



ASX:IR1 - ASX RELEASE | 30 August 2024

REGIONAL LITHIUM EXPLORATION DEMONSTRATES SCALE AND POTENTIAL OF SOUTH DAKOTA TENURE

HIGHLIGHTS

- Initial regional exploration work across IRIS Metals' substantial mineral tenure in the Black Hills of South Dakota has yielded nine exciting new exploration targets showing strong lithium potential
- Geochemical exploration has identified lithium bearing pegmatite targets under cover and can estimate potential lithium enrichment
- IRIS is advancing this work to evaluate the Company's resource growth potential and identify near to mid-term drill targets
- Iris' comprehensive internal geochemical database showcases the exceptional quality of its top projects, underscoring the world-class nature of the spodumene-bearing pegmatites found in the Black Hills
- The IRIS team continues to advance the Beecher Project towards a maiden mineral resource estimate with plans to include the Tin Mountain Project in this work

IRIS Metals Limited (**ASX: IR1**) ("**IRIS**" or "**the Company**") is pleased to announce initial findings from the first large scale field program across the Company's substantial mineral tenure within the Black Hills of South Dakota, USA.

The results reveal the significant growth potential of the Company's resources with hundreds of outcropping pegmatites mapped, completion of gridded soil sampling for exploration under cover, and initial geochemical reconnaissance completed for pegmatite vectoring and lithium potential.

IRIS Metals President of U.S. Operations, Matt Hartmann, commented:

"The regional exploration activities undertaken by Iris has led to the discovery of new, promising drill targets. Through geochemical analysis of pegmatite mineralogy, we can rapidly vector across large, weathered pegmatite bodies to locate spodumene rich zones for further evaluation. This gives us a significant edge as we continue to explore the full potential of our projects in parallel with the near-term development story currently unfolding at our Beecher Project."

Background

IRIS' mineral properties located in the Black Hills of South Dakota consist of over 20,300 hectares of mineral rights secured through a combination of patented and unpatented mineral claims.

These claims contain hundreds of mapped pegmatites (Figure 1). Over 20 were noted to have spodumene mineralisation during historical mining operations which were active from the 1920s through to the 1980s for primarily mica and feldspar and avoided high-grade spodumene zones. These mines were generally artisanal in scope, with significant outcrop and exploration potential exposed at the surface.

During the US Summer 2024 field season, IRIS has focused on reconnaissance of these historic mines, working out from the highest priority targets towards the periphery to understand mineralogy, strike length, surface grades and potential resource volumes.

The assessment was done with a combination of detailed field mapping, soil sampling, surface grab samples and laser-induced breakdown spectroscopy (LIBS) geochemistry. LIBS offers rapid analysis focusing on lithium mineralisation potential, which allows the field teams to vector in on a target as quickly as the same day.

Soils and mono-mineralic sample separates were all analysed using the calibrated LIBS device, using third-party labs for independent verification of results.

These exploration activities have only begun to show the potential of the IRIS mineral tenure in the Black Hills of South Dakota. The IRIS team will continue to evaluate the land package in search of additional lithium bearing pegmatites worthy of drill testing. Future work will begin to focus on less understood portions of the tenure, applying the knowledge gained during this summer field season.

Soil Sampling & Mapping

Over the past three months, the IRIS field team (Photo 1) has completed twelve (12) major soil sampling grids covering 7.6km² and totaling over 3,700 individual samples. This work was focused on high priority targets across the IRIS mineral tenure with a special interest in historical mining operations. The targets were chosen based on a combination of historical literature and local knowledge. The goal of the program was to identify potential mineralisation along strike, as well as any potential targets under cover that would not have been identified during historic mining operations.



Photo 1 - IRIS field team in action sampling soils



While soils from this field program are still being analysed in house, the analytical results and interpretation completed to date show strong lithium trends beyond known outcropping pegmatites with historical mining operations, as well as additional targets identified in areas of no historical activities. In total, IRIS has identified nine (9) new exploration targets showing strong potential through soil sampling, rock ship sampling and detailed outcrop mapping.

