

ASX ANNOUNCEMENT
29 JANUARY 2024

DECEMBER 2023 QUARTERLY ACTIVITIES REPORT

ASX:LEX

QUARTER HIGHLIGHTS

EXPLORATION

- Focused exploration at Location 45 gold and nickel assets, located 35km southeast of Kalgoorlie
- Maiden resource extension drilling at Mt Martin Gold Mine was completed for 29 RC holes over 5,712m, with assay results returned subsequent to the quarter, in January 2024
- Drilling northwest of Mt Martin pit highlights down-dip continuity and growth potential of mineralised structures with intersections including **10m @ 4.32g/t Au from 222m in LEFR379**
- Additional shallow mineralised zones identified east of Mt Martin open pit in an underexplored area (East Shear) point to upside resource potential, including **8m @ 3.98g/t Au from 38m in LEFR395**
- Planning for further gold drilling on Location 45 is underway, to commence with RC drilling targeting the shallow mineralization along the East Shear at Mt Martin in February 2024
- Two diamond holes were completed at Goodyear Nickel Deposit totaling 698.2m with assay results received for GYD040 showing a high-grade nickel interval of **1.2m @ 10.01% Ni from 278.7m**
- Applications were lodged for three Exploration Licenses in prospective lithium pegmatite region near existing tenements in the Lake Johnston greenstone belt/Mt Ida Fault area.

CORPORATE

- At 31 December 2023, the Company had cash reserves of \$4.2 million and no debt
- Lefroy Annual General Meeting held on 5 December 2023, with all resolutions approved
- Experienced mining executive David Kelly was appointed Non-Executive Director on 1 January 2024
- In response to current market conditions, the company is focusing near term exploration on its portfolio of gold assets.

ABOUT LEFROY EXPLORATION

- Perth-based explorer focused on expanding and developing a growing gold and critical minerals portfolio in WA
- Flagship Lefroy Project (LP) covers 635km² of 100%-owned contiguous tenure
- Located 35km south-east of Kalgoorlie and 20km north of Kambalda gold and nickel mining centres
- Focused exploration at Location 45 gold and nickel resources and additional activity around Burns Gold-Copper porphyry discovery
- Valuing discipline, teamwork and innovation to discover a high-value, long-life, economic precious and base metal deposits

LEFROY EXPLORATION LTD

Shares on issue (@ 29 January 2024)	199.74M
Price (@ 25 January 2024)	\$0.15
Market Cap (@ 25 January 2024)	\$30.0M
Cash (@ 31 Dec 2023)	\$4.2M

BOARD OF DIRECTORS

Mr. Gordon Galt	Non-Executive Chairman
Mr. Wade Johnson	Managing Director
Mr. Michael Davies	Non-Executive Director
MS Tara French	Non-Executive Director
Mr. David Kelly	Non-Executive Director

EXPLORATION ACTIVITIES

During the quarter, Lefroy Exploration ('Lefroy' or 'LEX') (ASX:LEX) undertook exploration within Location 45, the Company's newly acquired freehold lease near Kalgoorlie and Kambalda (refer ASX announcement [23 May 2023](#)) (Figure 5).

Activity at Location 45 commenced after the Company successfully raised A\$6.2 million in Q3 2023 (refer ASX announcement [22 September 2023](#)) to fund exploration across the property, including resource infill and expansion drilling at the Mt Martin Gold Mine: 501,175oz Au (8.7Mt @ 1.79g/t Au) and the Goodyear Nickel Deposit: 392,000t @ 3.78% nickel sulphide (14,780t of contained nickel) (refer ASX announcement [22 September 2023](#)).

MT MARTIN GOLD MINE

An initial phase of targeted resource extension drilling commenced at Mt Martin Gold Mine (Mt Martin) in late November 2023, marking the first exploration activity at the site in a decade (refer ASX announcement [24 November 2023](#)). This program aimed to deliver additional shallow gold resources for open pit mine optimisations and follow up numerous high-grade gold intercepts in historic drillholes below the open pit.

Drilling commenced on 21 November and 29 RC holes were completed for a total of 5,712m (Figure 1). These holes were targeted as nominal 40m step-outs from existing mineralisation to evaluate multiple shallow gold-bearing structures and their depth extensions over a strike length of 1,000m. All gold assay results were announced in January 2024 (refer ASX release [18 January 2024](#)) and included significant gold intersections beyond the existing resource.

Significant results included:

- 35m @ 1.78g/t Au from 209m, including 10m @ 4.32g/t Au from 222m (LEFR379)
- 8m @ 3.98g/t Au from 38m, including 4m @ 7.16g/t Au from 41m (LEFR395)

This initial program offers considerable upside potential for discovering additional gold mineralisation in close proximity to the existing open pit. The east side of the pit is almost entirely untested by effective drilling (Figure 1), presenting a significant opportunity for shallow gold additions to the MRE that could significantly improve pit optimisations and deliver additional ounces into potential future mining studies.

