Loyal Lithium

ASX LLI

ASX Announcement | 21 October 2024

3D Geophysics Reveals Significant Inferred Extensions of Known Lithium Pegmatites at the Trieste Lithium Project

Highlights

- **Loyal Lithium and Expert Geophysics have developed a 3D model from geophysical resistivity inversions that reveals significant inferred extensions of known lithium pegmatites hosted within metasediments at the Trieste Lithium Project, Quebec, Canada.**
- **Using a custom filtering process on the vast geophysical data captured from the innovative Mobile MTm survey, the 3D model has produced highly correlated illustrations and advanced insights that will guide future drilling programs.**
- **The Mobile MTm 3D model highlights three distinct high-resistivity metasediment-hosted trends, validated by the correlation with known outcropping lithium (spodumene-bearing) pegmatite dykes and the 41 completed drill holes.**
- **The 3D model extends over 300 meters below the surface, providing unprecedented insights into the potential size of the Trieste Lithium Project.**
- **The 2024 field program is complete, with final mapping and assay results pending. This data will provide further validation of the geophysical 3D model.**
- **The Mobile MTm system, the latest in airborne electromagnetics and the most advanced generation of airborne AFMAG technologies, measures EM data over frequencies from 25 to 20,000 Hz to offer advanced resistivity discrimination for both deep and shallow geology.**
- **With $6.3M in funding, Loyal Lithium is well-positioned to strategically develop the Trieste Greenstone Belt into a world-class lithium hub.**

Loyal Lithium Limited (ASX:LLI) (**Loyal Lithium**, **LLI**, or the **Company**) is pleased to announce that, in collaboration with Expert Geophysics, it has developed a groundbreaking 3D geophysics resistivity inversion model for the Trieste Lithium Project in Quebec, Canada. This 3D model developed from geophysical resistivity inversions reveals significant inferred extensions of known lithium pegmatites hosted within metasediments. Using a custom filtering process on the vast data captured from the innovative Mobile sMTm survey, the 3D model has produced highly correlated illustrations and insights that will guide future drilling programs. The 3D model highlights three distinct high-resistivity metasediment-hosted trends, validated by the correlation of known lithium pegmatite dyke outcrops and 41 completed drill holes. The 3D model extends over 300 meters below the surface, providing unprecedented insights into the potential size of the Trieste Lithium Project. With $6.3M in funding, Loyal Lithium is well-positioned to develop the Trieste Greenstone Belt into a world-class lithium hub.

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Investor Centre

Loyal lithium
Trieste Lithium Project

Mobile MTm 3D Model
Three Highly-Resistive Metasediment Hosted Lithium Pegmatite Trends

EXPERT GEOPHYSICS

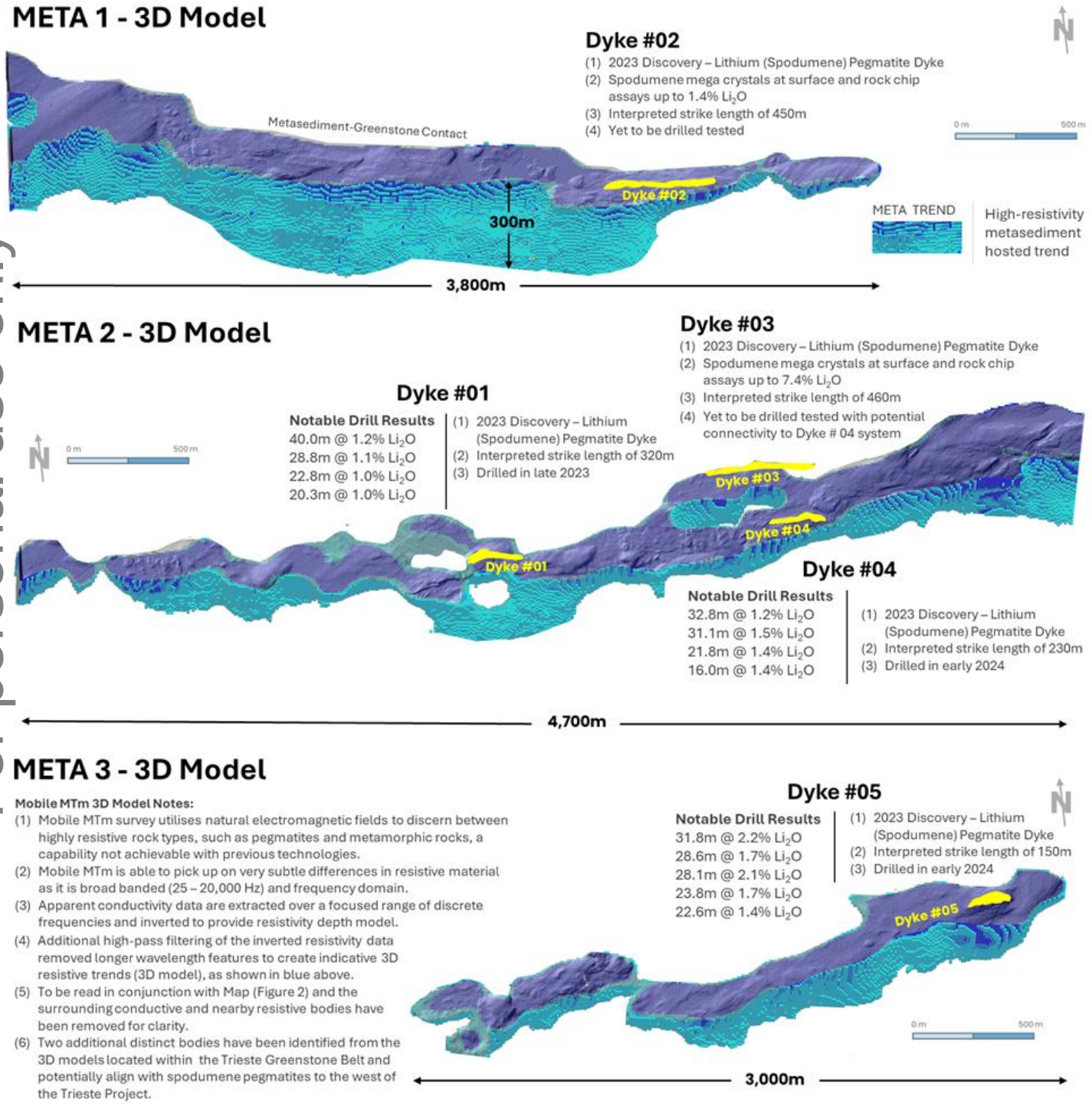

Figure 1: Trieste Lithium Project: Mobile MTm 3D model illustrating the three-metasediment hosted resistive trends.

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Loyal Lithium's Managing Director, Mr. Adam Ritchie, commented:

"The advancements made through this innovative geophysics program is truly groundbreaking. The Loyal Lithium and Expert Geophysics teams have excelled in characterising potential lithium pegmatite extensions within the unique metasedimentary host rocks at the Trieste Lithium Project. The 3D model has provided extensive geological insights and vivid 3D images to guide our subsequent drilling programs."

"Historically, differentiating between two adjacent resistive rock types has limited the exploration approach to lithium pegmatites within a metamorphic host. This limitation has reduced the effectiveness of geophysics as an exploration tool for pegmatites, resulting in suboptimal and costly outcomes for investors and explorers. While traditional surface-based exploration remains an essential and valuable process, the vivid insights into the inferred trend, shape, and size of pegmatites has the potential to reduce exploration costs and time by minimising the inherent trial and error associated with exploration."

