SOLID RESOURCES LIMITED

ALBERTA-1 RARE METALS PROJECT GALICIA, SPAIN

MINERAL RESOURCES

NI 43-101 TECHNICAL REPORT

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1.0 SUMMARY

1.1 INTRODUCTION

Solid Resources Limited (Solid) has engaged Micon International Co Limited (Micon) to complete an independent Technical Report (Report) describing Solid's Alberta-1 Rare Metals Project (Alberta-1), located in the Autonomous Community of the Region of Galicia (Galicia), Spain. Solid holds the permit for the Alberta-1 Rare Metals Project and intends to develop the project via a number of funding options. This Report is intended to update the resources presented in the NI 43-101 report dated 8th December, 2011 by Dr. José M. Cantó Romera.

This Report has been prepared in compliance with the Canadian National Instrument 43-101 Standards of Disclosure for Mineral Projects. The purpose of this Report is to provide investors with an independent assessment of the Alberta-1 Rare Metals Project owned by Solid.

1.2 PROPERTY DESCRIPTION

The Alberta-1 Permit is situated in the north-west of Spain, approximately 25 km to the east of Pontevedra (population circa 82,000) and 42 km north-west of Orense (population circa 108,000) see Figure 1.1. The northern portion of the property is located in the Pontevedra province, whilst the southern part lies in the province of Orense.



Figure 1.1: Map Showing the Location of the Alberta-1 Project Area and the Port of Pontevedra

Source: Google Maps, 2014



Access to the deposit area is via a network of paved toll-free highways; the project is located approximately 6 km south of the main Orense to Pontevedra highway (N-541). The international sea port of Vigo is located some 41 km to the south-west. The Orense to Santiago de Compostela railway is situated to the east at a distance of 21 km and the Santiago de Compostela International Airport is located 40 km to the north.

1.3 OWNERSHIP

Solid Resources Limited (Solid) is a publicly-listed company on the Toronto Stock Exchange (TSX Venture Exchange). The company trades under the symbol "SRW", and has registered offices at Suite 505 - 1238 Melville Street, Vancouver, British Columbia, V6E 4N2, Canada. The governing jurisdiction is Alberta, Canada.

The area of the Alberta-1 Exploration Permit is approximately 3,690 ha, corresponding to 123 cuadrículas mineras, (mineral concession unit used by Spanish mining law each mining unit was defined by 20 seconds of latitude and 20 seconds of longitude). The area of the Exploitation Licence to be applied for will be reduced according to Spanish Mining Law (2,395 hectares corresponding to 85 cuadrículas mineras).

The official name of the Permit is "Permiso de Investigación Alberta-1, 1^a Fracción, N° 4966.1" and it is valid until 14th June, 2014. The Spanish Mining Law permits an extension period to be applied to this date. Preparation of the documentation for the application of the Exploitation Licence is currently in progress.

The permit is held 100% by Solid through its wholly owned subsidiary Solid Mines España, S.A.U.

1.4 **DISCLAIMER**

Whilst Micon has reviewed the exploration and mining licences, permits and entitlements of the property in so far as these may influence the investigation and development of the mining assets, Micon has not undertaken legal due diligence of the asset portfolio described in this Report. The reader is therefore, cautioned that the inclusion of exploration and mining properties within this Report does not in any form imply legal ownership.

During the preparation of this Report, Micon has relied upon information provided by Solid Resources Limited, which describes the legal title, infrastructure, exploration history for the project. Micon has not independently verified the statements and data contained in the supplied information and has assumed that the information provided is representative and materially complete. The reports that provide this information are recorded in the list of references in Section 20.0.

1.5 HISTORY

Mining and exploration work was conducted from the 1940's to the 1980's within the permit area. Old mine workings include open pits and some adits excavated in the softer and more kaolinised parts of the pegmatites. Most were made in the 1940's and 1950's by local miners, often in pursuit of small deposits exposed in streambeds. This activity ceased in the early 1960's.



In 1970 and 1971 *Compañía Estañífera de Galicia* exploited cassiterite in a relatively large dyke in the northern area of the permit, especially in the underground mine at Presqueiras. No further mining has taken place since this time, though several stages of exploration in the permit area have taken place since the mining ceased.

Between 1972 and 1974, the Geological and Mining Institute of Spain (IGME) conducted a general study of the area, to identify potential sources of tin and tungsten mineralisation. From 1981 to 1985 a large area in the south of the permit was investigated by the state-owned company ADARO. The work carried out included: mapping, soil and rock geochemistry, trenching, and the drilling of eight core holes totalling 586.9 m. In addition, various tests on concentrate production were conducted. In 1982, a joint venture by the companies SEVELAR and RÍO IBEX began an exploration programme with geological mapping and trenching in the north of the permit area near the Presqueiras mine and at Coto Tocayo permit area further to the south. This was followed by a programme of twenty core drill holes, with a total of 2,069 m drilled over the two areas.

Since 2000 Solid has carried out a programme of exploration on the Alberta-1 Project, mainly through its Spanish subsidiary company Solid Mines España, S.A.U. These include four diamond drilling programmes during 2003, 2005, 2011 and 2012.

1.6 GEOLOGY AND MINERALISATION

The mineralised pegmatites of the Alberta-1 Project are situated within the Galicia-Tras-os-Montes Zone of the north-west Iberian Massif, formed during the Variscan Orogeny between 370 Ma to 290 Ma by the convergence and collision of the continents Laurasia and Gondwana (Abati, et al., 2010).

The Galicia-Tras-os-Montes Zone that hosts the mineralised pegmatites, does not fit the continuous and concentric trend of the rest of the zones making up the Iberian Massif and represents a parautochthonous crustal block, thrust over the Central Iberian Zone (Farias et al., 1987). The units are grouped into basal, intermediate or ophiolitic and upper units according to their structural position within the thrust pile. Many of the units have recrystallised under deep conditions and represent lower crust and upper mantle.

The mineralised pegmatites intrude a mica schist unit of the Schistose Domain that strikes north-north-west to south-south-east (Paraño group), and is bounded to the east by the Forcarei unit (allochthonous synform), and to the west by a two mica, syn-kinematic granite.

The Presqueiras-Taboazas mineralised (rare element) pegmatites correspond to the rare element-Lithium (REL-Li) subclass of the Li-Cs-Ta (LCT) enriched family of pegmatites according to the Cerny and Ercit (2005) classification. The key points are the geochemical signature (Sn, Ta>Nb) and the parental synkinematic granite outcropping to the west, corresponding to syn-orogenic plutons within the Variscan Belt of Europe.

The Presqueiras-Taboazas mineralised pegmatites are included within a belt approximately 350 m wide, extending 11 km (in the area of the permit) in a north-north-west to south-southeast direction, conforming to the regional schistosity, and to the contact of the two mica syn-kinematic granites outcropping to the west. The syn-kinematic granite is the fertile granite responsible for the mineralised pegmatites.

The mineralised albite pegmatite dykes are intruded discordantly into the mica schist host rock. The mica schists are in contact both in the hanging wall and the footwall of each dyke. The dimensions of the dykes determined from drilling intersections are up to 15.6 m thick,



550 m long and 300 m wide, and are open at depth and along strike. The average thickness varies from 2.8 m to 8.6 m. Weathering is irregular in depth and intensity and affects the dykes up to a depth of 30 m. The depth of the dykes varies from surface to 244.7 m, 160 m vertical depth.

The major minerals of the mineralised pegmatites are albite (30% to 50%), quartz (25% to 35%), K-feldspar (orthoclase, microcline) (5% to 10%), muscovite (4% to 8%), spodumene (up to 10%). The minor minerals are cassiterite, columbite-tantalite, eucryptite, petalite, amblygonite, kaolinite, apatite, sphalerite, zircon and chlorite. Tantalum and niobium occur mainly as columbite-tantalite, tin as cassiterite and lithium as spodumene and petalite.

1.7 EXPLORATION AND DRILLING

Old mining workings include an open pit as well as some near-surface galleries, excavated in the softer and more kaolinised parts of the pegmatites. Most of the excavations were developed in the 1940's and 1950's of the last century by local miners, often in small deposits in streambeds. This activity ceased in the early 1960's. In 1970 and 1971 a company named *Compañía Estañífera de Galicia* exploited the cassiterite in a relatively large dyke in the northern area of the permit, particularly in the underground mine at Presqueiras. Between 1972 and 1974, the Geological and Mining Institute of Spain (IGME), carried out an exploration project to identify the potential for tin and tungsten. Between 1981 and 1985 a large area in the south of the Permit was investigated by the state-owned company ADARO. The exploration programme concluded with a total of 586.9 m drilled, as well as various concentrate production tests. In 1982, a joint venture by the companies SEVELAR and RÍO IBEX began to explore the Presqueiras and Coto Tocayo deposits. A total of 20 holes were drilled for a total of 2,069 m between the two areas.

Since the year 2000, Solid has conducted a programme of exploration on the Alberta-1 Permit to assess the potential for niobium, tantalum, tin, tungsten and lithium. The programme has included: compilation of existing information, geological mapping, geochemical sampling of streams and rocks, studying of old mine workings, trenching and, finally, drilling. Four drilling programmes have been completed in 2003, 2005, 2011 and 2012.

In 2003, the first drilling campaign with recovery of continuous core was undertaken with a total of 1,235 m drilled in 10 holes. A second campaign in 2005 drilled 7 holes, for a total of 850 m. The third drilling campaign was conducted in 2011 with 3,364.05 m completed in 31 drill holes. In 2012 a further campaign of infill drilling was conducted. A total of 19 diamond drill holes were completed (two from the previous drilling programme were re-entered), for a total length of 1,570.2 m. The core was logged and sampled and samples were sent to independent laboratories in Canada for chemical assay.

A total of 65 holes have been drilled on the project for a total length of 7,021 m. The total by deposit area includes:

•	Presqueiras	46 drill holes	4,676 m;
•	Correa	2 drill holes	156 m;
•	Coto Tocayo	4 drill holes	383 m;
•	Acebedo	4 drill holes	366 m;
•	Rubillón	2 drill holes	225 m; and,
•	Taboazas	7 drill holes	1,216 m.



1.8 MINERAL PROCESSING AND METALLURGICAL TESTING

SGS Minerals Services UK Limited (SGS) conducted laboratory test work and concluded that tin and tantalum concentrates can be produced by gravity separation methods. Tin recovery from test work was as high as 88.1% reporting to a concentrate grading 54.8% Sn. Tantalum recovery of 85.2% was achieved in test work reporting to a concentrate with grade of 30% Ta_2O_5 .

Laboratory studies suggest that commercially viable lithium concentrates may be produced from flotation.

1.9 MINERAL RESOURCE ESTIMATE

Micon has generated the most recent mineral resource estimate for the Alberta-1 Project dated May 2014. This estimate incorporates the latest drilling results from the 2012 drill programme.

Alberta-1 mineral resources are defined by 46 drill holes (4,676.05 m) covering the main Presqueiras deposit and a further 19 drill holes at the five Southern zones of Correa, Coto Tocayo, Acebedo, Rubillón and Taboazas. The main Presqueiras deposit is interpreted to comprise two principal zones, plus three subsidiary zones of more limited continuity. The Southern area is subdivided into the Acebedo, Correa, Coto Tocayo, Rubillón and Taboazas zones comprising a total of 14 sill-like structures. The Presqueiras and Southern zones remain open both along strike and down-dip.

A cut-off value of US\$25 per tonne was selected to define Alberta-1 mineral resources. No economic studies of the project have been conducted and therefore it is possible that a different cut-off value may be considered upon completion of an appropriate engineering study. Tables 1.1 summarises the mineral resource estimate for the Alberta-1 project at a cut-off value of US\$25 per tonne.

Area	Resource Classification	Tonnage (Mt)	Ta ₂ O ₅ (ppm)	Sn (ppm)	Li ₂ O (%)	Ta ₂ O ₅ (t)	Sn (kt)	Li ₂ O (kt)
Dresqueires	Measured	2.96	111	752	0.52	327	2.23	15.4
Presqueiras	Indicated	1.99	90	675	0.52	178	1.34	10.3
Presqueiras	Inferred	2.69	80	668	0.39	214	1.79	10.5
Acebedo	Inferred	3.68	122	955	0.41	449	3.51	15.1
Correa	Inferred	0.88	142	557	0.50	125	0.49	4.4
Coto Tocayo	Inferred	3.43	215	1,180	0.26	737	4.05	8.9
Rubillón	Inferred	0.20	202	1,212	0.04	39	0.24	0.1
Taboazas	Inferred	6.53	103	506	0.41	673	3.30	26.8
Alberta-1	Measured + Indicated	4.95	102	721	0.52	505	3.57	25.7
Alberta-1	Inferred	17.4	129	769	0.38	2,238	13.4	65.7

Table 1.1: Alberta-1 Mineral Reso	urce Estimate as at 15 th May 2014
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Note: Totals may vary due to rounding. Cut-Off Value US\$25 per tonne

The mineral resource estimate is compliant with the Canadian Institute of Mining, Metallurgy and Petroleum (CIM), CIM Standards on Mineral Resources and Reserves, Definitions and Guidelines prepared by the CIM Standing Committee on Reserve Definitions and adopted by CIM Council on 27th November, 2010.



1.10 MINING AND MINERAL RESERVE

There are no CIM Standards-compliant mineral reserves for the Alberta-1 Rare Metals Project.

1.11 CONCLUSIONS

Tantalum, tin and lithium mineralisation has been confirmed by drilling along a 12 km trend (including all zones). The mineralised zone ranges up to 350 m wide and 15.6 m thick. The Measured and Indicated mineral resources are estimated to be 4.95 Mt at a grade of 102 ppm Ta₂O₅, 721 ppm Sn and 0.52% Li₂O. Inferred mineral resources are estimated to be 17.4 Mt at a grade of 129 ppm Ta₂O₅, 769 ppm Sn and 0.38% Li₂O.

The knowledge of the geology and mineralogy has been improved with the most recent drilling programmes and mineralogical studies of the mineralised pegmatite and waste rocks from the core. Sections have been interpreted to update the 3-D geological model.

The mineralisation occurs along a 12-km trend and is open along strike and down dip. Considering the surface geology, distribution of old workings and the continuity of the dykes there appears to be potential for 20 Mt to 30 Mt of additional resources. It should be noted that the potential quantity and grade is conceptual in nature and that there has been insufficient exploration to define a mineral resource. It is uncertain whether further exploration will result in the target zones being delineated as a mineral resource.

SGS test work has concluded that tin and tantalum concentrates can be made relatively easily using conventional gravity separation methods.

It is evident that tantalum and tin grades are higher in the Southern areas of the project. These areas should be more accurately assessed with planned drilling in order to improve the quality of the mineral resources. This will help to define the future development of the project.

The mineral resources are amenable to exploitation by both open pit and underground mining. Underground mining methods may be preferred in order to minimise the environmental impact and reduce the costs of the Restoration Plan. The waste material produced in the mine or plant is characterised as chemically inert.

Preliminary market enquiries for tantalum, tin and lithium minerals indicate that there is a ready market for good quality tantalum and tin concentrates. There is also a market for high-grade lithium concentrates. There is a potential market for a lithium + sodium feldspar product as a raw material for ceramic and glass manufacture.

According to Spanish Mining Law, the subsurface belongs to the State. A tax must be paid annually for the land occupied by the Exploitation Licence (depending on the extent of the land occupied). Exploitation Concessions can be granted for 30 year periods, up to a maximum of 90 years.

The statistical analysis of the standards for both sample programmes received in 2011 and 2012 show that the laboratory is capable of producing precise assay results and these results are acceptable. However, it is not possible to discern any real statistical trends in the standard data due to the small number of assays, and the lack of certified standards means that Micon is unable to comment on the accuracy of the data.





1.12 **RECOMMENDATIONS**

- 1. Further metallurgical testing combining gravity and magnetic separation, should be conducted to improve the quality of the cassiterite and tantalite concentrates.
- 2. The feasibility of obtaining commercial spodumene concentrates should be investigated. The chemical character of the mineralisation appears favourable, including a low iron content (0.04% Fe₂O₃), which could also improve project value. Flotation test work should be conducted to confirm whether a high-grade of lithium product can be achieved.
- 3. The tailings product from the gravity separation of cassiterite and tantalite contains a mixture of sodium feldspar, quartz and lithium minerals (up to 2% Li₂O). If this material can be processed to yield a product of uniform specification it may be possible to sell into the ceramic and glass markets. Lithium flotation should be investigated to produce a commercial lithium concentrate (spodumene) in order to add value to the project.
- 4. Potential purchasers of low-grade lithium and sodium feldspar product should be contacted in order to obtain detailed specifications for their raw material requirements. Once these specifications are obtained it will be possible to assess whether these raw materials can be produced from Alberta-1 mineralisation.
- 5. Micon recommends that Solid undertake the following assay quality control measures for future drilling campaigns:
 - a) Increase the number of standard, duplicate and blank samples to 5% of the total number of samples sent for analysis in the future to meet current recommended practice standards in the industry.
 - b) Review the procedures for producing standards for analysis to ensure that each element concentration matches the description of a "high" and "low" standard.
 - c) Further analysis of the locally produced standards in order to produce upper and lower control limits to establish any future problems with batches of assays analysed.
 - d) External accredited standards should be introduced to the quality control programme to monitor the suitability and accuracy of locally prepared standards.
 - e) The duplicate analysis revealed good repeatability achieved by the laboratory and high precision of sample pairs. However, duplicate samples should be sent for analysis at an external laboratory as a further validation method for the existing quality control procedures.

In addition to the above a preliminary environmental impact assessment is required for continued work on the project. The preliminary environmental assessment report should be accompanied by feedback from public consultation with local inhabitants.

An allocation of funds is also recommended for maintenance of the mineral concessions and overheads related to administration of the project.

The budget proposed for the completion of the work recommended is presented in Table 1.2.



Item	US\$
Lithium Market Analysis	10,000
Metallurgical Test Work	30,000
Permitting Environmental Impact Assessment	20,000
Permitting Community Consultation	20,000
Mineral Concession Maintenance and Overheads	65,000
Total	145,000

Table 1.2: Alberta-1 Proposed Budget



2.0 INTRODUCTION

2.1 TERMS OF REFERENCE AND PURPOSE OF THE TECHNICAL REPORT

Solid Resources Limited (Solid) has engaged Micon International Co Limited (Micon) to compile an independent Technical Report (Report) describing Solid's Alberta-1 Rare Metals Project (Alberta-1), located in the Autonomous Community of the Region of Galicia (Galicia), Spain. Solid holds the permit for the Alberta-1 Rare Metals Project and intends to develop the project via a number of funding options.

Solid requested that Micon's Technical Report be prepared in accordance with the formatting requirements of National Instrument 43-101F1 for providing documentation for written disclosures, and is intended to be read in its entirety. The purpose of this Report is to provide investors with an independent assessment of the Alberta-1 Rare Metals Project held by Solid. This Report has been compiled in compliance with Canadian National Instrument 43-101. The mineral resources presented in this Report have been estimated in accordance with CIM Definition Standards – For Mineral Resources and Mineral Reserves (CIM Standards).

The current Report contains a CIM Standards-compliant mineral resource estimate, but there are no CIM Standards-compliant mineral reserves.

2.2 SCOPE OF WORK

This Report is intended to update the latest version of the NI 43-101 technical report dated 8th December, 2011 prepared by Dr. José M. Cantó Romera.

Important aspects of this update include:

- Updated mineral resource evaluation using the most recent drilling results;
- Integration of all information of the Alberta-1 Permit; and,
- Establishing the proper protocols for future exploration and exploitation plans.

2.3 SOURCE OF INFORMATION

The information available with which to prepare the Report was derived from a number of sources including the following:

- Documents provided for review by Solid;
- An electronic database of drilling and sample analysis data for the Alberta-1 deposits compiled by Solid; and,
- Published scientific reports on Galicia.

The main sources of information used to compile this Report are as follows:

- NI-43-101 Technical Report on the Alberta-1 Property, Rare Element Pegmatites, Galicia, Spain, by Dr José M. Cantó Romera, 8th December, 2011.
- Alberta-1 Rare Metals Project (Sn, Ta, Li), Located in Galicia (Spain), an internal company report prepared by Alfonso Gracia Plaza, Manuel Prieto de Dios, Adam Wheeler and Robert Dowdell, dated 2nd April 2014.



Additional sources of information and data used to prepare this Report are mainly from official reports to mining authorities (according to Spanish Mining Law), internal reports of the company and reports from consultancy companies. A full list of references is supplied in Section 20.0.

2.4 QUALIFICATIONS OF THE CONSULTANT

2.4.1 General

The Report has been prepared by Micon International Co Limited (Micon) from its UK office. The following authors have contributed to the Report:

- Mr Stanley Currie Bartlett, M.Sc., PGeo., of Micon, by reason of education, experience and professional registration, fulfils the requirements of an independent Qualified Person (QP) as defined by Canadian National Instrument NI 43-101 and CIM Standards. Mr. Bartlett has over 35 years of field experience with metal mineralisation similar to that found within the Alberta-1 property. Mr Bartlett visited the site of the project from 10th to 11th April 2014 and reviewed all the mineralised areas and visited a number of the old workings within the project area;
- Robin Bernau, Ph.D., MAusIMM(CP) reviewed the geology and mineralisation;
- Hannah Davies, B.Sc., prepared the mineral resource estimate; and,
- Sandra Mahé, B.Sc., reviewed the quality control assay data.

During the site visit outcrops and old mine workings were inspected. Drill collars were observed and the distribution of these was compared with drill plans to verify the relative location and density of drilling.

Subsequent to the site visit the electronic database was audited and quality control assay data was reviewed. The audited database was used to generate a CIM Standards-compliant mineral resource estimate.

2.4.2 Micon International Limited

Micon International Limited has provided consulting services to the international mining industry since 1988, with particular focus upon mineral resource estimations, metallurgical services, mine design and production scheduling, preparation of pre-feasibility and feasibility studies, independent due diligence reviews of mining and mineral properties, project monitoring, independent engineer roles, financial analysis and litigation support.

Micon's staff is comprised of highly qualified and experienced professionals who are guided by the principles of Integrity, Competence and Independence. Each member has extensive experience with mineral exploration and mining companies and leading consultant groups. Micon applies the skills of its staff and associate consultants to suit the specific requirements of the assignment so as to provide the highest level of service, value and quality.

Micon's clients include mining and mineral exploration companies, financial institutions and government agencies from around the world. Assignments have been carried out in virtually every country of the world for such commodities as precious and base metals, industrial minerals, diamonds and the energy fuels. A particular expertise has been developed in the economic evaluation of mining properties, including studies in support of debt and equity





financing. Micon's professional staff have the experience, education and professional credentials to act as Qualified Persons and/or Competent Persons, as required by world-wide regulatory agencies.

Micon fulfilled an integral role in the development of the National Instrument 43-101 legislation in Canada. In 1997 the Mining Standards Task Force of the Toronto Stock Exchange and the Ontario Securities Commission appointed Micon to review and assess the current requirements and procedures for technical reporting by mining and mineral exploration companies falling under the regulatory regime of the OSC and/or administration of the TSE, and assess the need for revising and improving the requirements and procedures with the objective of maintaining the status of, and confidence in, Toronto as the premier international mining finance centre. Micon's report entitled Standards for the Acquisition and Reporting of Technical Information by the Mining Industry was published as Appendix D in the final report of the Mining Standards Task Force in January 1999. The report forms the basis of the current Canadian National Instrument 43-101 legislation and related policy.

Specific examples of Competent Persons, Independent Experts, Qualified Persons, Minerals Expert and Canadian National Instrument 43-101 Reports prepared by Micon are provided below.

Competent Person's Report

Ovoca Gold PLC, United Kingdom: Competent Person's Report on the Goltsovoye Silver Project, Magadan Region, Russian Federation in support of London Stock Exchange listing.

OJSC MMC Norilsk Nickel, Russian Federation: Competent Person's Report on the Mineral Assets of OJSC MMC Norilsk Nickel.

Peter Hambro Mining Limited, United Kingdom: Qualified Person's Report on the Pokrovskoye Gold Mining Project, Amur Region, Chita, Russian Federation, prepared in support of London Stock Exchange listing.