Further drilling is scheduled at Mt Martin in February 2024 to further expand the open-pit resource at Mt Martin, with exploration focused on targets east of the existing open-pit (Figure 2).

Full suite geochemical analyses and hyperspectral data remain outstanding and will form the first consistent, modern geochemical dataset for the Mt Martin deposit. Data will be used to build a targeting model for further exploration at Mt Martin and the broader Location 45 area, which remains significantly under-explored. Mt Martin is a key element of the Company's portfolio of gold assets, which comprise total Mineral Resources of 1.1Moz. Lefroy's immediate priority is to examine opportunities to realise value from this portfolio.

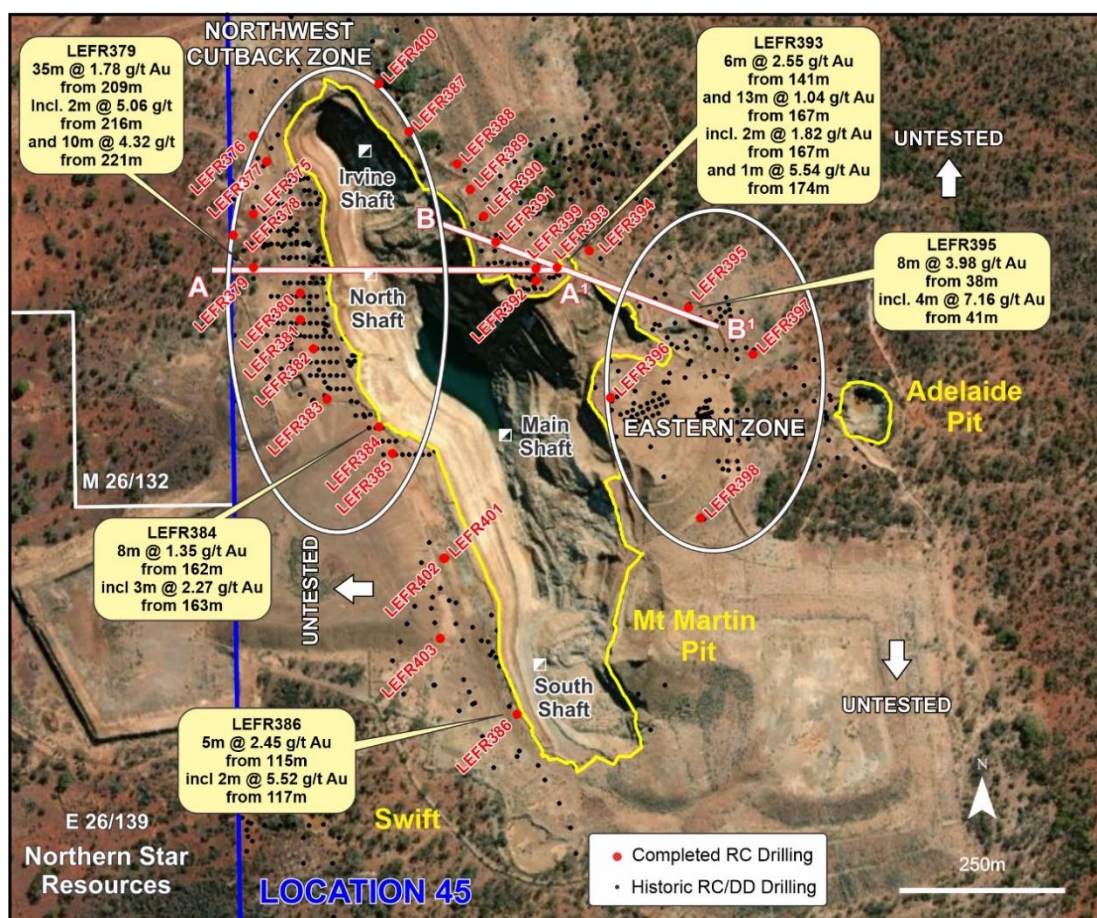


Figure 1 Mt Martin Gold Mine drill hole location plan

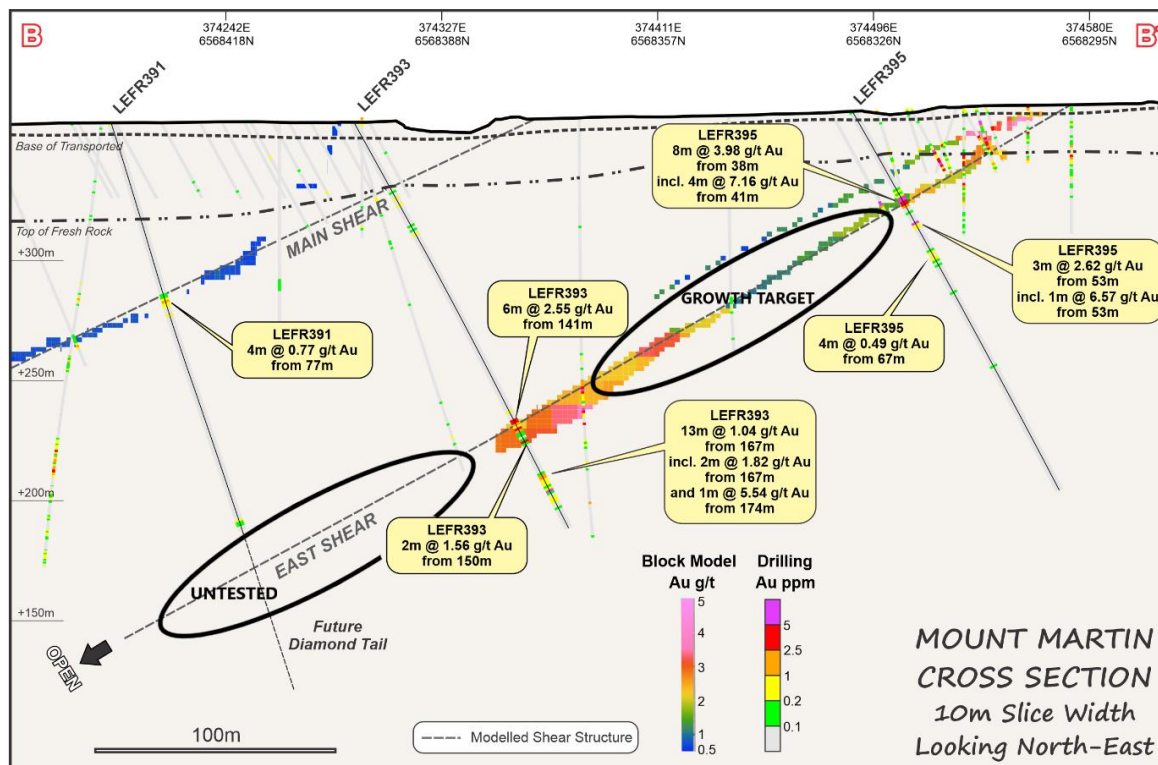


Figure 2 Schematic section showing RC drill holes LEFR392, 393, 395 and eastern growth targets

GOODYEAR NICKEL DEPOSIT

