1.25	0.678	0.598
<b>Log Var</b>	1.562	0.459	0.358
<b>Sichel</b>			
<b>Mean</b>	2.352	2.474	2.448
<b>V</b>	1.559	0.459	0.358
<b>Gamma</b>	2.175	1.258	1.196
<b>Percentiles</b>			
<b>10</b>	0.23	0.79	0.991
<b>20</b>	0.4	1.094	1.215
<b>30</b>	0.552	1.289	1.383
<b>40</b>	0.67	1.517	1.545
<b>50</b>	0.91	1.765	1.954
<b>60</b>	1.208	2.244	2.447
<b>70</b>	1.658	2.954	2.869
<b>80</b>	2.716	3.772	3.542
<b>90</b>	5.676	5.092	4.75
<b>95</b>	11.584	6.071	5.89
<b>97.5</b>	26.08	7.36	6.719
<b>99</b>	30	8.701	7.523



### 17.7.3 Lode Comparison

In looking at the comparison of block data versus the sample data broken down by lode, it compares very well. Overall the block averages follow the sample averages very closely but where they do not, it is slightly lower than the sample mean. Otherwise, there is good correlation (**Figure 33**).

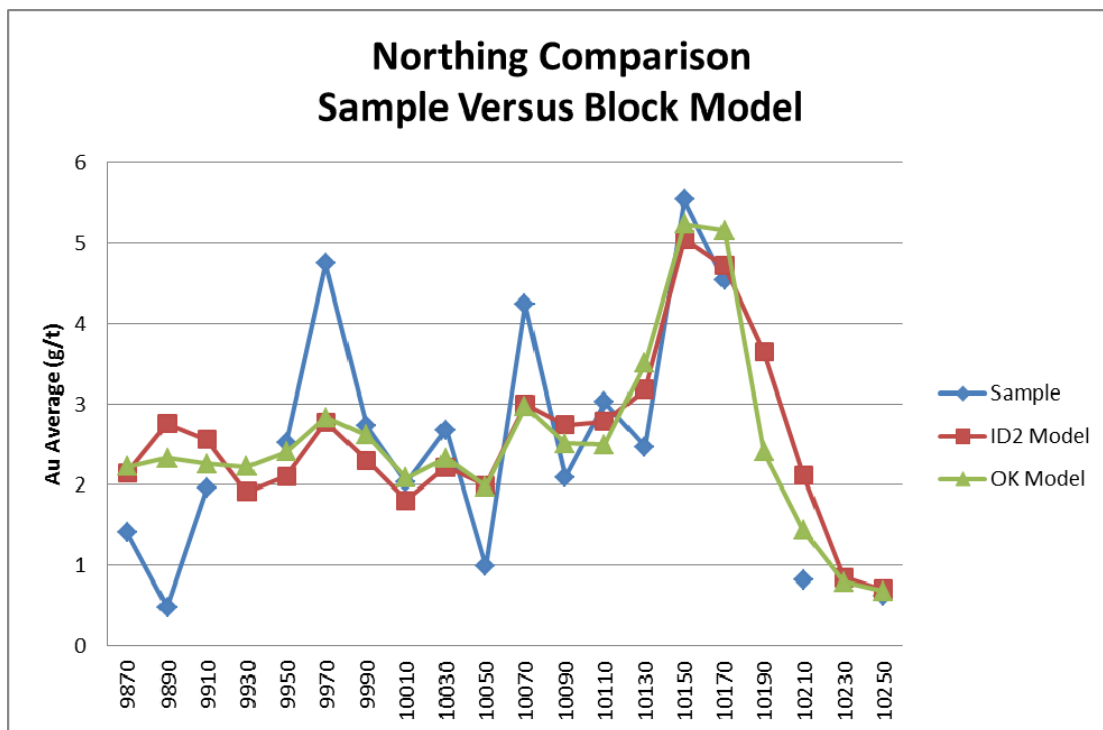


**Figure 33. Lode Comparison (Block vs. Sample).**

### 17.7.4 Northing Comparison

The sample and block model averages were calculated on 20m composite sections across the northing. This is along the strike of the mineralization. The purpose is to compare the input sample file with the resulting block model to make sure there is no gross over or under estimation occurring. The northing composites generally compare quite well, where the block averages either match or are slightly lower than the sample average.

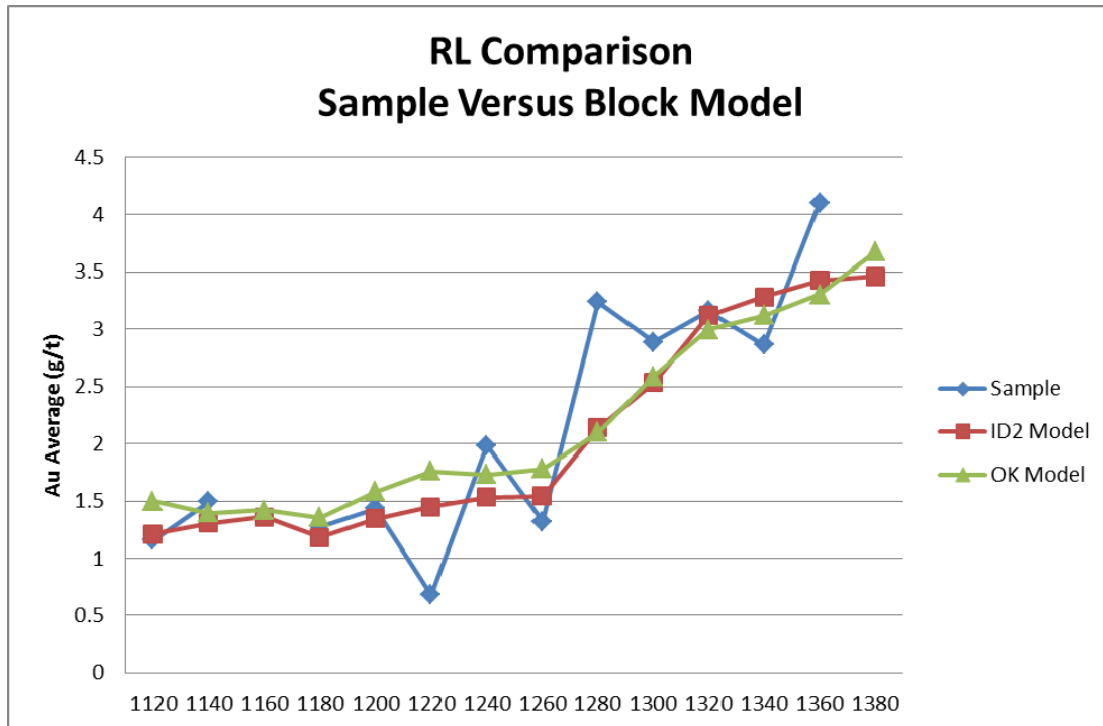
Looking at **Figure 34**, section 9870 to 9890N appears that the block model averages are slightly above the raw input sample file. But when looking at the data of the sample file these two northing slices are calculated using only three samples. Thus it is considered that there are insufficient samples to make any meaningful comparison. Overall the model versus sample comparison is good.



**Figure 34. Northing Comparison (Block vs Sample).**

### 17.7.5 RL Comparison

The sample and block model averages were calculated on 20m composite sections across the RL. This is down dip of the mineralization. The purpose is to compare the input sample file with the resulting block model to make sure there is no gross over or under estimation occurring. Overall the ID2 block model compares very well with the input sample file. There is some localized smoothing of data but this is to be expected in the estimation process. The OK model seems to be slightly elevated below the 1200RL, and such it is recommended that the ID2 model be used for future work (see **Figure 35**).



**Figure 35. RL Comparison (Block vs. Sample)**

## 17.8 Classification

The Jumping Josephine resource was either classified as Indicated or Inferred by lode depending on geological confidence. The factors used for the classification included:

- Number of drill holes into the lode.
- Spacing of drill hole relative to each other.
- Number of samples within each lode.
- Run number of the estimation process.

During the process of classification, each lode was looked at individually and each of the criteria mentioned above were used as a guide to classify the lode. When looking at the classification of the lodes, large segments of each lode were given a classification in a holistic approach. There may be small areas in the lodes that the blocks were estimated on run 3 or 4 but the overall lode given an indicated classification was given. This is because the majority of the blocks within that lode were estimated on runs 1 and 2 and the run 3 and 4 blocks were commonly on the edge or a small flexure in the lode that the search ellipsoid may not have catered for. This also applied to lodes that were estimated on runs 3 & 4 as a majority with some blocks estimated on runs 1 & 2 and given an inferred classification. It went both ways.

In all of the classification stage the distance and frequency of the drill holes relative to each other, on a lode by lode basis was also used to aid the classification process.

Refer to **Table 21** to for a list of the Jumping Josephine lode classification and the XYZ constraints used for this estimation.

**Table 21. Jumping Josephine Resource Classification by Lode.**

Lode	Indicated (Code 2)	Inferred (Code 3)
NW Lode	All	
NE Lode	10000-10175N & 1330-1400RL	Remainder
	10000-10140N & 1315-1330RL	
SE Lode	-	All
SW2 Lode	-	All
SW Lode	9925-10150N & 1245-1400RL	Remainder

## 17.9 Final Reported JJ Main Resources (March 2011)

**Table 22. Global Resources – 0.5g/t Cut off - ID2 – Top Cuts Applied.**

Classification	Tonnes	Grade	Ounces
Measured	-	-	-
Indicated	363,133	2.95	34,461
Total Measured + Indicated	363,133	2.95	34,461
Inferred	448,380	2.08	29,947

**Table 23. Global Resources – 0.0g/t Cut off - ID2 – Top Cuts Applied.**

Classification	Tonnes	Grade	Ounces
Measured	-	-	-
Indicated	363,133	2.95	34,461
Total Measured + Indicated	363,133	2.95	34,461
Inferred	448,695	2.08	29,952

**Table 24. Global Remnant Resources – 0.5g/t Cut off - ID2 - Top Cuts Applied by RL Slice (Indicated and Inferred).**

<b>RL Slice</b>	<b>Tonnes</b>	<b>Grade (g/t Au)</b>	<b>Ounces</b>
1360 - 1380	53,828	3.46	5,993
1340 - 1360	93,876	3.43	10,344
1320 - 1340	97,537	3.28	10,287
1300 - 1320	110,306	3.12	11,063
1280 - 1300	103,665	2.53	8,448
1260 - 1280	84,883	2.14	5,835
1240 - 1260	68,138	1.54	3,382
1220 - 1240	66,051	1.53	3,252
1200 - 1220	51,195	1.45	2,384
1180 - 1200	35,841	1.34	1,548
1160 - 1180	17,871	1.18	678
1140 - 1160	13,498	1.36	589
1120 - 1140	9,573	1.31	402
1100 - 1120	5,250	1.21	204
<b>TOTAL</b>	<b>811,513</b>	<b>2.47</b>	<b>64,408</b>

**Table 25. Global Resources by Lode – 0.5g/t Cut off – ID2 – Top Cuts Applied (Indicated and Inferred).**

<b>Lode</b>	<b>Tonnes</b>	<b>Grade (g/t Au)</b>	<b>Ounces</b>
NE Lode	104,178	3.08	10,314
NW Lode	39,551	2.80	3,556
SE Lode	231,809	1.71	12,735
SW Lode	427,594	2.73	37,528
SW2 Lode	8,381	1.02	275
<b>TOTAL</b>	<b>811,513</b>	<b>2.47</b>	<b>64,408</b>

**Table 26. Global Remnant Resources by Classification – 0.5g/t Cut off – ID2 – No Top cuts applied**

<b>Classification</b>	<b>Tonnes</b>	<b>Grade</b>	<b>Ounces</b>
Measured	-	-	-
Indicated	363,133	3.25	37,949
Total Measured + Indicated	363,133	3.25	37,949
Inferred	448,380	2.28	32,900

## **18.0 Other Relevant Data And Information**

The authors are not aware of any other information or data that would be relevant or material with respect to the JJ Project as a whole or the JJ Main gold prospect, specifically.