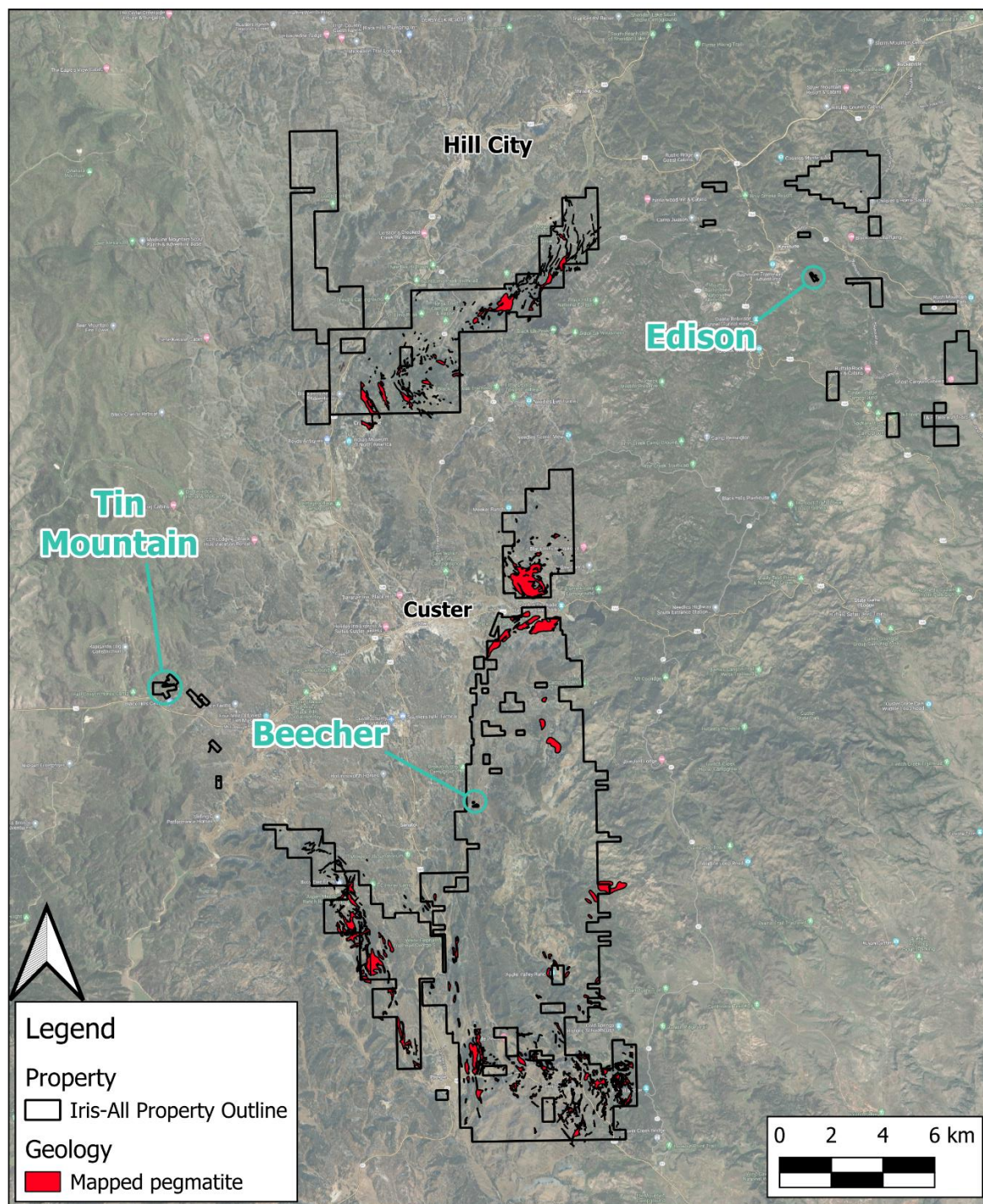


Figure 1 - Location of mapped pegmatites across the IRIS mineral tenure in the Black Hills of South Dakota

Advanced LIBS Methodology for Exploration Targeting

IRIS utilises a SciAps Z-903 multi-element device with post-manufacturer calibrations that can detect trace element geochemistry ideally suited for lithium pegmatites. The unit is being used to test multiple matrix types including soils, mica mineral separates, feldspar mineral separates and whole rock pulp samples. Soil samples are validated using a third-party independent lab for verification of results periodically, with all results maintaining acceptable tolerances for soil geochemistry.

IRIS has adopted advanced LIBS methodologies for rapid analysis of pegmatites building upon the work published by *Wise et. al. 2022*¹. This research demonstrated positive identification of spodumene bearing pegmatites based on blind mineral separate samples.

The advanced LIBS methods applied by IRIS have proven particularly effective in mapping pegmatite outcrops. Mica (muscovite) separates have been utilised by the Company for rapid analysis of surface outcrops. This rapid geochemical analysis significantly aided in the detailed mapping efforts, allowing for understanding of cryptic cross-cutting relationships, as well as geochemical vectoring towards mineralisation within the large pegmatite systems (Figure 2).

Mono-mineralic sample analysis has proven extremely useful in areas with surface weathering where lithium depletion has occurred. This method allows for the visualisation of true geochemistry where rock chip samples would not demonstrate the complete lithium endowment of a pegmatite in fresh unweathered conditions at depth.

With the ability to see past weathering in surface exposures, IRIS has utilised mono-mineralic muscovite sampling in tandem with un-weathered surface rock samples to vector towards higher grade and more chemically prospective areas (Figure 3). The ability to achieve instantaneous results on vector direction in the field has increased the speed of geologic understanding, allowing for a larger field area to be mapped within a single field season.