A diamond drilling campaign commenced at Goodyear in late November 2023. This was the first ever diamond drilling conducted on the resource and the first nickel exploration at Location 45 for 15 years. The program aimed to increase confidence and expand the existing Mineral Resource within the significantly under-explored Carnilya Nickel Belt.

The first drillhole GYD040 followed-up historical high-grade intersections and tested the margins of the Contact 1 Inferred Resource envelope proximal to the highly-prospective mineralised basal contact.

As announced in December 2023, highly encouraging visual observations of abundant fine-grained pentlandite grains confirmed the presence of additional accumulations of massive sulphides along Goodyear's interpreted basalt contact (refer ASX release [12 December 2023](#)). These observations were supported by assay results received in early January 2024, which returned nickel values including an interval of 1.2m @ 10.01% Ni from 287.7m (Figure 3) (refer ASX release [10 January 2024](#)).

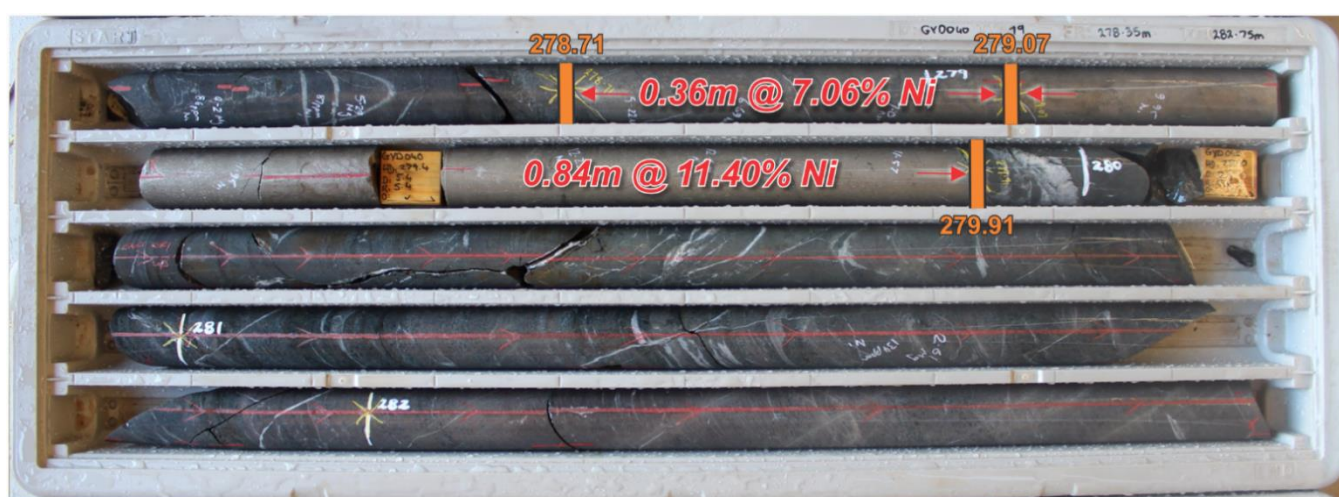


Figure 3 GYD040 Drill core and significant intersections

This supports historical intercepts and confirms Goodyear is host to high-grade nickel sulphides accumulated at the base of the ultramafic unit.