Touchstone Gold Limited, Canada: Independent Technical Report for the Rio Pescado Gold Project, Department of Antioquia, Colombia, prepared for Touchstone Gold Limited and Collins Stewart Europe Limited, in support of Toronto Stock Exchange and AIM listings.

Independent Expert's Report

OJSC Polyus Gold, Russian Federation: Independent Expert Report on the Reserves and Resources of OJSC Polyus Gold, Russian Federation in support of London Stock Exchange listing.

JSC Alrosa, Russian Federation: Independent Expert Report on the Reserves and Resources of JSC Alrosa Diamond Assets.

Alrosa Group of Companies, Russian Federation: Independent Expert Report on the Reserves and Resources of the Diamond Assets of the Alrosa Group of Companies.

Alrosa Group of Companies, Russian Federation: Independent Expert Report on the Reserves and Resources of the Diamond Assets of the Alrosa Group of Companies, in support of Moscow Stock Exchange listing.



Mineral Expert's Report

OJSC Matrosova Mine, Russian Federation: Mineral Expert's Report on the Natalka Gold Deposit, Tenkin District, Magadan Region Russian Federation.

Polyus Gold International, Bailiwick of Jersey: Mineral Expert's Report on the Mineral Reserves and Resources Polyus Gold, Russian Federation.

Independent Engineer's Report

HypoVereinsbank/Unicredit: Independent Engineer services and monitoring of construction of the Voskhod chromite project in Kazakhstan on behalf of HypoVereinsbank/Unicredit as technical agent.

Optimum Capital/ING Bank N.V.: Independent Engineers Report and ongoing monitoring of construction and development of the Hemerdon tungsten-tin project in Devon, United Kingdom, as Independent Engineer to the lenders.

Dannemora Mineral AB, Sweden: Independent Engineer's report and monitoring of the underground iron mining project.

Canadian National Instrument 43-101 Reports

Endomines OY, Finland: Independent 43-101 Technical Report on the Illomantsi gold project.

Andina Minerals Incorporated, Canada: Technical Report – Review of Gold and Copper Exploration Potential of Mineral Properties in Chile.

Inter-Citic Minerals, Canada: Incorporated Technical Report on an Updated Mineral Resource Estimate, and a Preliminary Assessment and Economic Analysis for the Dachang Gold Project, Qinghai Province, People's Republic of China.

Azerbaijan International Mineral Resources Operating Company (AIMROC), Azerbaijan: Technical Report on the Chovdar Gold Property, Khalnar Administrative District, Azerbaijan.

Dalsvetmet, Russian Federation: Technical Report on the Nasedkino Gold Project, Chita Region, Russian Federation, prepared in support of Toronto Stock Exchange listing.

Portex Minerals Incorporated, Canada: Technical Report on the Toral Zinc-Lead-Silver Project, Castile and León, Spain.

MMC Intergeo, Russian Federation: Technical Report on Mineral Resources of the Kingashsky, Verkhnekingashsky and Kuyovksy Nickel-Copper Deposits and Results of the Preliminary Economic Assessment, Krasnoyarsk Krai, Russian Federation, prepared in support of Toronto Stock Exchange listing.

KGHM Polska Miedź S.A., Poland: Technical Report on the Copper-Silver Production Operations of KGHM Polska Miedź S.A. in the Legnica-Głogów Copper Belt Area of Southwestern Poland. Prepared in support of Warsaw Stock Exchange listing.

Managazeya Mining Limited, Russian Federation: Technical Report on the Savkino Gold Project Mineral Resources and Reserves, Chita Region, Russian Federation.



2.4.3 Independence

Micon is internally owned and is entirely independent of all parties involved in Solid Resources Limited. Micon's consulting staff consists of fulltime employees. In certain circumstances, Micon contracts the specialist services of individual, independent associate consultants. However, Micon selects associates on the basis of their appropriateness to a specific project. Micon has access to the services of its Toronto and Vancouver, Canada offices, Norwich and Cornwall, UK-based staff, supported by senior consultants based in Moscow, Russian Federation and the United States of America.

As Independent Consultant, Micon will receive a fee for its services based on time and expenses and will not receive any capital stock from any of the parties associated with the Alberta-1 Magnetite Project.

2.5 TECHNICAL REPORT USE

This Report is intended to be used by Solid Resources Limited subject to the terms and conditions of its agreement with Micon.

The conclusions and recommendations in this Report reflect the authors' best judgment in light of the information available to them at the time of writing. The authors and Micon reserve the right, but will not be obliged, to revise this Report and conclusions if additional information becomes known to them subsequent to the date of this Report. Use of this Report acknowledges acceptance of the foregoing conditions.

2.6 UNITS AND CURRENCY

All financial values are reported in either Euros (\in) or the currency of the United States of America (US\$) while units are reported in the Système Internationale d'Unités (SI), as utilised by the international mining industries, including: metric tons (tonnes, t), million metric tonnes (Mt), kilograms (kg) and grams (g) for weight; kilometres (km), metres (m), centimetres (cm), millimetres (mm) or microns (μ m) for distance; cubic metres (m³), litres (l), millilitres (ml) or cubic centimetres (cm³) for volume; square kilometres (km²) or hectares (ha) for area; weight percent (%) for metal grades and grams per metric tonne (g/t) for precious metal grades. Sometimes parts per billion (ppb) or parts per million (ppm) are used to express metal content and tonnes per cubic metre (t/m³) for density.

A glossary of terms and abbreviations are provided in the following sections.

2.7 GLOSSARY

Albite (NaAlSi₃O₈): Sodium end member of the plagioclase feldspar minerals.

Amblygonite (LiAl(PO₄)F): This mineral forms a series with montebrasite (LiAl(PO₄)(OH) amblygonite is the fluorine rich member and montebrasite the hydroxyl rich member. These minerals occur in coarsely crystalline igneous rocks and pegmatites.

Anatase (TiO₂): An allotrope of titanium dioxide usually found in metamorphic rocks, especially schist and gneiss. The other allotropes are rutile and brookite.

Apatite (Ca₅(PO₄)₃ (F,Cl,OH)): Calcium phosphate.



Beryl (**Be₃Al₂(SiO₃)₆):** A cyclosilicate mineral found in pegmatites and granites and in some regionally metamorphosed rocks.

Biotite (K(Mg,Fe)₃(AlSi₃O₁₀)(F,OH)₂): Mafic rich mica mineral.

Cassiterite (SnO_2) : Tin oxide. Commonly found in vein deposits, granitic rocks, pegmatites and in areas of contact metamorphism.

Chalcopyrite (CuFeS₂): Copper iron sulphide important non-magnetic copper ore mineral.

Chlorite (Mg,Fe)₃(Si,Al)₄O₁₀(OH)₂.(Mg,Fe)₃(OH)₆: Sheet silicate mineral primarily found in weakly metamorphosed rocks from the alteration of either clays in sedimentary rocks or pyroxenes, amphiboles and micas in igneous rocks.

Columbite – **Tantalite** (Fe,Mn)(Nb,Ta)₂O₆: A ferro magnesium oxide mineral series with columbite the niobium rich end member and tantalite the tantalum rich other end member. Usually found in granitic pegmatites.

Cut-off criteria: A set of requirements for the quality and quantity of a mineral in subsoil, for mining and other conditions of the deposit development that define the commercial value of the deposit. The cut-off criteria are used to calculate mineral reserves.

Cut-off grade: The minimum concentration of a valuable component in a marginal sample of the mineral. The cut-off grade is used to delineate parts of the deposit to be mined.

Dilution: Waste rock that is, by necessity, removed along with the ore in the mining process subsequently lowering the grade of the ore.

Dip angle: The angle between the direction of the described geological structure and horizontal plane.

Due Diligence: The procedure of forming an objective opinion about the investment facility that includes investment risks, independent assessment of the facility, comprehensive research on the company's operation, complex inspection of its financial status and market position. Due diligence is usually performed prior to a business purchase, a merger (acquisition) deal or start of cooperation with the company.

Dyke: An intrusive geological body with transversal contacts. The length of a dyke many times exceeds its width, whereas the planes are nearly parallel. As such, a dyke is a fracture that has been filled with magmatic melt.

Elbaite (Na(Mg,Fe,Li,Mn,Al)₃(Al)₆(BO₃)₃(Si)₆.O₁₈(OH,F)₄): A multi coloured variety of tournaline.

Eucryptite (LiAlSiO₄): A lithium rich aluminium silicate mineral found in pegmatites.

Euxenite $((Y,Ca,Ce,U,Th)(Nb,Ta,Ti)_2O_6)$: A complex rare element rich oxide found in pegmatites.



Feasibility Study: As defined by the CIM, a Feasibility Study is a comprehensive technical and economic study of the selected development option for a mineral project that includes appropriately detailed assessments of realistically assumed mining, processing, metallurgical, economic, marketing, legal, environmental, social and governmental considerations together with any other relevant operational factors and detailed financial analysis, that are necessary to demonstrate at the time of reporting that extraction is reasonably justified (economically mineable). The results of the study may reasonably serve as the basis for a final decision by a proponent or financial institution to proceed with, or finance, the development of the project.

Feldspars: A group of silicate minerals with four distinct categories, potassium feldspars (KAlSi₃O4); sodium feldspars (NaAlSi₃O8); calcium feldspars (CaAl₂Si₂O₈); and barium feldspars (BaAl₂Si₂O₈).

Fergusonite ((**Y**,**RE**)**NbO**₄): A complex oxide mineral containing various rare earth elements in solid solution with yttrium.

Ferri-sicklerite (Li(Fe³⁺)(PO₄)): The lithium ferric member of the triphylite group of minerals with the general formula AB(PO₄) where A and B can be can be a combination of Li, Na, Fe³⁺, Fe²⁺, Mn²⁺ and Mn³⁺. Found in granite pegmatites.

Footwall: The rock on the underside of a vein or ore structure.

Foliation: A parallel orientation of platy minerals or mineral banding producing a planar fabric within a rock.

Gadolinite ($Y_2FeBe_2Si_4O_{10}$) otherwise Ytterbite: A ytterbium, iron, beryllium silicate mineral that can be found in coarsely crystalline igneous rocks and pegmatites. This mineral often contains other rare earth elements such as Ce, La, and Nd.

Garnet (Mg,Ca,Fe)₃Al₂ (SiO₄)₃: Group of cubic silicate minerals with general formula $X_3Z_2(SiO_4)_3$ where X can be Ca, Fe²⁺, Mg etc and Z can be Al, Cr, Mn³⁺. These minerals can be found in a variety of rocks from igneous to metamorphic and also sedimentary rocks.

Geochemical Exploration: Exploration or prospecting methods depending on chemical analysis of the rocks or soil, or of soil gas and plants.

Geological fault: Discontinuity of rock with or without a shift on the surface. Faults occur due to the movement of rock masses.

Gneiss: A coarse-grained rock in which bands rich in granular minerals alternate with bands in which schistose minerals predominate.

Granite: A coarsely crystalline igneous rock consisting essentially of quartz, alkali feldspar and commonly mica.

Greenschist facies: Zone of low-grade metamorphic rocks characterised by low temperature and moderate pressure metamorphism, typically 400°C to 500°C, at depths between 8 km to 50 km. Mineral suite typically consists of actinolite, epidote, chlorite, albite and quartz.

Hangingwall: The rock on the upper side of a vein or ore deposit.



Hematite (Fe₂O₃): Iron oxide common in igneous, metamorphic and sedimentary rocks.

Heterosite ((Fe³⁺,Mn³⁺)PO₄): Member of the triphylite mineral group (see ferri-sicklerite).

Host rock: Wall rock that confines the mineral occurrence zone.

Intrusion: A body of igneous rock that invades older rock. The invading rock may be a plastic solid or magma that pushes its way into the older rock.

JORC Code: The Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves prepared by the Joint Ore Reserve Committee of the Australasian Institute of Mining and Metallurgy, Australian Institute of Geoscientists and Minerals Council of Australia. The current edition is dated 2012.

Kaolinite (Al₂Si₂O₅(OH)₄): A common clay mineral.

Lepidolite (K(Li,Al,Rb)₃(Al,Si)₄O₁₀(F,OH)₂): Lithium rich mica mineral found in granites and pegmatites.

Mafic: Subsilicic, basic. Pertaining to or composed dominantly of the magnesian rock-forming silicates; said of some igneous rocks and their constituent minerals. In general, synonymous with 'dark minerals'.

Magnetite (Fe₃O₄): Iron oxide common in igneous, metamorphic and sedimentary rocks, strongly magnetic and an important source of iron.

Metamorphic rock: A rock that has, in a solid state, undergone changes in mineralogy, texture, or chemical composition as a result of heat or pressure.

Metasomatite: The name of the rock that has undergone the metamorphic process in which the chemical composition has changed significantly.

Mica: Group of sheet silicate minerals which characteristically have perfect basal cleavage.

Mine: A mineral mining enterprise. The term is often used to refer to an underground mine.

Mineral Deposit: A body of mineralisation that represents a concentration of valuable metals. The limits can be defined by geological contacts or assay cut-off grade criteria.

Mining method: A combination of technical solutions that define the geometry, technology and sequence of mining.

Monazite ((Ce, Gd, La, Pr, Sm, Th, Nd, Y) PO₄): Series of phosphate minerals containing a combination of rare earth elements. These minerals occur in granites, gneisses, aplites and pegmatites and can be mildly radioactive.

Montebrasite (LiAl(PO₄)(OH)): This mineral forms a series with amblygonite and occurs in coarsely crystalline igneous rocks and pegmatites.



Muscovite $(KAl_2(AlSi_3O_{10})(F,OH)_2)$: Sheet silicate mineral common in igneous and metamorphic rocks, occurring as a detrital mineral in sedimentary rocks.

NI 43-101: Standards of Disclosure for Mineral Projects as dictated by the Canadian Institute of Mining (CIM).

Open pit: A mine that is entirely on surface; also referred to as open-cut or open-cast mine.

Operational reserves: Balance mineral reserves that have been adjusted for dilution and losses, and have been incorporated into a mine production schedule.

Ore: Natural mineral formation that contains valuable components in such compounds and concentrations that make the mining technically and economically feasible.

Ore body: A body of mineralisation that either has been, or demonstrates a reasonable probability of being mined profitably.

Ore field: A collection of mines that exploit a common mineral deposit or cluster of closely related mineral deposits.

Orthogneiss: A gneiss formed from an igneous parent rock.

Overburden: Waste rock overlying and hosting mineral deposits that is subject to excavation in the course of open-pit mining. The process of overburden removal to access and mine the mineral is called stripping.

Petalite (LiAlSi₄O₁₀): Lithium phyllosilicate commonly associated with lepidolite and spodumene, found similarly in coarsely crystalline igneous rocks and pegmatites.

Plagioclase (NaAlSi₃O₈ – CaAl₂Si₂O₈): Type of feldspar mineral forms a solid solution series between end members.

Porphyry: An igneous rock with large crystals in a fine crystalline matrix.

Processing: A combination of processes for primary treatment of solid minerals in order to extract the products amenable to further technically and economically feasible chemical or metallurgical treatment or use.

Pyrite (FeS₂): Iron sulphide. Sulphide mineral which can contain refractory gold.

Run of mine (ROM): A term used loosely to describe ore of average grade as produced from the mine.

Rutile (TiO₂): An allotrope of titanium dioxide often found in igneous and metamorphic rocks. The other allotropes are anastase and brookite.

Saleable ore: The term used to describe ore of average grade coming from the mine.

Sampling: The process of studying the qualitative and quantitative composition and properties of natural formations comprising a deposit.



Schist: Medium grade metamorphic rock characterised by a parallel arrangement of the bulk constituent minerals.

Sedimentary rock: Rock formed by sedimentation of substances in water, less often from air and due to glacial actions on the land surface and within sea and ocean basins. Sedimentation can be mechanical (under the influence of gravity or environment dynamics changes), chemical (from water solutions upon their reaching saturation concentrations and as a result of exchange reactions), or biogenic (under the influence of biological activity).

Sericite ((**KAl**₂(**AlSi**₃**O**₁₀)(**F**,**OH**)₂): A finely crystalline variety of mica very similar to muscovite. This mineral is a common hydrothermal alteration product of feldspar minerals.

Sphalerite (**ZnS**): A zinc sulphide which can contain variable amounts of iron. Commonly found in hydrothermal veins.

Spodumene (LiAlSi₂O₆): Pyroxene silicate mineral occurs in pegmatites associated with other lithium rich minerals. The mineral is metastable and is often found altered to mica or clay minerals.

Stripping ratio: The relation of overburden volume to a mineral volume. A stripping ratio largely defines the economic feasibility of open-pit mining.

Suite: An aggregate of conformable rock beds with similar general properties that differentiate them from overlying or underlying rocks.

Tailings: Liquid wastes of mineral processing with valuable component grade lower than that of the initial material.

Tailings facility: A complex of special structures and equipment used for storage of liquid wastes of mineral processing (tailings).

Topaz (Al₂SiO₄(F,OH)₂): A silicate mineral that can be found in pegmatites and veins in granitic rocks.

Tourmaline (Na(Mg,Fe,Li,Mn,Al)₃(Al)₆(BO₃)₃(Si)₆.O₁₈(OH,F)₄): A boron silicate mineral found in granites, pegmatites and veins, as well as some metamorphic rocks.

Vein: Tabular geological body formed as a result of mineral substance filling a fracture or due to metasomatic replacement of rock with mineral(s) along a fracture. Unlike dykes formed primarily by magmatic rock, a vein is composed of vein and ore minerals (quartz, carbonated, sulphides etc.).

Waste dump: An artificial dump formed as a result of disposing of overburden (waste rock) at specially designated sites.

Zircon ($ZrSiO_4$): This silicate mineral often contains trace amounts of uranium and thorium and as a result it can be radioactive. Zircon forms in igneous rocks, but can often be found in sedimentary rocks as a detrital mineral.



2.8 ABBREVIATIONS

0	degree (angle)
%	percent
<	Less than
>	Greater than
£	Pound(s) sterling
А	Amp(s)
A/m^2	Amps per square metre
°C	Centigrade
CIM	Canadian Institute of Mining
СР	Competent Person
d	Day(s)
€	Euros
Fe	Iron
g	Gram(s)
g/L	Grams per litre
g/t	Grams per tonne
h	Hour(s)
IRR	Internal Rate of Return
kg	Kilogramme
km	Kilometre(s)
km ²	Square Kilometre
kV	Kilovolt(s)
kW	Kilowatt(s)
kWh	Kilowatt hour(s)
kWh/t	Kilowatt hours per tonne
L	Litre(s)
LCT	Lithium-Caesium-Tantalum
Li	Lithium
LOM	Life-of-Mine
Ma	Millions of years ago
m	Metre(s)
mm	Millimetre
um	Micron
m^2	Square metre
m ³	Cubic metre
m/s	Metres per second
mg	Milligram(s)
mg/L	Milligrams per litre
Mn	Manganese
Mt	Million tonnes
Mt/a	Million tonnes per year
Nb	Niobium
NYF	Niobium-Yttrium-Fluorine
ppm	Parts per million
OA/OC	Ouality assurance/quality control
OP OP	Oualified Person
REL-Li	Rare element-Lithium
REL-REE	Rare Element-Rare Earth Element
—	



Run of Mine
Second
Tin
Solid Resources Limited trading symbol
Tantalum
Tonne (metric, 2,204.6 pounds)
Tonnes per year
Tonnes per day
Tonnes per hour
Tonnes per month
Tailings management facility
Toronto Stock Exchange
United States dollar(s)
Volt(s)
Value Added Tax
Tungsten
Weight percent
X-ray fluorescence
Zinc



3.0 RELIANCE ON OTHER EXPERTS

The authors of this Report have reviewed and analysed data provided by Solid and have drawn their own conclusions therefrom, augmented by a direct field examination. The authors have not conducted any independent exploration work, drilled any holes or performed any sampling and assaying programmes.

While exercising all reasonable diligence in checking, confirming and testing it, the authors have relied upon the data presented by Solid in preparing the Technical Report.

The descriptions of geology, mineralisation and exploration are taken from reports prepared by various companies or their contracted consultants. The conclusions of this Report rely on data available in published and unpublished reports, information supplied by the various companies which have conducted exploration and or development activities on the property, and information supplied by Solid. Where applicable, the source is noted in the text of this Report and a list of references is provided in Section 27.0 of this Report. The information provided to Solid appears to have been gathered by reputable companies and, having reviewed the information Micon has no reason to doubt its validity.

The various agreements or licences under which Solid holds title to the mineral lands for this project have not been investigated or confirmed by the author and no opinion is offered as to the validity of the mineral title claimed.

This Technical Report has been prepared in accordance with Canadian National Instrument 43-101 Standards of Disclosure for Mineral Projects on behalf of Solid. It is based on information available at the time of preparation, data supplied by outside sources, and the assumptions, conditions and qualifications set out herein. This Report is intended to be used by Solid, subject to the terms of its agreement with the authors.

The author acknowledges the helpful cooperation of Solid's management and field staff, all of whom made any and all data requested available and responded openly and helpfully to all questions, queries and requests for material.

Micon retains the right to change or modify its conclusions if new or undisclosed information is provided, which might change its opinion.



4.0 PROPERTY DESCRIPTION AND LOCATION

4.1 LOCATION

The Alberta-1 Permit is situated in the north-west of Spain, approximately 25 km to the east of Pontevedra (population circa 82,000) and 42 km north-west of Orense (population circa 108,000). The location is shown in Figure 4.1. The northern portion of the property is located in the Pontevedra province, whilst the southern part lies in the province of Orense. All the Alberta-1 Permit obligations are dealt with by the Orense mining authorities, since the largest part of the permit surface area is located in this province.



Figure 4.1: Map Showing the Location of the Alberta-1 Project Area and the Port of Pontevedra

Source: Google Maps, 2014

4.2 MINERAL TITLE

Solid acquired the Alberta-1 Rare Metals Project in 2000.

Solid Mines España S.A.U., 100% owned by Solid Resources Limited, is the holder of 100% of the mining rights (Section C) of the Alberta-1 Permit.

The area of the Alberta-1 Exploration Permit (*Permiso de Investigación*) is approximately 3,690 ha, corresponding to 123 cuadrículas mineras, (mineral concession unit used by Spanish mining law each mining unit was defined by 20 seconds of latitude and 20 seconds of longitude). The coordinates are 08°20′ longitude and 42°28′ latitude. A location map of the permit area is shown in Figure 4.2. The area of the Exploitation Licence (*Concesión de Explotación*) to be applied for will be reduced according to Spanish Mining Law (2,395 hectares corresponding to 85 cuadrículas mineras).



Solid Resources Ltd

Figure 4.2: Location Map of Alberta-1 Permit





4.3 **PERMITTING REQUIREMENTS**

4.3.1 General

The governing law for mining operations in Galicia is formulated and regulated by the local government of Galicia. It follows a National Mining Law framework, and local formulation must fall within the National framework. At the present time, Solid management has experienced that the government is favourably disposed toward mining activities.

4.3.2 Permits

The official name of the Permit is "Permiso de Investigación Alberta-1, 1^a Fracción, N° 4966.1" and it is valid until 14th June, 2014. The Spanish Mining Law permits an extension period to be applied to this date. There is an obligation to complete the planned programme approved by the mining authorities during the period granted. Preparation of the documentation for the application of the Exploitation Licence is currently in progress. In accordance with the Spanish Mining Law, the Exploitation Licence can be granted initially for a 30 year period, with possible extensions, up to a maximum of 90 years. The Permit is granted for any element, mineral or substance included in "Sección C". "Sección C" according to Spanish law includes all elements, minerals or substances except energy types. Therefore Sn, Ta, Nb, Li, Rb, Cs, W and industrial minerals are included.

According to Spanish Mining Law, the subsurface belongs to the State. There is a tax to be paid annually for mining rights depending on the extension of land occupied by the licence, not on production. In addition there is a local tax for the town depending on the depreciated value of the facilities (plant, offices, stores) in place for the operation. No royalties are payable for either the Exploration Permit (or licence) or the Exploitation Licence.

The environmental liabilities are applicable upon award of the Exploitation Licence (*Concesión de Explotación*). Environmental studies are underway to be submitted with the application for the Exploitation Licence. The boundaries are located within a perimeter defined by 20 apices identified by geographical coordinates according to the Spanish Mining Law specifications, as shown in Figure 4.3.