## **19.0 Interpretations And Conclusions**

The Jumping Josephine Property is currently a 36,572.51ha hectare gold property comprising 82 BC mineral claims and 7 Crown Granted claims, located in southeastern British Columbia, Canada. The property is located along the northern edge of the Boundary Gold district that includes the Rossland gold camp to the east and Kinross' Buckhorn, Emanuel Creek and Republic Graben gold deposits to the west and southwest. The claim holding hosts the small historical Granville Mountain gold mining camp and several newly-discovered vein hosted, shear related gold showings, including the Jumping Josephine (JJ main) prospect. Recent exploration conducted by Astral Mining Corporation has identified a significant gold zone at the JJ Main prospect and, in the opinion of APEX, the property is considered to be of merit and warrants further exploration work.

### **19.1 Exploration**

In the opinion of the principle author, Astral has conducted reasonable and well-managed exploration programs that have gradually evaluated the mineral (gold) potential of large areas of the JJ Property and have identified areas of interest for further detailed investigation. Astral has also advanced the JJ Main gold prospect from a showing to a resource, as described in this report. The following section summarizes exploration activities and generalized results from programs completed by Astral at the JJ Property since 2006. For additional details, the reader is referred to previous Technical Reports prepared by the principle author (Turner 2008, 2009 and 2010).

Prior to 2006, exploration across the property was localized and consisted of prospecting, grab sampling and limited geological mapping. The JJ Main, JJ West, Albion-Dubrovnik and Bonanza Pass areas were identified as prospective gold showings and the Borrow Pit, Pb-Zn Zone and the Au-As zone were identified as secondary showings.

In 2006, Astral Mining Corporation completed an aeromagnetic survey over portions of the JJ claim group, conducted soil geochemical sampling at several locations (including over the JJ Main prospect), conducted prospecting and a trenching program (with



channel sampling) at several of the prospects. The 2006 exploration program is discussed in detail in a previous technical report (Terry and Brittliffe, 2007) and resulted in the identification of gold-in-soil anomalies of interest at the Bonanza and JJ West prospect areas, as well as at the JJ Main prospect. Most significantly, a gold-bearing quartz stockwork vein system was identified at the JJ Main prospect. Sampling at the JJ Main prospect yielded individual assays of up to 133.91 gAu/t, across a 1.0m channel sample, and includes intervals assaying up to 31.19 gAu/t over 7.0m.

In 2007, Astral completed a prospect-scale soil sampling surveys at the Big Sheep area and some additional trenching was also completed at several areas, however, the main focus of the exploration program was the completion of a significant drill program that comprised a total of 7734.31m of drilling in 69 holes at 4 prospects, including 6537.64m in 58 holes at the JJ Main prospect. The drill program resulted in the identification of a significant gold zone at the JJ Main prospect with intersections grading up to 7.01gAu/t across 19.0m. This quartz stockwork zone was successfully traced along a strike length of some 700m and to a depth of approximately 225m, although the zone of interest with respect to elevated gold grades appeared to be limited to the central 350-400m of the structure. There were no significant issues noted with respect to sampling methodologies or procedures, sample security or data verification in 2007 (see Turner, 2008).

In 2008, Astral completed a mainly in-fill drill program at the JJ Main prospect that totalled 5074.86m of drilling in 34 holes. Of these holes, 31 were completed within the area of mineralization identified by the 2007 drill program in order to decrease intercept spacing and 2008 results generally corroborated the previous 2007 results. One (1) drill hole was completed along strike from the main JJ prospect and one (1) hole was completed approximately 400m southeast across strike on what appears to be a parallel zone. Both of these step-out holes intersected quartz stockwork veining and although gold mineralization was weak, collectively these drill holes indicate the potential to increase the extent of gold mineralization at the property both along strike on the same structure that hosts the JJ Main prospect and elsewhere on the property on parallel structures and/or other related structures (i.e. splays off the JJ structure or offsets of the structure). There were no significant issues noted with respect to sampling methodologies or procedures, sample security or data verification in 2008 (see Turner 2009).

In 2009, Astral completed a limited exploration program at the Jumping Josephine Property. With the JJ Main gold zone relatively well defined by drilling that was conducted in 2007 and 2008, the company decided to evaluate other areas of its property with regional geochemical sampling. A total of 4,689 wide-spaced soil

geochemical samples was collected mainly on the JJ claim group and a total of 393 stream silt sediment samples was collected along drainages covering an area of approximately 140km<sup>2</sup> on the Columbia-Rossland claim group. In addition, a small trenching program was completed at the Highway prospect totaling 118 channel samples collected over 118m in 3 trenches. The regional soil and stream silt sampling efforts were conducted on Astral's behalf by Hendex Exploration Services Ltd., of Prince George BC, while the trenching was conducted by Astral.

The 2009 soil sampling effort provided wide-scale geochemical coverage of a large portion of the JJ claim group and connected several of the earlier prospect-scale sampling grids. Sample density was sufficient to highlight several areas of interest with clusters of >90<sup>th</sup> percentile gold- and/or arsenic-in-soil anomalies that are recommended for follow-up investigation. Concentrations of key elements, such as gold and arsenic, were generally low, particularly in the northern portion of the sample area, which is likely attributable to low bedrock concentrations in the area (low background) and possibly due to generally low sulphide concentrations such as that observed in the veins comprising the JJ Main stockwork zone. The 2009 stream sediment sampling program highlighted several areas on the Columbia-Rossland claim group that are recommended for follow-up investigation based on anomalous gold and arsenic values. No significant results were returned from the Highway prospect trenching program completed in 2009. There were no issues noted with respect to sampling methodologies or procedures, sample security or data verification.

Astral completed an exploration program in 2010 at the JJ Property comprising limited prospecting, detailed soil sampling at 6 prospects (Hillside, Big Sheep, Siren, Gravel Pit, Ridge and Mt. Crowe), 196m of trenching (in 11 trenches) at 4 prospects (Hillside, Highway, Big Sheep and Siren). Finally, a total of 5,557.7m of drilling in 36 drill holes was completed in late 2010 around the JJ Main prospect, including 1 drill hole that was completed beneath the currently defined JJ Main resource. However, the majority of this work, including the entire 2010 drill program, post-dates the last property visit completed by APEX. As a result, APEX had not yet had the opportunity to verify the results of this work and thus no further discussion can be presented. The principle author is planning to conduct another property visit this summer that will allow for a full discussion of this work in an upcoming Technical Report. The 2010 exploration program is not considered to be material as it was not conducted at the JJ Main prospect, which is the subject of this report, with the exception of a single drill hole that was completed beneath the JJ Main resource area but did not yield a significant gold intersection.

## **19.2 Geology And Mineralization**

The property is primarily underlain by granitic rocks correlated with the Middle Jurassic Nelson plutonic suite. These intrude metavolcanic and metasedimentary rocks of the Late Paleozoic Mount Roberts Formation. Alkaline intrusive rocks, correlated with the Coryell suite of intrusive rocks, generally surround the Nelson plutonic rocks; they are exposed along the north, west and south side of the JJ claim group and as numerous small stocks and north trending dykes throughout the area. The most dominant structures are north-trending, high-angle normal faults with usually only minor displacements. They cut all rock units, including the Eocene Coryell rocks and must therefore be Eocene to post-Eocene in age (Höy 2006).

Mineralization on the Jumping Josephine property is characterized by lode style quartz veins and silicified brittle shear zones. The majority of the historical work conducted on the property has been focused on the occurrences that comprise the Granville Mountain Camp in the southern project area on veins of this type. Auriferous quartz veins are the most prospective mineralization style on the property and Höy (2006) concluded that the Granville Mountain veins are discontinuous, en-echelon tension veins related to dextral motion along structures within and along the edges of the camp. Unfortunately, this style of mineralization is difficult to explore for because veins and vein systems are generally small and discontinuous and the overall low sulphide content makes geophysical surveys difficult to interpret. However, in Astral's favor, in the opinion of the principle author, is the fact that the majority of the JJ Property is underlain by intrusive rocks that are not likely to contribute significant amounts of base and gold-indicator metals into soils and tills and thus soil geochemistry (elevated Cu, Pb, Zn and As) appears to be a useful tool for evaluating the mineral potential of the property and identifying areas for detailed examination.

The stockwork quartz veins that comprise the JJ Main prospect exhibit a close association between gold mineralization and sulphide development. Sulphide mineralization in the JJ vein system comprises mainly arsenopyrite, with relatively minor pyrite and chalcopyrite, along with the base metal sulphides sphalerite and lesser galena. Within the veins, sulphides are generally coarse grained and exhibit variable abundances from <1% to >10% of the vein material. The monzonitic wall (host) rocks typically exhibit variable chlorite and sericite alteration with minor finely disseminated pyrite (~1-2%).

### 19.3 JJ Main Prospect Resource Estimate

Apex Geoscience Ltd., on behalf of Astral Mining Corp, completed an initial geological modeling and resource estimate of the gold mineralization at the JJ Main Prospect (see **Table 27**) with the aim to determine the size of the resource that could potentially be extracted.

**Table 27. Mineral Resource Estimate for the Jumping Josephine Prospect  
(0.5g/t Au cut off)**

<b>Classification</b>	<b>Tonnage (tonnes)</b>	<b>Grade (g/t Au)</b>	<b>Gold Content (oz.)</b>
Measured	-	-	-
Indicated	363,000	2.95	34,000
<b>Total Measured + Indicated</b>	<b>363,000</b>	<b>2.95</b>	<b>34,000</b>
<b>Inferred</b>	<b>448,000</b>	<b>2.08</b>	<b>30,000</b>

Andrew Turner (P. Geol), Mike Dufresne (P.Geol) and Steve Nicholls (M AIG) of APEX Geoscience are the independent qualified persons, as defined by NI 43-101, responsible for the mineral resource estimate. The resource estimate of this advanced exploration project is classified as an Indicated and Inferred mineral resource, consistent with the CIM definitions referred to in NI 43-101. The effective date of the mineral resource is March 24<sup>th</sup>, 2011. The mineral resource estimate is derived from a total of 71 diamond drill holes completed at the prospect in 2007 and 2008. The average drill hole spacing is 20 to 40 metres within the area of interest. A total of 564 composites of 1m length, capped at 30.0g/t Au were used for the estimation. The mineral resource was estimated by inverse distance squared within a 3 dimensional mineralization envelope of gold grades 0.5g/t with similar geological characteristics in terms of alteration and mineralogy. A search ellipsoid of 30m x 30m x 4m orientated along strike (350°) was utilized for grade interpolation into 20m x 2m x 10m blocks (with sub-blocking). Block grades estimated from samples with an average distance of 15 to 40m away were classified as indicated, and with an average distance of 20 to 80m away were classified as inferred. A nominal density of 2.65g/cm<sup>3</sup> has been applied to all blocks.

## **20. Recommendations**

The Jumping Josephine property is a prospective exploration property with the potential to host an economic gold deposit. Recent exploration work programs conducted by Astral Mining Corporation have been successful in outlining a significant zone of gold mineralization at the JJ prospect, the immediate vicinity of which warrants further advanced exploration work.

It should be noted that the JJ Main prospect represents a relatively small portion of the overall land holdings of Astral that currently comprise the JJ Property. While continuing to advance the JJ Main gold prospect, Astral has also been evaluating the mineral potential of other parts of the JJ Property. A limited exploration program was conducted by Astral in 2010 to evaluate several other prospects. However, since the subject of this report is an initial resource estimation effort for the JJ Main gold prospect, specifically, and because APEX has not yet had an opportunity to conduct a site visit and thoroughly evaluate the 2010 exploration program, no recommendations with respect to regional exploration activities will be presented or discussed in this report. The reader is referred to the last Technical Report (Turner 2010), which was prepared by the principle author of this report and discusses detailed recommendations for continued regional exploration.

A significant work program is recommended for the JJ Main Prospect. This work has been organized for the purposes of this report into discreet activities in order to allow for maximum flexibility for Astral to conduct the programs it chooses based on corporate priorities and potential budgetary constraints. All of the work programs described below are warranted at this time, based on previous results, and none are contingent upon the results of any of the others. Proposed budgets for the recommended work programs are provided in Appendix 3, all of which would represent an expenditure of approximately **\$550,000**.