Re-logging and re-sampling of historical Goodyear drill core recovered in June 2023 identified a promising, previously unsampled sulphide-bearing mineralised basal contact zone within historic drill hole GYD009 (Figure 4). Sampling of this zone has returned an intersection of 1.31m @ 1.41% Ni (from 355.33m) including 0.64m @ 2.06% Ni (from 356m). This intersection lies outside the inferred "Contact 4" resource shape (Figure 4) and demonstrates the value of interrogating historic drill core (refer ASX release [10 January 2024](#)).

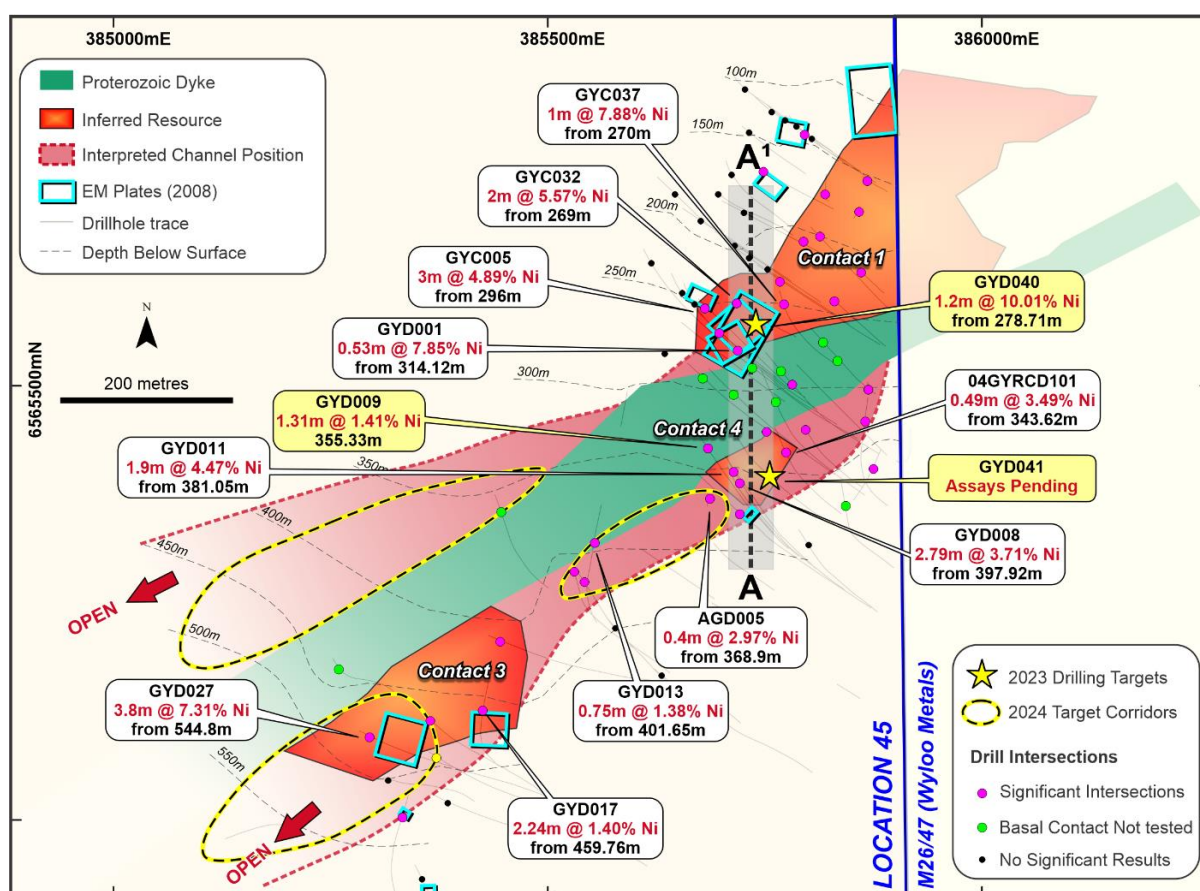


Figure 4 Goodyear Long Section (Plan Projection) and recent drilling activity

Drill hole logging and sampling of the second hole, GYD041, in the December 2023 drilling phase is in progress with assay results expected in February.

In addition, interpretation of data acquired from downhole electromagnetic surveying performed in mid-December 2023 on several holes associated with inferred resource shape “Contact 4” (Figure 4) is underway, with results expected later in the Q1 of CY24.