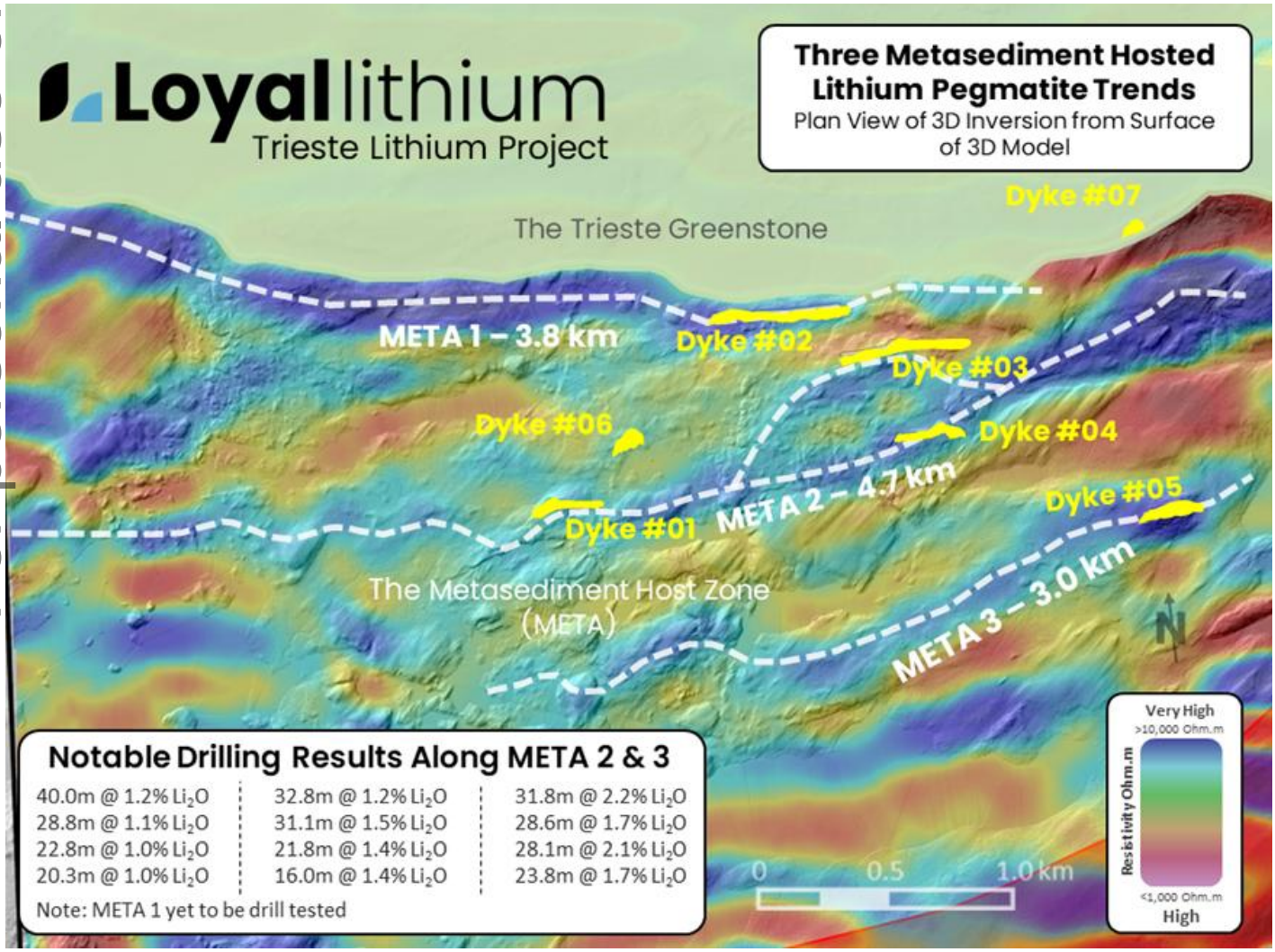

Figure 2: Trieste Lithium Project: Three Metasediment Hosted Lithium Pegmatite Trends – Plan view from surface of 3D model .

META 1 Trend (META 1) - Mobile MTm 3D Model

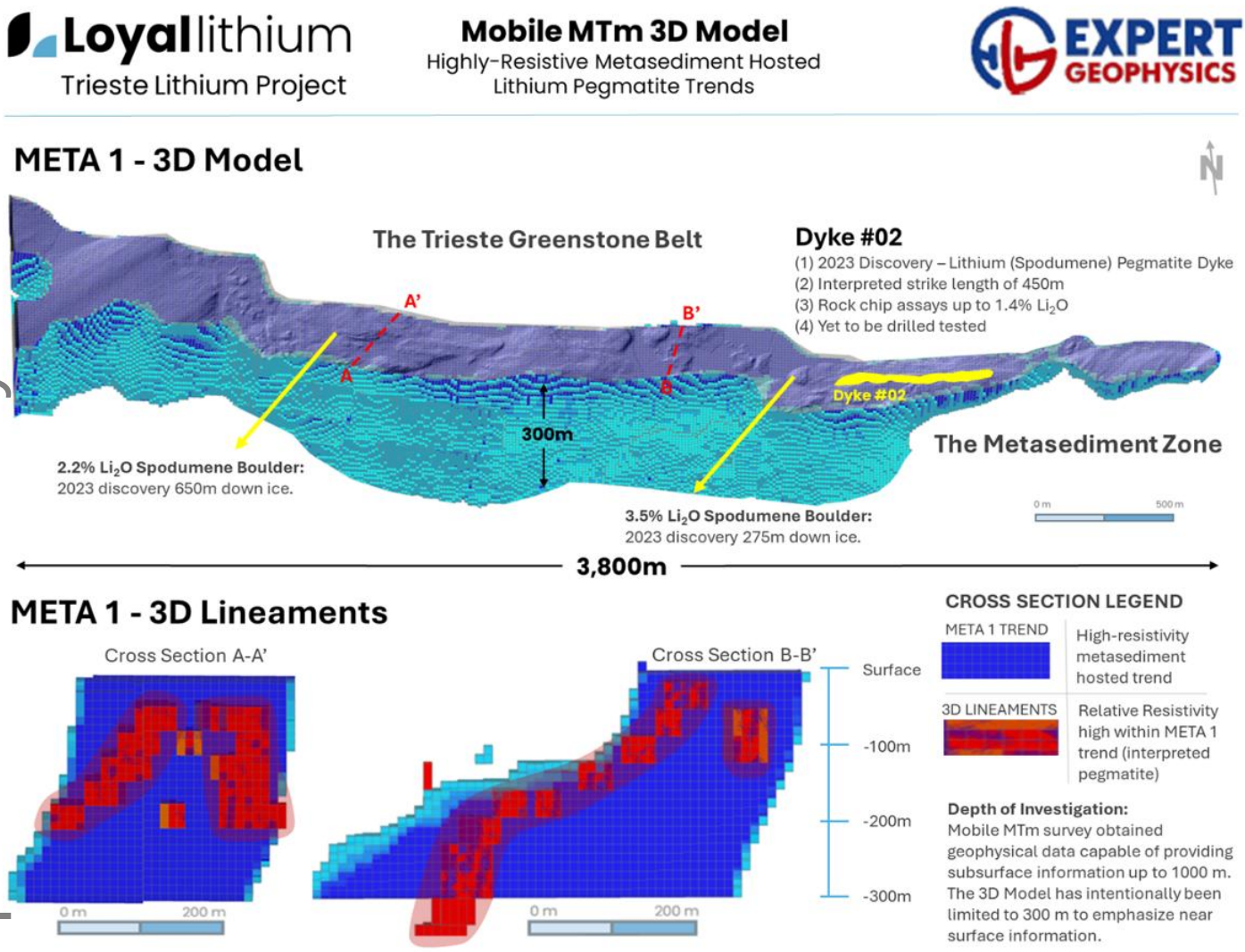

Figure 3: Trieste Lithium Project: META 1 trend from Mobile MTm 3D model with superimposed 3D Lineaments.