Permits from local communities, which hold surface rights, must be granted for access. To date, the relationship with the local communities is excellent, and the work agreed has been performed under contract with them. In the future, similar agreements should be carried out with local interest groups.









5.0 ACCESSIBILITY, CLIMATE, LOCAL RESOURCES, INFRASTRUCTURE AND PHYSIOGRAPHY

5.1 **PROPERTY ACCESS**

The Alberta-1 Permit is situated approximately 25 km to the east of Pontevedra city (sea port), and 41 km from Vigo (international sea port). The area can be accessed from the Orense-Pontevedra national main road N-541, followed by secondary asphalted roads, which cross the Permit from north to south. Motorways to the east, south and west are located around 25 km from the Permit. The Santiago de Compostela International Airport is located 40 km to the north.

5.2 CLIMATE

Galicia, in the north west of Spain, lies in an area known as "España Verde" (Green Spain). The climate is Atlantic with Mediterranean influence in the some of the interior areas. The Atlantic Ocean influences the climate and is characterised by slight variations in temperature, mild winters and only moderately warm summers, with rainfall interspersed by dry spells producing the green countryside (see Table 5.1).

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
Average High °C/(°F)	12.1	14.7	18.1	19.0	22.3	26.7	29.7	29.9	26.6	20.9	15.5	12.7	20.6
	(53.8)	(58.5)	(64.6)	(66.2)	(72.1)	(80.1)	(85.5)	(85.8)	(79.9)	(69.6)	(59.9)	(54.9)	(69.1)
Daily Mean °C/(°F)	7.5	9.2	11.4	12.7	15.7	19.4	22.1	22.0	19.4	15.1	10.8	8.5	14.5
	(45.5)	(48.6)	(52.5)	(54.9)	(60.3)	(66.9)	(71.8)	(71.6)	(66.9)	(59.2)	(51.4)	(47.3)	(58.1)
Average Low °C/(°F)	2.9	3.7	4.6	6.3	9.2	12.2	14.6	14.2	12.3	9.3	6.1	4.4	8.3
	(37.2)	(38.7)	(40.3)	(43.3)	(48.6)	(54)	(58.3)	(57.6)	(54.1)	(48.7)	(43)	(39.9)	(46.9)
Precipitation mm (inches)	90	81	54	70	67	39	19	23	57	97	93	124	817
	(3.54)	(3.19)	(2.13)	(2.76)	(2.64)	(1.54)	(0.75)	(0.91)	(2.24)	(3.82)	(3.66)	(4.88)	(32.17)
Average Precipitation Days (≥ 1 mm)	10	10	8	11	10	5	3	3	6	10	10	11	97
Mean Monthly Sunshine Hours	87	105	167	180	199	239	272	270	201	138	90	70	2,043

Table 5.1:	Climate	Data f	for C	Drense
1 4010 011	Chinace	Dutu	LOL C	

Source: Valores Climatólogicos Normales – Orense, Agencia Estatal de Meteorología

Because of its location, stretching from the sea to the central plateau of Spain, the weather in Galicia tends to vary from area to area. In the permit area, temperatures range from a minimum daily average temperature of -0.9°C in winter, to a maximum daily average temperature of 25.4°C in summer. The average rainfall is between 817 mm and 1,462 mm per annum.

The summers can be quite dry with a high risk of fire due to the high density of vegetation. Consequently, special precautions during the operations must be taken during this time of year.

5.3 LOCAL RESOURCES

There is a power line crossing the permit area and there is also a wind farm situated on the western edge. Both these options are possible for the supply of electrical power to the mining operations and processing plants.


Water supplies are readily available year around from the local rivers as the rainfall is high and quite constant throughout most of the year. However, there can be local supply shortages during the summer. The water supply to the mining operations should be integrated with the needs of the local population living in the affected areas. Permits for water usage from the legal authorities must be applied for prior to commencing exploration and mining operations.

There are several villages situated in and around the permit area, mainly down the eastern edge (Figure 4.3), which could supply skilled workers. Many of these workers were working in the manufacturing, construction and infrastructure sectors, which have recently been seriously cut back due to the financial crisis.

Land for mining access, waste disposal areas, storage areas and processing plants is easily available for rent, as most of the properties are managed by public communities, which would benefit from any future mining.

5.4 INFRASTRUCTURE

The Alberta-1 project lies in a region with good existing infrastructure; there are good road links close the permit area in addition to the close proximity of an international sea port. The project is however still at the exploration stage and the site infrastructure is at the planning stage.

Within the area of the Exploitation Licence (*Concesión de Explotación*), there are sufficient surface rights for mining operations, potential tailings storage areas, potential waste disposal areas and potential processing plant sites.

5.5 PHYSIOGRAPHY

The Alberta-1 project is located in an area characterised by narrow valleys and rounded hills, some with steep slopes. The topography of the permit area ranges from 431 m to 931 m above sea level. The soils are well developed, especially in the valleys, with bedrock outcrops mainly on the hills and slopes.

The streams and rivers in the permit area north of Ermida de Santo Domingo flow north into the Rio de Castro whilst those south of Ermida de Santo Domingo flow south into the Rio Doade.

The main vegetation in this location is comprised of bush (gorse and heather) and woods containing oak and pine trees. There are areas of pasture for cows and sheep and cultivated fields where the local inhabitants grow vegetables and cereal crops.



6.0 HISTORY

Mining and exploration work was conducted from the 1940's to the 1980's within the permit area. Old mine workings include open pits and some adits excavated in the softer and more kaolinised parts of the pegmatites. Most were made in the 1940's and 1950's by local miners, often in pursuit of small deposits exposed in streambeds. This activity ceased in the early 1960's.

In 1970 and 1971 *Compañía Estañífera de Galicia* exploited cassiterite in a relatively large dyke in the northern area of the permit, especially in the underground mine at Presqueiras. These underground workings cover an area approximately 100 m by 100 m, and have overlapping galleries on four levels, following the dip of the pegmatitic structure, with dyke thicknesses of over 10 m.

Between 1972 and 1974, the Geological and Mining Institute of Spain (IGME) conducted a general study of the area, to identify potential sources of tin and tungsten mineralisation. A survey of surface rock samples and soil geochemistry was undertaken and concentration tests were performed.

Between 1981 and 1985 a large area in the south of the permit was investigated by the state-owned company ADARO. The work carried out included: mapping, soil and rock geochemistry, trenching, and the drilling of eight core holes totalling 586.9 m. In addition, various tests on concentrate production were conducted.

In 1982, a joint venture by the companies SEVELAR and RÍO IBEX began an exploration programme with geological mapping and trenching in the north of the permit area near the Presqueiras mine and at Coto Tocayo permit area further to the south. This was followed by a programme of twenty core drill holes, with a total of 2,069 m drilled over the two areas.

No reliable result information obtained during the exploration work completed since 1972 undertaken by previous companies has been found. Some information can be found in the reports prepared by Dr. Rolf Burkhardt (2003, 2005). This historical information has not been used by the authors. No information has been found on production, mineral resource estimates or mineral reserve estimates.



7.0 GEOLOGICAL SETTING AND MINERALISATION

7.1 GEOLOGICAL SETTING

7.1.1 Regional Geology

The mineralised pegmatites of the Alberta-1 Project are situated within the Galicia-Tras-os-Montes Zone of the north-west Iberian Massif, formed during the Variscan Orogeny between 370 Ma to 290 Ma by the convergence and collision of the continents Laurasia and Gondwana (Abati, et al., 2010).

The Iberian Massif is bounded to the north-east and south-south east by fold belts, the Pyrenean and Betic respectively, which together form part of the Alpine belt. To the west the Iberian Massif is bounded by the continental margin formed by the opening of the Atlantic Ocean. The Iberian Massif is comprised of five zones parallel and concentric to the Ibero-Armorican Arc that include the Cantabrian Zone (CZ), West Asturian-Leonese Zone (WALZ), Central Iberian Zone (CIZ), Ossa-Morena Zone (OMZ) and the South Portuguese Zone (SPZ) (Gibbons and Moreno, 2002). The tectono-stratigraphic zones of the Iberian Massif are provided in Figure 7.1.



Figure 7.1: Schematic Map of the Tectono-Stratigraphic Zones of the Iberian Massif

⁽After Gibbons and Moreno, 2002)



The Iberian Massif includes autochthonous units i.e., originating and deformed locally, allochthonous units, i.e., transported by bounding thrust faults, and parautochthonous units, i.e., allochthonous units transported together by a basal detachment fault. A regional geology map with the defined main units and location of the different structural domains are illustrated in Figure 7.2.

Figure 7.2: Geology of Galicia (Showing the Parautochthon, the Allochthonous units, and the Local Names of the Basal Units)



(Modified from Abati J. et al., 2010)



The autochthonous realm locally comprises metamorphic rocks ranging from very low grade to catazonal and plutonic rocks. The metamorphic rocks comprise a thick metasedimentary sequence inferred to have been deposited on the northern Gondwanian margin during late Neoproterozoic and Palaeozoic times (Abati, et al., 2010).

The allochthon is the remnant of a huge and structurally complex nappe stack preserved in the core of late Variscan synforms. The allochthonous units occur above the Iberian autochthon and exhibit different degrees of exoticism (Gómez-Barreiro, et al., 2010).

The Galicia-Tras-os-Montes Zone that hosts the mineralised pegmatites, does not fit the continuous and concentric trend of the rest of the zones making up the Iberian Massif and represents a parautochthonous crustal block, thrust over the Central Iberian Zone (Farias et al., 1987). This zone includes the allochthons of Cabo Ortegal, Órdenes and Malpica-Tui in Galicia (Spain), and of Bragança and Morais in Trásos-Montes (Portugal), as well as a common underlying thrust sheet which has been called the Schistose, Parautochthonous or Lower Autochthon Domain (Martínez Catalán, 2007).

The units of the Galicia-Tras-os-Montes Zone are grouped into basal, intermediate or ophiolitic and upper units according to their structural position within the thrust pile. Many of the units have recrystallised under deep conditions and represent lower crust and upper mantle. The basal units represent the most external margin of Gondwana and provide magmatic evidence for Ordovician rifting, mostly linked to the Rheic Ocean, and metamorphic evidence for early Variscan subduction (Arenas, et al., 2007).

The Galicia-Tras-os-Montes Zone records the progressive incorporation onto the orogenic prism of a volcanic arc, as well as the partial westward subduction of the outermost margin of Gondwana. The volcanic arc is represented by an imbricate pile of oceanic lithosphere of various ages that overlay the subducted basal units. The blocking of continental subduction in the late Devonian marked the transition to a collisional regime. The subducted basal units were over-thrust onto the external platform of Gondwana in the early Carboniferous and a sheet of sediments was wedged underneath forming the Schistose Domain (Martínez Catalán, 2007).

The mineralised pegmatites intrude a mica schist unit of the Schistose Domain that strikes north-north-west to south-south-east (Paraño group), and is bounded to the east by the Forcarei unit (allochthonous synform), and to the west by a two mica, syn-kinematic granite.

7.1.2 Local Geology

The Presqueiras-Taboazas mineralised rare element pegmatites are included within a belt approximately 350 m wide, extending 11 km (in the area of the permit) in a north-north-west to south-south-east direction, conforming to the regional schistosity, and to the contact of the two mica syn-kinematic granites outcropping to the west. The syn-kinematic granite is the fertile granite responsible for the mineralised pegmatites.

Numerous pegmatite dykes and sill-like structures are hosted within the mica schist belt and occur as sharply bounded homogeneous to zoned bodies within the Paraño Group of the Schistose Domain. The enrichment of the rare elements in the pegmatite dykes is dependent on the distance from the contact between the mica schist and the two mica granite. The mineralised dykes are situated from 600 m in the Presqueiras zone to 1,600 m in the



Taboazas zone from the contact with the granite. Pegmatite dykes within 600 m of the contact with the two mica granite are unmineralised. The mineralised pegmatite dykes exhibit an increase in the grade of cassiterite and columbite-tantalite to the east. A detailed geological map, with the main pegmatite dykes defined and their relationship to the granite, host rock, and thrust of the Forcarei unit, is shown in Figure 7.3.







The rock types in the pegmatite field and adjacent areas are described in the following sections.

7.1.2.1 Pegmatites

The pegmatite dykes are Carboniferous in age and are dated from 318 Ma to 316 Ma (Fernández, et al., 2009). The pegmatite dykes were intruded along the mica schist belt during the third regional phase of deformation resulting in asymmetric folding. The pegmatite dykes strike in a 160° direction, which is the direction of the main vertical schistosity of the host rock, and dip to the west variably between 0° and 60° , toward the source granite. The initial temperature of crystallisation is estimated at around 600° C at a pressure of 2.5 kbar to 3.5 kbar (Hensen, 1967).

There are two types of pegmatite dykes observed in the field area: the mineralised albite pegmatite dykes and the mica pegmatite dykes. The crystal size is variable and locally aplitic dykes are observed exhibiting a fine crystal size. The mica pegmatite dykes are elongated parallel to the granite contact and occur in close proximity to it.

The mineralised albite pegmatite dykes are intruded discordant to the mica schist host rock. The mica schists are in contact both in the hanging wall and the footwall of each dyke. The dimensions of the dykes determined from drilling intersections are up to 15.6 m thick, 550 m long, 300 m wide and are open at depth and along strike. The average thickness varies from 2.8 m to 8.6 m. Weathering is irregular in depth and intensity and affects the dykes up to a depth of 30 m. The depth of the dykes varies from surface to 244.7 m, 160 m vertical depth.

Figure 7.4 shows a mineralised pegmatite dyke folded and faulted, hosted by the mica schist unit.



Figure 7.4: Photograph of a Pegmatite Dyke Outcrop



7.1.2.2 Mica Schists and Quartz-Mica Schists

These are the host rocks of the pegmatite dykes, known as the Paraño Group. These metasediments are competent, but foliated and laminated, of fine grain size, sometimes fractured with pyrite flakes on the schistosity and fractures, and with a high amount of lenticular quartz veins.

The mica schist and quartz-mica schists have a vertical schistosity, striking in the 160° direction. This schistosity is the main regional foliation, considered the third regional phase of deformation. Numerous quartz bands generally form boudins parallel to the schistosity. Close to the contact with the pegmatites, the schists include abundant tourmaline.

The main minerals are quartz with undulose extinction, muscovite, biotite, garnet and tourmaline. The accessory minerals are zircon, apatite, anatase and opaque minerals (Hensen, 1967). Other minerals observed include K-Feldspar, plagioclase, sericite, magnetite, hematite, pyrite, chalcopyrite, chlorite and rutile.

7.1.2.3 Two Mica Granite

This rock type is situated in the western part of the licence. The two mica granite is homogeneous with a medium to coarse crystal size and locally exhibits a porphyritic texture with crystals of K-feldspar up to 4 cm long that defines a tectonic foliation. The contact of the granite with the mica schists is parallel and conforms to the regional structures and formations. There is a belt within the granite, close to the contact with a fine to medium crystal size. These rocks are syn-kinematic in relation to the third regional phase of the Variscan deformation and are dated at approximately 322 Ma (Fernández, et al., 2009).

The granites are composed of perthitic K-feldspar, albite, undulose quartz, muscovite and biotite. The accessory minerals are zircon and apatite (Hensen, 1967).

The relationship of the pegmatites to the granites is determined based on the observations that the pegmatites are dipping towards the granite, elongated parallel to the granite-mica schist contact and that both units are quite close in age. The pegmatites return marginally younger ages than the granites.

7.1.2.4 Forcarei Unit

The Forcarei unit is situated in the eastern part of the Permit and is composed of quartzites, amphibolites, orthogneisses and schists. The contact with the mica schists and quartz-mica schists of the Paraño group is a main Variscan thrust. It is an allochthonous unit that forms an isoclinal fold (synform).

The main foliation (S2) is a flat-lying schistosity, which has a stretching lineation frequently parallel to the trend of the Variscan belt. The Forcarei synform was interpreted as a D3 fold because it has a well-developed crenulation cleavage parallel to the sub-vertical axial plane folding, the S2 schistosity (Fernández, et al., 2009).



7.2 MINERALISATION

The mineralisation is defined in terms of the three main elements with possible profitable economic value; tantalum, tin and lithium. For the purposes of exploration, the permit area has been divided into six areas along the mineralised pegmatite field within the mica schist belt. From north to south the names of the areas are: Presqueiras, Correa, Coto Tocayo, Acebedo, Rubillón and Taboazas, Figures 4.3 and 10.1 illustrate the location of these areas.

7.2.1 Geometry and Structure

The pegmatite dykes are intruded within the mica schist host rock and are elongated in the 160° direction, approximately the direction of the main schistosity. The hanging wall and footwall contacts of the mineralised pegmatite dykes are irregular, but are more or less parallel to each other and are angled in relation to the vertical schistosity, clearly visible in the mica schist and quartz-mica schist host rocks. The thickness is variable and has been calculated from the intersections of the drill holes. The thickness of the dyke intersections in the Presqueiras deposit are close to the true thicknesses and approximately 90% of the true thicknesses in the rest of the areas of the permit. Details on thicknesses and dimensions of the dykes can be found in Sections 10.0 and 14.0 including Figures to illustrate the geometry and structure of the deposits.

7.2.1.1 Presqueiras

The mineralisation includes two main pegmatite dykes, and extends along 700 m with a width of 300 m. The dykes are continuous and the thicknesses are variable, up to a maximum of 15.6 m. The average thickness varies from 2.8 m to 8.6 m. The strike of the pegmatite dykes is 160° , and the dip is variable from sub-horizontal in the northern zone up to 40° to the west in the southern zone. The maximum depth intersected by the drill holes of the main mineralised dyke is 158.40 m. There is a possible extension of mineralisation to the north and south.

There is a zonation of the distribution of tin and tantalum within the main pegmatite dykes, with the enrichment increasing to the eastern part. The lithium grade distribution is irregular, however in general it is high in the western part of the mineralisation where the grades of tin and tantalum are lower.

7.2.1.2 Correa

One mineralised pegmatite dyke was intersected by two drill holes. The mineralisation is continuous and extends approximately 300 m along the strike in a 160° direction and 100 m in the 070° direction, with a possible extension of 200 m more to the west to be confirmed by future drilling. A main dyke was intersected with a variable thickness from 3.4 m to 5.3 m dipping 20° to the west. There is a possible extension of the mineralisation to the north, south and west.



7.2.1.3 Coto Tocayo

The mineralisation includes two main pegmatite dykes, and extends 450 m along the strike, and 200 m in the 070° direction. The dykes are considered continuous, although this will be tested by future infill drilling, and the thicknesses are variable from a minimum of 2.65 m to a maximum of 12.05 m. The strike of the pegmatite dykes is from 140° to 150° , and the dip is about 40° to the west. The maximum depth of the main mineralised dyke intersected by the drill holes is 101.5 m. There is a possible extension of mineralisation to the north, south and west.

7.2.1.4 Acebedo

The mineralisation includes one important main pegmatite dyke intersected by four drill holes. The mineralisation is continuous and extends approximately 600 m along the strike, in a 155° direction and 200 m in the 070° direction. The mineralisation has the potential to be extended 200 m to the west, this will be tested by future drilling. The main dyke was intersected with a variable thickness from 4.75 m to 11.5 m, dipping 20° to 40° to the west. There is a possible extension of mineralisation to the north, south and west.

7.2.1.5 Rubillón

One mineralised pegmatite dyke was intersected by two drill holes. The mineralisation is continuous and extends 200 m along the strike in a 160° direction and 100 m in a 070° direction. A main dyke was intersected with a variable thickness from 4.55 m to 6.05 m and dipping 35° to the west. There is a possible extension of mineralisation to the north, south and west.

7.2.1.6 Taboazas

The mineralisation extends 400 m along the strike, and 200 m in a 070° direction, it includes two main pegmatite dykes. The dykes have been intersected by four drill holes, they are continuous and the thickness is variable from a minimum of 4.1 m to a maximum of 10.4 m. The strike of the pegmatite dykes is 150° with the dip variable from 40° to 60° to the west. The depth varies from surface outcrop to a maximum of 244.7 m (160 m vertical depth) in hole SO-11-27. There is a possible extension of mineralisation to the north, south and west.

The distribution of high grades of tin, tantalum and lithium is quite constant along the strike of the main pegmatite dykes. Additional drilling will provide information about the zonation perpendicular to the strike.

7.2.2 Mineralogy

A mineralogical and petrographic study of 17 core samples from Presqueiras and Taboazas drill holes was carried out. In addition, a mineralogical and micro-analytical study of two of these samples by ESEM-EDS and EPMA was completed by F. Gervilla, from September, 2011 to January, 2012. Mr Gervilla is a Professor at Granada University.



The major minerals of the mineralised pegmatites are:

- Albite 30% to 50%;
- Quartz 25% to 35%;
- K-feldspar (orthoclase, microcline) 5% to 10%;
- Muscovite 4% to 8%: and,
- Spodumene up to 10%.

The minor minerals are cassiterite, columbite-tantalite, eucryptite, petalite, amblygonite, kaolinite, apatite, sphalerite, zircon and chlorite.

The paragenetic relationships of the pegmatitic phase, which constitutes the bulk of the pegmatites in the order of formation described by Hensen (1967) are:

- 1. K-feldspar and quartz, some albite);
- 2. Albite and petalite;
- 3. Spodumene and quartz, some albite;
- 4. Sugary albite, muscovite, quartz, cassiterite, beryl and accessory minerals (columbite-tantalite).

Figure 7.5 shows the texture of a pegmatite core sample (major minerals: albite, orthoclase, quartz, and muscovite). Xenomorphic-hypidiomorphic texture shows some partially dissolved crystals of orthoclase (in the centre).





Note: Picture was taken under transmitted crossed polarised light.



7.2.2.1 Tantalum and Niobium

Tantalum and niobium occur mainly as columbite-tantalite minerals. Columbite, $(Mg,Ti,Fe,Mn)Nb_2O_6$, is an end member of a columbite-tantalite solid solution series with Tantalite $(Mg,Ti,Fe,Mn)Ta_2O_6$, the other end member of the solid solution series. Columbite-tantalite crystals are commonly black, prismatic to tabular with a crystal size up to 200 µm by 50 µm, irregularly disseminated in the pegmatite (exceptionally, crystals up to 800 µm by 25 µm can be seen). The crystals are frequently zoned, depending on the Ta/Nb ratio. There are also inclusions of columbite-tantalite crystals within the cassiterite (see Figures 7.6 and 7.7).

Figure 7.6: Microphotograph of Prismatic-Tabular Crystals of Columbite-Tantalite



Note: Picture was taken under reflected, parallel light.





Note: Showing diverse patterns of sector zoning. The light areas correspond to compositions rich in Ta whereas grey to dark-grey areas correspond to compositions rich in Nb.



7.2.2.2 Tin

The tin mineral is cassiterite (SnO₂), which occurs as dark brown irregular single crystals or aggregates. The distribution is heterogeneous and disseminated within the pegmatite dykes, with a variable crystal size up to 1 cm (exceptionally up to 4 cm). The large crystals frequently contain inclusions of columbite-tantalite, having variable sizes from 10 μ m to 100 μ m.

Figure 7.8 shows cassiterite with irregular inclusions of columbite-tantalite (red arrows). Figure 7.9 shows a slightly zoned cassiterite crystal, the black points correspond to columbite-tantalite inclusions.



Figure 7.8: Microphotograph of Aggregate of Cassiterite Crystals

Note: Picture was taken under reflected, parallel light.

Figure 7.9: Microphotograph of Crystal Aggregate of Cassiterite



Note: Picture was taken under reflected, parallel light. The scale bar corresponds to $2,500 \ \mu m$.



7.2.2.3 Lithium

The main lithium minerals are spodumene (LiAlSi₂O₆, 8.03% of Li₂O) and petalite (LiAlSi₄O₁₀, 4.5% of Li₂O). There are also small quantities of the minerals eucryptite and montebrasite. Ferri-sicklerite and heterosite minerals have been described by Hensen (1967).

Spodumene occurs either irregularly distributed among quartz and orthoclase or randomly concentrated in several zones. The crystal size varies from a few hundred microns to 3 mm. Spodumene also occurs as micro-intergrowths with quartz where it becomes slightly replaced by eucryptite. It forms corroded crystals included in K-feldspar and albite crystals.