Due to the abundance of pegmatite bodies in the South Dakota project this technique has been invaluable for the mapping of fertile vs. non-fertile outcrops that in some cases are cross-cutting. The rapid understanding of geochemical prospectivity and fertility allows for little time to be wasted on undesired geology.

The combination of the accuracy and rapid analysis times of the LIBS matched with detailed field mapping proves to be a very effective method with which the Company plans to continue to enhance the current exploration model.

Furthermore, IRIS has completed a significant amount of geochemical testing of mono-mineralic muscovite samples. When considered in conjunction with the graph shown in Figure 4 which shows the geochemical plots of major pegmatites globally (the yellow stars indicate the Beecher and Tin Mountain projects), the Company concludes that the high levels of chemical fractionation and high levels of lithium indicate that on a global scale, the South Dakota region is a world class location for pegmatite exploration.

¹ Wise, M.A.; Harmon, R.S.; Curry, A.; Jennings, M.; Grimac, Z.; Khashchevskaya, D. Handheld LIBS for Li Exploration: An Example from the Carolina Tin-Spodumene Belt, USA. *Minerals* **2022**, *12*, 77. <https://doi.org/10.3390/min12010077>

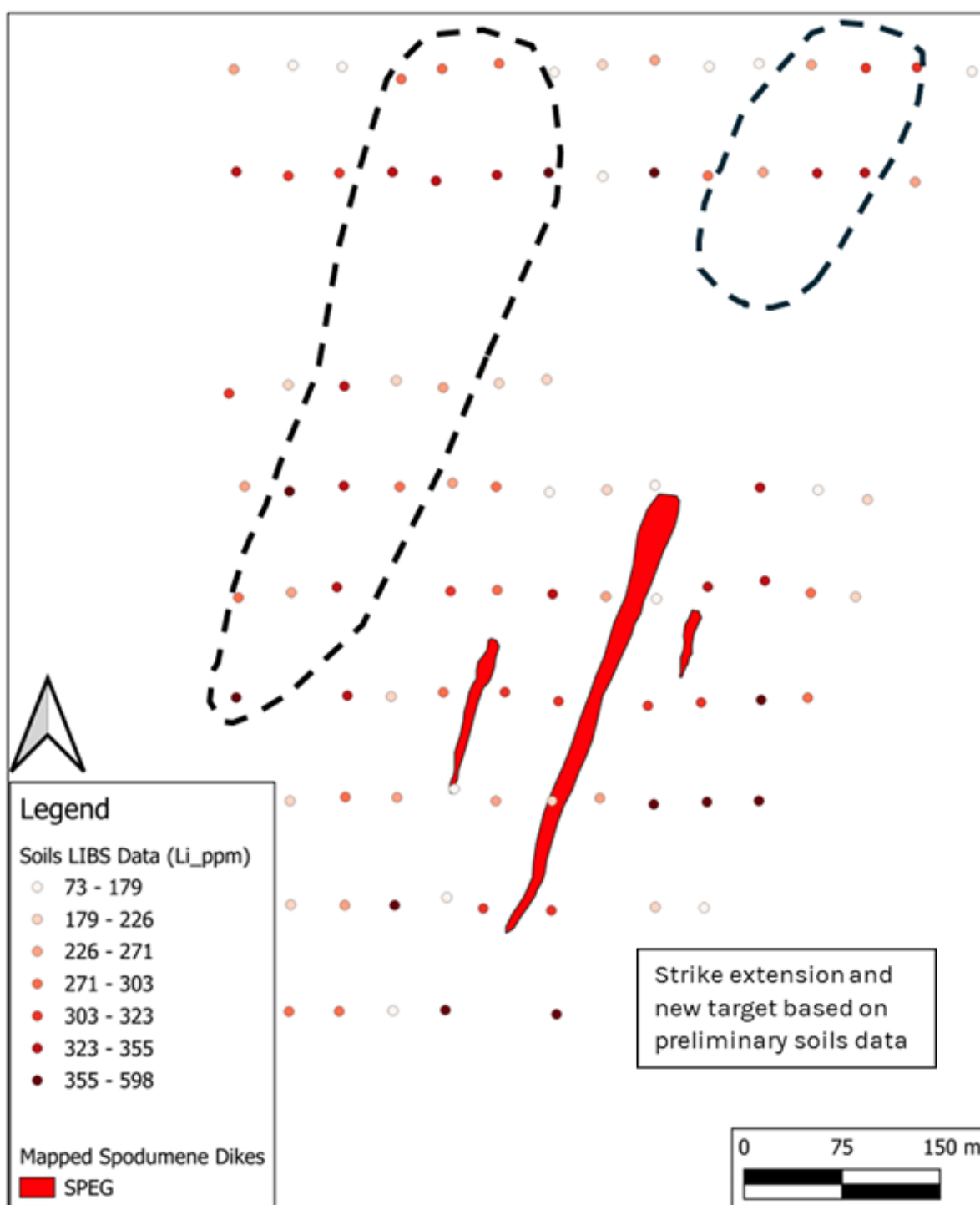


Figure 2 - Analysis of soils data with the LIBS indicates both new lithium trends, and extension of known outcropping mineralisation under cover at the Hunter Louise Project