### **20.1 JJ Main Prospect – Resource Evaluation**

The initial gold resource for the JJ Main Prospect presented in this report (see **Tables 1, 11 and 27**) is relatively small but is considered to be significant. Given the location of the resource and its relatively simple geometry, mineralogy and positive initial metallurgy, in the opinion of APEX Geoscience, there is a reasonable potential for future development. As a result, further evaluation of the resource with respect to economics and potential development is warranted. To this end, APEX recommends that a mining engineer or engineering firm familiar with this type of deposit be contracted to conduct a more detailed evaluation of the potential economics of the JJ Main resource and that

they be tasked with the completion of a Scoping Study of the deposit. An evaluation of the JJ Main gold resource, and the preparation of a formal Scoping Study, is estimated to require 2-3 month of work with an estimated cost of **\$50,000**.

Bulk sampling is also recommended for the JJ Main gold prospect and could be completed at the same time as the Scoping Study discussed above. However, it is recommended that this work be supervised by, and/or conducted under the direction of, the engineering consultant conducting the Scoping Study such that it would provide them with information regarding the geotechnical qualities of the rock, produce additional material for detailed metallurgical testwork and the recovered mineralization could be properly tested (assayed) to provide information to test the validity of, or be used to update, the initial geological resource discussed in this report.

Astral has announced its' intention to conduct a bulk sampling program at the JJ Main prospect and that it is in the process of applying for permits for this work (see Astral Press Release – October 29, 2009). At present, permission for bulk sampling at the JJ Main Prospect has not been received. It is recommended that Astral renew its efforts to secure such a permit. APEX and Astral are not aware of any reason why such permission would not be granted. Since permission has not yet been received for this work, and the scale of bulk sampling has yet to be determined, a detailed cost estimate has not been completed. However, for planning purposes, APEX recommends that Astral budget between \$150,000 and \$250,000 for this work.

It should be noted that regardless of the outcome of a Scoping Study for the JJ Main Resource, further exploration is recommended as it has the potential to increase the currently defined resource. As a result, the following exploration activities are not contingent upon the results of the evaluation, or Scoping Study, discussed above.

## **20.2 JJ Main Prospect Area – Recommended Drill Program**

Further step-out drilling immediately adjacent to the JJ Main resource area is warranted in order to attempt to increase the current resource. Additional drilling around the prospect was recommended by the principle author of this report following the 2009 exploration season (Turner 2010) and, although Astral has since completed some additional drilling at and around the JJ Main Prospect (fall 2010), the majority of the targets identified by the principle author remain untested and still warrant testing as priority drill targets. Specifically, several >90<sup>th</sup> percentile Au (+/- As) soil anomalies located in the JJ Main area are recommended for drill testing (**Figure 36**) and have the potential to identify new zones of mineralization that could expand the current JJ Main



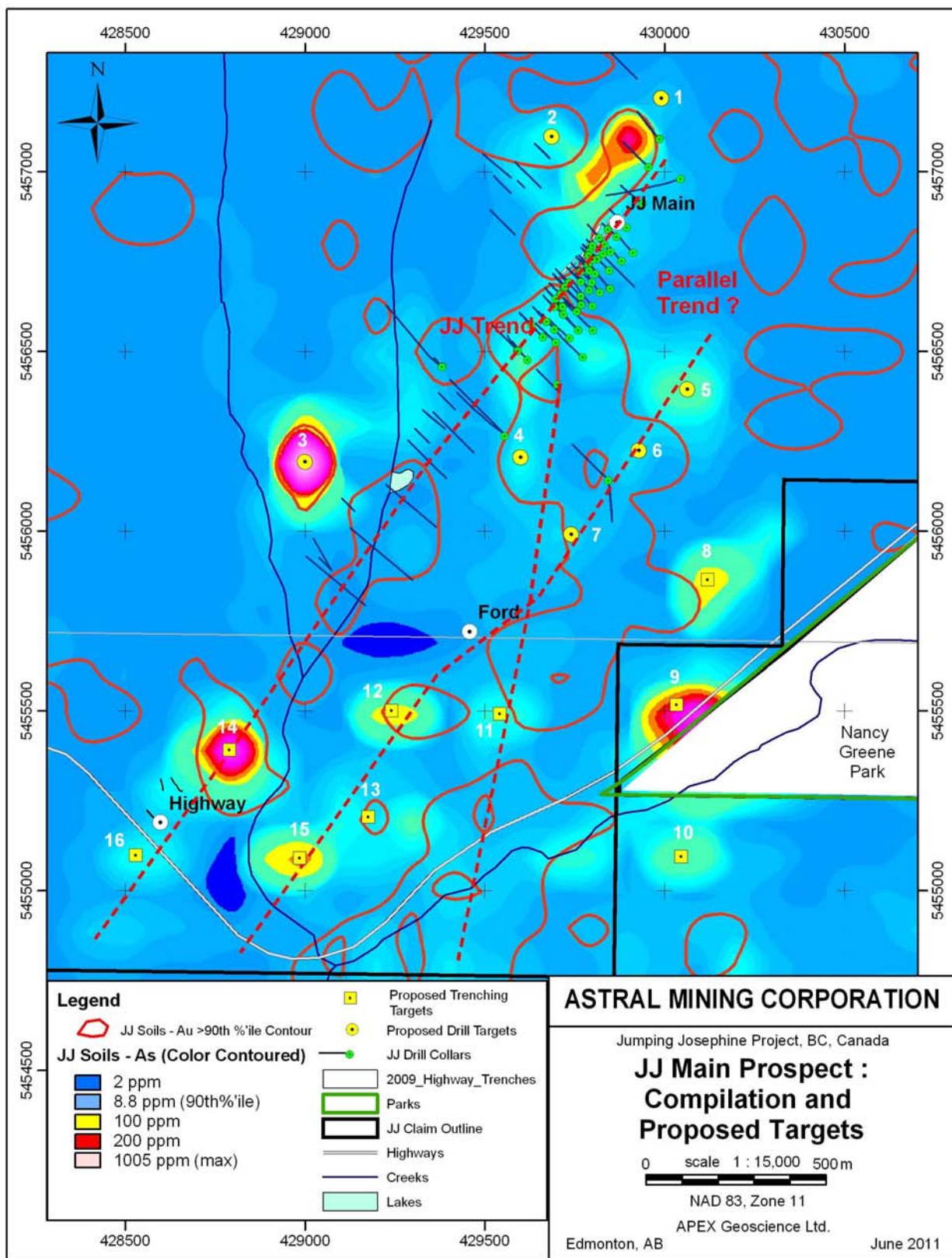


Figure 36

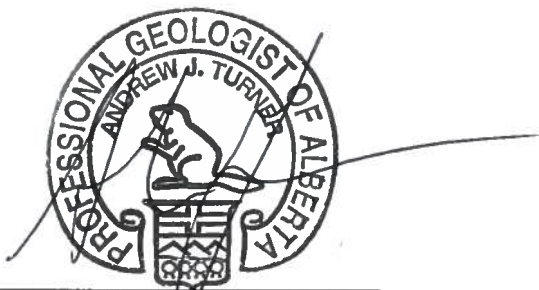
resource. A drill program comprising approximately 2000m of drilling in 10-12 holes is recommended at an estimated cost of **\$415,000**

### **20.3 JJ Main Prospect Area – Recommended Trenching Program**

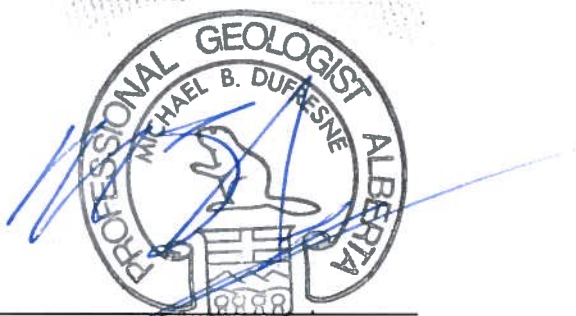
As described above, several >90<sup>th</sup> percentile Au (+/- As) soil anomalies located in the JJ Main area, but more than 500m from the actual prospect to the south and southwest, are recommended for trenching (see Figure 36). A 3-4 week trenching program in the JJ Main area is estimated to require an expenditure of approximately **\$85,000**.

**APEX GEOSCIENCE LTD.**

June 24, 2011



Andrew J. Turner, B.Sc., P.Geol.



Michael Dufresne, M.Sc., P.Geol.

A handwritten signature in blue ink, appearing to read "S. Nicholls".

Steven J. Nicholls, BA.Sc. (Geology), MAIG

## **21. References**

**Caron, L.J. (2003).** Presentation: Gold Opportunities In Southern BC. Cranbrook Symposium. May 2-4, 2003.

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**Mehrfert, P. and Shouldice, T. (2009):** Metallurgical Assessment Of The Jumping Josephine Deposit. (internal report prepared by G&T Metallurgical Services Ltd.).

**Ray, G.E. (2003):** Technical Report on the Geology & Mineral Potential of the Bunker Hill, JJ and Connor Creek Gold Properties for Kootenay Gold Corporation. (internal report).

**Terry, D.A. and Brittliffe, D., (2007):** 43-101 Report on Exploration at the Jumping Josephine Property, Southeastern British Columbia for Astral Mining Corporation (internal report)

**Turner, A.J. (2008):** Technical Report on 2007 Exploration at the Jumping Josephine Property, South-eastern British Columbia, Canada. For Astral Mining Corporation. Dated March 27, 2008. (independent technical report).

**Turner, A.J. (2009):** Technical Report on 2008 Exploration at the Jumping Josephine Property, South-eastern British Columbia, Canada. For Astral Mining Corporation. Dated July 14, 2009. (independent technical report).

**Turner, A.J. (2010):** Technical Report on 2009 Exploration at the Jumping Josephine Property, South-eastern British Columbia, Canada. For Astral Mining Corporation. Dated March 29, 2010. (independent technical report).

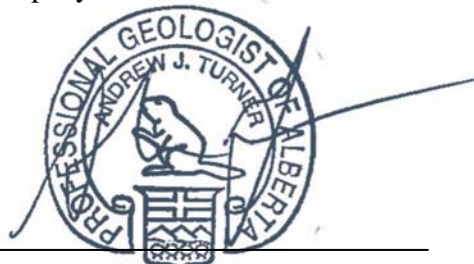
## Certificate of Author

I, Andrew J. Turner, P.Geol., do hereby certify that:

1. I am currently employed as a Senior Geologist with:  
APEX Geoscience Ltd.  
#200 9797 45 Avenue  
Edmonton, Alberta, Canada T6E 5V8
2. My academic qualification is: Bachelor of Science, (Honors) Geology, received from the University of Alberta in 1989.
3. My professional affiliation is: member of the Association of Professional Engineers, Geologists and Geoscientists of Alberta, Canada (APEGGA).
4. I have worked as a geologist for a total of 22 years since my graduation from university and have extensive experience in gold exploration. Most recently, I have acted as the Project Manager for the Committee Bay Gold Project, Nunavut, Canada (2003-10).
5. I have read the definition of “qualified person” set out in National Instrument 43-101 (“**NI 43-101**”) and certify that by reason of my education, affiliation with a professional association (as defined in NI 43-101) and past relevant work experience, I fulfill the requirements to be a “qualified person” for the purposes of NI 43-101.
6. As the principle author, I, along with my co-authors Michael Dufresne, M.Sc., P.Geol. and Steven Nicholls, BA.Sc. (Geology), MAIG, am responsible for the preparation of all sections of the technical report entitled “*Technical Report on an Initial Resource Estimate for the Jumping Josephine Gold Prospect, South-Eastern British Columbia, Canada*” and dated June 24, 2011 (the “**Technical Report**”), on behalf of Astral Mining Corporation, relating to the Jumping Josephine Property. I have personally conducted visits to the Jumping Josephine Property on October 22-24, 2007, June 4-6, 2009 and September 7-10, 2010.
7. My only prior involvement with the property that is the subject of the **Technical Report** has been for the preparation of previous independent Technical Reports in 2008, 2009 and 2010.
8. As of the date of this certificate, to the best of the 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.
9. I am independent of the Company in accordance to section 1.4 of NI 43-101.
10. I have read NI 43-101 and Form 43-101F1, and the **Technical Report** has been prepared in compliance with that Instrument and Form.
11. I consent to the public filing of the **Technical Report** and to extracts from, or a summary of the Technical Report, with any stock exchange and other regulatory authority and any publication by them, including electronic publication in the public company files on their website accessible by the public.