LAKE JOHNSTON AREA

In December 2023 Lefroy lodged applications for three Exploration Licenses (ELs) covering a 350km² land package near existing tenements in the Lake Johnston area (Figure 5). The tenure is almost entirely unexplored but is considered prospective for lithium pegmatite mineralisation based on emerging discoveries in the Lake Johnston greenstone belt (Figure 5).

Investigation of WA Government open-file mapping and geophysical datasets has identified a number of conceptual targets within the broader Lake Johnston region with favourable structural architecture and prospective host rocks. The target zones are major structures (e.g. Ida Fault) that developed early in the regional deformation history which could potentially hold pegmatites sourced from either lithium rich granitic intrusions or partially melted granitic rocks. This includes approximately 45km strike length along the southern extension of the interpreted Ida Fault.

The Kathleen Valley lithium deposit of Liontown Resources (ASX: LTR) and the Mt Ida lithium deposit of Delta Lithium (ASX: DLI) are associated with the northern part of the Ida Fault but its southern extent down to its contact with the Albany-Fraser orogen remains unexplored.

Field reconnaissance mapping and historical data compilation will commence prior to the applications being granted.

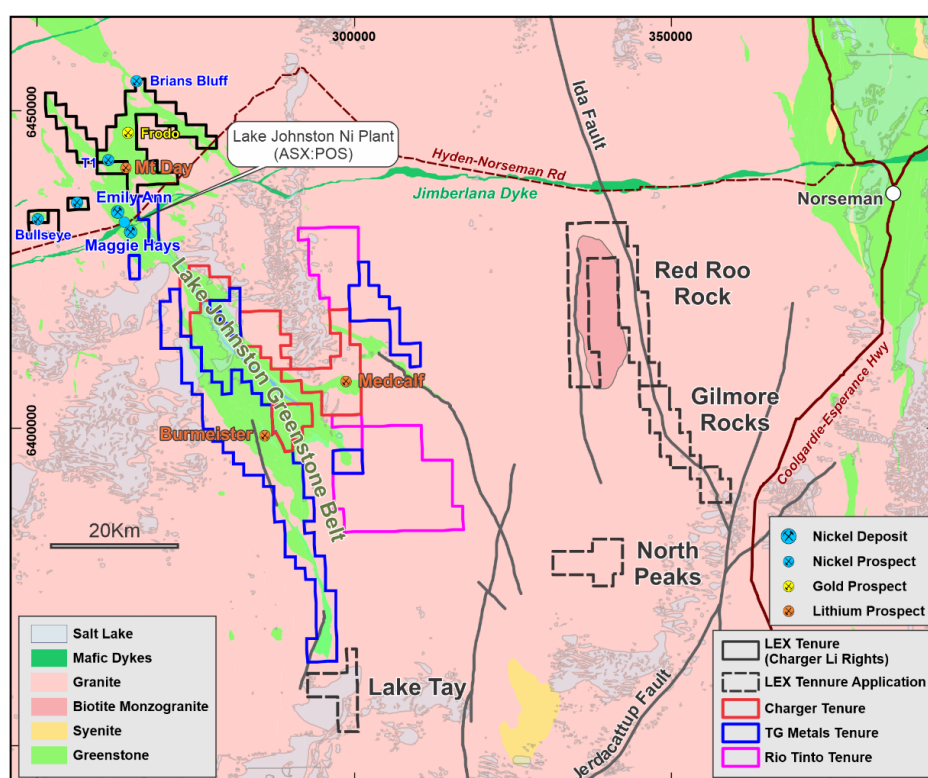


Figure 5 Location of LEX tenure in application at Lake Johnston, showing its geological setting, the surrounding LEX Tenure and other lithium explorers, and key prospects.

EXPLORATION OUTLOOK

The Company is in a fortunate position to have the Lefroy Project, a large contiguous land package that hosts gold, nickel and gold-copper resources close to the world class mining centres of Kalgoorlie and Kambalda and nearby operating gold mills. The location, with existing mineral resources and multi commodity prospectivity, allows the Company to direct exploration activity to growth assets to provide the shortest route to production and optimal return to shareholders.

The Company is currently investigating all options for progressing the development of its gold assets, which total 1.1Moz (refer LEX ASX release 23 May 2023). LEX will continue to grow the existing gold resources, while assessing the optimal pathway to bring open cuttable deposits in its Lefroy District south east of Kalgoorlie (including Loc 45) into production.

The deposits at Mt Martin (500koz @ 1.8gpt Au) and Lucky Strike (80koz @ 1.9gpt Au) could potentially support a 30-35 koz per annum open pit gold mining operation for a minimum of 4 years life at an ore mining/milling rate of at least 500ktpa. The Company is exploring all opportunities that could support this milling capacity. Near term exploration will therefore centre on priority follow-up work to demonstrate additional mineable open cut gold resources at both locations.

At Mt Martin, recent results (ASX release 18 January 2024) show that resource growth potential exists in the northwest area of the current pit, and near surface positions of the East shear located immediately to the east of the main Mt Martin open pit. Drilling activities will focus on testing the potential for shallow resource growth opportunities focused along the East Shear target area.