Petalite occurs as sub-rounded to irregular crystals mainly included in albite, with variable crystal sizes from 100 μ m to 500 μ m.

Figure 7.10 shows the distribution of spodumene among albite and quartz crystals under transmitted crossed polarised light. Figure 7.10 shows the distribution of spodumene among albite and quartz crystals.



Figure 7.10: Microphotographs – Spodumene

Note: Picture was taken under transmitted crossed polarised light.

Figure 7.11: Microphotographs – Spodumene



Note: Picture was taken under reflected, parallel light.

Figure 7.12 (a) is a back-scattered image of spodumene crystals associated with albite showing the characteristic double cleavage intersection at approximately 90°. Figure 7.12 (b) shows a sub-rounded crystal of petalite included within albite and associated with muscovite. The latter is partially replaced by kaolinite.



Figure 7.12: Back Scattered Images of (a) Spodumene Crystals (b) Sub-Rounded Petalite Crystal



7.2.2.4 Mineralogical Study of Lithium Minerals

A mineralogical analysis was carried out by Dr. M. Fuertes Fuente (University of Oviedo) in January 2014 on a sample of the tailings treated in the pilot plant from the bulk sample extracted in Presqueiras. The objective of the study is to quantify the amount and composition of the different lithium minerals identified (spodumene, petalite, amblygonite).

The methodology employed in this study consisted of the following stages:

- 1. Weighing and sieving of the sample in order to obtain the different grain-size fractions as suggested by the patron company.
- 2. Division of these grain-size fractions with a riffle sample divider to obtain a representative sample of each.
- 3. For each of these representative samples, separation of a heavier and a lighter concentrate, achieved by employing the heavy liquid method.
- 4. Resin encasement of the grains of these two concentrates from each fraction to form cylinders from which thin section slides (thin sections) may be obtained.
- 5. Study by optical microscopy of the thin sections obtained from the concentrates (both dense and light).
- 6. Subsequent microanalysis of these thin sections using a scanning electron microscope equipped with an X-ray spectrometer (EDX).

Through this study, the results of which are summarised in Table 7.1, it has been possible to identify that in the dense concentrates of all the grain-size fractions the principal lithium containing mineral is spodumene, representing more than 90%, accompanied by amblygonite, at 1% to 3%. The light concentrates comprise lithium containing phases of petalite at 1%, although it was not present in all the grain-size fractions, and compound grains of spodumene and quartz at between 2% and 10%. The percentage of spodumene present in the light concentrate increases with increasing grain size, as is shown in Table 7.1, owing to lower liberation of the spodumene that generally displays in compound grains alongside quartz.



	Lithium Bearing Minerals				
Grain-Size Fraction	Dense Concentrate	Light Concentrate			
	(%)	(%)			
$1~mm > F > 710~\mu m$	Spodumene > 90%	Spodumene 10%			
	Amblygonite 2%	Petalite 1%			
710	Spodumene > 90%	Spedumene 70/			
$710 \mu m > F > 300 \mu m$	Amblygonite 2% to 3%	spodumene 7%			
500 Ex 250	Spodumene > 90%	Spodumene 2%			
$300 \mu m > F > 230 \mu m$	Amblygonite 2% to 3%	Petalite 1%			
E < 250 um	Spodumene > 90%	Spedumene 20% to 20%			
Γ < 230 μm	Amblygonite 1% to 2%	spodumene 2% to 5%			

 Table 7.1: Summary of the Mineralogical Study of Dense and Light Concentrates

 (From the Presqueiras (Pontevedra) Pegmatite Dykes)

Figure 7.13 shows an electron microscope image of a spodumene crystal with the X-ray spectrum of EDX microanalysis. The table at the base of the figure shows the weight % of the analysed elements marked in the electron microscope image. Identification is based on composition.

Figure 7.13: Electron Microscope Image of Spodumene Crystal



* Lithium concentration is estimated, it is a light element hence undetectable by commom x-ray spectrometers

1 Vec 56.04 14.02 20.04 3.7* 100	
1 105 50.54 14.02 29.04 3. /** 100	0.00 SPODUMENE
Mean 56.94 14.02 29.04 100	0.00
Std. deviation $0.00 0.00 0.00$	
Max. 56.94 14.02 29.04	
Min. 56.94 14.02 29.04	

7.2.2.5 Other Minerals

Significant quantities of Rubidium and Caesium have been reported by the laboratory on the chemical assays. However, Rb and Cs minerals have not been observed in the mineralogical study. Muscovite and biotite are the main minerals with important quantities of Rb and Cs according to the mineralogical and micro-analytical study by EPMA. There are also significant quantities within tourmaline, spodumene, albite and orthoclase minerals. Therefore, the possibility of extraction at present, of these minerals is very unlikely, from a technical and economic point of view. These elements will not affect the recovery of the other elements, because they are included mainly in the tailings of the concentration plant.



8.0 **DEPOSIT TYPES**

Derived from the depth-related "formations" of Ginsburg et al. (1979), five classes of granitic pegmatites are distinguished, based on the pressure (and, in part, temperature) conditions that characterise their host-rock suites. These classes are Abyssal, Muscovite, Muscovite-Rare-element, Rare-element (REL) and Miarolitic (Cerny and Ercit, 2005). The Rare-element (REL) class can be divided into different subclasses, types and subtypes, as showed in Table 8.1.

Subclass	Туре	Subtype	Geochemical Signature	Typical Minerals	Metamorphic Environment	Relation to Granites
REL-REE	allanite-monazite		LREE, U, Th, (Be, Nb>Ta, F, [P])	allanite, monazite, zircon, rutile, fluorite, ilmenite		Interior to marginal (rarely exterior)
	euxenite		L-H-REE, Y, Ti, Zr, Nb>Ta (F, P)	euxenite, monazite, xenotime, zircon, rutile, ilmenite, (fergusonite, aeschynite, zinnwaldite)	Variable, largely shallow and postdating regional events affecting	
	gadolinite		Be, Y, HREE, Zr, Ti, Nb>Ta, F (P)	gadolinite, fergusonite, samarskite, zircon, rutile, ilmenite, fluorite, (zinnwaldite)	the nost rocks	
		beryl-columbite	Be, Nb-Ta (+/-Sn, B)	beryl, columbite, tantalite, (rutile)		(Interior to marginal to) exterior
REL-Li	beryl	beryl-columbite phosphate	Be, Nb-Ta, P (Li, F, +/-Sn, B)	beryl, columbite, tantalite, triplite, triphylite		
	complex	spodumene	Li, Rb, Cs, Be, Ta-Nb (Sn, P, F,+/-B)	spodumene, beryl, columbite-tantalite, (amblygonite, lepidolite, pollucite)		
		petalite	Li, Rb, Cs, Be, Ta-Nb (Sn, P, F,+/-B)	petalite, beryl, columbite-tantalite, (amblygonite, lepidolite, pollucite)	Low-P, Abukuma amphibolite	
		lepidolite	Li, F, Rb, Cs, Be, Ta-Nb (Sn, P, B)	lepidolite, beryl, topaz, microlite, columbite-tantalite, (pollucite)	(andalusite-sillimanite) to upper green schist facies, ~2 to 4 kbar, ~ 650 to 450°C	
		elbaite	Li, B, Rb, Sn, F (Ta, Be, Cs)	tourmaline, hambergite, danburite, datolite, microlite, (polylithionite)		
		amblygonite Li, Rb, Cs, Ta-Nb, Be (Sn)		amblygonite, beryl, columbite-tantalite, (lepidolite, pollucite)		
	albite-spodumene		Li, (Sn, Be, Ta-Nb +/-B)	spodumene, (cassiterite, beryl, columbite-tantalite)		
	albite		Ta-Nb, Be, (Li,+/- Sn, B)	columbite-tantalite, beryl (cassiterite)		

Table 8.1: Rare Element Class Pegmatite Classification (From Cerny and Ercit (2005))

The Presqueiras-Taboazas mineralised pegmatites according to the Cerny and Ercit (2005) classification correspond to the Rare-element (REL) class, Rare element-Lithium (REL-Li) subclass, albite-spodumene or albite type pegmatites, taking into account the mineralogy and geochemical signature of the drilled dykes.



The albite-spodumene type of complex pegmatites is compositionally related to the spodumene subtype, and consolidates at elevated pressures. However, it differs in its bulk composition by substantial dominance of albite and quartz over K-feldspar, and by lithium commonly within the uppermost range established by experimental magmatic enrichment. The most conspicuous difference is in the simple zoning, approaching textural near-homogeneity, of individual bodies, and strong preferred orientation of lath- and club-shaped crystals of spodumene and K-feldspar, subnormal to oblique to the attitude of the pegmatite dykes. Pegmatites of the albite type have an aplitic feature. Albite is dominant over quartz, and generally minor to accessory K-feldspar, spodumene or lepidolite (Cerny and Ercit, 2005).

From the genetic point of view, taking into account the provenance of the pegmatites from diverse granites and the relationship with their parental plutonic sources, the pegmatites are classified in different families by Cerny and Ercit (Table 8.2).

Family	Pegmatite Subclass	Geochemical Signature	Pegmatite Bulk Composition	Associated Granites	Granite Bulk Composition	Source Lithologies
LCT	REL-Li MI-Li	Li, Rb, Cs, Be, Sn, Ga, Ta>Nb (B, P, F)	peraluminous to subaluminous	(synorogenic to) late-orogenic (to anorogenic); largely heterogeneous	peraluminous S, I or mixed S+I types	Undepleted upper- to middle-crust supracrustal rocks and basement gneisses
NYF	REL-REE MI-REE	Nb>Ta, Ti, Y, Sc, REE, Zr, U, Th, F	subaluminous to metaluminous (to subalkaline)	syn-, late, post- to mainly anorogenic; quasi- homogeneous	(peraluminous to) subaluminous and metaluminous; A and I types	Depleted middle- to lower-crust granulites, juvenile granites, mantle-metasomatised crust
Mixed	Cross-bred: LCT and NYF	Mixed	(metaluminous to) moderately peraluminous	(postorogenic to) anororgenic; heterogeneous	subaluminous to slightly peraluminous	Mixed protoliths or assimilation of supracrustal rocks by NYF granites

 Table 8.2: Petrogenetic Family Classification (From Cerny and Ercit (2005))

Note: LCT - Li-Cs-Ta; NYF - Nb-Y-F: REL-REE - Rare Element-Rare Earth Element

The Presqueiras-Taboazas mineralised pegmatites correspond to the Rare element-Lithium (REL-Li) subclass of the Li-Cs-Ta (LCT) enriched family of pegmatites, from the classification in Table 8.2. The key points are the geochemical signature (Sn, Ta>Nb) and the parental synkinematic granite outcropping to the west, corresponding to synorogenic plutons within the Variscan Belt of Europe.

LCT granitic pegmatites form part of the orogenic association, and represent the culmination of protracted crystallisation of a magma typically formed in part at the expense of metasedimentary materials. NYF granitic pegmatites form part of the anorogenic association, and may represent the culmination of protracted fractional crystallisation of a basaltic magma. We consider LCT pegmatites to be members of the orogenic (calc-alkaline suites) formed in a subduction setting (Martin and De Vito, 2005).

The basis on which the exploration programme is planned are: following the mineralisation intersected by the drill holes within the geological context of LCT family, REL-Li subclass (Table 8.2, Cerny and Ercit, 2005) and Rare-element (REL) class, REL-Li subclass, albite-spodumene or albite type pegmatites dykes (Table 8.1, Cerny and Ercit, 2005). Two examples of LCT pegmatite deposits are Greenbushes (Lithium mining project in Australia) and Pivert-Rose (Rare elements exploration project in Canada).



9.0 EXPLORATION

Since 2000, Solid has carried out a programme of exploration on the Alberta-1 permit. This included the compilation of all existing information and Solid's geological mapping, geochemical sampling, study of old mine workings and trenching.

9.1 GEOLOGICAL MAPPING

Geological mapping was performed in the central and northern areas of the exploration permit on a scale of 1:5,000 for work purposes. The data was later synthesised on a 1:10,000 scale map. It was not considered necessary to carry out this work in the south as geological maps at 1:5,000 existed from previous surveys carried out by ADARO. The different pegmatite outcrops in the main exploration areas were reviewed, with particular emphasis on areas of the old workings and where the campaigns were conducted in the 1980's. A total of 188 samples from outcrops and old mine workings were analysed.

9.2 GEOCHEMICAL SAMPLING

A campaign of geochemical analysis was carried out on stream sediment samples from the central and northern areas of the permit, with a total of 72 samples collected averaging 200 g. To avoid the "nugget effect", the samples were duplicated every 5 m to 10 m. The samples were taken as sand samples from the fine fraction of the main streams and their tributaries, mostly from the centre of the streams, where heavy minerals tend to be deposited. The samples were analysed for niobium, tantalum, tin, tungsten and lithium.

9.3 STUDY OF OLD MINE WORKINGS

These workings were made by open pit as well as by some adits and near-surface galleries excavated in the softer and more kaolinised parts of the pegmatites. These underground workings cover an area approximately 100 m by 100 m, and have overlapping galleries on four levels following the dip of the pegmatite structures, whose widths are over 10 m. In these workings nine samples were taken and analysed for tantalum, tin and lithium.

9.4 TRENCHING

During the review of the geology in the western sector of the Presqueiras area, a region with kaolinised pegmatite dykes was located. For the study of this area, six trenches were dug perpendicular to the direction of the dykes, with a depth of 2 m and a separation between trenches of 50 m, to a total length of 875 m. Ninety-six samples were taken to be analysed for tantalum, tin and lithium.

The results confirmed a mineralised pegmatite band extending 11 km in length. The interpretation of the information coming from these studies determined six important mineralised zones within the band, which were considered as important targets to be drilled. Drilling details of these zones can be found in Section 10.0.



10.0 DRILLING

10.1 INTRODUCTION

Four diamond drilling programmes were carried out during 2003, 2005, 2011 and 2012 on the Alberta-1 *1^a Fracción* Permit. The objective was to explore the potential of the mineralised pegmatite dykes (thickness, extension and grade) for tantalum, tin and lithium and define the mineral resources.

A total of 65 drill holes with a total length of 7,021.45 m were drilled in the different areas:

- Presqueiras 46 drill holes (4,676.05 m);
- Correa 2 drill holes (155.6 m);
- Coto Tocayo 4 drill holes (382.8 m);
- Acebedo 4 drill holes (366.2 m);
- Rubillón 2 drill holes (224.65 m); and,
- Taboazas 7 drill holes (1,216.15 m).

In the 2003 to 2005 drilling programmes, a total of 17 diamond drill holes were drilled, with a total length of 2,087.20 m. Most of the core obtained was 6.3 cm in diameter from a HQ bit. In 2005, for operational purposes, the start of each hole was drilled with a PQ bit (9.2 cm core) up to 4.6 m deep. In 2003, three sizes of bits were used, the last phase being drilled with an HQ bit until the end of the hole: 13.0 cm core was obtained up to 3 m, followed by 10.5 cm core up to 22.5 m, followed by 9.2 cm core up to 60.0 m. The core recovery was 98.9% (weighted average).

In the 2011 drilling programme, a total of 31 diamond drill holes were drilled, with a total length of 3,364.05 m. Most of the core obtained was with a HQ bit (6.3 cm core). Just the start of each hole, due to operational purposes, was drilled with a PQ bit (11.5 cm) up to 3 m deep. The core recovery was 98.6% (weighted average).

In the 2012 infill drilling programme, a total of 19 diamond drill holes were drilled (two of them re-entered from the previous drilling programme), with a total length of 1,570.20 m. Most of the core obtained was with a HQ bit (6.3 cm core). Just the start of each hole, for operational purposes, was drilled with a PQ bit (at 11.5 cm) up to 3 m deep. The core recovery was 98.9% (weighted average).

The relationship between the core length and the true thickness of the mineralisation is about 90%, as most of the drill holes have been drilled perpendicular to the dip of the dykes. A map with the location of drill holes is shown in Figure 10.1.





Figure 10.1: Overall Geological Map with the Drill Hole Locations



10.2 DRILL SURVEYS

All inclined drill holes have been down-hole surveyed. A selection of the vertical holes, especially drill holes deeper than 100 m, were also surveyed. The down-hole surveys were recorded every 50 m and at the end of the hole by the drillers. A single-shot camera was used to provide a photographic disc showing the dip and azimuth data for each depth. Some of the measurements were repeated to check the accuracy of the device.

Collar surveys were carried out for all drill holes by Topofor (Qualified Contractor for detailed topographic surveys). The precision accuracy of the measurement for the northing, easting and elevation coordinates is estimated to be 1 cm for 2011 and 2012 drill programmes and 2 m for 2003 to 2005 drill programmes. The projection coordinate system used was UTM, European Datum 1950, 29 North Zone. Once plotted, all the data was checked in the field when any discrepancies were detected. All the drill holes are marked in the field by a location marker. Holes drilled during the 2011 and 2012 campaigns are capped using metal collar protectors (Figure 10.2).

Figure 10.2: Photographs of the Location Marker and Collar Protection



10.3 DENSITY

A total of 1,446 density measurements were carried out on lengths of drill core. The samples were selected to provide a representative suite of densities of the two main lithology types, including altered zones. The number of samples includes all drill holes from the Alberta-1 2003, 2005, 2011 and 2012 drilling programmes.

Density determinations were taken from the core on samples of about 20 cm in length and from ½ or ¼ of the core (mainly 6.3 cm diameter) after being cut for sampling. Within pegmatite dykes one measurement was made every metre. In addition, one or two measurements were taken, from the hanging wall and footwall of each dyke, within the mica schist host rock. In the 2012 drilling programme, systematic measurements every 10 m were taken within the mica schist host rock.

The water displacement method was used. The density measurement for each core sample was calculated by using the Weight in Air / Weight in Water method. The core is weighed in air and in water; the weight (grams) in air is divided by the difference between weight in air and weight in water (cm^3), to get the density value (g/ cm^3). Detailed density data of different zones is shown in Table 10.1.



	Density				
Zone	Pegmatite (g/cm ³)	Mica Schist (g/cm ³)			
Presqueiras	2.59	2.75			
Correa	2.59	2.73			
Coto Tocayo	2.62	2.79			
Acebedo	2.61	2.74			
Rubillón	2.58	2.65			
Taboazas	2.64	2.72			

Table 10.1: Average Density of Different Rock Types by Zones

10.4 GEOLOGICAL AND GEOTECHNICAL LOGGING

Detailed geological logging was completed for all the drill holes. The cores were also logged quantitatively for geotechnical data (Recovery, RQD, number of fractures, main angles of fractures) and qualitatively and quantitatively for lithological and mineralogical data. The core was assembled in boxes, and marked for logging based on mineralogical and lithological variations. They were also marked for assay based on the lithology and thickness of the dykes. In general, all the dykes above 1 m thickness and 1 m of mica schist at the hanging wall or footwall of each dyke have been assayed. The core was also photographed in detail (one photograph per core box; about 5 m core). Detailed photographs of cassiterite and spodumene were also taken, where the core showed intense mineralisation.

All the logging data was recorded in logs written by hand on paper. The more relevant data (rock type, mineralisation, alteration, contact, schistosity) was selected and recorded in an electronic format to build a basic database in Text or Excel format. The data was exported into a Geosoft database, which includes collar, geology, survey, and assay information. All the tasks carried out during this programme are in accordance with standard industry practice.

10.5 RESULTS INTERPRETATIONS AND RECOMMENDATIONS

The intersections of pegmatite dykes by drill holes recognised an important mineralisation zone extending 11 km. The mineralisation has been confirmed and extended in the Presqueiras, Taboazas, Coto Tocayo and Acebedo zones. In addition, in the Correa and Rubillón areas the mineralised pegmatite dykes have been intersected, confirming the exploration potential of these areas. The length of the interval analysed is the length of the interval.

The variations of the results, in terms of grade, within a mineralised interval are due to the nugget effect. Cross sections of the mineralised intervals illustrate the tin and tantalum grades in the figures for each of the different areas in the following detailed discussion.

The different areas have been assessed separately in order to provide a more accurate knowledge of the calculated resources and in order to plan the future exploration drilling potential.

10.6 PRESQUEIRAS

During the 2003, 2005, 2011 and 2012 drilling programmes, a total of 4,676.05 m, from 46 drill holes have been drilled. During the 2012 drilling programme 1,570.2 m were drilled, corresponding to 17 new drill holes and two re-entered from the previous programme. In the 2011 drilling programme 1,934.90 m were drilled, comprising of 18 drill holes.



In 2005 850.25 m were drilled, corresponding to seven drill holes and in 2003 320.7 m were drilled, comprising of four drill holes.

The mineralisation has been extended to a total of 700 m in a NNW-SSE direction, 300 m perpendicularly and up to 18.4 m thick. Average thicknesses range from 3.0 m to 8.4 m, as shown in Table 10.2. The results confirm the continuity of the main dykes in terms of thickness and grades of tin, tantalum and lithium (see Figure 10.3).

Zone	Number of Holes	Strike Length (m)	Width (m)	Average Thickness (m)
1	42	700	100 to 400	8.4
2	22	420	300	5.8
3	10	260	250	3.0
4	12	500	40 to 180	4.8
5	8	300	50 to 180	5.0

Table 10.2: Presqueiras – Zone Summary

Within the mineralised band the lithium grade is high in the western zone of the band while, the tantalum and tin grades are high in the eastern area. There is a grade zonation of tantalum and tin parallel to the NNW-SSE band. The tantalum and tin grades increase towards the eastern area. In some drill holes the higher grades of tantalum, tin and lithium coincide. One such example is the SO-11-12 drill hole, which contains the highest grades for all three elements in Main Dyke I, (Table 10.3).

Table 10.3: Mineralised Pegmatite Intervals - Main Dyke I Hole SO-11-12

Width	Interval (m)	Sample (m)	Rock Type	Ta ₂ O ₅ (ppm)	Sn (ppm)	Li ₂ O (%)	Nb ₂ O ₅ (ppm)	Rb (ppm)
	73.95 – 74.95	1	Pegmatite	36	289	0.78	31	842
	74.95 - 75.95	1	Pegmatite	73	417	1.38	54	1130
	75.95 – 76.95	1	Pegmatite	146	810	1.55	107	844
11.75	76.95 – 77.95	1	Pegmatite	85	845	1.03	84	1190
	77.95 – 78.95	1	Pegmatite	122	807	1.88	92	946
	78.95 – 79.95	1	Pegmatite	146	1235	1.08	101	1220
	79.95 - 80.95	1	Pegmatite	158	1480	0.8	130	930
	80.95 - 81.95	1	Pegmatite	122	2350	1.3	125	1875
	81.95 - 82.95	1	Pegmatite	122	832	2.06	102	981
	82.95 - 83.95	1	Pegmatite	122	539	1.33	111	514
	83.95 - 84.95	1	Pegmatite	146	1100	0.31	115	454
	84.95 - 85.7	0.75	Pegmatite	183	1040	0.042	143	524

The drill holes collars were spaced around 50 m, within the most important zone (Measured and Indicated resources area) and up to 100 m, within the area of Inferred resources (Figure 10.3). Due to the continuity in thickness and grade of the pegmatite dykes, the drill-hole spacing is sufficient to complete a resource calculation.

As most of the drill holes are perpendicular to the dip of the dykes the true thicknesses are very close to the lengths intersected.



Figure 10.3 shows the location of the drill holes from different drilling programmes, detailed geology of mineralised pegmatite dykes, the bulk sampling adit and old mining works.



Figure 10.3: Presqueiras Map with Drill Hole Locations

The longitudinal section in Figure 10.4 shows intersections of tantalum and tin grades and the interpretation of the main pegmatite dyke. Figure 10.5 shows the tantalum and tin grades increasing to the east.





Figure 10.4: Longitudinal Section of Presqueiras







10.7 CORREA

A total of 155.6 m corresponding to two drill holes were completed in 2011. The mineralisation extends approximately 300 m in a NNW-SSE direction. A main dyke was intersected with a variable thickness from 3.8 m to 6.0 m. The tantalum, tin and lithium grades are variable, but good enough for further future exploration drilling. Four drill holes have been planned to assess the continuity of the dyke between current drill holes, and extend the mineralisation to the north, south and west. Sections of the drill holes with an interpretation of the mineralised pegmatite dyke that outcrops the surface, along with the tantalum and tin grades, are shown in Figure 10.6.