June 24, 2011

Date



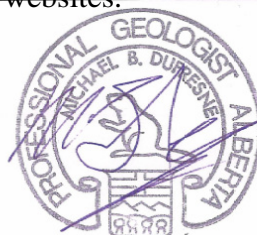
Andrew J. Turner, B.Sc., P.Geol.

## CERTIFICATE OF AUTHOR

I, Michael B. Dufresne, M.Sc., P.Geol., do hereby certify that:

1. I am President of: APEX Geoscience Ltd.  
Suite 200, 9797 – 45th Avenue  
Edmonton, Alberta T6E 5V8  
Phone: 780-439-5380
2. I graduated with a B.Sc. in Geology from the University of North Carolina at Wilmington in 1983 and with a M.Sc. in Economic Geology from the University of Alberta in 1987.
3. I am and have been registered as a Professional Geologist with the Association of Professional Engineers, Geologists and Geophysicists of Alberta since 1989.
4. I have worked as a geologist for more than 20 years since my graduation from university.
5. I have read the definition of “Qualified Person” set out in National Instrument 43-101 (“NI 43-101”) and certify that by reason of my education, affiliation with a professional association (as defined in NI 43-101) and past relevant work experience, I fulfill the requirements to be a “Qualified Person” for the purposes of NI 43-101.
6. I am responsible for and have supervised the preparation of the Technical Report titled *“Technical Report on an Initial Resource Estimate for the Jumping Josephine Gold Prospect, South-eastern British Columbia, Canada”*, and dated June 24, 2011 (the **“Technical Report”**). I have not personally conducted a visit to Astral’s JJ Property.
7. I am not aware of any scientific or technical information with respect to the subject matter of the **Technical Report** that is not reflected in the **Technical Report**, the omission to disclose which makes the **Technical Report** misleading.
8. I am independent of the issuer applying all of the tests in section 1.4 of NI 43-101.
9. I have read National Instrument 43-101 and Form 43-101F1, and the **Technical Report** has been prepared in compliance with that instrument and form.
10. I consent to the filing of the **Technical Report** with any stock exchange and other regulatory authority and any publication by them for regulatory purposes, including electronic publication in the public company files or their websites.

Dated this June 24, 2011  
Edmonton, Alberta, Canada



Michael B. Dufresne, M.Sc., P.Geol.



## Certificate of Author

I, Steven J Nicholls, MAIG., do here by certify that:

1. I am currently employed as a Resource Geologist with:  
APEX Geoscience Australia Pty Ltd.  
39B Kensington St  
East Perth WA Australia 6004
2. My academic qualification is: Bachelor of Applied Science, in Geology, received from the University of Ballarat in 1997.
3. My professional affiliation is: member of the Australian Institute of Geoscientists, Australia (AIG).
4. I have worked as a geologist for a total of 13 years since my graduation from university and have extensive experience in gold exploration/resource estimation. Most recently I was employed by Tanami Gold NL as a Senior Exploration geologist where I was responsible for the company's resource estimations.
5. I have read the definition of "qualified person" set out in the National Instrument 43-101 ("NI 43-101") and certify that be reason of my education, affiliation with a professional association (as defined in NI 43-101) and past relevant work experience, I fulfil the requirements to be a "qualified person" for the purposes of NI 43-101.
6. I, along with my co-authors Michael Dufresne, M.Sc., P.Geol. and Andrew Turner, B.Sc., P.Geol., am responsible for the preparation of the **Mineral Resource and Mineral Reserve Estimates** section of the report entitled "*Technical Report on an Initial Resource Estimate for the Jumping Josephine Gold Prospect, South-Eastern British Colombia, Canada*" and dated June 24, 2011 (the "**Technical Report**"), on behalf of Astral Mining Corporation, relating to the Jumping Josephine Property. I have not personally conducted a visit to the Jumping Josephine Property.
7. I have not had prior involvement with the property that is the subject of the **Technical Report**.
8. As of the date on this certificate, 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.
9. I am an independent to the Company in accordance to section 1.4 of NI 43-101
10. I have read NI 43-101 and Form 43-101F1, and the **Technical Report** has been prepared in compliance with that Instrument and Form.
11. I consent to the public filing of the Technical Report and to extracts from, or a summary of the **Technical Report**, with any stock exchange and other regulatory authority and any publication by them, including electronic publication in the public company files on their website accessible by the public.

June 24, 2011



---

Steven J Nicholls, BA.Sc(Geology) MAIG



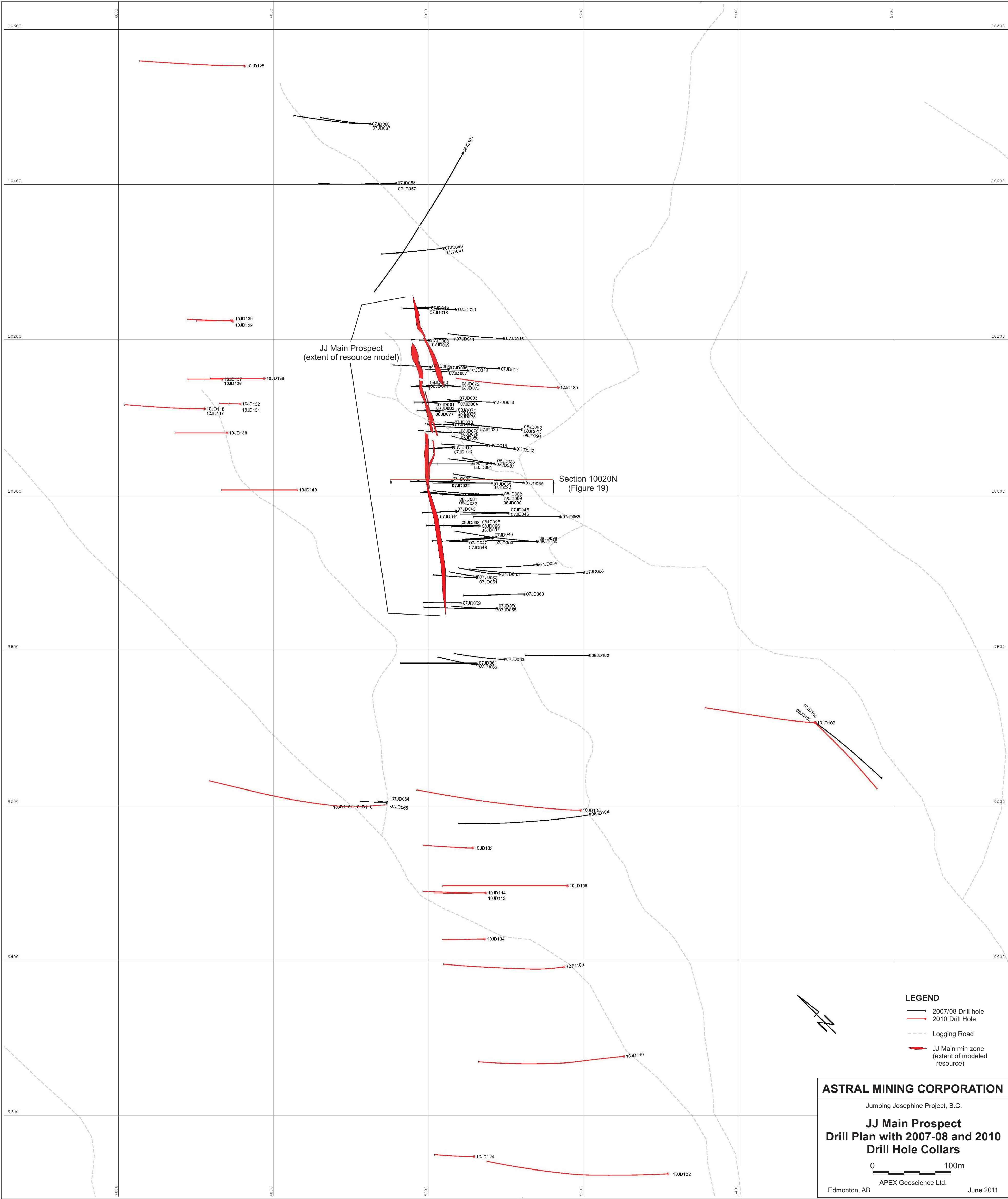


Figure 18

## **Appendix 1**

### **JJ Property Claim Information**

## Astral Mining Corporation - Jumping Josephine Property Claim Information

Number	Name	Area (Ha)	Due Date	District	Owner ID	Issue Date	Assessment
<b>Englund Crown Grant Claims</b>		<b>91.93</b>					
5718	BONANZA NO. 2	20.00	-	GW (Kootenay)	John Ralph Englund	510459	n/a
12489	ALBION NO. 2	11.46	-	GW (Kootenay)	John Ralph Englund	510459	n/a
12490	DULUTH	4.05	-	GW (Kootenay)	John Ralph Englund	510459	n/a
12491	ALBION FRACTION	1.23	-	GW (Kootenay)	John Ralph Englund	510459	n/a
13489	B.C.	18.27	-	GW (Kootenay)	John Ralph Englund	510459	n/a
13490	U.S.	16.63	-	GW (Kootenay)	John Ralph Englund	510459	n/a
5436	DUBROVNIK	20.28	-	GW (Kootenay)	John Ralph Englund	510459	n/a
<b>Jumping Josephine Claims</b>		<b>11142.74</b>					
402972	EAU 5	25.00	27-May-2014	Trail	146006	27-May-2003	\$ -
402973	EAU 6	25.00	27-May-2014	Trail	146006	27-May-2003	\$ -
502048	Tag 1	480.51	17-Sep-2014	Greenwood	146006	12-Jan-2005	\$ -
502135	Tag 2	528.08	17-Sep-2014	Greenwood	146006	12-Jan-2005	\$ -
502201	Tag 3	287.25	17-Sep-2014	Greenwood/Trail	146006	12-Jan-2005	\$ -
502223	Tag 4	417.52	17-Sep-2014	Greenwood/Trail	146006	12-Jan-2005	\$ -
502262	Tag 4	451.93	17-Sep-2014	Greenwood	146006	12-Jan-2005	\$ -
502293	Tag 5	379.74	17-Sep-2014	Greenwood/Trail	146006	12-Jan-2005	\$ -
502312	Tag 6	527.29	17-Sep-2014	Greenwood/Trail	146006	12-Jan-2005	\$ -
502334	Tag 7	526.98	17-Sep-2014	Greenwood/Trail	146006	12-Jan-2005	\$ -
502350	Tag 8	526.77	17-Sep-2014	Trail	146006	12-Jan-2005	\$ -
502361	Tag 9	417.40	17-Sep-2014	Greenwood/Trail	146006	12-Jan-2005	\$ -
502378	Tag 10	442.80	17-Sep-2014	Greenwood/Trail	146006	12-Jan-2005	\$ -
513692	SARAH JEAN	190.09	17-Sep-2014	Greenwood	146006	31-May-2005	\$ -
514532	BIG TIME	528.08	15-Jun-2014	Greenwood	146006	15-Jun-2005	\$ -
514533	BONANZO	464.84	15-Jun-2014	Greenwood	146006	15-Jun-2005	\$ -
515261	GAP	232.19	25-Jun-2014	Greenwood	146006	25-Jun-2005	\$ -
516885	(n/a)	1842.08	17-Sep-2016	Trail	146006	11-Jul-2005	\$ -
516886	(n/a)	425.06	17-Sep-2014	Trail	146006	11-Jul-2005	\$ -
516888	(n/a)	717.04	17-Sep-2014	Trail	146006	11-Jul-2005	\$ -
516889	(n/a)	442.89	17-Sep-2014	Trail	146006	11-Jul-2005	\$ -
516890	(n/a)	189.62	17-Sep-2014	Trail	146006	11-Jul-2005	\$ -
516893	(n/a)	568.97	17-Sep-2014	Trail	146006	11-Jul-2005	\$ -
516894	(n/a)	505.61	17-Sep-2014	Trail	146006	11-Jul-2005	\$ -
							\$ -
<b>Blueberry Claims</b>		<b>7147.02</b>					
529247	Nugget	527.98	30-Nov-2011	Greenwood/Trail	137109	2-Mar-2006	\$ 4,223.86
529248	Nugget 1000	485.86	30-Nov-2011	Greenwood/Trail	137109	2-Mar-2006	\$ 3,886.91
532532	Blueberry 1000	527.03	30-Nov-2011	Trail	137109	18-Apr-2006	\$ 4,216.25
532533	Blueberry 2000	526.75	30-Nov-2011	Trail	137109	18-Apr-2006	\$ 4,214.02
532534	Blueberry 3000	442.67	30-Nov-2011	Trail	137109	18-Apr-2006	\$ 3,541.35
532654	Blueberry 4000	63.26	30-Nov-2011	Trail	137109	19-Apr-2006	\$ 506.07
533682	Granville 1000	84.45	30-Nov-2011	Trail	137109	19-Apr-2006	\$ 675.56
533683	Granville 2000	506.82	30-Nov-2011	Trail	137109	19-Apr-2006	\$ 4,054.59