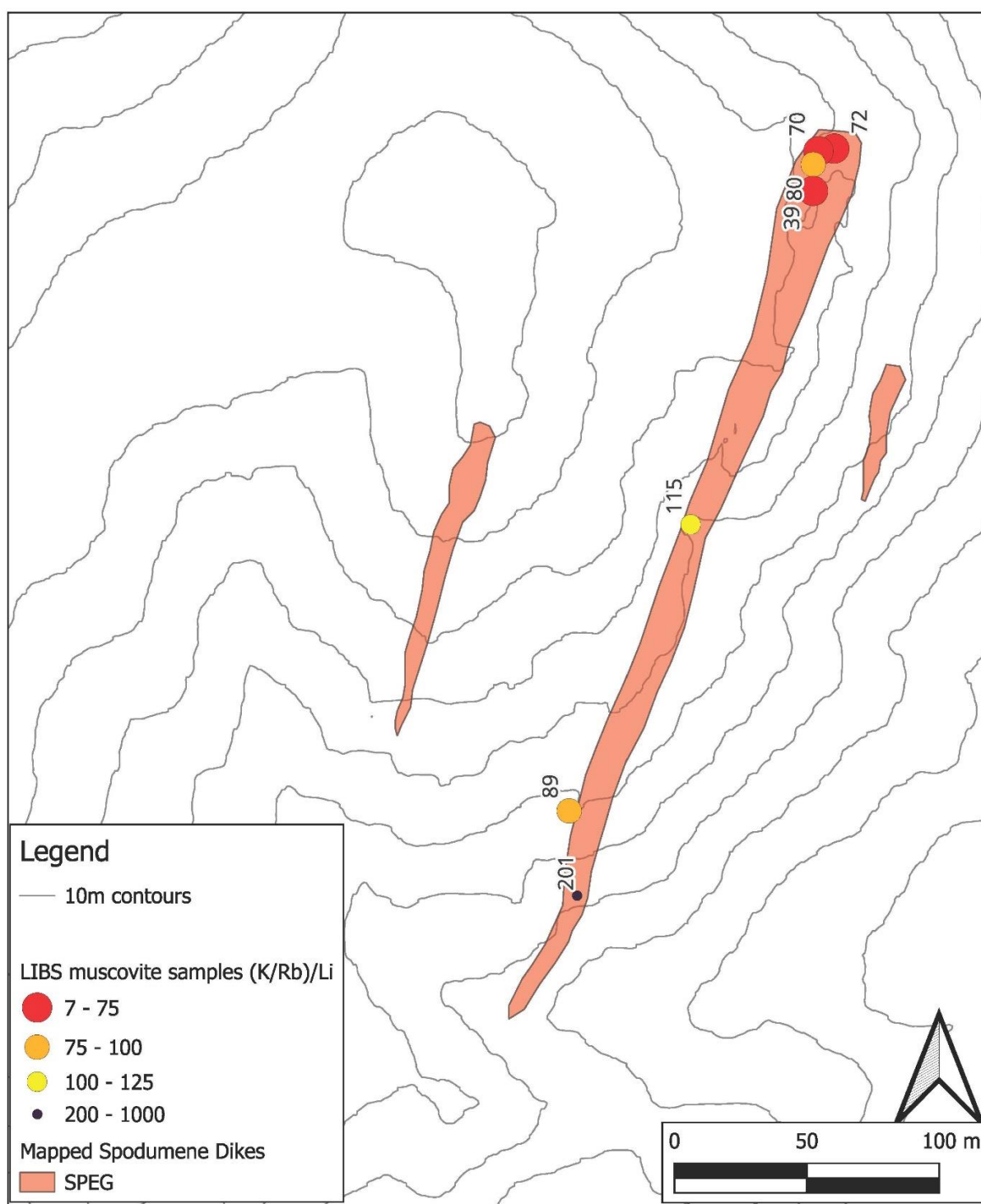


Figure 2 - LIBS based vectoring of spodumene endowment across the primary pegmatite at the Hunter Louise Project within the IRIS mineral tenure.