META 1 trend contains the distinct lithium (spodumene-bearing) pegmatite Dyke #02, spanning 3,800 meters east-west along the interpreted metasediment-greenstone contact. The META 1 model illustrates Dyke #02 in the east and infers significant subsurface lithium pegmatite extensions to the west beyond 300 meters, implying a westerly plunge of Dyke #02. The 3D model and associated 3D Lineaments, shown in Figure 3, highlight the potential for a substantial lithium discovery along the META 1 tend. The 3D Lineaments, which is a separate, post-inversion, 3D product, represents a resistivity high within the greater resistive 3D model trend and are interpreted to potentially be pegmatites.

Dyke #02, discovered during the 2023 field campaign, is a series of discrete spodumene-bearing pegmatite outcrops with an interpreted strike length of 450m. Dyke #02 exhibits large spodumene mega crystals and subsequent rock chip assays with lithium concentrations (up to 1.4% Li_2O), confirming strong mineralisation.

During the 2023 field campaign, multiple spodumene-bearing boulders were discovered down-ice, west of Dyke #02, along the META 1 trend. These boulder trails span up to 650 meters, with assay results showing up to 3.5% Li2O. The discovery of these boulders, combined with the 3D model, suggests a strong likelihood of mineralisation along the inferred extension of the META 1 trend.

META 2 Trend (META 2) - Mobile MTm 3D Model

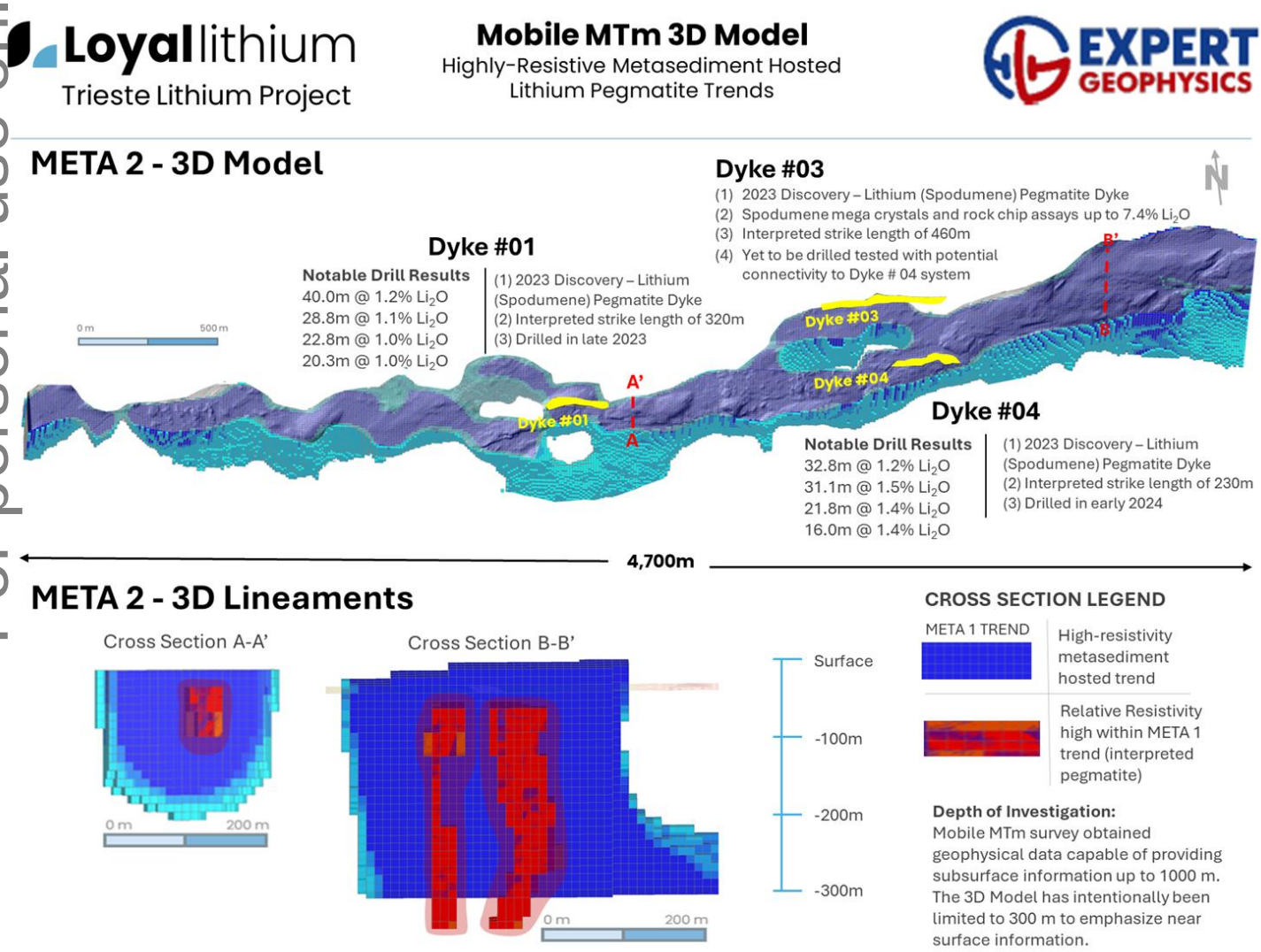

Figure 4: Trieste Lithium Project: META 2 Trend from Mobile MTm 3D model with superimposed 3D Lineaments.

META 2 contains the prominent lithium (spodumene-bearing) pegmatite Dykes #01, #03, and #04 and runs in a southwestern direction for 4,700 meters, occurring south of META 1, converging in the east. The META 2 3D model illustrates Dykes #01 and #04 along the main trend, with Dyke #03 recognised as a northern splay off this trend, with varying depths inferred along the trend. These three spodumene-bearing dykes are centered within META 2 with approximately 1,100 metres of inferred subsurface lithium pegmatite extensions between the dykes. The 3D model and associated 3D Lineaments, shown in Figure 4, highlight the potential for a substantial lithium discovery along the META 2 trend, with the east showing significant width and depth for investigation.

Dykes #01, #03, and #04 were discovered during the 2023 field campaign and mapped as prominent outcropping lithium pegmatite dykes with respective interpreted strike lengths of 320 meters, 460 meters, and 230 meters. All three dykes boast significant spodumene enrichment and large spodumene mega-crystals visible at the surface. Subsequent rock chip assays confirmed lithium concentrations of up to 7.6% Li_2O, indicating strong mineralisation.

Both Dyke #01 and Dyke #04 have been drill tested, with all drilling data correlating with the 3D model. Dyke #03 is yet to be drill tested, with the 3D model suggesting a southwesterly plunge towards Dyke #04.

META 3 Trend (META 3) - Mobile MTm 3D Inversion

META 3 trend contains the prominent lithium (spodumene-bearing) pegmatite Dyke #05 and runs in a southwestern direction for 2,500 metres, occurring south of the META 2 trend. The META 3 trend 3D model aligns with the Dyke #05 outcrop and infers significant westerly subsurface lithium pegmatite extensions. The 3D model and associated 3D Lineaments, shown in Figure 5, highlight the potential for a substantial lithium discovery along the META 3 trend.