## Astral Mining Corporation - Jumping Josephine Property Claim Information

Number	Name	Area (Ha)	Due Date	District	Owner ID	Issue Date	Assessment
534398	Blueberry 6000	527.09	30-Nov-2011	Trail	137109	26-May-2006	\$ 4,216.70
547359	Christina 8000	505.41	14-Dec-2011	Trail	137109	14-Dec-2006	\$ 4,043.26
547360	Blueberry 7000	527.38	14-Dec-2011	Trail	137109	14-Dec-2006	\$ 4,219.04
547364	Blueberry 8000	526.38	14-Dec-2011	Trail	137109	14-Dec-2006	\$ 4,211.03
547365	Christina 9000	505.43	14-Dec-2011	Trail	137109	14-Dec-2006	\$ 4,043.46
547368	Blueberry 9000	189.81	14-Dec-2011	Trail	137109	14-Dec-2006	\$ 1,518.50
550468	JJ	21.08	27-Jan-2012	Trail	137109	27-Jan-2007	\$ 168.62
557745	Blue North	442.35	29-Apr-2012	Trail	137109	29-Apr-2007	\$ 3,538.76
557746	Blue North 1000	315.96	29-Apr-2012	Trail	137109	29-Apr-2007	\$ 2,527.65
557747	Blue North 2000	168.47	29-Apr-2012	Trail	137109	29-Apr-2007	\$ 1,347.77
557835	Blue East	252.84	1-May-2012	Trail	137109	1-May-2007	\$ 2,022.74
							\$ 57,176.14
<b>Columbia-Rosslund Claims</b>		<b>15451.83</b>					
564138	ROSSLAND 1000	526.76	4-Nov-2011	Trail	206068	4-Aug-2007	\$ 4,214.10
564139	ROSSLAND 2000	527.19	4-Nov-2011	Trail	206068	4-Aug-2007	\$ 4,217.49
564140	ROSSLAND 3000	527.39	4-Nov-2011	Trail	206068	4-Aug-2007	\$ 4,219.09
564141	ROSSLAND 4000	526.99	4-Nov-2011	Trail	206068	4-Aug-2007	\$ 4,215.91
564142	ROSSLAND 5000	527.28	4-Nov-2011	Trail	206068	4-Aug-2007	\$ 4,218.22
564143	ROSSLAND 6000	526.85	4-Nov-2011	Trail	206068	4-Aug-2007	\$ 4,214.79
564144	ROSSLAND 7000	527.16	4-Nov-2011	Trail	206068	4-Aug-2007	\$ 4,217.28
564145	ROSSLAND 8000	526.97	4-Nov-2011	Trail	206068	4-Aug-2007	\$ 4,215.75
564146	ROSSLAND 9000	358.38	4-Nov-2011	Trail	206068	4-Aug-2007	\$ 2,867.06
564147	ROSSLAND 10000	379.84	4-Nov-2011	Trail	206068	4-Aug-2007	\$ 3,038.76
555737	BLUE -1000	526.97	30-Nov-2011	Trail	206068	4-Apr-2007	\$ 4,215.78
555738	BLUE-3000	526.24	30-Nov-2011	Trail	206068	4-Apr-2007	\$ 4,209.89
555743	BLUE - 7000	525.98	30-Nov-2011	Trail	206068	4-Apr-2007	\$ 4,207.86
555762	BLUE - 9000	168.49	30-Nov-2011	Trail	206068	4-Apr-2007	\$ 1,347.89
563489	COLUMBIA 5000	252.55	22-Nov-2011	Trail	206068	22-Jul-2007	\$ 2,020.42
563492	COLUMBIA 8000	526.88	22-Nov-2011	Trail	206068	22-Jul-2007	\$ 4,215.03
563493	COLUMBIA 9000	526.90	22-Nov-2011	Trail	206068	22-Jul-2007	\$ 4,215.16
563494	COLUMBIA 10000	506.01	22-Nov-2011	Trail	206068	22-Jul-2007	\$ 4,048.10
563496	COLUMBIA 12000	527.22	22-Nov-2011	Trail	206068	22-Jul-2007	\$ 4,217.72
563497	COLUMBIA 13000	527.18	22-Nov-2011	Trail	206068	22-Jul-2007	\$ 4,217.45
563498	COLUMBIA 14000	527.19	22-Nov-2011	Trail	206068	22-Jul-2007	\$ 4,217.54
563499	COLUMBIA 15000	126.44	22-Nov-2011	Trail	206068	22-Jul-2007	\$ 1,011.56
559991	COLUMBIA 1000	484.56	9-Nov-2011	Trail	206068	6-Jun-2007	\$ 3,876.51
559992	COLUMBIA 2000	505.63	9-Nov-2011	Trail	206068	6-Jun-2007	\$ 4,045.04
559993	COLUMBIA 3000	526.50	9-Nov-2011	Trail	206068	6-Jun-2007	\$ 4,211.97
560386	CHAMPION 1000	527.36	9-Nov-2011	Trail	206068	9-Jun-2007	\$ 4,218.86
560387	CHAMPION 2000	506.36	9-Nov-2011	Trail	206068	9-Jun-2007	\$ 4,050.89
560388	CHAMPION 3000	506.27	9-Nov-2011	Trail	206068	9-Jun-2007	\$ 4,050.17
560389	CHAMPION 4000	506.43	9-Nov-2011	Trail	206068	9-Jun-2007	\$ 4,051.44
560390	CHAMPION 5000	527.58	9-Nov-2011	Trail	206068	9-Jun-2007	\$ 4,220.68

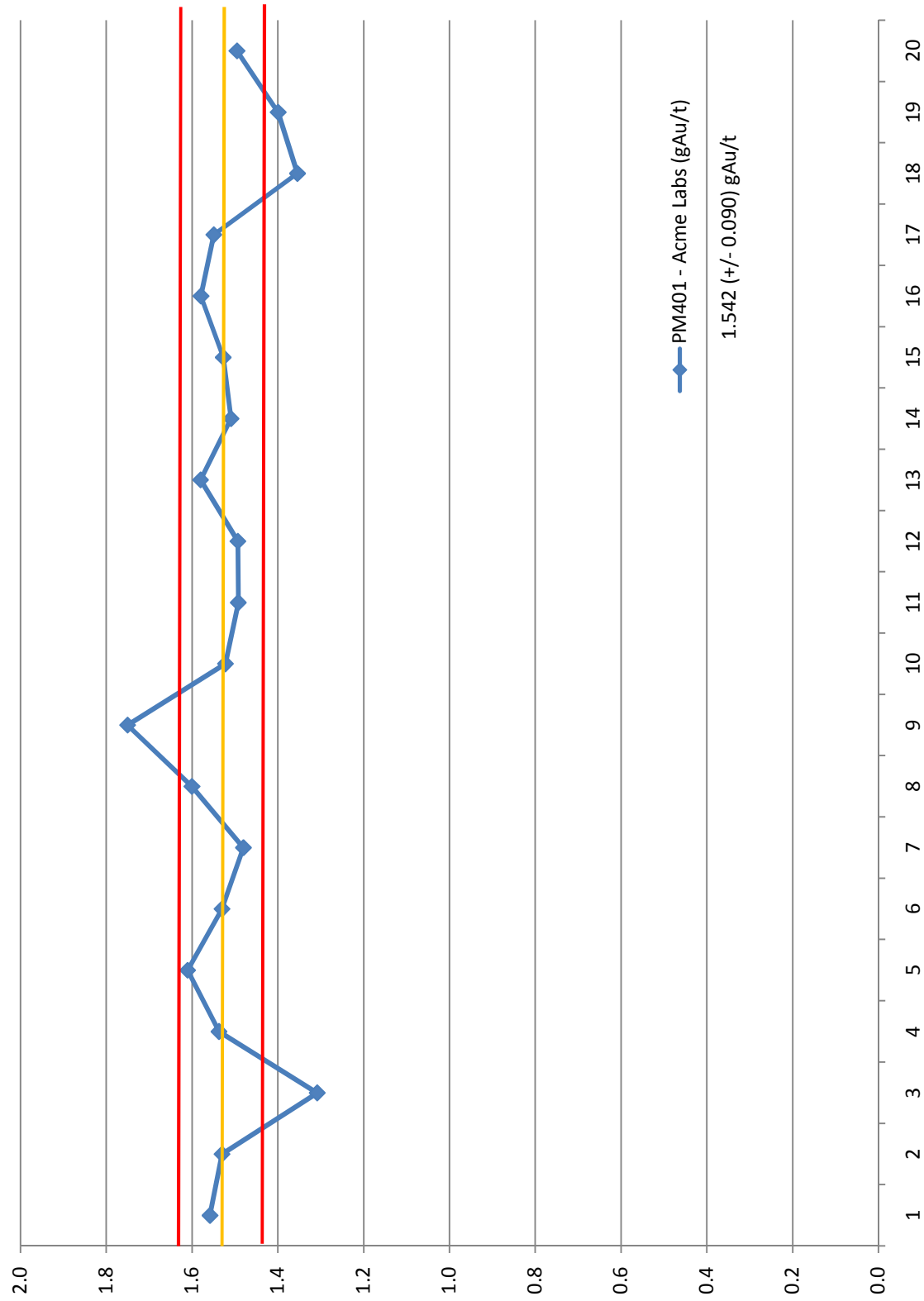
## Astral Mining Corporation - Jumping Josephine Property Claim Information

Number	Name	Area (Ha)	Due Date	District	Owner ID	Issue Date	Assessment
557748	BLUE EAST	527.50	10-Nov-2011	Trail	206068	9-Jun-2007	\$ 4,219.98
559396	BLUE-EAST	126.42	10-Nov-2011	Trail	206068	9-Jun-2007	\$ 1,011.36
559397	ARROW	484.36	10-Nov-2011	Trail	206068	9-Jun-2007	\$ 3,874.91
							<b>\$ 123,614.66</b>
<b>Ridge</b>		<b>2738.99</b>					
604628	RIDGE 1	526.98	10-Nov-2011	Trail	206068	17-May-2009	\$ 4,215.84
604630	RIDGE 2	526.85	10-Nov-2011	Trail	206068	17-May-2009	\$ 4,214.80
604631	RIDGE 3	484.48	10-Nov-2011	Trail	206068	17-May-2009	\$ 3,875.84
604639	RIDGE 4	315.90	10-Nov-2011	Trail	206068	17-May-2009	\$ 2,527.20
631663	MAC 1000	526.59	10-Sep-2011	Trail	206068	10-Sep-2009	\$ 4,212.72
631664	MAC 2000	358.19	10-Sep-2011	Trail	206068	10-Sep-2009	\$ 2,865.52
							<b>\$ 21,911.92</b>
<b>Grand Total</b>	<b>82 BC Claims and 7 Crown Granted Claims - 36,572.51ha</b>				<b>Assessment Required</b>		<b>\$ 202,702.72</b>