At Lucky Strike, the resource can be increased via targeting several shallow higher grade oxide zones and down plunge extensions to the BIF hosted orebody (ASX release 20 May 2020).

To complement this immediate resource growth focus, the Company will review exploration targets across its portfolio including Coogee South, Havelock and Hang Glider Hill.

Exploration expenditure at LEX's other tenements, including the nickel deposit at Goodyear and recent tenements pegged near Lake Johnston, will remain low key while the gold strategy is significantly progressed.

CORPORATE

CASH POSITION

At 31 December 2023 the Company had cash reserves of \$4.2 million and no debt (refer to section 4.6 of Appendix 5B December 2023 quarterly cash flow report).

During the December 2023 quarter the Company's total outgoings on its operating activities were \$709,000 (refer to section 1.9 of the Appendix 5B) and net cash used in investing activities was \$937,000, which was primarily attributed to exploration and evaluation (refer to section 2.6 of Appendix 5B).

Payments totaling \$161,000 were made to related parties of the Company and their associates for Directors fees, consulting services, office administration and rental costs (refer to section 6.1 of Appendix 5B).

DAVID KELLY APPOINTED NON-EXECUTIVE DIRECTOR

During the quarter Mr. David Kelly was appointed as an independent Non-Executive Director to the Board of Lefroy, effective 1 January 2024 (refer ASX release [20 December 2023](#)). Mr. Kelly is a highly qualified geologist and mining executive with extensive gold and nickel experience across the entire value chain from exploration to development. He is based in Perth, WA.

David has served in senior executive roles in the resources sector over a 30-year period, including as an investment banker and corporate advisor. Previous director experience at ASX-listed companies includes Turaco Gold Limited, Predictive Discovery Limited, Ridge Resources Limited, Renaissance Minerals Limited and Pacific Ore Limited. He currently serves as Non-Executive Director of Westgold Resources Ltd (ASX:WGX).

ANNUAL GENERAL MEETING 2023

The Annual General Meeting (AGM) of shareholders was held on 5 December 2023.

All resolutions presented at the AGM were approved, including the issue of 2,906,250 shares to LEX directors for their participation in the September 2023 placement. Proceeds from the director's participation, totaling \$465,000 were received in December 2023.

ABOUT LEFROY EXPLORATION LIMITED

Lefroy Exploration Limited (ASX:LEX) is an active West Australian exploration company focused on developing its growing gold and critical minerals projects. The Company's portfolio of high-quality projects includes the Lefroy Project, located in the heart of the world-class Kalgoorlie and Kambalda gold and nickel mining districts (Figure 5), the Lake Johnston Project 120km west of Norseman, and the large 2872km² Glenayle Project 210km north of Wiluna.

The Lefroy Project is a contiguous land package of 635km² with a growing mineral resource inventory of approximately 1.1 million ounces of gold, 58,000 tonnes of contained copper and 14,780 tonnes of contained nickel, as at August 2023 (refer to LEX [2023 Annual Report](#)).

In May 2023, Lefroy signed a Mineral Rights Agreement with title holder Franco-Nevada Pty Ltd, to acquire the mineral rights to Hampton East Location 45 (Location 45) (Refer ASX release 23 May 2023). Location 45 is a freehold property, located within 25km of Kambalda and 35km southeast of Kalgoorlie. The property hosts the historic Mt Martin gold mine, which has historically produced approximately 200,000 ounces of gold grading at 2.8g/t and which includes an existing resource of 501,175 oz gold (8.7Mt @ 1.79g/t Au) (refer to ASX release [5 September 2023](#)).