Dyke #05 was discovered during the 2023 field campaign and mapped as a prominent outcropping lithium pegmatite dyke with an interpreted strike length of 150m with significant spodumene enrichment and large spodumene mega-crystals visible at the surface. Subsequent rock chip assays confirmed lithium concentrations of up to 4.6% Li_2O, indicating strong mineralisation.

The 3D model suggests Dyke #05 has a westerly plunge and aligns with field mapping observations. Such plunges are commonly found in pegmatite dykes. Dyke #05 has been drill tested with all drilling data correlating with the 3D model.

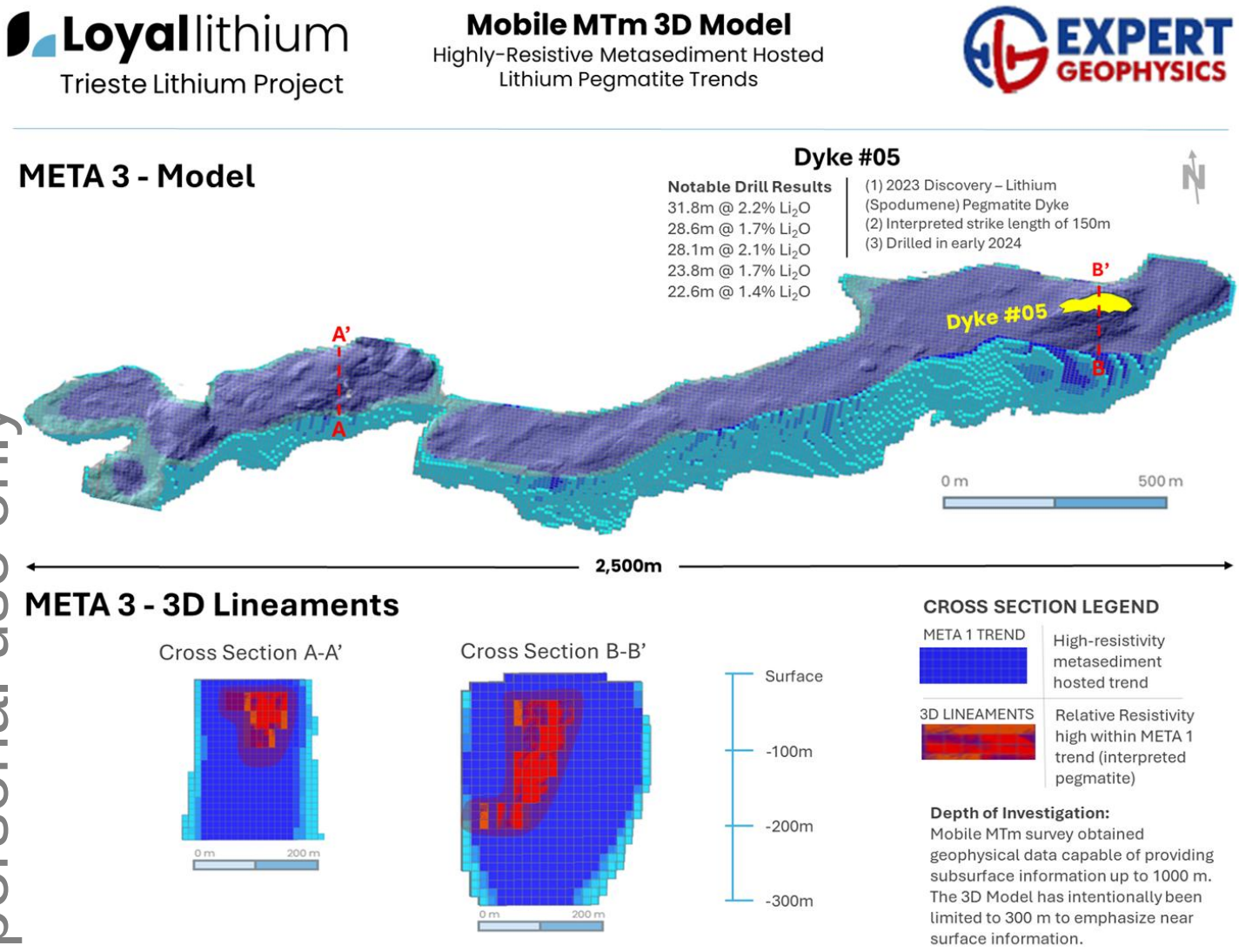

Figure 5: Trieste Lithium Project: META 3 Trend from Mobile MTm 3D model with superimposed 3D Lineaments.

Next Steps

With the 2024 field program now complete and final mapping and assay results pending, the Loyal Lithium team are poised to analyse the 2024 field results in conjunction with historical data and the geophysical 3D model to guide future drilling programs. The 2024 field program aims to ground-truth initial surface results from the innovative Mobile MTm geophysics survey, extend known pegmatite outcrop trends, expose concealed pegmatite outcrops, and determine trends of lithium, caesium, and other pathfinder elements within the glacial till and soil.

With the 3D model successfully inferring extensions of known lithium pegmatites hosted within metasediments, the Loyal Lithium team, in conjunction with Expert Geophysics, plans to further investigate the identified resistive trends within the Trieste Greenstone Belt. These trends show significant length and depth, with inferred connections to the newly discovered Lithium (spodumene bearing) pegmatite Dyke #07 on the southeastern end of the Trieste Greenstone. The identified Greenstone trends also align with adjacent discoveries of Rio Tinto/Midland Exploration's Galinée Project, Azimut/SOQUEM's Galinée Project, and the world-class resource of Winsome's Adina Lithium Project.

With $6.3M in funding, Loyal Lithium is strategically positioned to collaboratively advance the Trieste Greenstone Belt into a premier lithium hub, setting a new standard in the industry and paving the way for future exploration endeavors.