## **Appendix 2**

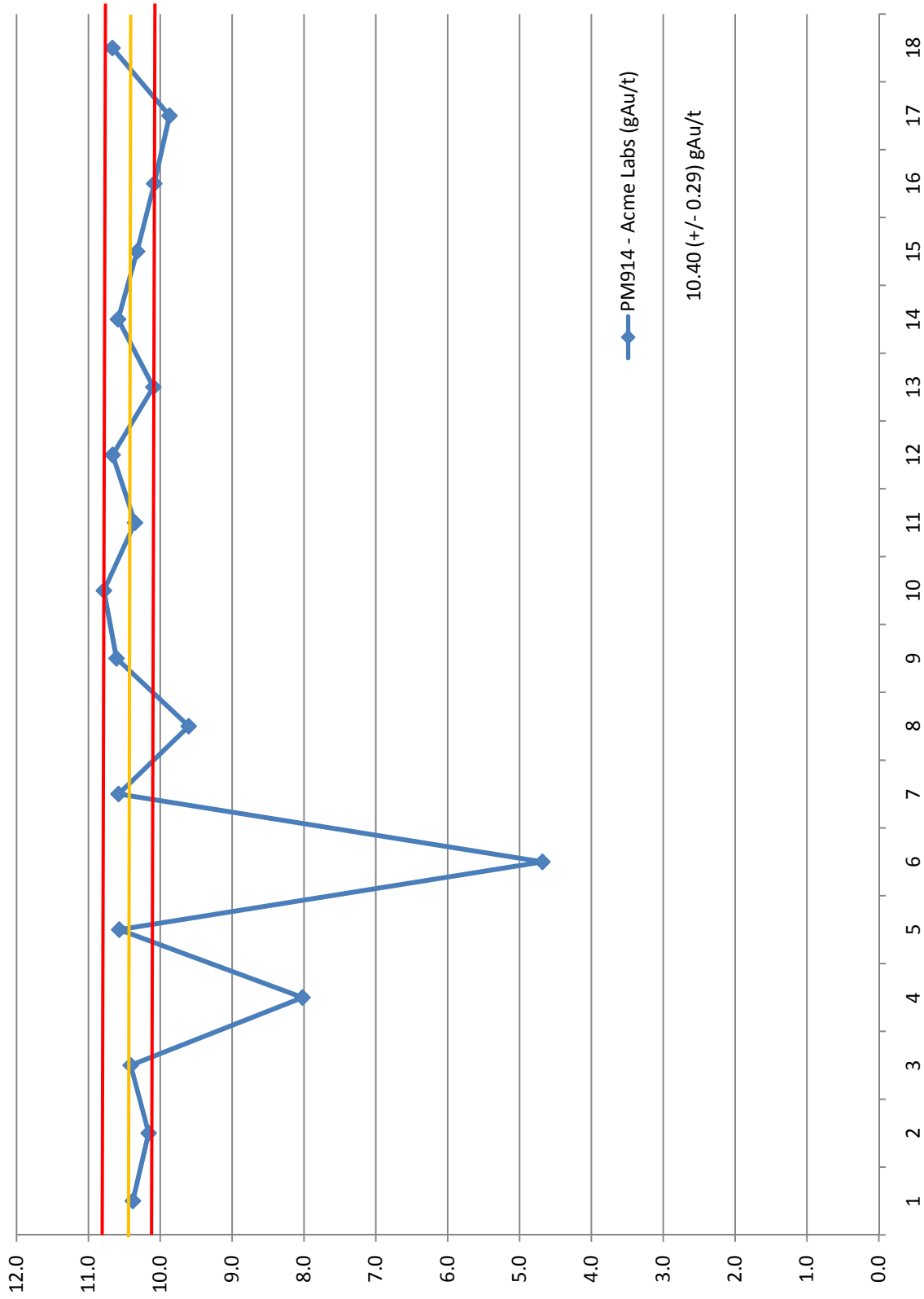
### **2007 Standard Reference Material Analytical Graphs**