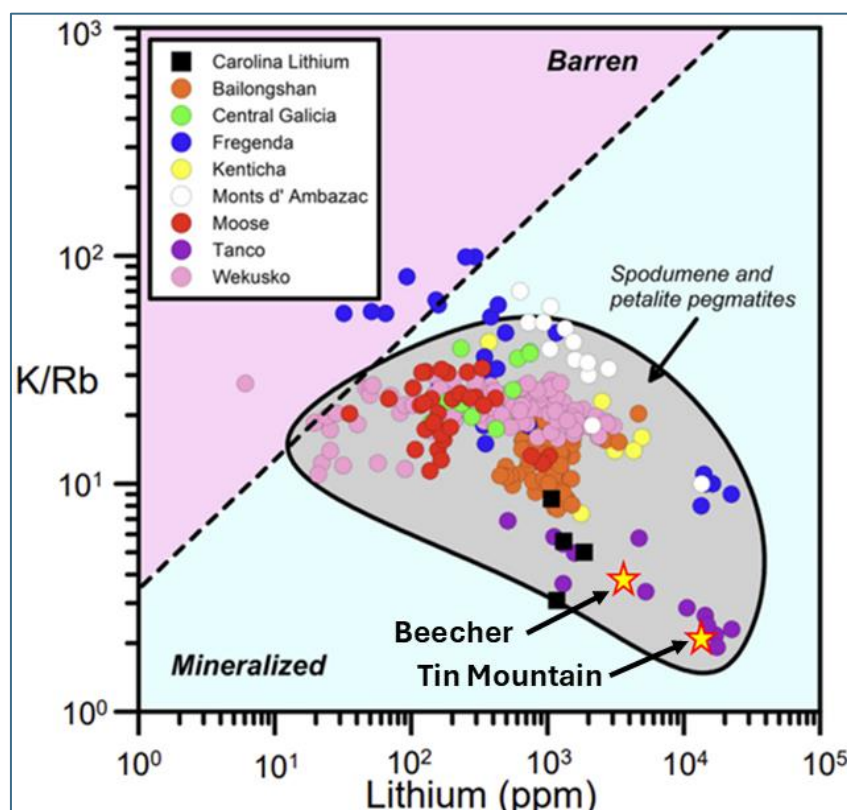


Figure 4 - Graph modified from Wise et. al. 2022, showing Muscovite data points from major pegmatite districts globally. Yellow stars represent Iris Metals' Beecher and Tin Mountain projects and their place on the global scale

Ongoing Activities

The IRIS team continues to advance the Beecher Project towards a maiden mineral resource estimate and intends to include the Tin Mountain Project in that work. In addition to that work, IRIS is progressing with mining and ore processing studies to support potential development of one or more projects towards near-term small-scale production.

In parallel with this work, and as outlined in this release, IRIS is presently reviewing and exploring its extensive mineral tenure in the Black Hills of South Dakota, searching for additional lithium bearing pegmatites suitable for drill testing and potential future placement within a pipeline of production properties.

The Company continues to also assess and undertake due diligence on other South Dakota based tenure for acquisition.



About The South Dakota Project

The Black Hills of South Dakota are famous for historic lithium mining dating back to 1898 when Li-bearing spodumene and amblygonite was first mined near the township of Custer. IRIS has staked 2,387 federal mineral claims and has agreements over two patented claim blocks.

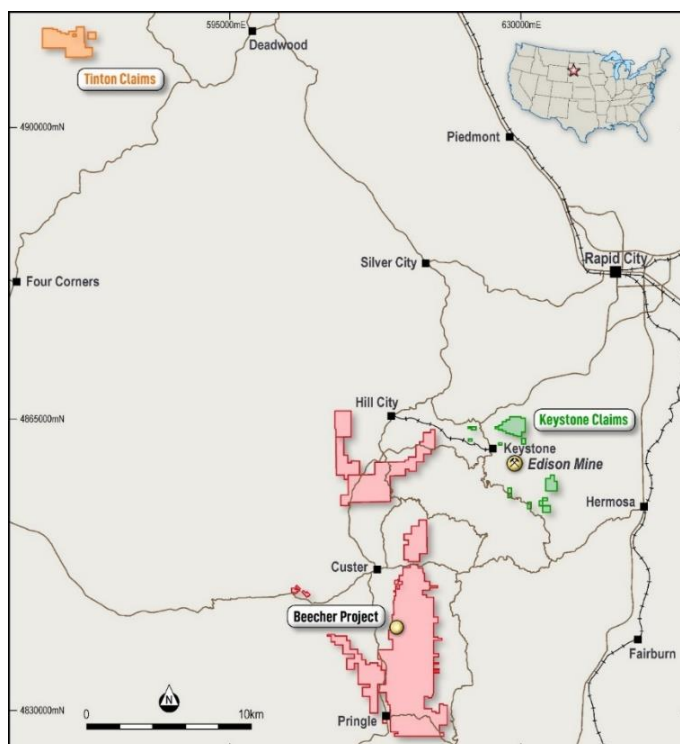
Existing project areas include:

- Beecher Project – including Longview and Black Diamond
- Edison Project
- Dewy Project
- Custer Project
- Ruby Project
- Helen Beryl Project
- Tinton Project
- Keystone Project

The Beecher pegmatite trend was mined sporadically between the 1920's and 1950's for lithium, beryllium, tantalum, mica and feldspar. Limited amounts of lithium spodumene ore from the Beecher mines was shipped to Hill City during the 1940's where it was processed through a flotation circuit.