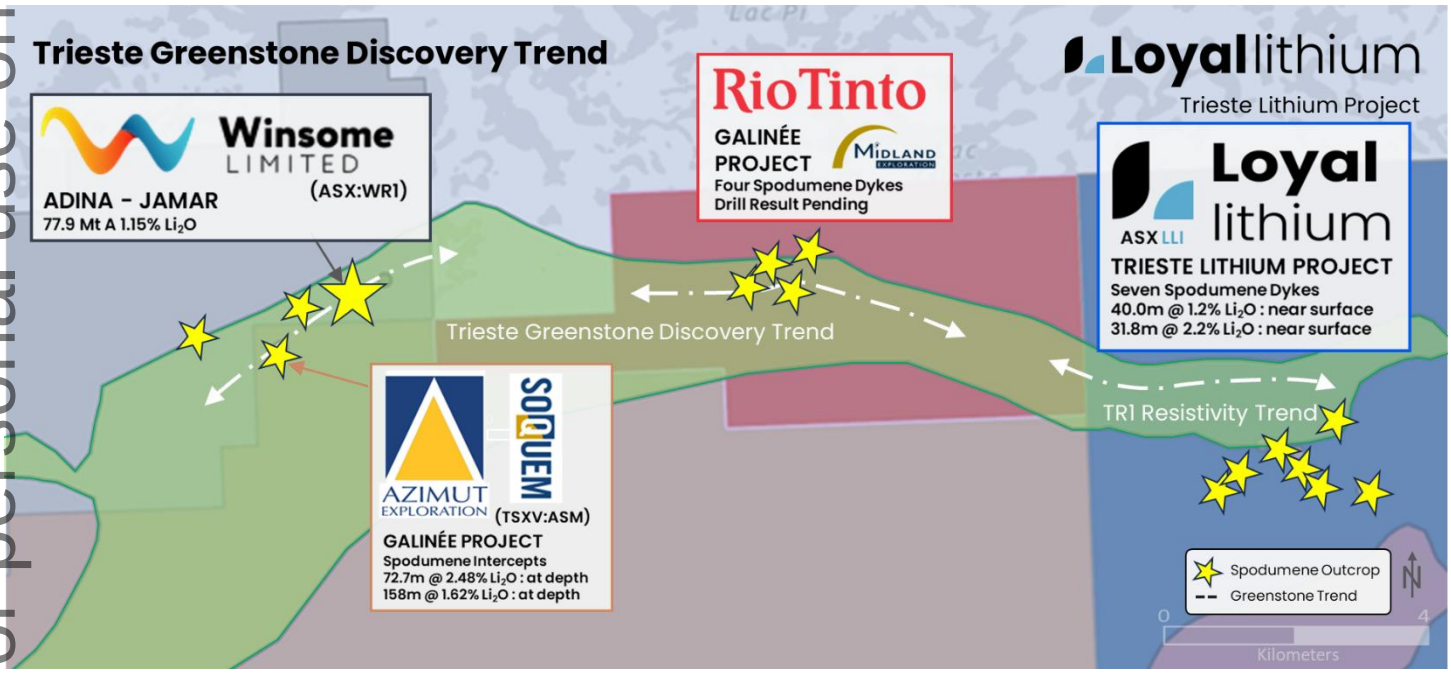

Figure 6: Trieste Greenstone Discovery Trend: Spodumene pegmatite discoveries across the Trieste Greenstone in relation to Loyal lithium's Greenstone Trend at the Trieste Lithium Project.

About Expert Geophysics and the Innovative Mobile MTm Survey

Expert Geophysics Limited (EGL) is a geophysical company specialising in airborne geophysical surveys worldwide. They utilise advanced electromagnetic systems, combining or separating magnetic field measurements and gamma spectrometry. EGL offers the latest innovations in airborne geophysical technologies, including the Mobile MagnetoTellurics (Mobile MTm) system, which represents the most advanced generation of airborne AFMAG technology.

The Mobile MTm system leverages naturally occurring electromagnetic fields in the frequency range of 25 Hz to 20,000 Hz. It combines the latest advances in electronics, airborne system design, and sophisticated signal processing techniques. Through audio-magnetotelluric principles, advanced engineering design, and sophisticated mathematical solutions, Mobile MTm is the only system proven to deliver geoelectrical information from shallow depths to over 1 km with high spatial (lateral and in-depth) and resistivity resolution. The Mobile MTm system detects resistivity contrasts in geological structures and boundaries of any shape and direction due to its total field (three components) measurements. The detectable resistivity range is not limited by the range of time-domain principles.

Loyal Lithium chose to deploy the Mobile MTm Survey due to the unique metasedimentary host environment of the Trieste Lithium Project. High resistivity contrasts in metasediments are interpreted as structural weaknesses from crustal shortening. Initially, these areas may have been more porous, but pegmatite intrusion and flattening reduced porosity. The pegmatites themselves are resistive, contributing to these trends. The size of the resistive bodies in the 3D model corresponding to the locations of the pegmatites are larger due to limitations in the resolution capabilities of the inversions as a result of smoothing and edge effects. Factors increasing resistivity include pore fluid removal, flattening that reduces current pathways, and pores blocked by metamorphic and hydrothermal minerals.

The Mobile MTm survey at the Trieste Lithium Project involved flying 2,231 line-kilometers, acquired along 25-metre spaced survey lines and 250-metre spaced tie-lines over a high-priority area, and along 50-metre spaced survey lines and 500-metre spaced tie-lines over the remainder of the survey area, covering 77 km^2.

This announcement has been authorised for release by Loyal Lithium's Board of Directors

For more information:

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About Loyal Lithium

Loyal Lithium Limited (ASX: LLI) is a well-structured listed resource exploration company with projects in Tier 1 North American mining jurisdictions in the Northwest Territories, Canada, James Bay Lithium District in Quebec, Canada and Nevada, USA. Through the systematic exploration of its projects, the Company aims to delineate JORC compliant resources, creating value for its shareholders.

Future Performance

This announcement may contain certain forward-looking statements and opinion Forward-looking statements, including projections, forecasts and estimates, are provided as a general guide only and should not be relied on as an indication or guarantee of future performance and involve known and unknown risks, uncertainties, assumptions, contingencies and other important factors, many of which are outside the control of the Company and which are subject to change without notice and could cause the actual results, performance or achievements of the Company to be materially different from the future results, performance or achievements expressed or implied by such statements. Past performance is not necessarily a guide to future performance and no representation or warranty is made as to the likelihood of achievement or reasonableness of any forward-looking statements or other forecast. Nothing contained in this announcement, nor any information made available to you is, or and shall be relied upon as, a promise, representation, warranty or guarantee as to the past, present or the future performance of Loyal Lithium Limited.

Competent Person's Statement

The information in this announcement that relates to Exploration Results, is based, and fairly reflects, information reviewed by Mr Darren Allingham, who is the Company's geologist. Mr Allingham is a Fellow of the Australian Institute of Geoscientists. Mr Allingham has sufficient experience which is relevant to the style of mineralisation and type of deposit under consideration and the activity he is undertaking to qualify as a Competent Person (CP) as defined in the 2012 Edition of the Australasian Code for Reporting of Exploration Results and Mineral Resources (JORC Code). Mr Allingham consents to the inclusion in the announcement of the matters based on the information in the form and context in which it appears.

List of References for Further Shareholder and Investor Reading:

[1] LLI ASX Announcement: 19 August 2024: Industry First: Pioneering Geophysical Survey Reveals Extensive Lithium Trends at the Trieste Lithium Project, James Bay, Quebec

[2] LLI ASX Announcement: 31 July 2024: Quarterly Activities Report – For the Quarter Ending 30 June 2024.

JORC Code, 2012 Edition – Table 1 report template

Section 1 Sampling Techniques and Data

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

Criteria	JORC Code explanation	Commentary
Sampling techniques	• *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.* • *Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.* • *Aspects of the determination of mineralisation that are Material to the Public Report.* • *In cases where 'industry standard' work has been done this would be relatively simple (eg 'reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30 g charge for fire assay'). In other cases, more explanation may be required, such as where there is coarse gold that has inherent sampling problems. Unusual commodities or mineralisation types (eg submarine nodules) may warrant disclosure of detailed information.*	• Expert Geophysics Limited (EGL) conducted a helicopter-borne MobileMTm electromagnetic and magnetic survey at the Trieste Lithium Project located in the Eeyou Istchee Baie-James, Québec area for Loyal Lithium. Electromagnetic (EM) and horizontal magnetic gradient geophysical data were acquired using EGL's airborne MobileMTm. The primary geophysical survey instrument deployed onto the project was EGL's MobileMTm (Mobile MagnetoTellurics) System, with two Geometrics G822A Cesium Magnetometers. • The purpose of the survey was to map bedrock structure and lithology, including possible alteration and mineralisation zones, observing apparent conductivity corresponding to different frequencies, inverting EM data to obtain the distribution of resistivity with depth, and using VLF EM and magnetic data to study properties of the bedrock units. A total of 11 production flights were flown to complete 2231 line-kilometers of the survey over a 77 sq.km area. • The objective of the survey was to image the subsurface resistivity to a depth of approximately 1 km. • Complementary VLF data, which provided near surface EM information, was delivered. • The survey area comprised approximately 77km^2. • Final data processing, colour imaging and mapping was performed at EGL's offices in Toronto, Canada. The final products, with interim draft products delivered, were ready within 8 weeks after the completion of the survey. • The nominal flight altitude of the helicopter was 80 - 90 m above the terrain. The nominal terrain clearance of the MobileMTm bird was 30 - 40 m. The terrain clearance varied in the areas with rough topography. • The survey was flown at an air speed of 80 - 100 km/hour. The airspeed varied in the rugged terrain. • Navigation was accomplished by GPS with an absolute positional accuracy of 2.5 metres or better. • Electromagnetic data was digitized and recorded at 73,728 Hz and processed / delivered at 2 Hz, resulting in electromagnetic data sampled at approximately every 11 metres along each flight line, dependent on wind conditions. • Airborne magnetic and GPS navigation data was recorded at 10 Hz, resulting in measurements at approximately every 2.2 meters along each flight line, dependent on wind conditions. • Airborne magnetics were collected simultaneously with the airborne electromagnetic data. • EGL provided the services of a Systems Engineer to install and test the survey system in the helicopter at the start of the survey.
Drilling techniques	• *Drill type (eg core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc) and details (eg core diameter, triple or standard tube, depth of diamond tails, face-sampling bit or other type, whether core is oriented and if so, by what method, etc).*	• No drilling reported in this announcement.
Drill sample recovery	• *Method of recording and assessing core and chip sample recoveries and results assessed.* • *Measures taken to maximise sample recovery and ensure*	• No drilling reported in this announcement.