Standard PM401 - Acme Labs

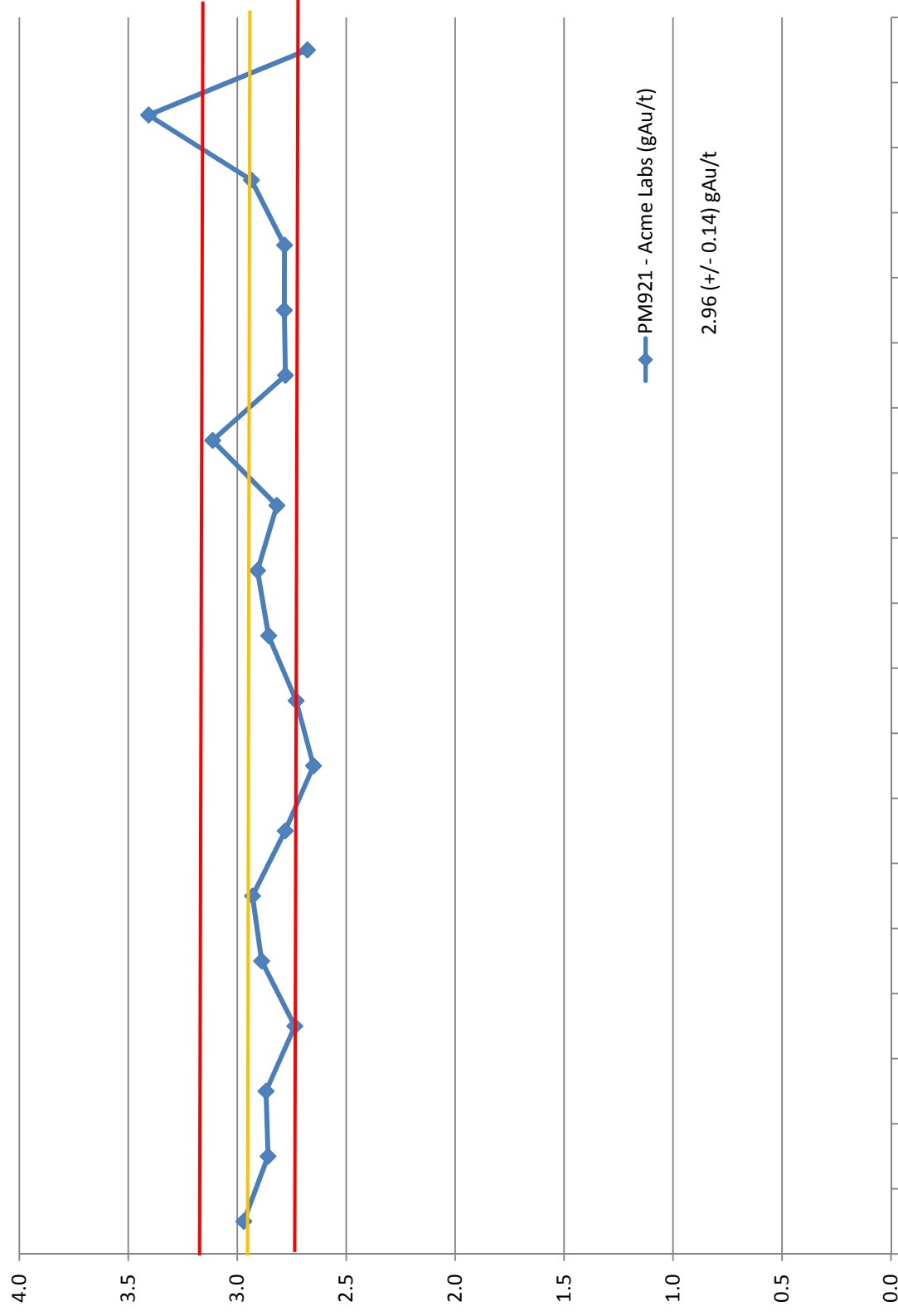




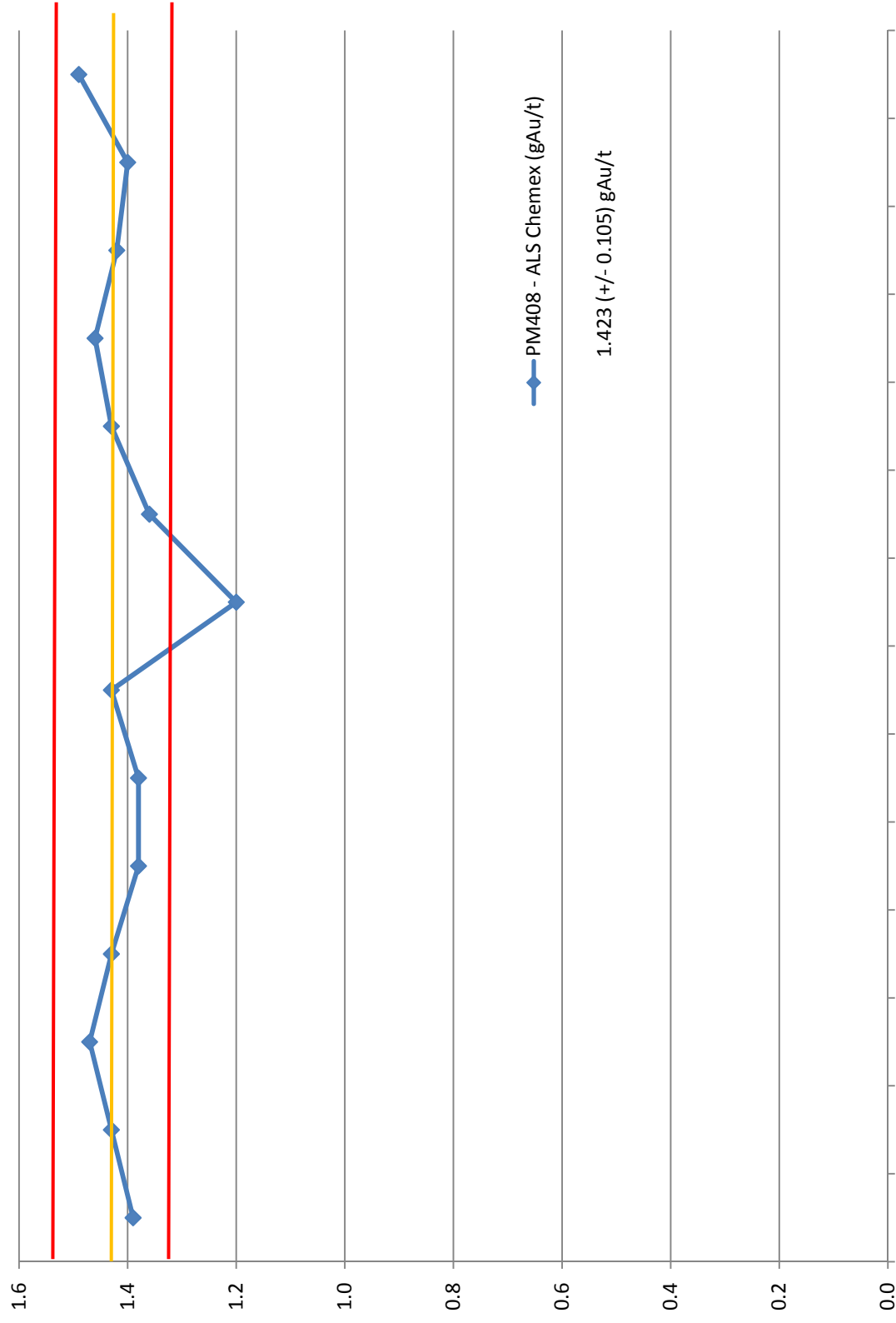
Standard PM914 - Acme Labs



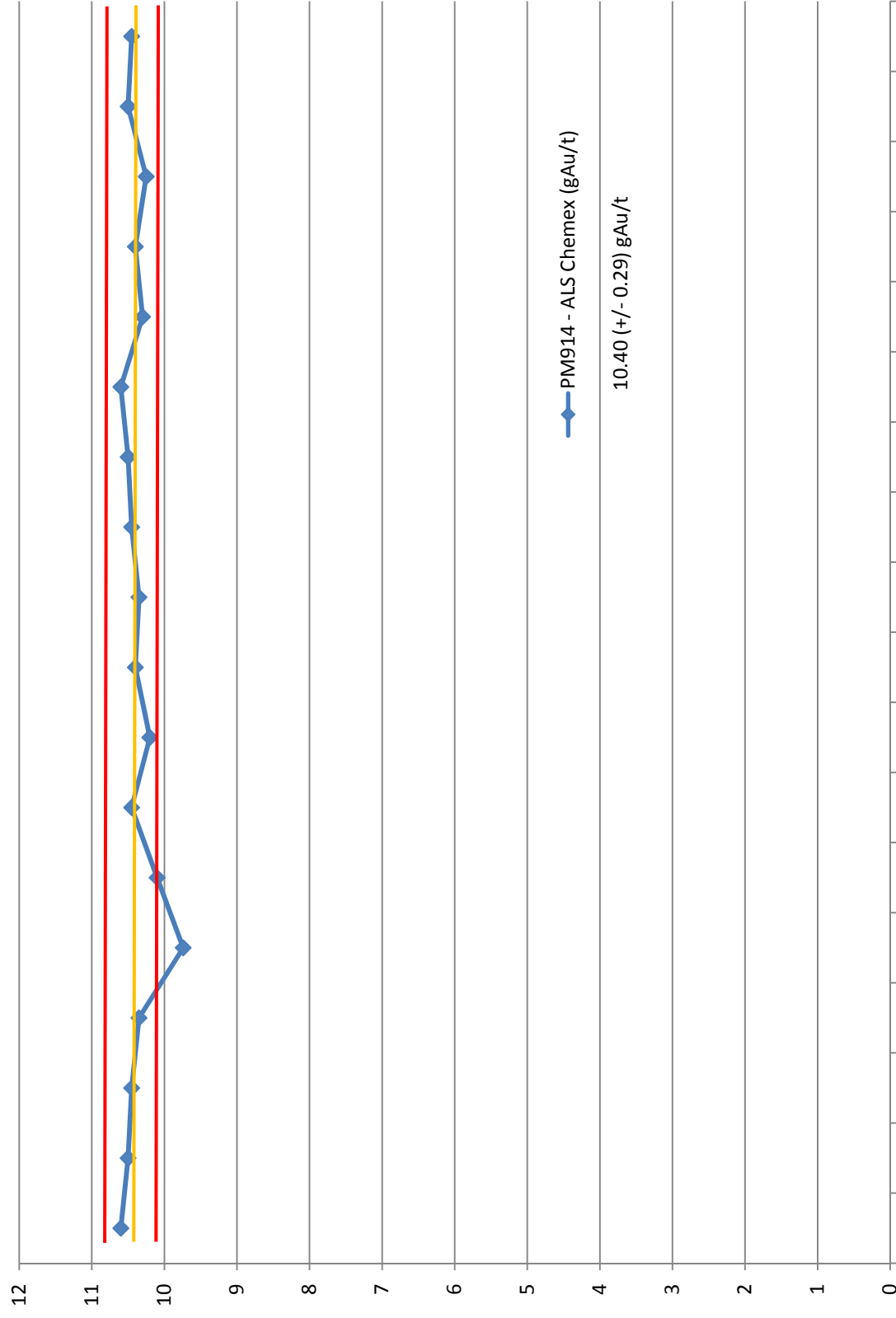
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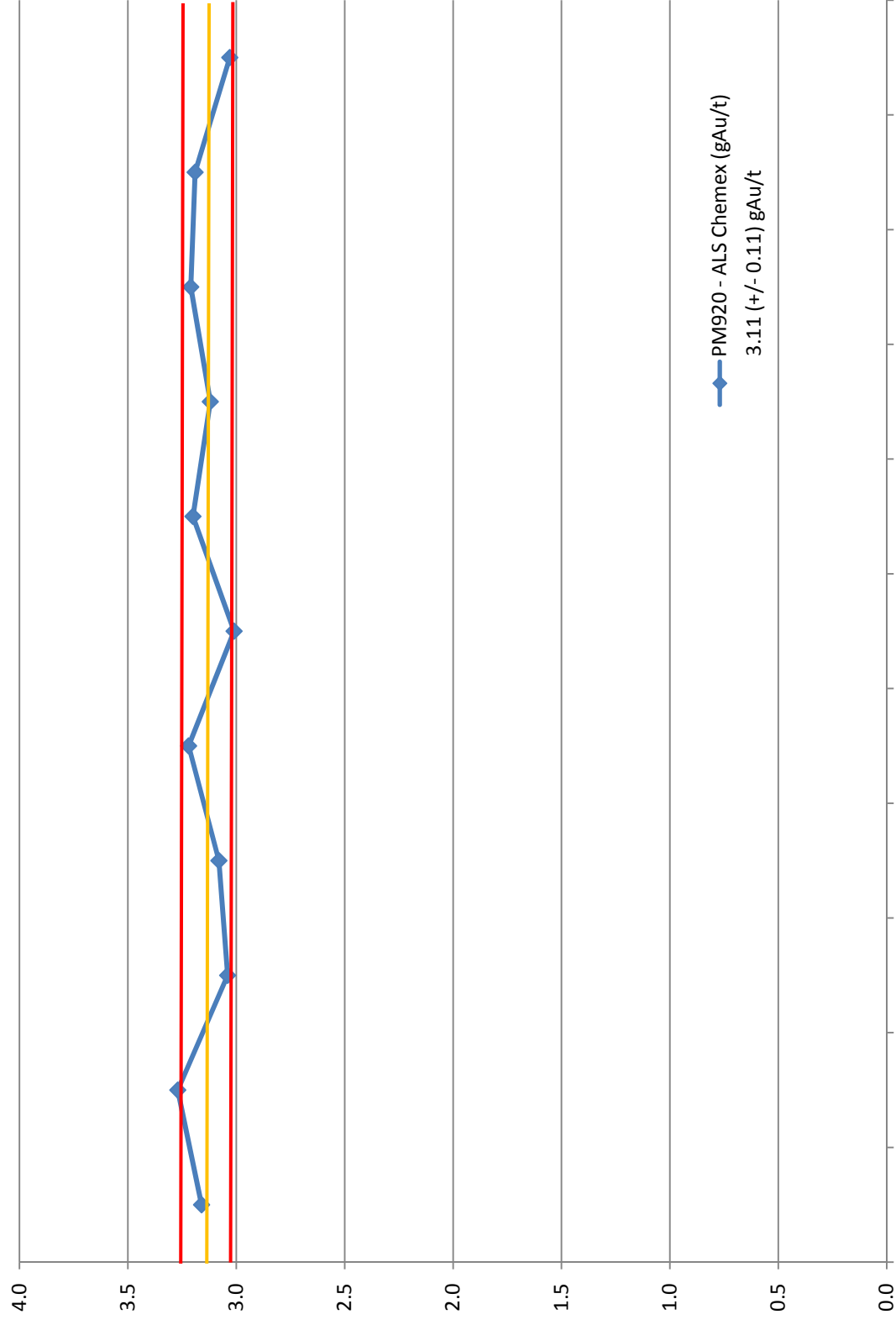
## Standard PM408 - ALS Chemex