IRIS' local partner has been granted mining licenses permitting lithium pegmatite mining for these patented claims.

These mining licenses permitted by the State of South Dakota enable IRIS to fast-track all exploration and mining activities, including the right to explore and mine lithium bearing pegmatites.



Location of IRIS' projects within South Dakota

ENDS

This announcement was approved for release by the Board of Iris Metals.

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About IRIS Metals (ASX:IR1)

IRIS Metals Ltd (ASX:IR1) is an exploration company with an extensive suite of assets considered to be highly prospective for hard rock lithium located in South Dakota, United States (US). The company's large and expanding South Dakota Project is located in a mining friendly jurisdiction and provides the company with strong exposure to the battery metals space, and the incentives offered by the US government for locally sourced critical minerals.

The Black Hills have a long and proud history of mining dating back to the late 1800s. The Black Hills pegmatites are famous for having the largest recorded lithium spodumene crystals ever mined. Extensive fields of fertile LCT-pegmatites outcrop throughout the Black Hills with significant volumes of lithium spodumene mined in numerous locations.

To learn more, please visit: www.irismetals.com

Forward looking Statements:

This announcement may contain certain forward-looking statements that have been based on current expectations about future acts, events and circumstances. These forward-looking statements are, however, subject to risks, uncertainties and assumptions that could cause those acts, events and circumstances to differ materially from the expectations described in such forward-looking statements. These factors include, among other things, commercial and other risks associated with exploration, estimation of resources, the meeting of objectives and other investment considerations, as well as other matters not yet known to IRIS or not currently considered material by the company. IRIS accepts no responsibility to update any person regarding any error or omission or change in the information in this presentation or any other information made available to a person or any obligation to furnish the person with further information.

Not an offer in the United States:

This announcement has been prepared for publication in Australia and may not be released to US wire services or distributed in the United States. This announcement does not constitute an offer to sell, or a solicitation of an offer to buy, securities in the United States or any other jurisdiction. Any securities described in this announcement have not been, and will not be, registered under the US Securities Act of 1933 and may not be offered or sold in the United States except in transactions exempt from, or not subject to, the registration requirements of the US Securities Act and applicable US state securities laws.

Competent Persons Statement:

The information in this announcement that relates to exploration results is based on information reviewed by Matt Hartmann, IRIS' President of U.S. Operations, and a Competent Person who is a Member of the Australasian Institute of Mining and Metallurgy (MAusIMM) (318271), a Registered Member of the Society for Mining, Metallurgy and Exploration (RM-SME) (4170350RM). Matt Hartmann is an exploration geologist with over 23 years of experience in mineral exploration, including lithium exploration and resource definition in the western United States, and has sufficient experience in the styles of mineralisation and type of deposit under consideration and to the activity undertaken to qualify as a Competent Person as defined in the 2012 Edition of the Australian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves. Matt Hartmann has consented to the inclusion in this Public Report of the matters based on his information in the form and context in which it appears.

**JORC Code, 2012 Edition – Table 1****Section 1 Sampling Techniques and Data**

(Criteria in this section apply to all succeeding sections.)

Criteria	JORC Code explanation	Commentary
<i>Sampling techniques</i>	<i>Nature and quality of sampling (eg cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc). These examples should not be taken as limiting the broad meaning of sampling.</i>	Soil Samples collected are split using half of the sample for in-house testing and the other half for lab verification. Soil sampling protocols meet industry standard practices. Soil sampling is guided by a predetermined grid and sampled to the B horizon where possible and overseen by a geologist. Soil samples consist of 600g or more of soil. All mono-mineralic samples are taken directly from the rock/ core sample via tweezers or rock saw. The only preparation done to them is a flat surface is ground into one side (not applicable for muscovite). Samples are analysed in 5 or more locations across the flat face to ensure proper internal consistency of the mineral before recording results.
	<i>Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.</i>	LIBS results were carried out using a SciAps Z-903 multi-element LIBS analyser. Different LIBS calibrations were made for every medium type (mica, feldspar, soil, pulp) to ensure a known and calibrated laser coupling effect for consistent results. Standard materials were used at the start of every day and every 100 samples to ensure any drift was within acceptable ranges. Surface samples by nature are preferentially chosen based on weathering patterns and where rock is exposed. Past the natural and expected sample bias, not further sample biases have been introduced.