	representative nature of the samples. • *Whether a relationship exists between sample recovery and grade and whether sample bias may have occurred due to preferential loss/gain of fine/coarse material.*	
Logging	• *Whether core and chip samples have been geologically and geotechnically logged to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies.* • *Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc) photography.* • *The total length and percentage of the relevant intersections logged.*	• No drilling reported in this announcement.
Sub-sampling techniques and sample preparation	• *If core, whether cut or sawn and whether quarter, half or all core taken.* • *If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry.* • *For all sample types, the nature, quality and appropriateness of the sample preparation technique.* • *Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.* • *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.* • *Whether sample sizes are appropriate to the grain size of the material being sampled.*	• No drilling reported in this announcement.
Quality of assay data and laboratory tests	• *The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.* • *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.* • *Nature of quality control*	• Daily quality control of acquired airborne data was undertaken in the field by EGL's technologist and was transmitted daily via the internet and an ftp-site to EGL's data processing facility in Canada. Quality control information was then confirmed by EGL and relayed back to the field crew on a regular basis. Reports were sent daily to Loyal within 24 hours of data acquisition. EGL did quality control of the data, as well as preliminary data processing, in the field, producing selected preliminary maps on completion of the flying operations. • Geophysical procedures are considered Standard Industry Practice. • For the Geophysics Survey a detailed report was received, named "Data Acquisition and Processing Report - Helicopter-borne MobileMTm, Electromagnetic & Horizontal Magnetic Gradient survey, Expert Geophysics Job #23007, July 2024". • Further work was completed including 3D inversion modelling and high pass filtering of the inversion model to produce a relative resistivity 3D

	procedures adopted (eg standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (ie lack of bias) and precision have been established.	model.
Verification of sampling and assaying	• *The verification of significant intersections by either independent or alternative company personnel.* • *The use of twinned holes.* • *Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.* • *Discuss any adjustment to assay data.*	• Geophysical data is stored on a secure server by EGL. The 2024 aeromagnetic data collected simultaneously with the Mobile MTm data correlates well with previous aeromagnetic images but is more detailed due to the closer line spacing (25m and 50m) of this 2024 geophysics survey. Ground IP surveys over small areas targeting metal sulphides were completed historically within the 2024 MTm survey boundaries. These data have found co-incident conductivity and resistivity anomalies within these smaller subset areas. For example, within the mafic amphibolite there are a series of interflow sediments that are both highly conductive and magnetic. These high conductivity anomalies were also found to broadly coincide with anomalies in the 2024 MTm survey. The earlier lithological and structural interpretations compare favourably with the geophysical data with the new data showing more detailed features.
Location of data points	• *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.* • *Specification of the grid system used.* • *Quality and adequacy of topographic control.*	UTM Z 18N and the WGS84 spheroid. Table 2 – Coordinates of the Trieste Lithium block boundary (WGS 84,UTM Zone 18N) Block Boundary X Y X Y 680922 5911041 691572 5909009 691034 5911397 691766 5903859 691034 5911397 686209 5904122 691153 5909022 682584 5903966 691572 5909009 681322 5901709 Table 3 – Flight lines specifications for Trieste Lithium Line spacing, m | Lines direction | Line numbers | # of lines | Line km 25m and 50m (traverse) | 0° | 1000-11500 | 297 | 1991 250m and 500m (tie) | 90° | 80000-80900 | 30 | 240 Total | 327 | 2231
Data spacing and distribution	• *Data spacing for reporting of Exploration Results.* • *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.* • *Whether sample compositing has been applied.*	• The amount of survey flying was 2,231 line-kms, acquired along 25m spaced survey lines and 250m spaced tie-lines over a high priority area, and along 50m spaced survey lines and 500m spaced tie-lines over the remainder of the survey area.

Table 1 – Summary Project Information

Client:	**Loyal Lithium**
Client contact:	Darren Allingham email: dallingham@loyallithium.com
EGL Job Number	#23007
Survey area location:	Eeyou Istchee Baie-James, Québec
Crew and aircraft location:	Mirage Adventure Camp, km 358 Route Transtaiga, QC
Mag Base station location:	WGS 84 UTM Zone 18N 641157m E; 5962792m N
EM Ref station location:	WGS 84 UTM Zone 18N 685751m E; 5907449m N
Block:	Trieste Lithium
Total line kms:	2231 line-km
Total Survey Area:	77 sq.km
Traverse line direction/spacing:	0°; 25m and 50m
Tie lines direction/spacing:	90°; 250m and 500m
Dates flown:	May 22, 2024 - May 29, 2024
Helicopter:	AS350 D2, C-FJXX, HELI-BOREAL
Average survey speed:	26.5 m/sec
Average Helicopter terr. clearance:	91 m
Average magnetometer clearance:	43 m
Average EM sensor clearance:	43 m
Coordinates Datum:	WGS 84
Coordinates Projection:	UTM Zone 18N, Central Meridian 75° W (Zone 18N)
MobileMTm extracted frequencies Hz:	71, 84, 106, 133, 165, 214, 263, 341, 425, 534, 4272, 5382, 6783, 8550, 10773, 13572
VLF extracted frequencies, kHz:	19.60, 20.90, 22.10, 23.40, 24.00, 25.20

Orientation of data in relation to geological structure	• *Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.* • *If the relationship between the drilling orientation and the orientation of key mineralised structures is considered to have introduced a sampling bias, this should be assessed and reported if material.*	• Flight lines were angled approximately perpendicular to the prevalent strike of amphibolite and metasediment geological contacts and the approximate interpreted known spodumene pegmatite east-west strike directions.
Sample security	• *The measures taken to ensure sample security.*	• Geophysical data was transferred and backed up onto a secure cloud source.
Audits or reviews	• *The results of any audits or reviews of sampling techniques and data.*	• No external audits or reviews of geophysical sampling techniques or data have been completed. Registered Geophysicists and Qualified Persons for the purposes of NI43-101 completed the geophysics survey. Interpretations of geophysical and geological datasets were completed in house by the Loyal Lithium General Manager (geologist) and verified by the CP Company Geologist in Canada. The MobileMTm data were used to create a 3D inversion model and then this model was filtered with the resistivity low features presented as orthographic projections in 3D and section images in this announcement. Resistivity lows were interpreted as both lithologies and alteration of lithologies that are to be ground-truthed in 2024 field mapping and have used 2023 field data. Linear trends of low resistivity and "axes of resistive trends" resulting from a lineament analysis of high-frequency EM data executed with adaptive energy filtering were found to coincide with known pegmatites mapped and sampled in the field survey of 2023, with three pegmatite dykes drilled in 2023 and 2024. • The additional deliverables include the voxel created from the high pass filtered data for the entire block (limited to 300 m ASL). The voxel was provided in two formats: 1) as a Geosoft voxel with a resolution of 5x5x5 m, and 2) as an OMF file with a resolution of 10x10x10 m (to limit file size). A total of 5 additional voxels were provided, windowed to different data