Figure 10.6: Sections of Drill Holes at Correa



A map of the area is shown in Figure 10.7 showing the 2011 drill holes, planned drill holes, and the detailed geology of the mineralised pegmatite dykes.



Figure 10.7: Correa Map with Drill Hole Locations



10.8 COTO TOCAYO

This area has had a total of 382.8 m drilled corresponding to two drill holes completed during 2003 amounting to 179.55 m and 203.25 m corresponding to two drill holes drilled during 2011.

The mineralisation extends about 450 m in a NNW-SSE direction, and more than 200 m perpendicularly. A main dyke was intersected with a variable thickness from 3.1 m to 12.05 m and a secondary mineralised pegmatite dyke with a variable thickness from 1.15 m to 5.7 m was intersected. The grades of tantalum, tin are high and whereas the lithium grade is variable.

A section showing a drill hole with an interpretation of the mineralised pegmatite dykes and the tantalum and tin grades is given in Figure 10.8. A map of the area is shown in Figure 10.9 including the drill holes from the 2003 and 2011 drilling programmes, planned drill holes and the detailed geology of the mineralised pegmatite dykes.

Additional future drilling is recommended to assess the continuity of the dykes, the variability of the grade between the drilled holes and the extension of the mineralisation to the west. A minimum of seven drill holes have been planned.



Figure 10.8: Coto Tocayo - Section of Drill Hole SO-11-19





Figure 10.9: Coto Tocayo Map with Drill Hole Locations



10.9 ACEBEDO

A total of 366.2 m has been drilled in the Acebedo area corresponding to one drill hole in 2003 of 163.15 m and 203.05 m corresponding to three drill holes completed in 2011.

The mineralisation extends approximately 600 m in a NNW-SSE direction and more than 200 m perpendicularly. A main dyke was intersected with relatively continuous thickness of 10.3 m to 12.8 m. The tantalum and tin grades are high whereas the lithium grade is variable.

A section showing a drill hole with an interpretation of the mineralised pegmatite dyke and the tantalum and tin grades is given in Figure 10.10. A map of the area is provided in Figure 10.11 illustrating the 2003 and 2011 drilling programmes drill holes, planned drill holes, and the detailed geology of the mineralised pegmatite dykes.

Additional future drilling is recommended to assess the continuity of the dyke, the variability of the grade between the drilled holes and the extension of the mineralisation to the west. A minimum of 12 drill holes have been planned.



Figure 10.10: Acebedo - Section of Drill Hole SO-11-21-B





Figure 10.11: Acebedo Map with Drill Hole Locations



10.10 RUBILLÓN

A total of 224.65 m has been drilled corresponding to two drill holes completed in 2011. The mineralisation extends approximately 200 m in a NNW-SSE direction. A main dyke was intersected with a variable thickness from 4.55 m to 6.05 m.

The tantalum and tin grades are variable with drill hole SO-11-25 intersecting high grades of tantalum and tin and drill hole SO-11-24 intersecting low grades of tantalum and tin. More exploration is recommended with additional future drilling, following the good grades found in drill hole SO-11-25.

A future drilling programme is recommended to assess the continuity of the dyke, and check the possible extension of the mineralisation to the north, south and west. A section showing a drill hole with an interpretation of the mineralised pegmatite dykes and the tantalum and tin grades is given in Figure 10.12. A map of the area is shown in Figure 10.13 including the detailed geology of the mineralised pegmatite dykes.



Figure 10.12: Rubillón - Section of Drill Hole SO-11-25





Figure 10.13: Rubillón Map with Drill Hole Locations



10.11 TABOAZAS

A total of 1,216.15 m corresponding to seven drill holes has been drilled. Three holes were drilled in 2003 comprising of 573.55 m and in 2011 a total of 642.6 m was drilled from four drill holes.

The main mineralisation has been extended to a total of 400 m in a NNW-SSE direction (Figure 10.15), and 150 m perpendicularly (Figure 10.14). The results confirm the continuity of the main dykes in terms of thickness and tantalum, tin and lithium grades.

A mineralised band in a NNW-SSE direction is confirmed by drill holes SO-11-26 and SO-11-27. The tantalum, tin and lithium grades are the highest of the Alberta-1 Permit. There are at least two main dykes intersected with a variable thickness from 4.45 m up to 11.5 m.

There is a secondary mineralised area intersected by drill holes SO-11-28 and SO-11-29, with very high grades of tantalum and tin, but the dykes intersected have a maximum thickness of 2.2 m. Once a cut-off thickness/grade is established, an economic assessment of this mineralisation can be made.

A 50 m grid drilling programme is recommended to improve the quality of the calculated resources and enhance them to the north and deeper (to the west) than the previous drilled area. A total of 3,150 m of drilling has been planned see Figure 10.15.



Figure 10.14: Taboazas - Section of Drill Hole SO-11-26



Figure 10.15 shows the drill holes from the 2003 and 2011 programmes, planned drill holes and the detailed geology of the mineralised pegmatites.



Figure 10.15: Taboazas Map with Drill Hole Locations


11.0 SAMPLE PREPARATION, ANALYSES AND SECURITY

11.1 SAMPLING METHOD AND QUALITY CONTROL

The mineralised pegmatite has been sampled by diamond drilling. The drill patterns, collar grids and drill hole diameters are guided by the geological structure, continuity and variability of the mineralisation, and the requirements of data for a reliable mineral resource estimation.

The drill core was boxed and covered at the drill rig and transported by the drillers daily to the core shed facility, to be logged and sampled. Drill core samples provide continuous columns of rock from which geological contact relationships can be determined, mineralogical associations identified and structural data measured. After being examined and logged, the core was sampled according to an established protocol.

The most common sample interval used was 1 m. The core sample intervals assayed varied from 0.5 m to 1.5 m, sample intervals are rarely outside this range. Analysis of the drill core diameter, pegmatite dyke geometry, mineralogical variations and assay population statistics were used to determine the appropriate sample interval in drill holes. Mineralised pegmatite intersections vary from a few centimetres to tens of metres in thickness. The length of sampling is based on the intersected length of the drill holes.

Distinguishing the dark host waste rock (mica schist) from the white pegmatites in drill core is quite clear. Most of the geological contacts are at an angle to the main schistosity, which is normally vertical and quite regular.

Drill core was collected in wooden boxes marked with the drill hole identification and down hole depths at the end of each core run. Core size was generally HQ (approximately 63 mm in diameter). Pegmatite zones were selected by the geologist while logging and intervals were marked up for cutting and sampling. All the pegmatite intersections exceeding 1 m in thickness were sampled for assay, but shorter intervals were sampled depending on the proximity of a thick intersection. The sections of core selected sampled generally extended 1 m into the host waste rock on either side of a pegmatite intersection. Internal mica schist zones separating pegmatite intersections were sampled. Inspection of the geological variations in the core to determine the sample intervals was carried out by detailed visual logging.

The core was reassembled into a continuous column in the core boxes. Core recovery was 98.9% (weighted average) for the 2003 to 2005 drill programmes, 98.6% in 2011 and 98.9% in 2012. A line of symmetry was drawn along the core and the core of the selected sample interval was cut in half by diamond saw, one half was put in a sample bag to be sent to the laboratory, according to the established sample intervals. The second half of the core was kept in its previous place in the core box.

Drill core samples were collected sequentially in numbered sample bags after cutting in two halves with a diamond saw. Every half was marked after being cut to secure both parts of the core, and then the part going for assay was selected. The integrity and continuity of the core string was maintained by reassembling the core in the box. The sample intervals were defined by the logging geologist, who was also responsible for any mismatches in the lithology within or at the end of core runs. The cut sample labelling and packing was performed by the field assistants under the supervision of the project geologist.



The numbered sample bags were sent to the laboratory for chemical assay. An average sample bag taken from 1 m long core ($\frac{1}{2}$ HQ) was about 4 kg in weight. The sample bags were labelled outside with their corresponding number, and a safety label with the same number was also put inside the bag for security. Every 4 to 5 bags were photographed and put in a sack to facilitate the logistics and avoid loss of any bag when transported by the certified courier. A list with the number of bags was sent to the laboratory.

Once two or three drill holes were completely sampled, all the sample bags were sent to the laboratory in the same batch (all the samples of the two or three drill holes to be analysed were sent at the same time to the laboratory in one shipment). Slightly more than 8% of the samples were duplicates, blanks or standards for quality control, at least one of each was sent per batch. One or two quality control samples per drill hole were sent, depending on the length of the mineralised interval; one for a short interval and two for long mineralised intervals.

The batch was sent to ALS Laboratory Group, Mineral Division, located in Seville (Spain) by courier, where they perform the crushing, pulverising and splitting of each sample. The sequence starts with a crushing process (CRU-21) described as "coarse crushing of drill samples to 70% nominal 6 mm", after that a pulverising process (PUL-21) described as "to pulverise the entire sample to 85% passing 75 micron or better", then comes a splitting process (SPL-22) described as "to split sample using a rotary splitter" to obtain a sample of 250 grams. These samples were then sent to ALS Laboratory Group Minerals located in Vancouver (Canada) for chemical assay.

11.2 SAMPLE ANALYSIS

The chemical assays were performed by ALS Laboratory Group Minerals (Canada), which produced the assay certificates.

In 2011 tin, tantalum, niobium and rubidium were analysed using XRF assay. In 2012 tin, tantalum and niobium were analysed using XRF assay. The code for XRF assay used by the laboratory is ME-XRF05. The XRF analytical method is based on X-Ray fluorescence spectroscopy. This method is described by ALS Laboratory as follows: "A finely ground sample powder (10 g minimum) is mixed with a few drops of liquid binder (Polyvinyl Alcohol) and then transferred into an aluminium cap. The sample is subsequently compressed under approximately 30 ton/in² in a pellet press. After pressing, the pellet is dried to remove the solvent and analysed by WDXRF spectrometry for the different elements" (from www.alsglobal.com). The assay ranges are shown in Table 11.1.

Element	Symbol	Lower Limit (ppm)	Upper Limit (ppm)
Niobium	Nb	2	10,000
Rubidium	Rb	2	10,000
Tin	Sn	5	10,000
Tantalum	Та	10	10,000

 Table 11.1: Ranges for the Different XRF Assayed Elements



The analytical method used for lithium and caesium was based on four acid near-total digestion with an assay code of ME-MS61.

This method is described by ALS Laboratory as follows: "Inductively Coupled Plasma-Atomic Emission Spectroscopy (ICP-AES) and Inductively Coupled Plasma-Mass Spectrometry (ICP-MS). A prepared sample (0.25 g) is digested with perchloric, nitric, hydrofluoric and hydrochloric acids. The residue is topped up with diluted hydrochloric acid and analysed by inductively coupled plasma-atomic emission spectrometry. Following this analysis, the results are reviewed for high concentrations of bismuth, mercury, molybdenum, silver and tungsten and diluted accordingly. Samples meeting this criterion are then analysed by inductively coupled plasma-mass spectrometry. Results are corrected for spectral inter-element interferences" (from www.alsglobal.com).

The elements analysed were Ag, Al, As, Ba, Be, Bi, Ca, Cd, Ce, Co, Cr, Cs, Cu, Fe, Ga, Ge, Hf, In, K, La, Li, Mg, Mn, Mo, Na, Nb, Ni, P, Pb, Rb, Re, S, Sb, Sc, Se, Sn, Sr, Ta, Te, Th, Ti, Tl, U, V, W, Y, Zn and Zr. The detection limits of the relevant elements are shown in Table 11.2.

Element	Symbol	Lower Limit (ppm)	Upper Limit (ppm)	
Caesium	Cs	0.05	500	
Lithium	Li	0.2	10,000	

Table 11.2: Ranges for the Different ICP-MS Assayed Elements

A quality control procedure of standard, blank and duplicate samples is followed by the ALS Laboratory Group. A certificate is given to Solid Mines España, S.A.U. (Solid Mines) for each batch of samples. In addition, Solid Mines used up to 10% of the samples per batch for duplicate, blank or standard samples for its own quality control.

The ALS Laboratory Group has provided the corresponding certificates for each batch. The batch certificate includes sample preparation, analysis and the quality control procedure. All these certificates have been sent to Solid Mines, which keeps records of all of them.

The procedure described above was performed during the 2011 and 2012 drill programmes. Similar procedures were carried out during the 2003 and 2005 drill programmes, but only the main elements were chemically assayed (Ta, Sn, Li, Nb). In addition, some of the samples were also assayed for Cs and Rb. No quality control samples were sent to the laboratory. A photocopy of the assay certificates is attached to the internal drilling reports.

Micon considers that the current sample preparation, security, analytical procedures and data management procedures used conform to industry standards and are adequate for the purpose of mineral resource estimation and the assessment of the exploration potential of the Alberta-1 project.



11.3 MICON QUALITY CONTROL ANALYSIS

Micon has completed a statistical analysis of the quality control chemical assay data received from Solid. Standard, duplicate and blank samples were routinely and blindly included for analysis along with the samples from the 2011 and 2012 drilling programmes. Samples were sent for processing to the ALS Laboratory Group, Mineral Division (Spain) and subsequently to the ALS Laboratory Group Minerals (Canada) for chemical assay. No external duplicates have been sent to a separate laboratory for additional verification.

Table 11.3 presents the assay data received for analysis by Micon from Solid and includes standard, duplicate and blank samples.

Type of Sample	Number of Samples	% of Total Samples
20	11 Assay Programm	ie
Samples	511	-
Standards	15	2.7
Duplicates	14	2.5
Blanks	14	2.5
Total	554	-
20	12 Assay Programm	ie
Samples	270	-
Standards	15	5.1
Duplicates	5	1.7
Blanks	6	2.0
Total	296	-

Table 11.3: Number of Samples Analysed

The percentage of standard, duplicate and blank samples included with the 2011 assay programme are 2.7%, 2.5% and 2.5% respectively. For the 2012 programme the percentage of standard, duplicate and blank samples are 5.1%, 1.7% and 2.0%. Micon recommends that Solid increase the percentage of standard, duplicate and blank samples analysed to 5% of the total number of samples sent for analysis (i.e. 1 in 20 samples).

11.4 STANDARDS

Two standard samples were prepared by Solid at the core shed from the master pulp of previous samples sent to the ALS laboratory. STD-H is high grade (Sn, Ta and Li) and STD-L is low grade (Sn, Ta and Li). Approximately 100 grams of either standard STD-H or STD-L was sent to the laboratory every one to three batches. The standard samples analysed were positioned blindly with the core samples of the batch.

The standards have not been certified by the laboratory, instead the mean and standard deviation has been calculated for the STD-H and STD-L samples for each drill programme in 2011 and 2012 to assess the precision of the data. Figures 11.1 to 11.6 show the results for the STD-H and STD-L standard assays for tantalum, tin and lithium for the 2011 and 2012 drill programmes respectively.





Figure 11.1: 2011 Tantalum Standard Assay Plot





Note: There are no Standard Deviation (SD) lines as the statistical analysis produced a SD value of zero























The majority (73%) of the standard samples assayed in 2011 for tantalum are within the range of the mean ± 1 standard deviation. On receiving the analysis results for some of the early 2011 standards for STD-H and STD-L the tantalum results were observed to be too high by Solid. The laboratory was notified by Solid accordingly to review their standards and subsequently the standard results analysed were all within the accepted range. The 2012 data for tantalum shows excellent repeatability with all the sample results achieving the exact same values, 120 ppm for STD-H and 60 ppm for STD-L.

The tin standards show 80% of samples for 2011 were within the accepted range of ± 1 standard deviation, with 75% for the 2012 samples.

The lithium standards show 60% of samples for 2011 were within the accepted range of ± 1 standard deviation, with 75% for the 2012 samples.

The statistical analysis of the standards for both the 2011 and 2012 sample programmes show that the laboratory is capable of producing precise assay results and these results are acceptable. The lack of a certified reference material means that the accuracy of the laboratory cannot be determined. It is not possible to discern any real statistical trends in the standard data due to the small number of assays.

Micon notes that the high standard provided by Solid in the 2012 programme actually contains a low concentration of lithium, 2025 ppm Li average, compared with that in the low standard which contains an average of 7298 ppm Li (Figure 11.6). Whereas, the tantalum and tin values, for both the 2011 and 2012 programmes, have high and low standards corresponding to actual "high" and "low" values (Figures 11.1 to 11.4). Micon recommends that Solid look at their procedures for producing standards for analysis to ensure that each element concentration matches the description of a "high" and "low" standard.

In addition Micon also recommends further analysis of the locally produced Solid standards in order to produce statistical significant upper and lower control limits to establish any future problems with batches of assays analysed.

Solid may also consider it appropriate to introduce external accredited standards to their quality control programme to provide a comparison to the locally prepared standards to monitor their suitability and accuracy.

11.5 BLANK ANALYSIS

One blank sample was sent every one to three batches. The sample was taken from a non-mineralised quartz dyke within the Forcarei unit.

Figure 11.7 shows a chart containing the blank assay data.

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Figure 11.7: Blank Data Analysis for Tantalum, Tin and Lithium

Figure 11.7 illustrates the low blank values for tin and tantalum, 60% of the values for both these elements were reported below the detection limits of 5 ppm and 10 ppm respectively. The lithium blank data values range from 14.9 ppm to 31.3 ppm which is considered to be very low in comparison to the mineralised samples which range from 101 ppm to 9320 ppm. There is just one sample out of range, not shown on Figure 11.7, one of the tin blanks reported 991 ppm. This can most likely be attributed to a one off result of either contamination or laboratory error.

The results for the blank samples are satisfactory and suggest that there is no systematic contamination or mixing during analysis.

11.6 DUPLICATES

One duplicate sample (repeat assay) per batch was sent to the laboratory in 2011 and one per every three batches in 2012. As the total number of duplicate samples sent for analysis for the 2011 and 2012 programmes only amounts to 19 assays Micon has analysed the duplicates together. The summary statistics for the duplicates are presented in Table 11.4.



Element	Parameters	Original	Duplicate
	Mean	100	98
Та	Standard Deviation	42	37
(ppm)	Correlation Coefficient	0.8	798
	No. of Samples	1	9
	Mean	681	742
Sn	Standard Deviation	189	226
(ppm)	Correlation Coefficient	0.7593	
	No. of Samples	1	9
	Mean	3416	3298
Li	Standard Deviation 3048		2941
(ppm)	Correlation Coefficient	0.9891	
	No. of Samples	19	

Table 11.4: Duplicates Summary Statistics

Correlation plots (Figures 11.8 and 11.10) were generated to assess the relationship between the original assays and the duplicates.

Figure 11.8: Correlation Plot for Original and Duplicate Tantalum Assays







Figure 11.9: Correlation Plot for Original and Duplicate Tin Assays

Figure 11.10: Correlation Plot for Original and Duplicate Lithium Assays





The correlation plots show three correlation lines; the central black line is the 1:1 line, the red lines denote $\pm 20\%$ error. The $\pm 20\%$ error limits indicate the acceptable range of analytical error for assays derived from unknown samples.

The percentage of samples exceeding $\pm 20\%$ error for tantalum, tin and lithium are 52.6%, 68.4% and 47.4% respectively. These values are relatively high, however the total number of samples analysed is only 19 samples.

Micon has also completed an analysis of the absolute error for the original and duplicate samples these are shown in Figures 11.11, 11.12 and 11.13 for tantalum, tin and lithium respectively.



Figure 11.11: Error Plot for Original and Duplicate Tantalum Assays





Figure 11.12: Error Plot for Original and Duplicate Tin Assays

Figure 11.13: Error Plot for Original and Duplicate Lithium Assays





The error plots of Figures 11.11 to 11.13 present the absolute difference of the original assay value from the mean of assay pairs. The plot illustrates the accuracy of analysis for sample pairs. The percentages of pairs with analytical errors of less than $\pm 20\%$ and $\pm 10\%$ are displayed in Table 11.15.

Error	Ta (ppm)	Sn (ppm)	Li (ppm)
Pairs with Analytical Errors Less than ±20%	100%	95%	95%
Pairs with Analytical Errors Less than ±10%	74%	68%	84%

Fable 11.5: Analytical Error of th	e Original Assays to	o the Mean of Assay P	airs
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The error plots show that the absolute errors for all three elements are acceptable.

11.7 CONCLUSIONS AND RECOMMENDATIONS

The statistical analysis of the standards for both sample programmes received in 2011 and 2012 show that the laboratory is capable of producing precise assay results and these results are acceptable. However, it is not possible to discern any real statistical trends in the standard data due to the small number of assays, and the lack of certified standards means that Micon is unable to comment on the accuracy of the data.

Micon recommends that Solid undertake the following measures:

- 1. Increase the number of standard, duplicate and blank samples to 5% of the total number of samples sent for analysis in the future to meet current recommended practice standards in the industry.
- 2. Review their procedures for producing standards for analysis to ensure that each element concentration matches the description of a "high" and "low" standard.
- 3. Further analysis of the locally produced standards in order to produce upper and lower control limits to establish any future problems with batches of assays analysed.

Solid may consider it appropriate to introduce external accredited standards to their quality control programme to provide a comparison to the locally prepared standards to monitor their suitability and accuracy.

The duplicate analysis revealed good repeatability achieved by the laboratory and high precision of sample pairs. However, Solid should consider sending duplicate samples for analysis at an external laboratory as a further validation method for their existing quality control procedures.

Overall Micon considers the sample assays suitable for mineral resource calculations.



12.0 DATA VERIFICATION

12.1 SITE VISIT

Mr Stanley Bartlett visited the Alberta-1 project site from 10th to 11th April 2014. The purpose of the site visit was to review the site as a whole and all the mineralised areas. During the visit Mr Bartlett also visited a number of the old workings within the project area, interviewed project personnel, assessed current exploration procedures and arranged for receipt by Micon of all relevant information for the preparation of this Technical Report.

At Presqueiras a number of drill sites were observed and compared with the relative position of these on drill hole collar plans. Each of the Solid drill hole collars was well marked with a concrete survey marker and a steel collar plug. The drill holes were often aligned to intercept the mineralised zones down-dip from surface exposures of the mineralisation. Surface exposures of the mineralisation were usually manifest as trenches that run along the trend of the slope.

At the north end of Presqueiras an old open pit is present, which probably dates back to the 1950's or 1960's. The pit forms a ravine-like structure that opens to the north and has a maximum depth of only 30 m. However, at the base of the pit a number of adits cross cut the mineralisation and turn to follow the trend of the mineralisation at fairly constant elevation.

Toward the southern end of the Presqueiras prospect an adit with a locked gate is present. This adit was the source of the bulk sample sent to SGS in Cornwall, UK. Specimens from the stockpile contain coarse-grained spodumene. Cassiterite was also observed. Approximately, 45 tonnes remains on the stockpile.

At Coto Tocayo drill hole collars were observed below the crest of the ridge and the trench that trends along the mineralisation at surface. The collars were marked with survey markers and steel caps.

Similar collar markers and trenches were observed at Rubillón and Taboazas. At Taboazas an adit was observed in the ravine where a dyke of the upper mineralised zone is exposed at surface.

12.2 ASSAY VERIFICATION

Micon completed standard validation checks to ensure that the drill hole database provided did not contain duplicate data, overlapping intervals, unmatched drill hole identifiers, and incorrect data values. No matters of concern were identified (see Section 14.0).



13.0 MINERAL PROCESSING AND METALLURGICAL TESTING

A sample of mineralised pegmatite was prepared in August 2011 for mineralogical and metallurgical testing. This sample weighed 246 kg and was made up from ¹/₄ HQ-PQ drill cores from Presqueiras drill holes from different parts of the deposit. The chemical content was calculated from the assay data of the core by weighted average for the whole sample; Sn 751 ppm, Ta₂O₅ 106 ppm, Nb₂O₅ 101 ppm and Li₂O 0.92%.

The sample was sent to SGS Minerals Services UK, Limited. The results of the mineralogical characteristics and recovery are described in the SGS reports cited in the list of references. A summary of these results are given in the following sections.

13.1 MINERALOGICAL CHARACTERISTICS OF SAMPLE

The mineralogical examination of the sample was carried out with X-ray diffraction (XRD), QEMSCANTM, electron microprobe and chemical analysis. The purpose of this test programme was to determine the overall mineral assemblage and the liberation/association of Li, Sn and Nb-Ta minerals. The mineralogical analysis was conducted on four size fractions including -300/+150 μ m, -150/+75 μ m, -75/+25 μ m and -25 μ m. A summary of the results are presented below.