		Soils grids were sampled based on a predefined grid with specific geospatial coordinates provided to field crews to execute the sampling plan.
	<i>Aspects of the determination of mineralisation that are Material to the Public Report.</i>	Lithium bearing minerals including spodumene weather to clays in the oxidised regolith and are not recognised when whole rock samples contain weathered pegmatites
<i>Logging</i>	<i>Logging of geospatial and geologic data in the field</i>	Geologic and sample data logging is done on a tablet running a geospatial software. Pre-designed inputs are programmed in to allow for ease of use and consistent data. All data entry is validated by a geologist and reviewed by either a senior geologist or the exploration manager before publication.
	<i>Whether logging is qualitative or quantitative in nature.</i>	Chip logging of soils is done with the best estimates depending on the level of weathering encountered by the rock. Where rock chips are not encountered in the soil sampling, chip logging is not applicable.
	<i>The total length and percentage of the relevant intersections logged.</i>	All samples taken will be analysed to ensure a complete dataset
<i>Sub-sampling techniques and sample preparation</i>	.	A Quality Assurance / Quality Control (QAQC) protocol following industry best practices was incorporated into the program and included systematic insertion of marble blanks and certified reference materials (CRMs) into sample batches at a rate of approximately 5% each. Additionally, analysis of pulp-split and course-split sample duplicates were completed to assess analytical precision at different stages of the laboratory preparation process, and external (secondary) laboratory pulp-split duplicates were prepared at the primary lab for subsequent check analysis and validation at a secondary lab. All protocols employed are considered appropriate for the sample type and nature of mineralization and are considered the optimal approach for maintaining representativeness in sampling.



	<i>If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry.</i>	All samples are split with a riffle splitter. All samples are dry.
	<i>For all sample types, the nature, quality and appropriateness of the sample preparation technique.</i>	Samples are collected in a labelled wax coated bag, with each representing 1 soil sample location point.
	<i>Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.</i>	Standards and duplicates were inserted every 20 samples - blanks were inserted every 50 samples.
	<i>Measures taken to ensure that the sampling is representative of the in situ material collected, including for instance results for field duplicate/second-half sampling.</i>	Results of standards, duplicates and blanks will be compared to the expected results for quality control
	<i>Whether sample sizes are appropriate to the grain size of the material being sampled.</i>	Due to soils being composed of weathered rock, a 700g sample was deemed sufficient to encompass a representative suite of the minerals encountered.
<i>Quality of assay data and laboratory tests</i>	<i>The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.</i>	Soil samples collected were shipped to SGS Canada's laboratory in Vancouver, for standard sample preparation (code PRP89) which includes drying at 105°C, crush to 75% passing 2 mm, riffle split 250 g, and pulverize 85% passing 75 microns. The samples were homogenized and subsequently analyzed for multi-element (including Li and Ta) using sodium peroxide fusion with ICP-AES/MS finish (codes GE_ICP91A50 and GE_IMS91A50). The assay techniques are considered appropriate for the nature and type of mineralization present, and result in a total digestion and assay for the elements of interest. The Company relies on both its internal QAQC protocols (systematic soil duplicates, blanks, certified reference materials, and external checks), as well as the laboratory's internal QAQC. For assay results disclosed, samples have passed QAQC review.



	<i>For geophysical tools, spectrometers, handheld XRF instruments, etc, the parameters used in determining the analysis including instrument make and model, reading times, calibrations factors applied and their derivation, etc.</i>	Calibrations of the Sciaps Z-903 multi-element analyser were made for each element and each matrix. 15 or more lab verified samples were used for calibrations, and curves were applied based on the mathematical signature from the geochemical variance of each element in varying concentrations. These calibrations varied by matrix and the mathematical signature varied by element. Mathematical signature (linear, quadratic, exponential, logarithmic).
	<i>Nature of quality control procedures adopted (eg standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (ie lack of bias) and precision have been established.</i>	1 in 20 soils was sent for laboratory analysis to validate the LIBS methodology. Out of these samples sent, standards and duplicates were inserted every 20 samples - blanks were inserted every 50 samples. Along with standard laboratory check methods.
<i>Verification of sampling and assaying</i>	<i>The verification of significant intersections by either independent or alternative company personnel.</i>	Intervals are reviewed and compiled by the Exploration Manager and Project Managers prior to disclosure, including a review of the Company's internal QAQC sample analytical data. Data is stored directly into excel templates, including direct import of laboratory analytical certificates as they are received. The Company employs various on-site and post QAQC protocols to ensure data integrity and accuracy. Adjustments to data include reporting lithium in their oxide forms, as it is reported in elemental form in the assay certificates. Formulas used are $Li_2O = Li \times 2.1527$. All LIBS data reported is an average of 10 tests on 1 piece of material with all analyses taking place within 1cm ² or as less as the sample permits.
	<i>The use of twinned holes.</i>	
	<i>Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.</i>	
	<i>Discuss any adjustment to assay data.</i>	
<i>Location of data points</i>	<i>Accuracy and quality of surveys used to locate drill holes (collar and down-hole surveys), trenches, mine workings and other locations used in Mineral Resource estimation.</i>	Sample locations were recorded using a handheld GPS using the NAD83_13 Datum.
	<i>Specification of the grid system used.</i>	
	<i>Quality and adequacy of topographic control.</i>	