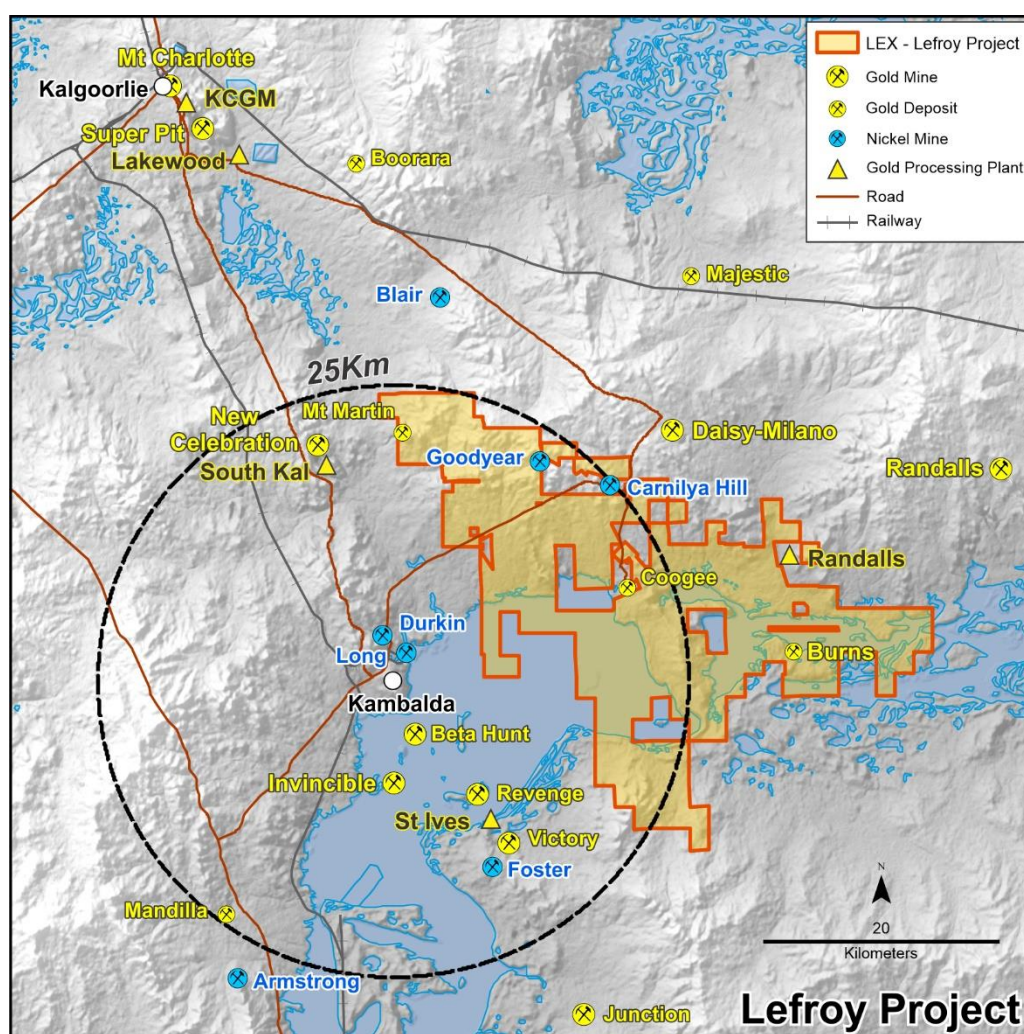


Figure 5 Regional location map of the Lefroy Project

SIGNIFICANT ANNOUNCEMENTS

The Company released a number of significant ASX announcements through the quarter:

20 December 2023	Appointment of Non-Executive Director
12 December 2023	First drillhole hits massive nickel sulphides at Goodyear
5 December 2023	2023 Annual General Meeting Presentation
30 November 2023	Drilling Commences at High-Grade Goodyear Nickel Deposit
24 November 2023	Resource extension drilling underway at Mt Martin
2 October 2023	2023 Annual Report

-Ends-

This Quarterly Report has been authorised for release by the Board.



Wade Johnson
Managing Director

FOR FURTHER INFORMATION:

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<https://www.leeroyex.com/>

DISCLAIMER

CAUTION REGARDING FORWARD-LOOKING INFORMATION

This document contains forward-looking statements concerning Lefroy Exploration Limited. Forward-looking statements are not statements of historical fact and actual events and results may differ materially from those described in the forward-looking statements as a result of a variety of risks, uncertainties and other factors. Forward-looking statements are inherently subject to business, economic, competitive, political and social uncertainties and contingencies. Many factors could cause the Company's actual results to differ materially from those expressed or implied in any forward-looking information provided by the Company, or on behalf of, the Company. Such factors include, among other things, risks relating to additional funding requirements, metal prices, exploration, development and operating risks, competition, production risks, regulatory, including environmental regulation and liability and potential title disputes.

Forward-looking statements in this document are based on the Company's beliefs, opinions and estimates of Lefroy Exploration Limited as of the dates the forward-looking statements are made, and no obligation is assumed to update forward-looking statements if these beliefs, opinions and estimates should change or to reflect other future developments.

COMPETENT PERSON STATEMENT

The information in this announcement that relates to exploration targets and exploration results is based on information compiled by Wade Johnson a competent person who is a member of the Australian Institute of Geoscientists (AIG). Wade Johnson is employed by Lefroy Exploration Limited. Wade has sufficient experience that is relevant to the style of mineralisation and type of deposits under consideration and to the activity being undertaken to qualify as a Competent Person as defined in the 2012 edition of the JORC Code. Wade Johnson consents to the inclusion in this announcement of the matters based on his work in the form and context in which it appears. Lefroy Exploration Limited confirms it is not aware of any new information or data which materially affects the information included in the original market announcements. Lefroy Exploration Limited confirms the form and context in which the Competent Person's findings are presented have not been materially modified from the original market announcements.