## Standard PM914 - ALS Chemex



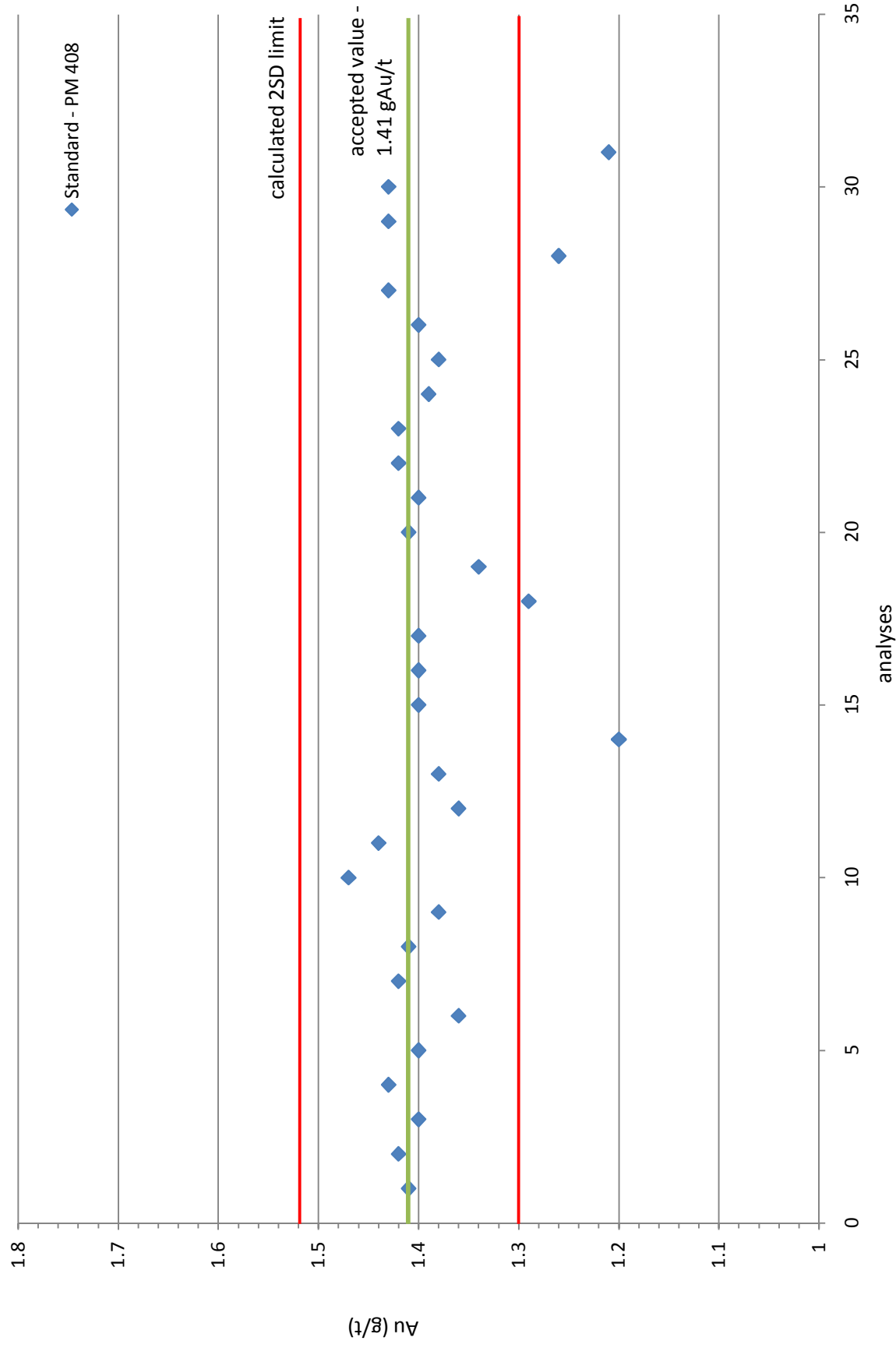
## Standard PM920 - ALS Chemex



## **Appendix 2**

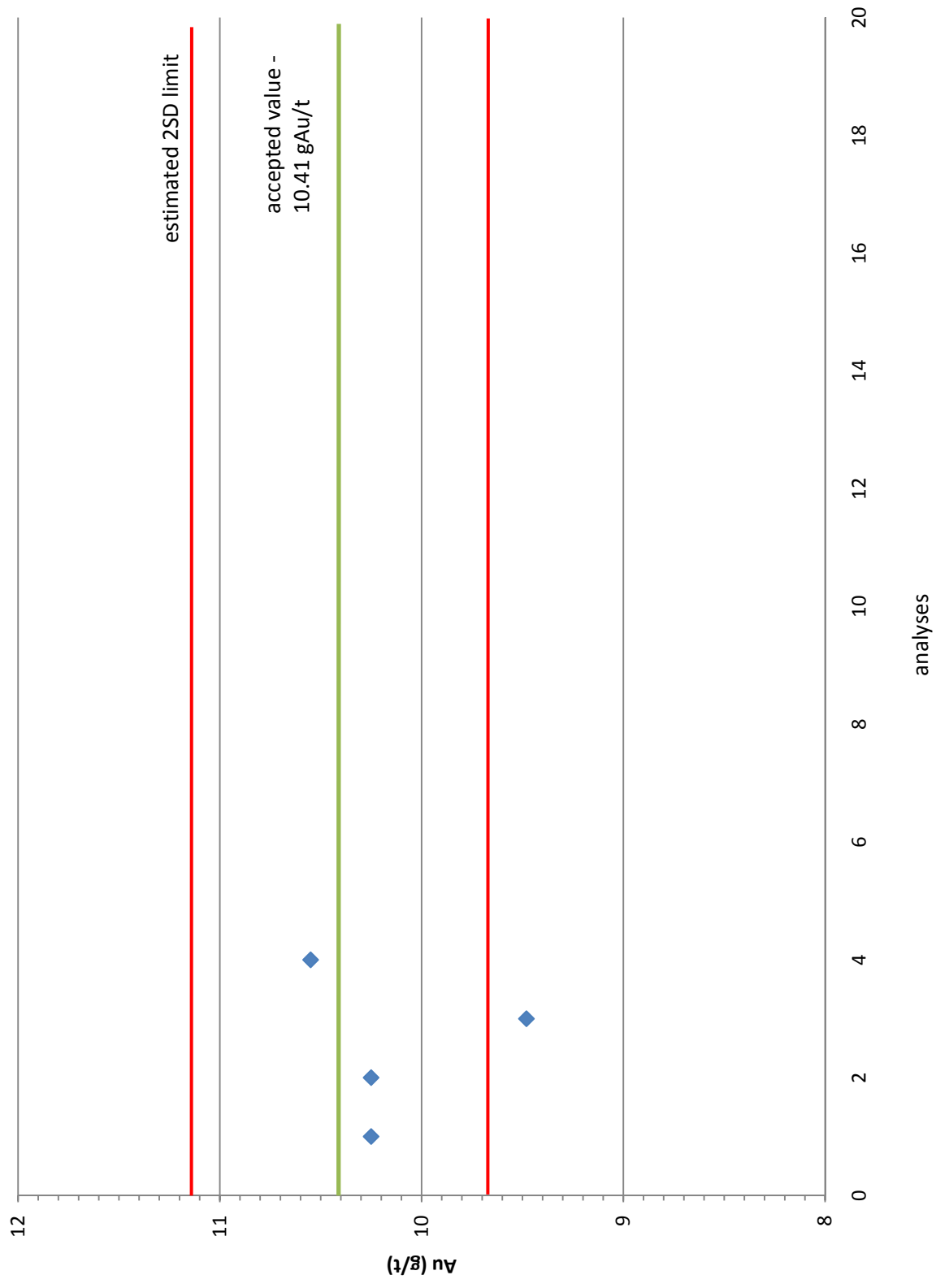
### **2008 Standard Reference Material Analytical Graphs**

# Standard - PM 408

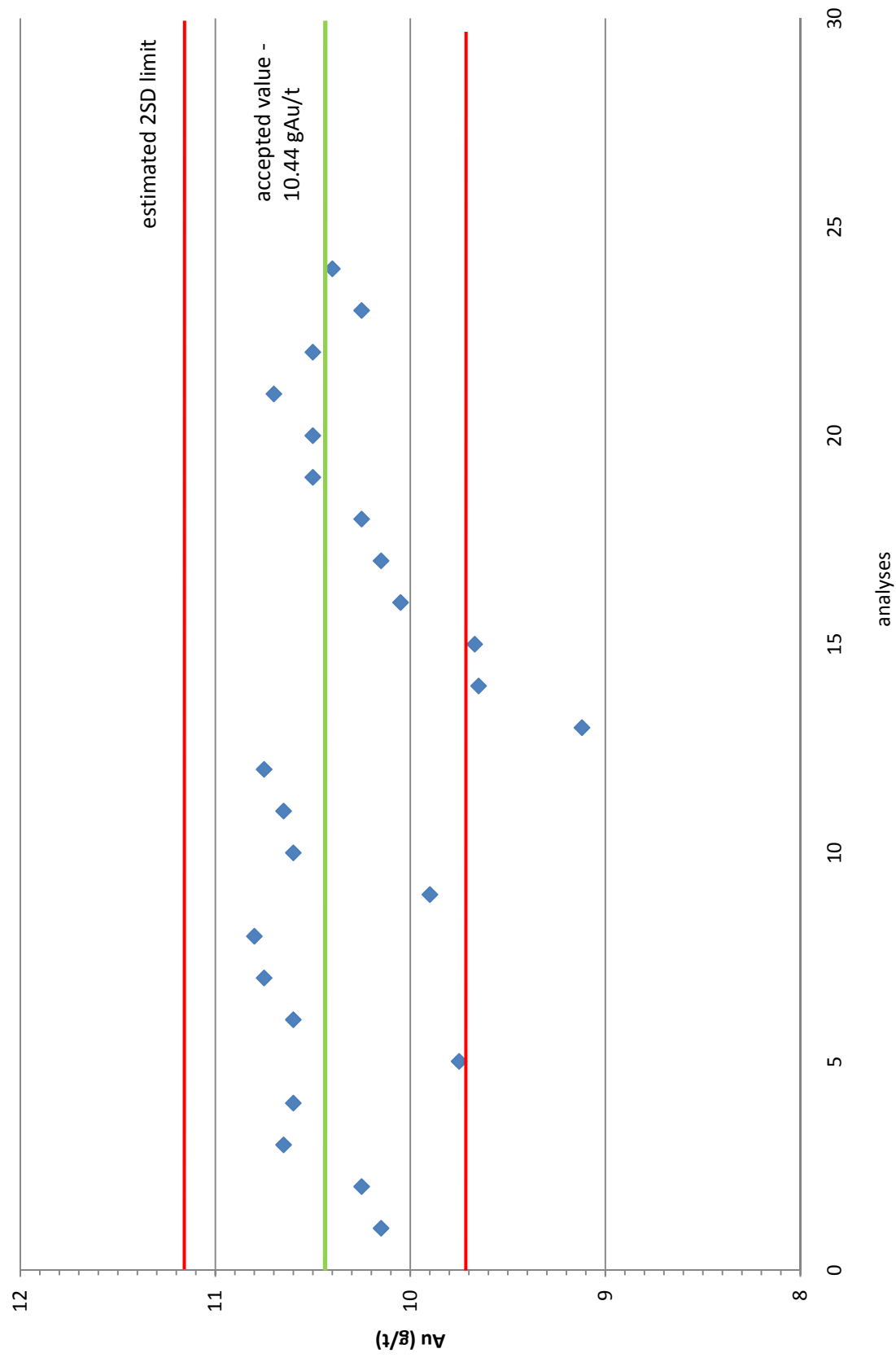




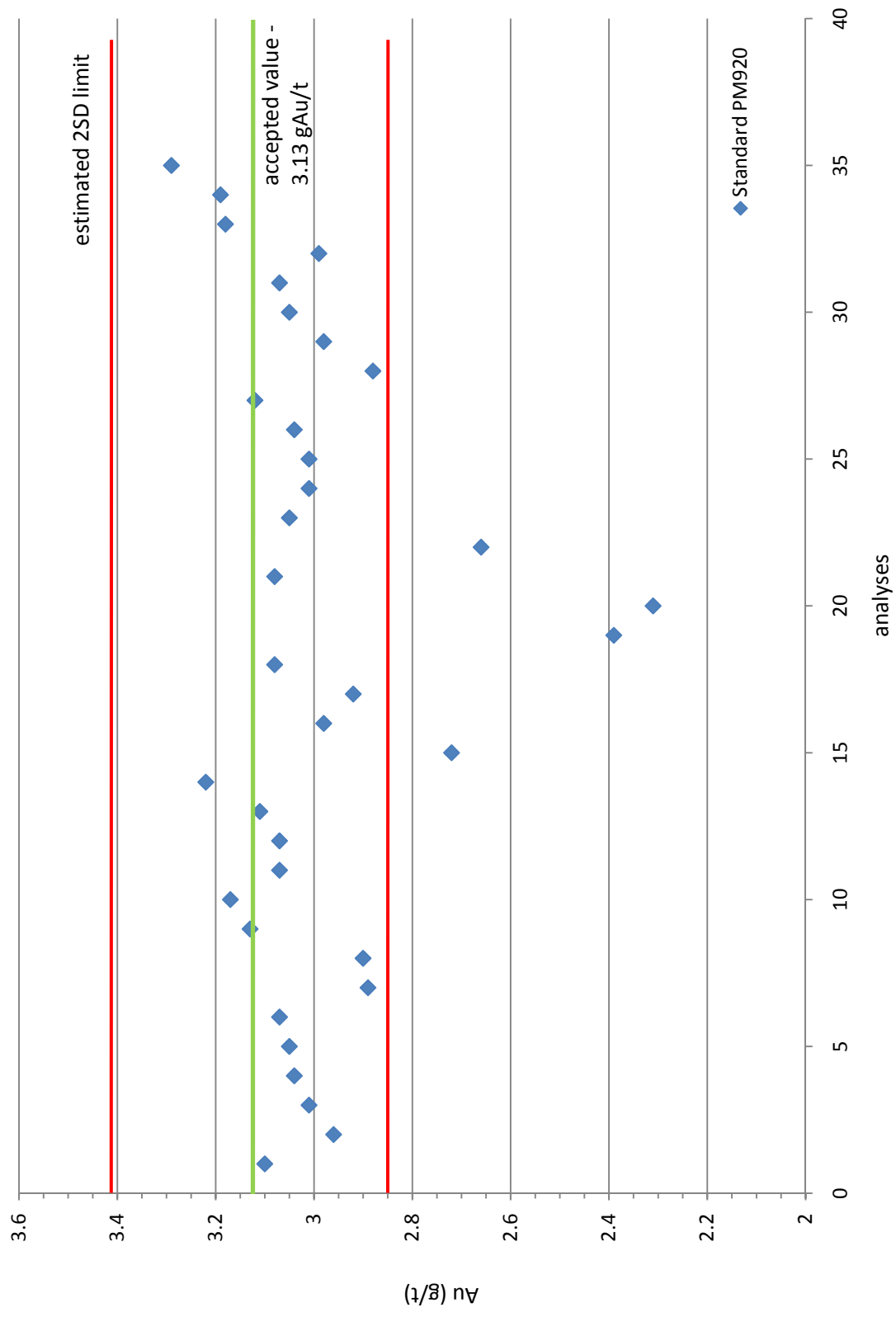
# Standard PM914



# Standard PM915



# Standard PM920



## **Appendix 3**

### **Proposed Exploration Budgets**

## Estimated Budget For The Phase I Recommended Work Program - Jumping Josephine Project

### Estimated Budgets For Recommended Work At The JJ Main Prospect

Work Program	Unit Cost	Total Cost
<b>Drilling (JJ Main Prospect Area)</b>		
Drilling contractor (incl. mob/demob)	2000m @ ~\$160/m (all in)	\$320,000
Geologist	35 days @ \$450/day	\$15,750
Geological Tech/Assistant	35 days @ \$150/day	\$5,250
Geologist Vehicle	5 weeks @ \$500/week	\$2,500
Geo and Drill Crew Food/Accom	\$100/man-day	\$24,000
Supplies	sample bags, saw blades, etc.	\$7,500
Sample Analysis	600 @ \$45/sample + 200 @ \$65/sample	\$40,000
<b>Subtotal</b>		<b>\$415,000</b>
<b>Trenching (JJ Main Prospect Area)</b>		
Geologist	25 days @ \$450/day	\$11,250
Labourer/Assistant	25 man-days @ 150/day	\$3,750
Rental Truck	4 weeks at \$500/week	\$2,000
Excavator (w/operator)	~100 hours @ \$200/hour	\$20,000
Supplies	sample bags, saw blades, etc.	\$6,000
Food/Accom	30 days @ \$100/day	\$3,000
Sample Analysis	600 @ \$65/sample	\$39,000
<b>Subtotal</b>		<b>\$85,000</b>
<b>Scoping Study</b>		
Mining Engineer	45 days @ \$1,000/day	\$45,000
Site Visit and field Investigations		\$5,000
<b>Subtotal</b>		<b>\$50,000</b>