13.1.1 XRD Analysis

The SGS285 sample consists of major amounts of quartz and plagioclase, minor petalite, K-feldspar and mica and trace amounts of tentatively identified spodumene. Note that the presence of spodumene was also verified with the electron microprobe analyses.

13.1.2 QEMSCANTM Analysis

The sample is dominated by Na-feldspar (albite) 36.0% and quartz 21.9%, moderate muscovite 15.0% and microcline 10.6%, minor petalite 9.6%, kaolinite 4.3% and trace amounts <1% of beryl/topaz, apatite, biotite, amblygonite, tourmaline, cassiterite, oxides, monazite, columbite, lithiophilite and other minerals.

13.1.3 Elemental Deportment

The elemental deportment is calculated based on the mass and chemical composition of each mineral in the sample/fraction. Micas and microcline carry the Rb at 51.2% and 48.8%, respectively. Columbite carries most of the Ta at 93.8% and Nb at 95.8%, while cassiterite hosts 6.2% and 4.2%, respectively. Cassiterite contains most of the Sn (99.7%), while trace amounts are accounted for by the columbite.

Liberation and association of petalite, columbite and cassiterite:

- Free and liberated petalite accounts for 80.4%. The main association of petalite is as complex particles (9.7%) and as middlings with clays (3.5%), quartz (2.9%), feldspar (2.0%), tertiary middlings with quartz/micas (1.3%);
- Free and liberated columbite accounts for 37.6%. The main association of columbite is as complex particles (56.7%) and as middlings with feldspars (1.8%), cassiterite (1.2%), and micas (1.1%); and,



• Free and liberated cassiterite accounts for 85.3%. The main association of cassiterite is as complex particles (12.4%) and as middlings with feldspar (2.2%).

Mineral release curves of petalite, columbite and cassiterite:

- Petalite liberation ranges from 79% to 82% to 84% to 74% for grain sizes of 254 μm, 106 μm, 43 μm and 9 μm respectively;
- Liberation of columbite ranges from nil to 3% to 46% to 48% for the same sizes, respectively; and,
- Liberation of cassiterite ranges from 52% to 83% to 97% to 87% for the same sizes, respectively.

Micon considers the main lithium mineral to be spodumene as the chemical assay of lithium is more consistent with the chemical composition of spodumene than petalite, as evidenced in the field samples and in the drill cores. That statement is also confirmed by the last mineralogical study performed by Dr. M. Fuertes dated in January 2014 (Oviedo University), which proved that the main lithium mineral is spodumene. More than 90% of lithium minerals in the pegmatite are spodumene, refer to Section 7.0 (Table 7.1 and Figure 7.13).

13.2 RECOVERY OF TIN, TANTALUM AND LITHIUM

Taking into account the results of the mineralogical study a test programme was designed (Figure 13.1).

The mineralogy showed that the D50 liberation size for the main minerals of interest was around 50 μ m. The columbite had a D50 liberation size of 15 μ m.

Both the gravity and mineralogy showed that the cassiterite was liberated at all sizes, and this would dictate that any processing circuit would require stage grinding followed by separation to remove the cassiterite as soon as it was liberated. This would prevent the cassiterite from being overground to slimes, which would report to tailings as evidenced by the bulk table test. There is also evidence that over 40% of the cassiterite can be scalped at the relatively coarse size of 3.35 mm, using jigs.

The tantalum and niobium also show some liberation at all sizes, which may be due to their association with the tin, which again points to a stage grind/separation type process. There is evidence of a small amount of concentration of lithium to gravity concentrates, due to the presence of minor lithium minerals with higher densities. However, the recoveries are very low, and would ultimately report to a middlings fraction.

The mineralogy pointed to an optimum grind size of $150 \ \mu m$ for ultimate cassiterite liberation. However, finer grinding of potential tailings products could be necessary in order to extract the maximum amount of tantalum and niobium.

Some tin can be recovered at all sizes to grades above 10%, but tin concentration becomes most effective at sizes below 500 μ m, and especially below 250 μ m. Both the tantalum and niobium tend to follow the same trend as the tin, due to the simple locking described in the mineralogy. Lithium does not respond well to gravity separation, and tends to report to tailings.



Magnetic profiling would indicate that the tantalum and niobium can be separated from the tin at magnetic field strengths of 1.0 Tesla or below on concentrates milled to below 125 μ m. Cleaning would be required to reduce entrainment and to maximise tin recovery.

A small-scale pilot plant may be necessary to generate sufficient concentrate to determine final grades and weight splits for cassiterite and columbite production.



Figure 13.1: Test Programme for Tin, Tantalum and Lithium Recovery

The metallurgical test work that was conducted at the SGS Laboratory at Cornwall, UK produced inconclusive results concerning the recovery of lithium minerals. There was some confusion at the time the test work was conducted whether the primary lithium mineral was spodumene (LiAlSi₂O₆) or petalite (Li(AlSi)₄O₁₀). Differentiation of the two minerals is critical as spodumene is much simpler to concentrate by flotation and spodumene concentrates tend to be higher grade at 5% to 6% Li₂O. In contrast petalite concentrates typically contain 3.5% to 4.5 % Li₂O.

In order to generate net smelter return values to be used to establish the cut-off grade for mineral resources Micon assumed the following recoveries could be achieved: Sn 80%, Ta 75% and Li_2O 80%.



14.0 MINERAL RESOURCE ESTIMATES

14.1 ALBERTA 1 RESOURCE MODELLING

Solid provided Micon with a series of database files in .csv format and plane interpretations for a series of zone structures for the Presqueiras, Correa, Coto Tocayo, Acebedo, Rubillón and Taboazas deposits.

A review of the databases provided to Micon revealed that the five deposits to the south of Presqueiras; Correa, Coto Tocayo, Acebedo, Rubillón and Taboazas, possess a limited amount of exploration data. The drilling undertaken at these deposits is summarised in Table 14.1.

Zone	Number Drill holes
Correa	2
Coto Tocayo	4
Acebedo	4
Rubillón	2
Taboazas	7
Total	19

Table 14.1: Summary of Drilling at Southern Deposits

14.2 PRESQUEIRAS MINERAL RESOURCE ESTIMATION

14.2.1 Database Summary

Micon obtained a database for Presqueiras in .csv format that was imported into CAE Studio 3 software. The imported database contains a total of 46 diamond drill holes. The majority of the drill holes are vertical, with five angled drill holes trending in a north easterly direction. The drill holes range from a maximum depth of 41.95 m to 195.15 m and total 4,676.05 m of drilling.

Table 14.2 summarises the basic statistics of the database for each of the principal elements: tin (Sn), tantalum (Ta) and lithium (Li₂O). The database contains lithium (Li) values in parts per million (ppm) and lithium oxide (Li₂O) as a percentage value. The Li₂O values have been used within the resource modelling as industry standard; these are recorded within the database within the field "LI20_100".

The assay .csv file provided by Solid contains a total of 905 assayed sample intervals, which differs from the number of samples stated within Table 14.2 and later Table 14.3. This difference occurs due to the import functions of CAE Studio 3 modelling software. The drill hole database contains two sample interval files, an assay file and a geological description file. Where the sample intervals do not correspond, the software generates a new sample interval. The corresponding sample data is per the original file, but the numbers of samples increase so that no sample data from either the assay or geology interval files is lost.



Element	Number Samples	Minimum	Maximum	Length Weighted Mean	Standard Deviation	Coefficient of Variation
Ta ₂ O ₅ (ppm)	920	0.98	333.94	73.89	57.34	0.77
Sn (ppm)	920	7.00	2350	525.16	411.18	0.78
Li ₂ O (%)	920	0.00	2.93	0.41	0.49	1.19

Table 14.2: Statistical Summary of Database

Along with assay data for several elements there are also two geological fields; LITH and GEOL. Discrepancies were observed locally between the data recorded in the two geological fields.

Upon import of the database a number of drill holes were lacking in survey data and as default these drill holes are imported as vertical holes.

Duplicate sample intervals were identified in several holes. A summary of the duplicate sample intervals is discussed in the QAQC section of this Report (Section 11.6). Micon flagged the 14 duplicate sample intervals in the drill hole database and removed the repeated interval from the drill hole dataset used for statistical analysis and compositing. Table 14.3 summarises the basic statistics of the database with these duplicate samples removed.

Element	Number Samples	Minimum	Maximum	Length Weighted Mean	Standard Deviation	Coefficient of Variation
Ta ₂ O ₅ (ppm)	906	0.98	333.94	73.25	57.31	0.78
Sn (ppm)	906	7.00	2,350	522.47	413.31	0.79
Li ₂ O (%)	906	0.00	2.93	0.41	0.48	1.17

Table 14.3: Statistical Summary of Database (Duplicate Samples Removed)

14.2.2 Wireframes

The pegmatite intervals were flagged and composite samples generated, controlled by the flagged sample intervals. The centre point of these composite samples was then used to generate two dimensional plane surfaces. This was undertaken for each zone structure and used in further modelling. Within Surfaces 1 and 2 (Figure 14.1), unsampled intersections between narrow pegmatite units are included within the composite samples. This includes an interval in surface 1 described within the LITH field as "ADIT".

The mineralisation of the deposits is hosted within pegmatite dykes, the plane surfaces provided to Micon have been generated though the centre of the identified dyke structures. The pegmatite dykes are clearly distinguishable within the geological logging. Micon has utilised the geological information and the plane surface interpretations to generate a group of wireframe solids. The geological data within the LITH field corresponds with the plane surface interpretations provided by Solid. The morphology of the Micon wireframes in strike and dip, predominantly correlate with the plane surface interpretations, extensions of the surfaces along strike and down dip where justified were interpreted by Micon. Extensions along the strike of 150 m were applied to the two larger dyke structures (Surfaces 1 and 2) and 100 m to the other dyke structures. Extensions up and down dip of the sample



intersections of approximately 50 m were applied, unless continuity between section lines could be established. The unsampled intersections included within the centre line plane surface interpretations are also included within the Micon interpretations in Surfaces 1 and 2.

A wireframe solid was generated for each individual dyke structure and were coded as individual surfaces using a numerical reference 'SURFACE'. The dyke structures were defined as independent surfaces so that samples within each solid surface (dyke) could be flagged accordingly with the surface number into which they occurred. Block estimation search ellipsoids were controlled to use only samples within individual surfaces.

An oblique view of the wireframes generated by Micon is presented in Figure 14.1.

14.2.3 Topography

A topographic surface was provided by Solid which covered the area of the Presqueiras deposit as presented in Figure 14.2. This topographic surface did not cover the extent of the wireframe interpretations undertaken by Micon. An extension to the topography was generated by Micon using the general trend of the topography. This extended topographic surface was used to limit the block model at surface.



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Figure 14.1: Oblique View of the Micon Pegmatite Dyke Wireframes





Figure 14.2: Oblique View of Topographic Surface

14.2.4 Statistical Analysis of Samples

Samples were selected within the Micon wireframes and coded by surface number so that a separate analysis for each of the dyke structures could be completed. Table 14.4 summarises the basic statistical sample populations within each surface for the principal elements.

Surface	Element	Number Samples	Minimum	Maximum	Length Weighted Mean	Standard Deviation	Coefficient of Variation
	Ta ₂ O ₅ (ppm)	354	2.20	293.04	102.27	52.46	0.51
1	Sn (ppm)	354	32	2,350	681.39	352.47	0.52
	Li ₂ O (%)	354	0.01	2.93	0.50	0.56	1.12
	Ta ₂ O ₅ (ppm)	123	6.11	286.69	90.65	48.27	0.53
2	Sn (ppm)	123	40	1,532	605.55	362.35	0.60
	Li ₂ O (%)	123	0.00	2.53	0.44	0.54	1.23
	Ta ₂ O ₅ (ppm)	32	12.21	219.78	96.90	44.76	0.46
3	Sn (ppm)	32	164	1,900	772.01	424.22	0.55
	Li ₂ O (%)	32	0.01	0.40	0.08	0.08	1
	Ta ₂ O ₅ (ppm)	57	24.42	122.10	65.88	25.35	0.38
4	Sn (ppm)	57	53	1,800	712.73	423.48	0.59
	Li ₂ O (%)	57	0.02	2.15	0.70	0.58	0.83
	Ta ₂ O ₅ (ppm)	39	36.63	170.94	96.02	34.76	0.36
5	Sn (ppm)	39	181	1,650	733.67	364.20	0.50
	Li ₂ O (%)	39	0.02	2.13	0.64	0.58	0.91



14.2.5 Top-Cutting

A review of the log probability plots for the principal elements within each surface were developed (Figures 14.3 to 14.5) along with a decile analysis for each of the principal elements within each surface. These investigations showed that no top-cutting was required for the principal element populations as any outlying sample populations had no effect.





Figure 14.4: Tin Log Probability Plot







Figure 14.5: Lithium Log Probability Plot

14.2.6 Compositing

Micon used the wireframes generated to select the samples within each surface and produced a composite sample equalling the width of the wireframe surfaces.

Table 14.5 summarises the width of the wireframe surfaces based on the composite sample lengths. Table 14.6 provides a statistical summary of the composited sample grades for the principal elements within each of the surfaces defined by the Micon wireframes.

Surface (Dyke)	Number of Composites	Minimum Dyke Width (m)	Maximum Dyke Width (m)	Mean Dyke Width (m)	Standard Deviation
1	42	1.50	18.35	8.4	4.15
2	22	1.00	12.60	5.8	2.89
3	10	1.45	5.90	3.0	1.34
4	12	1.10	10.10	4.8	2.42
5	8	1.30	13.40	5.0	3.75

Table 14.5: Statistical Review of Composite Sample Lengths (across the dyke width)



Surface (Dyke)	Element	Number of Composites	Minimum	Maximum	Length Weighted Mean	Standard Deviation	Coefficient of Variation
	Ta ₂ O ₅ (ppm)	42	21.37	176.49	102.24	36.80	0.36
1	Sn (ppm)	42	78.66	1,365.43	684.74	241.02	0.35
	Li ₂ O (%)	42	0.01	1.23	0.49	0.38	0.78
	Ta ₂ O ₅ (ppm)	22	36.63	177.34	88.40	36.27	0.41
2	Sn (ppm)	22	125.00	1,223.22	586.80	273.07	0.47
	Li ₂ O (%)	22	0.02	1.44	0.42	0.39	0.93
	Ta ₂ O ₅ (ppm)	10	43.81	176.06	96.90	34.65	0.36
3	Sn (ppm)	10	233.00	1,141.44	772.01	285.39	0.37
	Li ₂ O (%)	10	0.02	0.11	0.08	0.05	0.62
	Ta ₂ O ₅ (ppm)	12	36.63	109.89	65.88	15.73	0.24
4	Sn (ppm)	12	208.43	1,575.00	712.73	348.41	0.49
	Li ₂ O (%)	12	0.03	1.31	0.70	0.40	0.57
	Ta ₂ O ₅ (ppm)	8	74.05	158.73	96.02	21.07	0.22
5	Sn (ppm)	8	469.06	1,411.94	733.67	278.13	0.38
	Li ₂ O (%)	8	0.02	1.02	0.64	0.35	0.55

Table 14.6: Statistical Review of Composite Sample Grades (across the dyke width)

14.2.6.1 Composite Length by Most Common Sample Interval

A histogram plot was generated to establish the most common sample interval length selected within the Micon wireframes of the pegmatite dykes. The histogram presented in Figure 14.6 clearly identifies that 1 m is the most common sample interval length. Compositing to the most common sample interval was undertaken so that a dataset with a large enough number of composites was available for the variographic analysis (Section 14.2.1).







Compositing on a 1 m interval, constrained by the wireframe surface boundaries, was adopted by Micon in order to undertake a statistical analysis, summarised within Tables 14.7 and 14.8. A minimum composite of 0.5 m was allowed.

Surface (Dyke)	Number of Composites	Minimum Composite Length	Maximum Composite Length	Mean Composite Length	Standard Deviation
1	354	0.50	1.00	0.98	0.08
2	126	0.60	1.00	0.98	0.08
3	29	0.50	1.00	0.94	0.14
4	57	0.55	1.00	0.99	0.07
5	35	0.50	1.00	0.98	0.09

Table 14.7: Statistical Review of 1 m Composite Sample Length

 Table 14.8: Statistical Review of 1 m Composite Samples

Surface (Dyke)	Element	Number of Composites	Minimum	Maximum	Length Weighted Mean	Standard Deviation	Coefficient of Variation
	Ta ₂ O ₅ (ppm)	351	2.39	293.04	101.97	51.22	0.50
1	Sn (ppm)	351	32	2,350	679.70	345.91	0.51
	Li ₂ O (%)	351	0.01	2.33	0.50	0.55	1.10
	Ta ₂ O ₅ (ppm)	121	6.11	286.69	89.51	48.11	0.54
2	Sn (ppm)	121	40	1,532	593.46	365.20	0.62
	Li ₂ O (%)	121	0.00	1.97	0.40	0.48	1.20
	Ta ₂ O ₅ (ppm)	29	24.42	219.78	98.02	45.09	0.46
3	Sn (ppm)	29	164	1,900	754.67	400.56	0.53
	Li ₂ O (%)	29	0.01	0.35	0.08	0.07	0.88
	Ta ₂ O ₅ (ppm)	57	24.42	122.10	65.11	24.99	0.38
4	Sn (ppm)	57	53	1,800	706.23	423.17	0.60
	Li ₂ O (%)	57	0.02	2.15	0.72	0.58	0.81
5	Ta ₂ O ₅ (ppm)	36	36.63	170.94	96.57	35.92	0.37
	Sn (ppm)	36	181	1,650	729.03	346.12	0.47
	Li ₂ O (%)	36	0.02	2.13	0.66	0.60	0.91

The number of samples within each surface will differ between Tables 14.7 and 14.8 due to the presence of un-assayed sample intervals, these intervals will have a length assigned and therefore will be included within Table 14.7, but if they have a lack of assayed sample data then they will not be included within the number of samples in Table 14.8.

14.2.6.2 Statistical Comparison of Composited Data

Table 14.9 summarises the statistical data from the samples within the Micon wireframes, compositing across the width of the wireframe volume, and compositing on the most common sample interval of 1 m.

It is evident from this comparison that compositing across the width of the wireframe volume greatly reduces the number of samples available for estimation in a deposit which already has a limited dataset. Compositing to 1 m intervals maintains a larger number of samples.

		Ra	w Samples I	nside Wiref	rame	Comp	osite Sample	s Across Dyl	ke Width		1 m Compo	osite Sample	s
Surface (Dyke)	Element	Number of Samples	Length Weighted Mean	Standard Deviation	Coefficient of Variation	Number of Samples	Length Weighted Mean	Standard Deviation	Coefficient of Variation	Number of Samples	Length Weighted Mean	Standard Deviation	Coefficient of Variation
	Ta ₂ O ₅ (ppm)	354	102.27	52.46	0.51	42	102.24	36.80	0.36	351	101.97	51.22	0.50
1	Sn (ppm)	354	681.39	352.47	0.52	42	684.74	241.02	0.35	351	679.70	345.91	0.51
	Li ₂ O (%)	354	0.50	0.56	1.12	42	0.49	0.38	0.78	351	0.50	0.55	1.10
	Ta ₂ O ₅ (ppm)	123	90.65	48.27	0.53	22	88.40	36.27	0.41	121	89.51	48.11	0.54
2	Sn (ppm)	123	605.55	362.35	0.60	22	586.80	273.07	0.47	121	593.46	365.20	0.62
	Li ₂ O (%)	123	0.44	0.54	1.23	22	0.42	0.39	0.93	121	0.40	0.48	1.20
	Ta ₂ O ₅ (ppm)	32	96.90	44.76	0.46	10	96.90	34.65	0.36	29	98.02	45.09	0.46
3	Sn (ppm)	32	772.01	424.22	0.55	10	772.01	285.39	0.37	29	754.67	400.56	0.53
	Li ₂ O (%)	32	0.08	0.08	1.00	10	0.08	0.05	0.62	29	0.08	0.07	0.88
	Ta ₂ O ₅ (ppm)	57	65.88	25.35	0.38	12	65.88	15.73	0.24	57	65.11	24.99	0.38
4	Sn (ppm)	57	712.73	423.48	0.59	12	712.73	348.41	0.49	57	706.23	423.17	0.60
	Li ₂ O (%)	57	0.70	0.58	0.83	12	0.70	0.40	0.57	57	0.72	0.58	0.81
	Ta ₂ O ₅ (ppm)	39	96.02	34.76	0.36	8	96.02	21.07	0.22	36	96.57	35.92	0.37
5	Sn (ppm)	39	733.67	364.20	0.50	8	733.67	278.13	0.38	36	729.03	346.12	0.47
	Li ₂ O (%)	39	0.64	0.58	0.91	8	0.64	0.35	0.55	36	0.66	0.60	0.91

Table 14.9: Comparison of Sample Sets Statistical Analysis



Drill holes at Presqueiras have an approximate average spacing of 57 m. The 1 m composited samples therefore provide the most closely-spaced samples for variographic analysis as the variogram range can be influenced by the sample spacing. The 1 m composite sample dataset also contains enough samples to undertake variographic modelling if the sample dataset is not further sub divided by surface. The 1 m composite sample dataset is utilised by Micon to generate down-hole variograms for each of the principal elements to establish continuity and trends within the deposit, comment will be provided in subsequent sections.

As a columnar block model was utilised in the modelling of this deposit the accumulated grade generated from the across-dyke composite dataset (grade x composite length) was used to interpolate accumulation grades into the block model.

14.2.7 Block Modelling

The Micon columnar block model was created using the wireframe solids to control the block height in the Z direction. The columnar model prototype used by Micon is summarised in Table 14.10. In consideration of the drill-hole spacing, Micon has selected a block size of approximately half the average drill-hole spacing at 25 m. The range in the Z elevation has also been set to ensure that the wireframe solids sit within the prototype hull and complete filling of the block model is achieved. The model has been rotated 30° around the Z axis to align the Y axis along the strike of the deposit.

Axis	Origin (m)	Range (m)	Block Size (m)	Number of Blocks
Х	553,450	1,050	25	42
Y	4,706,600	1,500	25	60
Z	490	250	250	1

Table 14.10: Micon Columnar Model Prototype(Rotation Angle 30° around the Z Axis)

14.2.8 Mineral Resource Estimation

14.2.8.1 Variographic Review

In order to establish the presence of continuity and presence of trends within the datasets Micon undertook a review of the down-hole variography using the 1 m composite sample dataset. Figures 14.7 to 14.9 display the down-hole variograms for each of the principal elements. The dataset was not subdivided on the surface as there is not enough data available at this stage to undertake an analysis at dyke level. On the plots the number of sample pairs at each point is displayed.





Figure 14.7: Tantalum Down-Hole Variogram









Figure 14.9: Lithium Down-Hole Variogram

The across-dyke width composite dataset was used to generate a series of isotropic variograms to review the continuity for each of the principal elements. The variograms are presented in Figures 14.10 to 14.12. In order to generate these variograms the grade values for tantalum, and tin were converted from parts per million (ppm) to percentage values.



Figure 14.10: Tantalum Isotropic Variogram







Figure 14.12: Lithium Isotropic Variogram



The difference in the ranges between the down-hole and isotropic variograms show that with further drilling campaigns the variogram ranges are likely to change. Further drilling campaigns would also increase the sample dataset available for variographic analysis, allowing directional variograms to be developed for each dyke (surface) potentially identifying trends individual to each dyke structure. At this stage of the project, with the data available, Micon has applied the Inverse Distance Squared (ID²) weighting method for grade interpolation.



14.2.8.2 Micon Mineral Resource Estimation

Micon utilised the search parameters outlined summarised in Tables 14.11 and 14.12, Micon also applied rotation to the search ellipsoid to align the search along the strike and average dip of the defined dyke structures. The search ellipsoid in relation to the wireframe volumes (shown in the skeletal form) is presented in Figure 14.13.