	extents to highlight the resistive trends. The extents were indicated in the file names. • A set of elevation slices (grids + geotiffs) from the surface to 300 m ASL, every 10 m, as well as sections (grids + geotiffs) for all lines were provided. • Loyal has a record of using technology to reduce the time to discovery of lithium pegmatites in complex Archean geological settings, and in this case claims with geomorphic complexity including glacial till cover, vegetation and lakes. Loyal used lithium combination satellite imagery at the initiation of the project that predicted lithium pegmatites were located on surface and six spodumene pegmatites were subsequently discovered in the 2023 Field Program with a 7th dyke in the mafic amphibolite found and announced for the 2024 Field Program. These innovative Mobile MTm geophysics data derivatives have provided predictions of subsurface lithium pegmatite locations correlating with the locations on surface of lithium pegmatite dykes.

Section 2 Reporting of Exploration Results

(Criteria listed in the preceding section also apply to this section.)

Criteria	JORC Code explanation	Commentary

Mineral tenement and land tenure status	• *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.*
	• *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.*
		• Prospectus on 5th June 2023 describes all LLI mineral tenure: https://announcements.asx.com.au/asxpdf/20230605/pdf/05qc58xt74d9nm.pdf.
		• The Trieste Lithium Project is in the James Bay Region, Quebec, Canada and is centered on 53°18'00"N, 72°02'00"W, within NTS sheets 33H08, 33H01, 23E05 and 23E04.
		• The Project comprises 466 mining claims with Trieste 238 claims for 12,269ha (LLI 100%) and the Osisko/Trieste JV - 228 claims (LLI 75%, Osisko 25%) - 11,765ha totaling 24,034 ha and is divided into three (3) continuous claim blocks extending over 38 km east-west direction width and 15.7km north-south. The Trieste Lithium Project was originally acquired by Loyal Lithium Ltd (previously Monger Gold) in October 2022 through both online map staking and agreements:
		  ○ 228 claims in the west from the mid north to the south, 75% owned by Loyal Lithium (fully owned subsidiary Trieste Lithium Ltd) and 25% with Osisko Development Corporation.
		  ○ 12 claims were acquired from Noranda Royalties
		  ○ 238 claims were acquired through online map staking and an NSR agreement for 12 claims in October 2022.
		• The claims are currently registered under Trieste Lithium Ltd, a 100% subsidiary of Loyal Lithium Ltd.
		• All 466 claims that comprise the Project are in good standing as of the Effective Date of this announcement. A consultant Quebec Claims Manager is employed by Loyal Lithium to ensure regulatory compliance.

Exploration done by other parties	• *Acknowledgment and appraisal of exploration by other parties.*	• The first known acquisition of mineral claims within the area of the current Trieste Lithium Project was in 1998 with a joint venture between Virginia Gold Mines and Cambior called the Caniapiscau Property. The Caniapiscau Property consisted of three different areas; the Bloc Est and Bloc Ouest areas fall within the current Project boundary and the Noella area is north of the current Project. Numerous field programs were executed from 1998 to 2001 including prospecting, mapping, geophysical surveys and channel sampling targeting precious metals (GM 57170, GM 58442, GM 59201). No drilling on the Project area was recorded during that time. • Virginia Mines Inc. increased their land holding in the area in 2007 and signed a joint venture agreement with Breakwater Resources on the Trieste Property, which encompassed the historical Caniapiscau Property and makes up the western portion of the current Trieste Lithium Project. An intensive prospecting and mapping program was executed in the summer of 2007 resulting in the discovery of several Au mineralised outcrops and boulders. A total of 326 outcrops were described from which 94 outcrop samples and 95 boulder samples were collected from within the current Trieste Lithium Project boundary (GM63378). • In 2009, Virginia Mines followed up anomalous values the 2007 exploration work with prospecting and till sampling that resulted in the collection of 235 rock samples and 155 till samples from the Trieste Property (GM65024). In 2011,

		additional prospecting and mapping took place on the Trieste Property with 169 outcrops and 114 boulders described and 203 rock samples collected (GM 66254). Another significant ground exploration program was completed in 2012, with 155 outcrops and 52 boulders described with 104 rock samples collected. An additional 25 trenches were excavated using a Heli-portable excavator to test various geophysical and geochemical anomalies (GM67952). All samples collected from 2009 to 2012 fall within the current Trieste Project area. • Numerous geophysical surveys were completed by Virginia Mines from 2008 to 2012 including a 2009 IP survey (40 line-km) (GM64304), 2009 EMH Survey (49.5 line-km) (GM64304), 2011 Heliborne HD magnetic survey (3,320 line-km) (GM65712), and a 2012 IP survey and line cutting (108.25 line-km) (GM66977). • In 2015, Virginia Mines changed its name to Exploration Osisko Baie James Inc. and continued to advance the historical Trieste Property with minimal prospecting work (5 outcrop and 3 boulder samples) and a ninety-one (91) sample till survey. Additionally, 10 NQ diamond drillholes totaling 1,559 m were completed on the southern portion of historical Trieste Property. The drillholes were designed to test Au-As anomalies in till and corresponding IP anomalies and resulted in 231 samples sent for analysis (GM 69682). All 2015 drillholes fall within the current Trieste Lithium Project boundary. • In 2017, Abitibi Geophysics on behalf of Osisko Mining Inc. (formerly Osisko Baie James), executed an 11.25 km OreVisionTM survey along 200 m spaced lines which resulted in several anomalies (GM70438). Osisko Mining followed up the geophysical survey with three (3) NQ diamond drillholes, totaling 636 m, to test out the identified anomalies (GM70437). A total of 226 drill core samples were sent for analysis. • In 2018 the Government of Quebec continued with regional mapping in the Lac Dalmas region (33H08, 33H09, 23E05 and 23E12) at scale of 1:85,000 (RG-2018-02). This area convers the northern portion of the Property. Another mapping project, covering the southern portion of the claims, was completed in the Lac Joubert area (33H08, 33H09, 23E05 and 23E12) at a scale of 1:130,000 (RG-2018-04).
Geology	• *Deposit type, geological setting and style of mineralisation.*	• The Trieste Project is situated in the Archean Superior Province of the Canadian Shield in the James Bay area of northern Quebec. The James Bay region consists of alternating east-west trending metavolcanic-rich and metasediment-rich domains. These domains comprise the La Grande volcano-plutonic sub-province and the Opatica, Nemiscau River, and Opinaca metasedimentary sub-provinces (Card & Ciesielski, 1986). The Trieste claims are located within the La Grande Sub-province just north of the contact with the Opinaca Sub-province. • The La Grande Sub-province in the Project area is characterised by Archean domes and basins with the remains of volcanic sequences and sedimentary basins wrapping around large syntectonic to post-tectonic felsic to intermediate intrusions. Volcanic sequences consist of altered mafic-dominant rocks and silicate- and oxide-facies iron formation. The abundance of strongly altered volcanic rocks sets this region of the La Grande Sub-province apart from other sectors of the Sub-province (Burniaux, Guemache, & Goutier, 2018 - RG 2018-02; Hammouche & Burniaux, 2018 - RG 2018-04). • The Tilly Pegmatite appears to be post tectonic and post-metamorphic and cuts the regional fabric in the area. This unit is characterised by small intrusions in the scale of hundreds of meters to kms in length and decametric thicknesses that form whiteish “whaleback” ridges. The unit consists of pegmatitic granite with medium-grained biotite, coarse to very coarse muscovite and accessory tourmaline, garnet, beryl, magnetite, and/or apatite. Titanite and epidote have also been observed locally. Micrographic and perthitic textures are common. It often contains mafic enclaves of deformed metasediments (Burniaux, Guemache, & Goutier, 2018 - RG 2018-02; Hammouche & Burniaux, 2018 - RG 2018-04). • There were multiple recorded occurrences of both I1A and I1G rock types available from public online data sources (SIGEOM) that related to the Tilly Pegmatite unit but were also potential hosts for spodumene. In total, 37 occurrences of rock-type I1A and 86 occurrences of I1G were reported in the Project area. • The La Grande Sub-province is prospective for various commodities including gold, silver, base metals, platinum group elements, and lithium over several different deposit styles including orogenic gold (Au), volcanogenic massive sulphide (Cu, Au, Ag), komatiite-ultramafic (Au, Ag, PGE, Ni, Cu, Co), and lithium