<i>Data spacing and distribution</i>	<i>Data spacing for reporting of Exploration Results.</i>	Sampling undertaken was of a reconnaissance nature and widespread across the pegmatite bodies.
	<i>Whether the data spacing and distribution is sufficient to establish the degree of geological and grade continuity appropriate for the Mineral Resource and Ore Reserve estimation procedure(s) and classifications applied.</i>	Samples are generally taken on a 40m x 80m grid. Based on the nature of soil samples and mono-mineralic LIBS samples, no resource can be made from the following results, but can lead to targeting of furthermore reliable data methods.
	<i>Whether sample compositing has been applied.</i>	No compositing has been applied to the materials.
<i>Orientation of data in relation to geological structure</i>	<i>Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.</i>	Soil grids were generally designed perpendicular to the general trend of the pegmatites as mapped at surface if any mapping was known. No bias is determined.
	<i>If the relationship between the sampling orientation and the orientation of key mineralised structures is considered to have introduced a sampling bias, this should be assessed and reported if material.</i>	
<i>Sample security</i>	<i>The measures taken to ensure sample security.</i>	Chain of custody is maintained by Iris personnel on site and sent in sealed pallets and bags to the Laboratory.
<i>Audits or reviews</i>	<i>The results of any audits or reviews of sampling techniques and data.</i>	Results were reviewed and deemed reliable for the nature of the testing.



Section 2 Reporting of Exploration Results		
(Criteria listed in the preceding section also apply to this section.)		
Criteria	JORC Code explanation	Commentary
<i>Mineral tenement and land tenure status</i>	<i>Type, reference name/number, location and ownership including agreements or material issues with third parties such as joint ventures, partnerships, overriding royalties, native title interests, historical sites, wilderness or national park and environmental settings.</i>	The project is located in South Dakota USA, the project comprises free-hold patented claims owned by Iris Metals
	<i>The security of the tenure held at the time of reporting along with any known impediments to obtaining a licence to operate in the area.</i>	No known impediments.
<i>Exploration done by other parties</i>	<i>Acknowledgment and appraisal of exploration by other parties.</i>	No modern exploration has been conducted at this Project
<i>Geology</i>	<i>Deposit type, geological setting and style of mineralisation.</i>	LCT-pegmatite hosted lithium spodumene mineralisation similar in nature to other zoned lithium pegmatite deposits mined around the world
<i>Drill hole Information</i>	<i>A summary of all information material to the understanding of the exploration results including a tabulation of the following information for all Material drill holes:</i>	No drill results are being reported at this time.
	<i>easting and northing of the drill hole collar</i>	
	<i>elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar</i>	
	<i>dip and azimuth of the hole</i>	
	<i>down hole length and interception depth</i>	
	<i>hole length.</i>	



	<i>If the exclusion of this information is justified on the basis that the information is not Material and this exclusion does not detract from the understanding of the report, the Competent Person should clearly explain why this is the case.</i>	
<i>Data aggregation methods</i>	<i>In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (eg cutting of high grades) and cut-off grades are usually Material and should be stated.</i>	NA
	<i>Where aggregate intercepts incorporate short lengths of high grade results and longer lengths of low grade results, the procedure used for such aggregation should be stated and some typical examples of such aggregations should be shown in detail.</i>	NA
	<i>The assumptions used for any reporting of metal equivalent values should be clearly stated.</i>	NA
<i>Relationship between mineralisation widths and intercept lengths</i>	<i>These relationships are particularly important in the reporting of Exploration Results.</i>	NA
	<i>If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.</i>	NA
	<i>If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (eg 'down hole length, true width not known').</i>	NA
<i>Diagrams</i>	<i>Appropriate maps and sections (with scales) and tabulations of intercepts should be included for any significant discovery being reported These should include, but not be limited to a plan view of drill hole collar locations and appropriate sectional views.</i>	Maps are provided in the text relevant to the discussion of field techniques, type and nature of data generated and Iris interpretations.



<i>Balanced reporting</i>	<i>Where comprehensive reporting of all Exploration Results is not practicable, representative reporting of both low and high grades and/or widths should be practiced to avoid misleading reporting of Exploration Results.</i>	Current data reported shows all data generated in a geographic area, agnostic of grade.
<i>Other substantive exploration data</i>	<i>Other exploration data, if meaningful and material, should be reported including (but not limited to): geological observations; geophysical survey results; geochemical survey results; bulk samples – size and method of treatment; metallurgical test results; bulk density, groundwater, geotechnical and rock characteristics; potential deleterious or contaminating substances.</i>	Relevant geochemical data and generative methodologies are presented.
<i>Further work</i>	<i>The nature and scale of planned further work (eg tests for lateral extensions or depth extensions or large-scale step-out drilling).</i>	Further work is described in the text. Overall objective is further regional scale mapping and sampling.
	<i>Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.</i>	A presentation of potential extension of the Hunter Louise Project is presented. No further presentation of possible geologic extensions is warranted at this time.