Search Number	Distance (m)	Minimum Number of Composites	Octant Control
1	60 x 60	3	Yes
2	120 x 120	3	Yes
3	240 x 240	1	Yes
4	120 x 120	1	No
5	240 x 240	1	No
6	480 x 480	1	No

Table 14.11: Micon Estimation Parameters

 Table 14.12: Additional Estimation Parameters

Maximum No. of	Minimum	Minimum No. of	Maximum No. of
Composites	No. Octants	Comp. per Octant	Comp. per Octant
15	3	1	3

Figure 14.13: Oblique Views of the Search Ellipsoid in Relation to the Micon Wireframes



Grade interpolation was completed by Micon using the Inverse Distance Squared (ID^2) weighting method. The interpolation was limited to the individual dyke surfaces so that samples located in adjacent dykes did not have an influence on the estimated block grades.

The accumulated composited grades were estimated into the blocks and the actual grades of the block calculated though the application of the following equation.

Equation 1:
$$Actual \ Grade = \frac{Estimated \ Accumulated \ Grade}{Block \ Thickness \ (ZINC)}$$



14.2.8.3 Block Model Validation

The block model was validated using visual inspections of section and plan views and using decluster plots for each of the principal elements. The estimated block grades and drill composite grades were declustered onto a grid of 25 m by 25 m by 20 m (X, Y, and Z). A dimension of 20 m was specified in the Z direction as the maximum composite length was 18 m; specifying 20 m ensures that the composite is included within the declustered grid. The declustered drill-hole composite grades are plotted against the estimated block grades for each block in which the drill-hole composites are located. Figures 14.14 to 14.16 display the decluster plots generated for the ID^2 estimations undertaken by Micon. The plots for tantalum, tin and lithium show no bias and moderate to good correlation between the estimated and composited grades within the block model.



Figure 14.14: Tantalum Decluster Plot





Figure 14.15: Tin Decluster Plot







Table 14.13 compares the global declustered mean grades.

Element	Declustered Composite Mean Grade	Declustered Block Model Mean Grade	Variance (%)
Ta (ppm)	104.33	97.50	-7
Sn (ppm)	741.16	704.96	-5
Li (%)	0.38	0.42	11

Table 14.13: Comparison of Global Declustered Mean Grades

14.2.9 Mineral Resource Classification

14.2.9.1 Micon Resource Classification

Micon applied the criteria outlined in Table 14.14, which are based on the geostatistical studies undertaken and the drill-hole data available.

Classification	Criteria
Measured	Covered by a grid (at least 3 holes) of at least 120 m
Indicated	Covered by a grid (at least 3 holes) of at least 250 m
Inferred	Remaining blocks within interpreted dyke structures, which are generally limited to a maximum extrapolation of 100 m down dip and 50 m along strike.

Table 14.14: Mineral Resource Classification Criteria

The search parameters applied in the estimation lead to the overlapping of search zones with or without octant control applied. A review of the block model identified that the areas classified as Measured lie mainly within the first and second searches (60 m by 60 m and 120 m by 120 m), which have octant controls applied. Material within the fourth search was considered to be Indicated. All other material forms the Inferred proportions of the model.

Micon reviewed each dyke structure independently and used strings to define the block classification, applying the criteria within Table 14.14. The search volume morphology applied in relation to the block model was also considered.

There are also a number of areas within several of the surfaces where Indicated material has been allocated on the presence of two samples not three, as per the criteria. Micon has assigned this classification as the blocks are within the first search of 60 m by 60 m where octant controls are present.

The Measured mineral resources are located in the more densely drilled Surfaces of 1 and 2, with the other three surfaces comprising proportions of Inferred and Indicated material.

14.2.10 Density

A bulk density value of 2.59 t/m^3 was assigned to the blocks within the pegmatite dykes. A value of 2.75 t/m^3 was applied to waste material. Average bulk density values for each dyke were calculated from 1,446 specific gravity measurements taken between 2003 and 2012, in all of the deposit areas; Presqueiras, Correa, Coto, Tocayo, Acebedo, Rubillón and Taboazas. The samples used for specific gravity determination were taken within the pegmatite units at 1 m intervals (Section 10.3).


14.2.11 Dilution

A minimum mining width of 2 m was applied to the blocks within the model. Dilution was applied to a total of 47 blocks within the Micon model, with the block grades diluted accordingly. Nil grade was assumed for waste dilution.

14.2.12 Mineral Resource Model Evaluation

The block model for the Presqueiras deposit was cut to the extended topographic surface (Section 14.2.3) to remove blocks located above the topography. A summary of the Presqueiras mineralisation within the Micon model is presented in Table 14.15. The figures presented are the diluted grades with a minimum mining width of 2 m applied.

Category	Tonnage (Mt)	Ta ₂ O ₅ (ppm)	Sn (ppm)	Li ₂ O (%)
Measured	3.1	108	733	0.51
Indicated	2.2	88	662	0.49
Measured + Indicated	5.3	100	704	0.50
Inferred	3.1	78	638	0.35

Table 14.15: Micon Presqueiras Volume of Mineralisation

Table 14.16 summarises the mineral resources within each of the dyke structures and is included for reference. The figures presented have been diluted to the minimum mining width of 2 m.

 Table 14.16: Micon Presqueiras Mineralisation by Dyke Structure

Category	Dyke (Surface)	Tonnage (kt)	Ta ₂ O ₅ (ppm)	Sn (ppm)	Li ₂ O (%)
Maagumad	1	2.5	114	770	0.53
Measured	2	0.60	85	578	0.40
	1	1.2	97	687	0.48
	2	0.36	84	576	0.63
Indicated	3	0.11	97	734	0.04
	4	0.39	57	626	0.55
	5	0.07	101	746	0.42
	1	0.76	91	673	0.27
	2	0.90	80	530	0.32
Inferred	3	0.38	79	657	0.09
	4	0.59	56	685	0.51
	5	0.46	82	717	0.53

14.2.12.1 Grade Tonnage Curves

Grade tonnage curves for each of the principal elements have been generated to review the relationship between the tonnage and grade of material classed as Measured and Indicated. The diluted model was used to generate the plots displayed in Figures 14.17 to 14.19.





Figure 14.17: Presqueiras - Tantalum Grade-Tonnage Curve for Measured and Indicated Categories

Figure 14.18: Presqueiras - Tin Grade-Tonnage Curve for Measured and Indicated Categories







Figure 14.19: Presqueiras - Lithium Grade-Tonnage Curve for Measured and Indicated Categories

14.2.13 Mineral Resource Cut-Off Evaluation

The resource model was evaluated through the application of a series of economic cut-off values, based on a net smelter return dollar per tonne value. The net smelter return metal value of tantalum and tin for each block was calculated with the application of Equations 1 and 2. The calculation of the net smelter return metal value for lithium in each block was calculated using Equation 3. It was assumed that lithium would be sold as a spodumene-feldspar concentrate with a grade of 0.7% Li₂O. The spodumene-feldspar concentrates would be generated by flotation.

The total block value was calculated by summation of the block values for the principal elements.

Equation 1:
$$NSR \ Value = \left(\frac{Product \ Value \ (US\$/t)}{1,000,000}\right) \times Recovery \ (\%) \times Payable \ \%$$

Equation 2: Sn and Ta Block Value = Estimated Block Grade \times NSR Value

Equation 3:

$$Li Block Value = \left(\frac{Block Grade \times Recovery (\%) \times Payable (\%)}{0.7\% Li_2 0 Concentrate}\right) \times Product Value (US$/t)$$

Recovery for tin was assumed to be 80% and tantalum recovery was assumed to be 75%. The smelter payable portion was assumed to be 90%.



Lithium recovery to 0.7% Li₂O concentrate was assumed to be 80% and the payable portion was assumed to be 98%.

The economical values applied within the equations are outlined in Table 14.17.

Principal Element	Units	Price (US\$ per tonne)	Recovery (%)	Payable (%)	Net Smelter Return (%)	Net Smelter Return (US\$ per ppm)
Ta (ppm)	per tonne of metal	156,000	75	90	67.5	0.1053
Sn (ppm)	per tonne of metal	23,000	80	90	72.0	0.01656
Li (%)	per tonne of 0.7% Li ₂ O Conc.	65	80	98	78.4	72.80*

Table 14.17: Economic Parameters

*US\$ per %

A summary of the Alberta-1 mineral resources for a series of dollar per tonne cut-offs are presented in Table 14.18. The cut-off values quoted in Table 14.18 represent the minimum economic operating cost. The financial cut-off used to estimate mineral resources was based on an estimate of total operating costs, including mining, processing and general administration for similar operations.

Cut-Off Value (US\$ per Tonne)	Resource Classification	Tonnage (Mt)	Ta ₂ O ₅ (ppm)	Sn (ppm)	Li ₂ O (%)	Ta_2O_5 (t)	Sn (kt)	Li ₂ O (kt)
· · · · ·	Measured	3.10	108	733	0.51	335	2.27	15.8
10	Indicated	2.16	88	662	0.49	190	1.43	10.6
	Inferred	3.08	78	639	0.35	241	1.97	10.8
	Measured	3.09	108	735	0.51	334	2.27	15.7
15	Indicated	2.16	88	662	0.49	190	1.43	10.6
	Inferred	3.03	79	644	0.35	239	1.95	10.6
	Measured	3.06	109	740	0.51	333	2.26	15.6
20	Indicated	2.10	89	666	0.50	186	1.40	10.5
	Inferred	2.85	80	662	0.37	227	1.89	10.5
	Measured	2.96	111	752	0.52	327	2.23	15.4
25	Indicated	1.99	90	675	0.52	178	1.34	10.3
	Inferred	2.69	80	668	0.39	214	1.79	10.5
	Measured	2.87	112	761	0.54	321	2.18	15.5
30	Indicated	1.73	90	675	0.59	155	1.17	10.2
	Inferred	2.30	80	668	0.44	184	1.54	10.1
	Measured	2.65	115	784	0.56	304	2.08	14.8
35	Indicated	1.58	90	684	0.63	143	1.08	9.9
	Inferred	2.00	82	687	0.47	164	1.37	9.4
	Measured	2.33	115	793	0.61	268	1.85	14.2
40	Indicated	1.44	90	683	0.66	129	0.98	9.5
	Inferred	1.60	83	705	0.52	133	1.13	8.3
	Measured	2.14	116	800	0.64	247	1.71	13.7
45	Indicated	1.31	91	699	0.70	119	0.91	9.1
	Inferred	1.32	84	715	0.57	111	0.94	7.5
	Measured	1.97	117	807	0.67	230	1.59	13.2
50	Indicated	1.15	91	710	0.74	105	0.82	8.5
	Inferred	0.92	82	722	0.65	75	0.66	6.0

Table 14.18: Micon Resource Evaluation for Presqueiras (2014)

Notes: All grades quoted have been diluted to a minimum mining width of 2 m.

Assumed recoveries are 80% Sn, 75% Ta and 80% Li



14.3 SOUTHERN AREA MINERAL RESOURCE ESTIMATE

The Southern area comprises five separate zones; Correa, Coto Tocayo, Acebedo, Rubillón and Taboazas. Solid provided Micon with the drill hole database files in .csv format for all five zones. The drill-hole databases for each zone have a limited number of holes, which are summarised in Table 14.1 in Section 14.1. Database review, wireframe development and block model generation for the Southern areas were conducted as per the methodology followed for the Presqueiras mineral resource estimate (Section 14.2). The following sections summarise the modelling process completed by Micon.

14.3.1 Database Summary

While importing the data into the CAE Studio 3 software used for the deposit modelling four duplicate sample intervals were identified in the database. These duplicate intervals have been flagged by Micon and removed from the database used for analysis and modelling purposes. Table 14.19 presents the basic statistical summary of the drill-hole databases within each of the five zones.

Drill hole spacing within the zones ranges from approximately 100 m to 200 m.

Area	Element	Number Samples	Minimum	Maximum	Length Weighted Mean	Standard Deviation	Coefficient of Variation
	Ta ₂ O ₅ (ppm)	55	0.90	170	72.81	43.82	0.60
Acebedo	Sn (ppm)	55	4.00	1,490	706.77	432.43	0.61
	Li ₂ O (%)	55	0.01	2.15	0.31	0.43	1.39
	Ta ₂ O ₅ (ppm)	22	5.00	390	65.54	85.20	1.30
Correa	Sn (ppm)	22	2.50	1,235	309.27	322.18	1.04
	Li ₂ O (%)	22	0.01	1.80	0.32	0.46	1.44
	Ta ₂ O ₅ (ppm)	102	1.20	229.20	84.31	68.48	0.81
Coto Tocayo	Sn (ppm)	102	6.10	1,665	574.09	464.45	0.81
	Li ₂ O (%)	102	0.00	1.84	0.24	0.36	1.50
	Ta ₂ O ₅ (ppm)	20	5.00	180	62.54	52.24	0.84
Rubillón	Sn (ppm)	20	22.00	1,435	523.69	457.08	0.87
	Li ₂ O (%)	20	0.01	0.22	0.06	0.06	1.00
	Ta ₂ O ₅ (ppm)	191	1.10	344.30	83.67	84.52	1.01
Taboazas	Sn (ppm)	184	6.00	2,930	499.30	472.80	0.95
	Li ₂ O (%)	191	0.01	2.36	0.49	0.56	1.14

 Table 14.19: Basic Statistical Summary for the Southern Zones

In the Taboazas zone there are a different number of samples for each of the principal elements, this is due to some sample intervals not having assay samples for tin with results stated for lithium and tantalum.

14.3.2 Wireframes

Wireframes were generated using the geological information within the database to define the solid volumes of the pegmatite zone structures. Table 14.20 summaries the number of zone structures identified within each of the zones. Each zone structure was assigned a numerical "SURFACE" value which could be used to control later estimations and prevent the smearing



of grades between the zone structures. Wireframes were extended along strike projections approximately 100 m, and approximately 100 m to 150 m up and down dip of sample intersections, unless the interpretation was constricted due to drilling data. Plan and oblique views, where appropriate, of the wireframes developed for the five zones are displayed in Figures 14.20 to 14.24. For display purposes, where multiple surfaces are present within the zones the wireframe surfaces have been solid filled to allow the distinction between the surfaces to be made.

Area	Number of Zone Structures (SURFACE)
Acebedo	1
Correa	1
Coto Tocayo	3
Rubillón	2
Taboazas	7

Table 14.20: Wireframe Summary









Figure 14.21: Correa - Plan View Micon 2014

Figure 14.22: Coto Tocayo - Oblique View Micon 2014







Figure 14.23: Rubillón - Oblique View Micon 2014

Figure 14.24: Taboazas - Oblique View Micon 2014



All of the wireframe solids generated by Micon were validated, ensuring no open edges or intersections were present within the solids.



14.3.3 Topography

Topographic surfaces covering the extent of the five zones were provided by Solid. These surfaces were used to limit the upper extensions of the block model.

14.3.4 Statistical Analysis of Samples

The wireframe solids were used to select samples within each zone. The statistical summary of these samples is presented in Table 14.21.

Area	Element	Number Samples	Minimum	Maximum	Mean	Standard Deviation	Coefficient of Variation
	Ta ₂ O ₅ (ppm)	40	5	170	92.00	31.51	0.34
Acebedo	Sn (ppm)	40	71	1,490	895.70	327.38	0.37
	Li ₂ O (%)	40	0.01	2.15	0.37	0.49	1.32
	Ta_2O_5 (ppm)	10	40	390	111.22	98.70	0.89
Correa	Sn (ppm)	10	255	1,235	549.10	301.74	0.55
	Li ₂ O (%)	10	0.03	1.80	0.52	0.58	1.12
	Ta_2O_5 (ppm)	68	4.30	229.20	122.02	52.85	0.43
Coto Tocayo	Sn (ppm)	68	35	1,665	819.90	379.07	0.46
	Li ₂ O (%)	68	0.00	1.84	0.26	0.44	1.69
	Ta_2O_5 (ppm)	14	30	180	84.78	48.02	0.57
Rubillón	Sn (ppm)	14	159	1,435	709.78	431.73	0.61
	Li ₂ O (%)	14	0.01	0.10	0.03	0.02	0.67
Taboazas	Ta_2O_5 (ppm)	122	1.10	344.30	125.20	79.03	0.63
	Sn (ppm)	120	11.10	2,930	710.31	458.11	0.64
	Li ₂ O (%)	122	0.01	2.36	0.66	0.64	0.97

 Table 14.21: Southern Zones - Statistical Summary of Samples within Micon Wireframes

14.3.5 Top Cutting

A review of the sample populations was undertaken to establish if top-cutting was required to remove the influence of high grade outlier samples for each of the principal elements within the zones. Log probability plots and decile analysis were conducted. These investigations showed that no top-cutting to the sample populations was required for the Southern zones.

The log probability plots of the elements within each of the areas are displayed in Figures 14.25 to 14.29.





Figure 14.25: Acebedo - Log Probability Plots





Figure 14.27: Coto Tocayo - Log Probability Plots





Figure 14.29: Taboazas - Log Probability Plots



14.3.6 Compositing

Micon used the wireframes generated to select the samples within each surface of the five zones and produced a series of composite samples equalling the width of the wireframe surfaces.

Table 14.22 summarises the width of the wireframe surfaces based on the composite sample lengths. Table 14.23 provides a statistical summary of the composited sample grades for the principal elements within each of the areas defined by the Micon wireframes.

Area	Number of Composites	Minimum Zone Width (m)	Maximum Zone Width (m)	Mean Zone Width (m)	Standard Deviation
Acebedo	4	2.90	15.00	10.25	4.56
Correa	2	3.80	6.00	4.90	1.10
Coto Tocayo	14	0.60	16.20	4.71	4.39
Rubillón	3	2.50	5.55	4.50	1.41
Taboazas	26	0.50	13.30	4.48	3.92

 Table 14.22: Statistical Review of Composite Sample Lengths (across the zone width)

,	Table 14.23: Statistical Review of Composite Sample Grades (across the zone width)

Surface (Zone)	Element	Number of Composites	Minimum	Maximum	Length Weighted Mean	Standard Deviation	Coefficient of Variation
	Ta ₂ O ₅ (ppm)	4	80.0	100.10	92.00	8.31	0.09
Acebedo	Sn (ppm)	4	788.83	1,009.59	895.70	93.39	0.10
	Li ₂ O (%)	4	0.01	0.75	0.37	0.28	0.76
	Ta ₂ O ₅ (ppm)	2	73.33	171.05	111.22	47.61	0.43
Correa	Sn (ppm)	2	532.0	576.11	549.10	21.49	0.04
	Li ₂ O (%)	2	0.07	0.81	0.52	0.36	0.69
	Ta ₂ O ₅ (ppm)	14	79.25	190.0	122.02	27.71	0.23
Coto Tocayo	Sn (ppm)	14	479.0	1,325.0	819.90	222.12	0.27
	Li ₂ O (%)	14	0.01	1.09	0.26	0.30	1.15
	Ta ₂ O ₅ (ppm)	3	44.95	114.68	84.78	33.36	0.39
Rubillón	Sn (ppm)	3	382.8	998.76	709.78	247.33	0.35
	Li ₂ O (%)	3	0.02	0.03	0.03	0.01	0.33
	Ta ₂ O ₅ (ppm)	26	42.43	230.0	124.49	41.94	0.34
Taboazas	Sn (ppm)	26	160.0	2,930.0	704.98	289.58	0.41
	Li ₂ O (%)	26	0.01	1.34	0.66	0.42	0.64

14.3.7 **Block Modelling**

The columnar model prototype used by Micon, in keeping with the drilling, is summarised in Table 14.24. The range in the Z elevation has been set to ensure that the wireframe solids sit within the prototype hull and complete filling of the block model is achieved. The model has been rotated 25° around the Z axis to align the Y axis along the strike of the deposit. The prototype was developed to cover the extent along strike and dip of all the Southern zones.



Axis	Origin (m)	Range (m)	Block Size (m)	Number of Blocks
Х	556,867.87	700	25	28
Y	4,697,532.69	6,300	25	252
Z	343.84	750	750	1

Table 14.24: Columnar Model Prototype, Southern Areas (Rotation Angle 25° around the Z axis)

14.3.8 Mineral Resource Estimation

Micon utilised the search parameters outlined in Tables 14.15 and 14.26. Micon also applied rotation to the search ellipsoid to align the search along the strike and average dip of the defined zone structures.

Interpolation was undertaken by Micon using Inverse Distance Squared (ID^2) weighting, due to the limited sample population. The interpolation was limited to the individual zone surfaces within a zone, this is so that samples located in adjacent zones did not have an influence on the estimated block grades of adjacent zone structures.

Search Number	Distance (m)	Minimum Number of Composites	Octant Control
1	60 x 60	3	Yes
2	120 x 120	3	Yes
3	240 x 240	1	Yes
4	120 x 120	1	No
5	240 x 240	1	No
6	480 x 480	1	No

 Table 14.25: Micon Estimation Parameters

 Table 14.26: Additional Estimation Parameters

Maximum No. of	Minimum	Minimum No. of	Maximum No. of
Composites	No. Octants	Comp. per Octant	Comp. per Octant
15	3	1	3

The accumulated composited grades were estimated into the blocks and the actual grades of the block calculated though the application of the following equation.

 $Actual \ Grade = \frac{Estimated \ Accumulated \ Grade}{Block \ Thickness \ (ZINC)}$

14.3.8.1 Block Model Validation

The block model was validated by undertaking visual checks of both section and plan views and by checking generated decluster plots for each of the principal elements. As the sample populations for each individual zone were small, the whole sample population was used to generate the decluster plots see Figures 14.30 to 14.32.

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Figure 14.30: Tantalum Decluster Plot - All Southern Zones





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Figure 14.32: Lithium Decluster Plot - All Southern Zones

The general trend observed is underestimation of grades within the blocks, but no bias is present within the models. Underestimation has occurred due to the large search ellipsoids required to mirror the spacing of the sample data available for the estimations (approximately 100 m to 200 m) and the small sample populations within the zone structures.

14.3.9 Mineral Resource Classification

All the material within the block models for the Southern zones is classed as Inferred, due to the limited amount of data available within each zone.

14.3.10 Density

The same bulk density values of 2.59 t/m^3 and 2.75 t/m^3 were assigned to blocks of pegmatite and waste material respectively, as detailed in Section 14.2.10.

14.3.11 Dilution

A minimum mining width of 2 m was applied to the block model. Dilution was applied to a total of 431 blocks within the Micon model, with the grades diluted accordingly. Nil grade was assumed for waste dilution.

14.3.12 Mineral Resource Evaluation

The block models for the Southern zones were cut to the topographic surface (see Section 14.3.3) to remove blocks located above the topography. Cut-off values were applied to the resource model, as per the descriptions outlined in Section 14.2.13.



Table 14.27 presents mineral resources of the Southern zone deposits at a range of cut-offs based on the net smelter return value in US dollars. All mineral resources of the Southern zones were classified as Inferred.