		pegmatite (Li, Ta, Cs). The focus of the Company is on the potential for lithium pegmatite occurrences in the Project area (Burniaux, Guemache, & Goutier, 2018 - RG 2018-02; Hammouche & Burniaux, 2018 - RG 2018-04).

Drill hole Information	• *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:*
	  ○ *easting and northing of the drill hole collar*
	  ○ *elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar*
	  ○ *dip and azimuth of the hole*
	  ○ *down hole length and interception depth*
	  ○ *hole length.*
	• *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.*
		• Geophysical data was reported in the coordinates system NAD83 UTM z18N WGS84.

Data aggregation methods	• *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.* • *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*	• Geophysical data is presented as relative resistivity highs after applying a high pass filter on a 3D conductivity-resistivity inversion model

	• *detail.* • *The assumptions used for any reporting of metal equivalent values should be clearly stated.*	
Relationship between mineralisation widths and intercept lengths	• *These relationships are particularly important in the reporting of Exploration Results.* • *If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.* • *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').*	• No drill results reported. • Resistivity highs in metasediments are thought to be areas of structural weakness due to flattening from crustal shortening. Alternatively, the resistivity high trends may have been higher in porosity during the time of pegmatite emplacement then after pegmatites have intruded the host rock and flattening of host rocks occurred to make room for the pegmatite, the porosity of the host rock decreased. Also, the pegmatites themselves are highly resistive and form part of the resistive high trends. The size of the resistivity highs is larger than the pegmatites also because of smoothing and edge effects in the inversion modelling process. Factors that have increased the resistivity in the high trends include removal of pore fluids, flattening that provides less pathways for electric current flow and blocked pores by metamorphic and hydrothermal alteration minerals formation that decreased the connection between pores.
Diagrams	• *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.*	• Colour coded resistivity MobileMTm data is presented with schematic representations of resistivity high trends. The geophysical survey results were presented in the form of digital databases, maps, grids, sections, elevation slices and 3D voxels to the company.
Balanced reporting	• *Where comprehensive reporting of all Exploration Results is not practicable, representative reporting of both low and high grades and/or widths should be practiced avoiding misleading reporting of Exploration Results.*	• All MobileMTm data is reported as summary representations of the data in relative resistivity 3D models in this announcement.
Other substantive exploration data	• *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*	• In August 2023 an intensive Loyal Lithium mapping and sampling program discovered a group of five spodumene bearing pegmatites on surface. Assay results, outcrop photos and LiDAR survey confirmed the presence of a 6th spodumene dyke. • In January 2023, Loyal Lithium purchased archived high resolution satellite imagery of priority target areas of the Trieste Project. The object was to utilise the imagery as a trial to correlate mapped pegmatites to the imagery. Loyal Lithium engaged Geospatial Intelligence Ltd. to conduct more complex derivations of the satellite imagery (multispectral) to help in refining targets for the inaugural exploration campaign. Terra Resources then completed reprocessing of Sentinel 2 and Aster image data and found in the Lithium Band Combination, large anomalies on and to the south of the amphibolite (greenstone belt), subsequently found to be spodumene bearing pegmatites. The spectral imagery interpretations appeared to correlate with the general areas of the mapped spodumene pegmatite dykes. • In October/November/December 2023 a Stage I diamond core drill program tested Dyke #01 using NQ sized core. In January/February 2024 a Stage II core drill program (BTW sized core) tested Dykes #04 and #05, Four known

		contaminating substances.	spodumene bearing pegmatite dykes remain untested, Dykes #02, #03, #06 and #07. These pegmatite dykes are interpreted from a series of proximal and aligned outcrops.
Further work	• *The nature and scale of planned further work (eg tests for lateral extensions or depth extensions or large-scale step-out drilling).* • *Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.*	• Based on a favourable geologic setting in both metasedimentary and meta-volcanic host rocks, the group of relatively closed-spaced lithium pegmatite dyke occurrences at the Trieste Lithium Project is considered to have sufficient geological merit to warrant continued intensive exploration, both more surface mapping/sampling undertaken in the summers of 2023/2024, geophysical surveys (as reported in this announcement), and drilling. The Project measures approximately 38 km in the east-west direction and had never been subject to systematic exploration for lithium pegmatites until Loyal Lithium's exploration programs started in 2023. • Initial work focused on detailed data compilation to ensure that all historical work completed on the Property was digitised and incorporated into the current database. A small aeromagnetic survey was flown across the mid amphibolite area in the northwest in early 2023. LIDAR surveys, with high resolution orthophotos were flown in late 2023 to aid in target delineation across the Project. • In 2023, with pegmatite outcrops identified in mapping and sampling, containing significant spodumene and tantalum oxide minerals in outcrop, a maiden drilling program targeted Dyke #01 and then targeted Dykes #04 and #05. Active geological modelling was supplemented by MobileMTm and aeromagnetic survey results, with MTm derivatives reported in this announcement. Due to the nature of pegmatite emplacement, and rheology of the metasedimentary host rocks, dykes commonly form irregular expanding and contracting bodies. It is proposed that there will be many blind pegmatite bodies due to the amount of pegmatite activity if they have been emplaced via a porosity wave mechanism. Proximal to the contacts between the metasediments and mafic amphibolite, longer pegmatite dykes occur (Dykes #02 and #03) and therefore may be more prospective targets to encounter larger volumes of pegmatite subsurface. MTm data infers larger continuous areas of flattening in the metasediments represented by resistivity highs closer to the amphibolite contacts, that are prospective for pegmatite emplacement, Pegmatite outcrops are associated with these zones of increased strain due to the rheological and anisotropic contrast between rock types. • Research work is being undertaken by McGill University to understand the magmatic and hydrothermal components of lithium pegmatite formation at Trieste, including studying the mineral assemblages, zonation trends and paragenesis to ultimately infer both the processes that have led to the sources and sink. Analysis of tourmalines by Dr Crotty may also assist in characterising fractionation process in the variation in the large clusters of pegmatites found at Trieste. Loyal Lithium has developed partnerships with McGill University and studies have been initiated that may lead to practical applications in exploration. Early metallurgical characterisation of pegmatite spodumene mineralisation is being undertaken to clarify processing issues. • First results have been announced for the Mobile MTm geophysics survey and along with 2023 and initial 2024 Field Program results that have discovered a seventh dyke. These results are being used to search for and constrain structural, alteration and multielement geochemistry patterns (both hard rock basement and glacial till/soils sample geochemistry).