Cut-Off Value	Amoo	Tonnage	Ta ₂ O ₅	Sn	Li ₂ O	Ta ₂ O ₅	Sn	Li ₂ O
(US\$ per Tonne)	Area	(kt)	(ppm)	(ppm)	(%)	(t)	(kt)	(kt)
	Acebedo	3.68	122	955	0.41	449	3.51	15.1
10	Correa	0.88	142	557	0.50	125	0.49	4.4
	Coto Tocayo	6.23	148	811	0.17	923	5.05	10.6
	Rubillón	1.70	74	547	0.02	125	0.93	0.3
	Taboazas	10.16	86	426	0.29	873	4.33	29.5
	Acebedo	3.68	122	955	0.41	449	3.51	15.1
	Correa	0.88	142	557	0.50	125	0.49	4.4
15	Coto Tocayo	5.28	165	901	0.20	870	4.76	10.6
	Rubillón	0.67	117	745	0.03	78	0.50	0.2
	Taboazas	8.94	92	459	0.32	823	4.10	28.6
	Acebedo	3.68	122	955	0.41	449	3.51	15.1
	Correa	0.88	142	557	0.50	125	0.49	4.4
20	Coto Tocayo	4.28	188	1,030	0.23	803	4.40	9.8
	Rubillón	0.35	153	962	0.03	54	0.34	0.1
	Taboazas	7.57	99	492	0.37	747	3.72	28.0
	Acebedo	3.68	122	955	0.41	449	3.51	15.1
	Correa	0.88	142	557	0.50	125	0.49	4.4
25	Coto Tocayo	3.43	215	1,180	0.26	737	4.05	8.9
	Rubillón	0.20	202	1,212	0.04	39	0.24	0.1
	Taboazas	6.53	103	506	0.41	673	3.30	26.8
	Acebedo	3.56	123	959	0.43	440	3.42	15.3
	Correa	0.86	142	559	0.51	122	0.48	4.4
30	Coto Tocayo	2.71	245	1,346	0.30	665	3.65	8.1
	Rubillón	0.16	216	1,307	0.05	35	0.21	0.1
	Taboazas	5.06	113	541	0.47	572	2.74	23.8
	Acebedo	3.25	126	962	0.46	410	3.13	15.0
	Correa	0.66	129	575	0.65	85	0.38	4.3
35	Coto Tocayo	2.37	264	1,446	0.33	625	3.42	7.8
	Rubillón	0.12	238	1,478	0.05	28	0.17	0.1
	Taboazas	3.70	129	614	0.54	477	2.27	20.0
	Acebedo	2.82	130	961	0.50	366	2.71	14.1
10	Correa	0.58	118	5//	0.73	68	0.33	4.2
40	Coto Tocayo	2.17	217	1,510	0.34	601	3.28	/.4
	Rubillon	0.10	247	1,548	0.05	25	0.16	0.1
	I aboazas	2.83	144	088	0.61	407	1.94	17.2
45	Acebedo	1.83	142	1,025	0.64	260	1.8/	11./
	Correa	0.57	200	5/0	0.74	6/ 572	0.33	4.2
	Dubillán	1.97	290	1,381	0.36	372	0.14	7.1
	Tabaaraa	0.09	239	1,040	0.00	245	0.14	0.1
	Acobada	2.12	102	///	0.70	214	1.00	14.9
	Corres	0.55	104	577	0.75	62	0.21	10.4
50	Coto Tocovo	1.79	205	1 657	0.70	542	2.04	4.1
50	Rubillón	0.06	275	1,057	0.57	17	0.11	0.0
	Taboazas	1.02	169	804	0.00	372	1.55	1/ 1
	Taboazas	1.93	108	004	0.75	323	1.33	14.1

Table 14.27: Southern Zones Resource Evaluation of Inferred Material, Micon (2014)



14.4 MICON MINERAL RESOURCE STATEMENT

Tables 14.28 and 14.29 summarise Alberta-1 mineral resources for the Presqueiras and Southern zones.

Cut-Off Value (US\$ per Tonne)	Resource Classification	Tonnage (Mt)	Ta ₂ O ₅ (ppm)	Sn (ppm)	Li ₂ O (%)	$\begin{array}{c} Ta_2O_5 \\ (t) \end{array}$	Sn (kt)	Li ₂ O (kt)
10	Measured	3.10	108	733	0.51	335	2.27	15.8
10	Indicated	2.16	88	662	0.49	190	1.43	10.6
15	Measured	3.09	108	735	0.51	334	2.27	15.7
15	Indicated	2.16	88	662	0.49	190	1.43	10.6
20	Measured	3.06	109	740	0.51	333	2.26	15.6
20	Indicated	2.10	89	666	0.50	186	1.40	10.5
25	Measured	2.96	111	752	0.52	327	2.23	15.4
25	Indicated	1.99	90	675	0.52	178	1.34	10.3
20	Measured	2.87	112	761	0.54	321	2.18	15.5
50	Indicated	1.73	90	675	0.59	155	1.17	10.2
25	Measured	2.65	115	784	0.56	304	2.08	14.8
55	Indicated	1.58	90	684	0.63	143	1.08	9.9
40	Measured	2.33	115	793	0.61	268	1.85	14.2
40	Indicated	1.44	90	683	0.66	129	0.98	9.5
45	Measured	2.14	116	800	0.64	247	1.71	13.7
	Indicated	1.31	91	699	0.70	119	0.91	9.1
50	Measured	1.97	117	807	0.67	230	1.59	13.2
50	Indicated	1.15	91	710	0.74	105	0.82	8.5

Table 14.28: Presqueiras Measured and Indicated Resources, Micon 2014



Cut-Off Value		Tonnage	Ta ₂ O ₂	Sn	Lio	Ta ₂ O ₂	Sn	Lin
(US\$ per Tonne)	Area	(Mt)	(nnm)	(nnm)	(%)	(t)	(kt)	(kt)
	Presqueiras	3.08	78	639	0.35	241	1.97	10.8
10	Acebedo	3.68	122	955	0.41	449	3.51	15.1
	Correa	0.88	142	557	0.50	125	0.49	4.4
	Coto Tocayo	6.23	148	811	0.17	923	5.05	10.6
	Rubillón	1.70	74	547	0.02	125	0.93	0.3
	Taboazas	10.16	86	426	0.29	873	4.33	29.5
	Presqueiras	3.03	79	644	0.35	239	1.95	10.6
	Acebedo	3.68	122	955	0.41	449	3.51	15.1
15	Correa	0.88	142	557	0.50	125	0.49	4.4
15	Coto Tocayo	5.28	165	901	0.20	870	4.76	10.6
	Rubillón	0.67	117	745	0.03	78	0.50	0.2
	Taboazas	8.94	92	459	0.32	823	4.10	28.6
	Presqueiras	2.85	80	662	0.37	227	1.89	10.5
	Acebedo	3.68	122	955	0.41	449	3.51	15.1
20	Correa	0.88	142	557	0.50	125	0.49	4.4
20	Coto Tocayo	4.28	188	1,030	0.23	803	4.40	9.8
	Rubillón	0.35	153	962	0.03	54	0.34	0.1
	Taboazas	7.57	99	492	0.37	747	3.72	28.0
	Presqueiras	2.69	80	668	0.39	214	1.79	10.5
	Acebedo	3.68	122	955	0.41	449	3.51	15.1
25	Correa	0.88	142	557	0.50	125	0.49	4.4
	Coto Tocayo	3.43	215	1,180	0.26	737	4.05	8.9
	Rubillón	0.20	202	1,212	0.04	39	0.24	0.1
	Taboazas	6.53	103	506	0.41	673	3.30	26.8
	Presqueiras	2.30	80	668	0.44	184	1.54	10.1
	Acebedo	3.56	123	959	0.43	440	3.42	15.3
30	Correa	0.86	142	559	0.51	122	0.48	4.4
20	Coto Tocayo	2.71	245	1,346	0.30	665	3.65	8.1
	Rubillón	0.16	216	1,307	0.05	35	0.21	0.1
	Taboazas	5.06	113	541	0.47	572	2.74	23.8
	Presqueiras	2.00	82	067	0.47	104	1.37	9.4
	Acebedo	3.25	126	962 575	0.46	410	3.13	15.0
35	Coto Togavo	0.00	129	5/5	0.05	80 625	0.38	4.5
	Pubillón	0.12	204	1,440	0.05	28	0.17	7.8
	Taboazas	3.70	120	614	0.03	477	2.27	20.0
	Presqueiras	1.60	83	705	0.54	133	1.13	83
	Acebedo	2.82	130	961	0.52	366	2.71	14.1
	Correa	0.58	118	577	0.73	68	0.33	4 2
40	Coto Tocavo	2.17	277	1.510	0.34	601	3.28	7.4
	Rubillón	0.10	247	1.548	0.05	25	0.16	0.1
	Taboazas	2.83	144	688	0.61	407	1.94	17.2
45	Presqueiras	1.32	84	715	0.57	111	0.94	7.5
	Acebedo	1.83	142	1,025	0.64	260	1.87	11.7
	Correa	0.57	117	576	0.74	67	0.33	4.2
	Coto Tocayo	1.97	290	1,581	0.36	572	3.12	7.1
	Rubillón	0.09	259	1,640	0.06	22	0.14	0.1
	Taboazas	2.12	162	777	0.70	345	1.65	14.9
	Presqueiras	0.92	82	722	0.65	75	0.66	6.0
	Acebedo	1.39	154	1,111	0.75	214	1.54	10.4
50	Correa	0.55	114	577	0.76	62	0.31	4.1
50	Coto Tocayo	1.78	305	1,657	0.37	542	2.94	6.6
	Rubillón	0.06	275	1,767	0.06	17	0.11	0.04
	Taboazas	1.93	168	804	0.73	323	1.55	14.1

Table 14.29: Presqueiras and Southern Zones Inferred Resources, Micon 2014



A cut-off value of US\$25 per tonne was selected to define Alberta-1 mineral resources. No economic studies of the project have been conducted, and therefore it is possible that a different cut-off value may be considered upon completion of an appropriate engineering study. Tables 14.30 summarises the mineral resource estimate for the Alberta-1 project at a cut-off value of US\$25 per tonne.

Area	Resource Classification	Tonnage (Mt)	Ta ₂ O ₅ (ppm)	Sn (ppm)	Li ₂ O (%)	Ta ₂ O ₅ (t)	Sn (kt)	Li ₂ O (kt)
Dresqueires	Measured	2.96	111	752	0.52	327	2.23	15.4
Presqueiras	Indicated	1.99	90	675	0.52	178	1.34	10.3
Presqueiras	Inferred	2.69	80	668	0.39	214	1.79	10.5
Acebedo	Inferred	3.68	122	955	0.41	449	3.51	15.1
Correa	Inferred	0.88	142	557	0.50	125	0.49	4.4
Coto Tocayo	Inferred	3.43	215	1,180	0.26	737	4.05	8.9
Rubillón	Inferred	0.20	202	1,212	0.04	39	0.24	0.1
Taboazas	Inferred	6.53	103	506	0.41	673	3.30	26.8
Alberta-1	Measured + Indicated	4.95	102	721	0.52	505	3.57	25.7
Alberta-1	Inferred	17.4	129	769	0.38	2,238	13.4	65.7

Fable 14.30: Alberts	-1 Mineral Re	source Estimate	as at 15 th	May 2014
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Note: Totals may vary due to rounding.

Cut-Off Value US\$25 per tonne.

14.5 COMPARISON WITH SOLID 2011 MINERAL RESOURCE ESTIMATE

Micon generated the most recent mineral resource estimate dated May 2014. The mineral resources have been classified following the guidelines of the Canadian Institute of Mining, Metallurgy and Petroleum's "CIM Definition Standards - For Mineral Resources and Mineral Reserves" is presented in Section 14.0. This estimate incorporates the latest drilling results from the 2012 drill programme.

The 2011 mineral resource estimate was based on a total of 28 drill holes in the Presqueiras area and 4 holes in the Taboazas area. Micon's 2014 estimate utilised 46 holes at Presqueiras, including 18 holes drilled during 2012, plus three additional drill holes at Taboazas. A comparison of the two estimates is provided in Table 14.31.



	Dosourco	Micon 2014				Solid 2011			
Area	Classification	Tonnage (Mt)	Ta ₂ O ₅ (ppm)	Sn (ppm)	Li ₂ O (%)	Tonnage (Mt)	Ta ₂ O ₅ (ppm)	Sn (ppm)	Li ₂ O (%)
Ducanatinas	Measured	2.96	111	752	0.52	0.2	79.7	584.8	0.55
Presqueiras	Indicated	1.99	90	675	0.52	1.4	86.1	584.1	0.43
Presqueiras	Inferred	2.69	80	668	0.39	4.0	93.0	593.6	0.35
Acebedo	Inferred	3.68	122	955					
Correa	Inferred	0.88	142	557					
Coto Tocayo	Inferred	3.43	215	1,180					
Rubillón	Inferred	0.20	202	1,212					
Taboazas	Indicated					0.2	150.8	708.2	0.81
Taboazas	Inferred	6.53	103	506	0.41	4.0	144.7	646.1	0.77
Alberta-1	Measured + Indicated	4.95	102	721	0.52	1.8	92.6	598.0	0.49
Alberta-1	Inferred	17.4	129	769	0.38	8.0	118.9	619.9	0.56

Table 14.31: Alberta-1 Comparison of Mineral Resource Estimates

Note: Totals may vary due to rounding.

Cut-Off Value US\$25 per tonne applied to Micon estimate.

Measured and indicated mineral resources for Alberta-1 have increased from 1.8 Mt to 4.95 Mt whilst Inferred mineral resources have increased 8.0 Mt to 17.4 Mt. The increase is attributed to a combination of the step-out holes at Presqueiras and Taboazas that extended the mineralisation, fill-in holes that upgrade mineralisation from the Inferred category to the Measured and Indicated categories, and the addition of Inferred mineral resources outlined at Acebedo, Correa, Coto Tocayo and Rubillón.

14.6 CONCLUSIONS AND RECOMMENDATIONS

The Alberta-1 mineral resources are defined by 46 drill holes (4,676.05 m) covering the main Presqueiras deposit and a further 19 drill holes at the five Southern zones of Correa, Coto Tocayo, Acebedo, Rubillón and Taboazas. The main Presqueiras deposit is interpreted to contain two principal zones, plus three subsidiary zones of more limited continuity. The Southern Area is divided into the Acebedo, Correa, Coto Tocayo, Rubillón and Taboazas zones comprising a total of 14 zone structures. The Presqueiras and Southern zones remain open both along strike and down-dip.

Alberta-1 mineral resources are defined by a limited amount of drilling data and Micon recommends that additional drilling, as well as surface trenching, be conducted to outline higher grade tantalum and tin mineralisation. Additional drilling and surface trench channel sampling will serve to both better define the mineralisation, and improve the data density for more robust grade interpolation.

There are distinct areas within the deposit where a lack of data has limited the interpretation and extension of mineralised zones and conversely, a lack of sampling within some of the drill holes have precluded their use to extend zones beyond their current range. Micon recommends that a review of the drill holes in the Presqueiras database is undertaken to investigate the possible up-dip extrapolation of Surface 2 and 3 to the north-east where there is a cluster of un-sampled drill holes.



Clearly, as more data is gathered the geological interpretation will require updating. Consequently, it will be necessary to revise the mineral resource estimate to ensure that robust evaluation can be undertaken.

Whilst density data is comprehensive with 1,446 measurements collected between 2003 and 2012 in all of the deposit areas, additional density data should be acquired particularly for individual zones during future drilling campaigns.

The surface topography data does not quite cover the full extent of the currently interpreted zones at Presqueiras, and with additional drilling this factor may be further deficient. It would be prudent to extend the survey area to ensure complete coverage and to validate the current topographic survey and drill hole collar positions. Future inclined drill holes should be subject to down-hole surveys as a standard procedure.



15.0 MINERAL RESERVE ESTIMATES

The Alberta-1 Project is at an early stage of development and as a result there are no mineral reserves in accordance with the requirements of CIM Standards to be reported at this time.



16.0 MINING METHODS

The Alberta-1 Project is at an early stage of development and no mining studies have been completed at this stage. Alberta-1 mineralisation occurs in close proximity to the topographic surface and outcrops at many points along the trend of the mineralisation. It is likely that Alberta-1 would be exploited by a combination of open pit and underground mining methods.



17.0 RECOVERY METHODS

The Alberta-1 Project is at an early stage of development and no comprehensive processing studies have been undertaken at this time. Bench-scale test work demonstrates that tantalum and tin mineralisation are amenable to concentration utilising gravity methods. Lithium mineralisation would likely be concentrated using flotation methods.



18.0 PROJECT INFRASTRUCTURE

The Alberta-1 Project lies in a region with good existing infrastructure; there are good road links close the permit area in addition to the close proximity of an international sea port. The project is however still at the exploration stage and the site infrastructure requirements will be defined in future as part of an engineering study.

Within the area of the Exploitation Licence (*Concesión de Explotación*), there are sufficient surface rights for mining operations, potential tailings storage areas, potential waste disposal areas and potential processing plant sites.



19.0 MARKET STUDIES AND CONTRACTS

The Alberta-1 Project is at an early stage of development and no comprehensive market studies have been completed at this time. Some preliminary enquiries have been made regarding the sale of tantalum, tin and lithium products; however, no sales contracts have been negotiated.



20.0 ENVIRONMENTAL STUDIES, PERMITTING AND SOCIAL OR COMMUNITY IMPACT

The Alberta-1 Project is at an early stage of development and no comprehensive environmental studies have been completed at this time. Preliminary environmental impact assessments have been completed in order to obtain permission to conduct exploration.



21.0 CAPITAL AND OPERATING COSTS

Capital and operating costs have not been estimated for the Alberta-1 Project.



22.0 ECONOMIC ANALYSIS

An economic analysis has not been conducted for the Alberta-1 Project.



23.0 ADJACENT PROPERTIES

There is a permit located to the south of the Alberta-1 Permit in the Orense Province of Galicia. This permit is called Alberta-2, it is a similar exploration project within the same geological environment and it belongs to Pacific Strategic Minerals Spain, S.L.U. No further information on this project is available at this time.



24.0 OTHER RELEVANT DATA AND INFORMATION

There is no relevant additional information on the Alberta-1 property and deposits that should be provided in order to make this Report complete and not misleading.



25.0 INTERPRETATION AND CONCLUSIONS

Tantalum, tin and lithium mineralisation for has been confirmed by drilling along a 11 km trend (including all zones). The mineralised zone ranges up to 350 m wide and 15.6 m thick. The Measured and Indicated mineral resources are estimated to be 4.95 Mt at a grade of 102 ppm Ta₂O₅, 721 ppm Sn and 0.52% Li₂O. Inferred mineral resources are estimated to be 17.4 Mt at a grade of 129 ppm Ta₂O₅, 769 ppm Sn and 0.38% Li₂O.

The knowledge of the geology and mineralogy has been improved with the most recent drilling programmes and mineralogical studies of the mineralised pegmatite and waste rocks from the core. Sections have been interpreted to update the 3-D geological model.

The mineralisation occurs along a 12-km trend and is open along strike and down dip. Considering the surface geology, distribution of old workings and the continuity of the dykes there appears to be potential for 20 Mt to 30 Mt of additional resources. It should be noted that the potential quantity and grade is conceptual in nature and that there has been insufficient exploration to define a mineral resource. It is uncertain whether further exploration will result in the target zones being delineated as a mineral resource.

SGS test work has concluded that tin and tantalum concentrates can be made relatively easily using conventional gravity separation methods.

It is evident that tantalum and tin grades are higher in the Southern areas of the project. These areas should be more accurately assessed with planned drilling in order to improve the quality of the mineral resources. This will help to define the future development of the project.

The mineral resources are amenable to exploitation by both open pit and underground mining. Underground mining methods may be preferred in order to minimise the environmental impact and reduce the costs of the Restoration Plan. The waste material produced in the mine or plant is characterised as chemically inert.

Preliminary market enquiries for tantalum, tin and lithium minerals indicate that there is a ready market for good quality tantalum and tin concentrates. There is also a market for high-grade lithium concentrates. There is a potential market for a lithium + sodium feldspar product as a raw material for ceramic and glass manufacture.

According to Spanish Mining Law, the subsurface belongs to the State. A tax must be paid annually for the land occupied by the Exploitation Licence (depending on the extent of the land occupied). Exploitation Concessions can be granted for 30 year periods, up to a maximum of 90 years.

The statistical analysis of the standards for both sample programmes received in 2011 and 2012 show that the laboratory is capable of producing precise assay results and these results are acceptable. However, it is not possible to discern any real statistical trends in the standard data due to the small number of assays, and the lack of certified standards means that Micon is unable to comment on the accuracy of the data.



26.0 **RECOMMENDATIONS**

- 1. Further metallurgical testing combining gravity and magnetic separation, should be conducted to improve the quality of the cassiterite and tantalite concentrates.
- 2. The feasibility of obtaining commercial spodumene concentrates should be investigated. The chemical character of the mineralisation appears favourable, including a low iron content (0.04% Fe₂O₃), which could also improve project value. Flotation test work should be conducted to confirm whether a high-grade of lithium product can be achieved.
- 3. The tailings product from the gravity separation of cassiterite and tantalite contains a mixture of sodium feldspar, quartz and lithium minerals (up to 2% Li₂O). If this material can be processed to yield a product of uniform specification it may be possible to sell into the ceramic and glass markets. Lithium flotation should be investigated to produce a commercial lithium concentrate (spodumene) in order to add value to the project.
- 4. Potential purchasers of low-grade lithium and sodium feldspar product should be contacted in order to obtain detailed specifications for their raw material requirements. Once these specifications are obtained it will be possible to assess whether these raw materials can be produced from Alberta-1 mineralisation.
- 5. Micon recommends that Solid undertake the following assay quality control measures for future drilling campaigns:
 - a) Increase the number of standard, duplicate and blank samples to 5% of the total number of samples sent for analysis in the future to meet current recommended practice standards in the industry.
 - b) Review the procedures for producing standards for analysis to ensure that each element concentration matches the description of a "high" and "low" standard.
 - c) Further analysis of the locally produced standards in order to produce upper and lower control limits to establish any future problems with batches of assays analysed.
 - d) External accredited standards should be introduced to the quality control programme to monitor the suitability and accuracy of locally prepared standards.
 - e) The duplicate analysis revealed good repeatability achieved by the laboratory and high precision of sample pairs. However, duplicate samples should be sent for analysis at an external laboratory as a further validation method for the existing quality control procedures.

In addition to the above a preliminary environmental impact assessment is required for continued work on the project. The preliminary environmental assessment report should be accompanied by feedback from public consultation with local inhabitants.

An allocation of funds is also recommended for maintenance of the mineral concessions and overheads related to administration of the project.

The budget proposed for the completion of the work recommended is presented in Table 26.1.



Table 26.1: Alberta-1 Propos

Item	US\$
Lithium Market Analysis	10,000
Metallurgical Test Work	30,000
Permitting Environmental Impact Assessment	20,000
Permitting Community Consultation	20,000
Mineral Concession Maintenance and Overheads	65,000
Total	145,000



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28.0 DATE AND SIGNATURE PAGE

Signed on behalf of Micon International Co Limited:



Stanley C. Bartlett, M.Sc., PGeo. (#19698)Senior Economic Geologist, Managing Director,Micon International Co LimitedEffective Date:15th May 2014Signed Date23rd May 2014



29.0 CERTIFICATE

CERTIFICATE OF AUTHOR STANLEY CURRIE BARTLETT

As the author of "Independent Technical Report of the Alberta-1, Rare Metals Project, Galicia, Spain", effective date of 15th May 2014, signed 23rd May 2014, I, Stanley Currie Bartlett, hereby certify that:

- I am employed by, and conducted this assignment for, Micon International Co Limited, Suite 10, Keswick Hall, Norwich, United Kingdom. tel. 0044(1603) 501 501, fax 0044(1603) 507 007 e-mail <u>sbartlett@micon-international.co.uk;</u>
- I hold the following academic qualifications:
 B.Sc. Geological Sciences University of British Columbia, Vancouver, Canada, 1979;
 M.Sc. (Mining Geology) Camborne School of Mines, Redruth, England, 1987;
- 3) I am a registered Professional Geoscientist with the Association of Professional Engineers and Geoscientists of the Province of British Columbia (membership # 19698); In addition I am a member in good standing of the Society for Mining, Metallurgy and Exploration;
- 4) I have worked as a geologist in the minerals industry for 35 years;
- 5) I do, by reason of education, experience and professional qualifications fulfil the requirements of an independent Qualified Person as defined by NI 43-101 and CIM Standards. My work experience includes five years as an exploration geologist developing tungsten, gold, silver and base metal deposits, more than 14 years as a mining geologist in both open pit and underground mines and 16 years as a consulting geologist working in precious, ferrous and base metals and industrial minerals. I have more than 28 years of experience of mineral resource estimation;
- 6) I visited the property that is the subject of this Technical Report from 10^{th} to 11^{th} April, 2014;
- 7) I am responsible for the preparation or supervision of preparation of all sections of this Report;
- 8) I am independent of Solid Resource Limited, its directors, senior management, and its other advisers, as defined in Section 1.5 of NI 43-101, and I have had no prior involvement in the Alberta-1, Rare Metals Project;
- 9) I have read Canadian National Instrument 43-101 and the Technical Report and confirm that this Report has been prepared in compliance with the instrument; and,
- 10) As of the date of this certificate, to the best of my knowledge, information and belief, the "Independent Technical Report of the Alberta-1, Rare Metals Project, Galicia, Spain", effective date of 15th May 2014 and signed 23rd May 2014, contains all scientific and technical information that is required to be disclosed to make this Report not misleading.





Stanley C. Bartlett, M.Sc., PGeo. (#19698)Senior Economic Geologist, Managing Director,
Micon International Co LimitedEffective Date:15th May 2014Signed Date23rd May 2014