LEFROY EXPLORATION LIMITED TENEMENT SCHEDULE 31 December 2023

Tenement Id	Project	Ten Status	Holder	Interest %
P26/3765	Western Lefroy JV	Live	HOGANS RESOURCES PTY LTD	100 ⁽¹⁾
P26/3764	Western Lefroy JV	Live	HOGANS RESOURCES PTY LTD	100 ⁽¹⁾
E26/0134	Western Lefroy JV	Live	HOGANS RESOURCES PTY LTD	100 ⁽¹⁾
E26/0193	Western Lefroy JV	Live	HOGANS RESOURCES PTY LTD	100 ⁽¹⁾
E26/0150	Western Lefroy JV	Live	HOGANS RESOURCES PTY LTD	100 ⁽¹⁾
E15/1615	Western Lefroy JV	Live	HOGANS RESOURCES PTY LTD	100 ⁽¹⁾
E26/0131	Western Lefroy JV	Live	HOGANS RESOURCES PTY LTD	100 ⁽¹⁾
E26/0184	Western Lefroy JV	Live	HOGANS RESOURCES PTY LTD	100 ⁽¹⁾
E15/1447	Western Lefroy JV	Live	HOGANS RESOURCES PTY LTD	100 ⁽¹⁾
M26/0842	Western Lefroy JV	Live	HOGANS RESOURCES PTY LTD	100 ⁽¹⁾
M26/0850	Western Lefroy JV	Pending	HOGANS RESOURCES PTY LTD	100 ⁽¹⁾
M26/0851	Western Lefroy JV	Pending	HOGANS RESOURCES PTY LTD	100 ⁽¹⁾
E15/1498	Lefroy	Live	MONGER EXPLORATION PTY LTD	100 ⁽¹⁾
E26/0195	Lefroy	Live	MONGER EXPLORATION PTY LTD	100 ⁽²⁾
E15/1497	Lefroy	Live	MONGER EXPLORATION PTY LTD	100 ⁽¹⁾
P25/2488	Lefroy	Live	MONGER EXPLORATION PTY LTD	100 ⁽¹⁾
P26/4423	Lefroy	Live	MONGER EXPLORATION PTY LTD	100 ⁽¹⁾
P26/4437	Lefroy	Live	MONGER EXPLORATION PTY LTD	100 ⁽¹⁾
P26/4438	Lefroy	Live	MONGER EXPLORATION PTY LTD	100 ⁽¹⁾
P25/2317	Lefroy	Live	MONGER EXPLORATION PTY LTD	100 ⁽¹⁾
P25/2316	Lefroy	Live	MONGER EXPLORATION PTY LTD	100 ⁽¹⁾
E25/0517	Lefroy	Live	MONGER EXPLORATION PTY LTD	100 ⁽¹⁾
E25/0518	Lefroy	Live	MONGER EXPLORATION PTY LTD	100 ⁽¹⁾
P25/2421	Lefroy	Live	MONGER EXPLORATION PTY LTD	100 ⁽¹⁾
E15/1715	Lefroy	Live	MONGER EXPLORATION PTY LTD	100 ⁽¹⁾
E26/0182	Lefroy	Live	MONGER EXPLORATION PTY LTD	100 ⁽¹⁾
E25/0587	Lefroy	Live	MONGER EXPLORATION PTY LTD	100 ⁽¹⁾
E26/0183	Lefroy	Live	MONGER EXPLORATION PTY LTD	100 ⁽¹⁾
E25/524	Lefroy	Live	MONGER EXPLORATION PTY LTD	100 ⁽¹⁾
M25/0362	Lefroy	Live	MONGER EXPLORATION PTY LTD	100 ⁽¹⁾
M25/0363	Lefroy	Live	MONGER EXPLORATION PTY LTD	100 ⁽¹⁾
M25/0366	Lefroy	Live	MONGER EXPLORATION PTY LTD	100 ⁽¹⁾
E25/0606	Lefroy	Pending	MONGER EXPLORATION PTY LTD	100 ⁽¹⁾
P26/4392	Lefroy - JLN (Ni rights)	Live	MONGER EXPLORATION PTY LTD	100 ⁽¹⁾
P26/4393	Lefroy - JLN (Ni rights)	Live	MONGER EXPLORATION PTY LTD	100 ⁽¹⁾
P26/4394	Lefroy - JLN (Ni rights)	Live	MONGER EXPLORATION PTY LTD	100 ⁽¹⁾

LEFROY EXPLORATION LIMITED TENEMENT SCHEDULE 31 December 2023 - Continued				
Tenement ID	Project	Ten Status	Holder	Interest %
P26/4391	Lefroy - JLN (Ni rights)	Live	MONGER EXPLORATION PTY LTD	100 ⁽¹⁾
E26/0176	Lefroy - JLN (Ni rights)	Live	MONGER EXPLORATION PTY LTD	100 ⁽¹⁾
L25/0061	Lucky Haul Road	Pending	MONGER EXPLORATION PTY LTD	100 ⁽¹⁾
L25/0063	Mulga Haul Road	Pending	MONGER EXPLORATION PTY LTD	100 ⁽¹⁾
E63/2073	Lake Johnson	Live	Hampton Metals Ltd	100 ⁽¹⁾
E63/1723	Lake Johnston – CHR (Li rights)	Live	Hampton Metals Ltd	100 ⁽²⁾
E63/1722	Lake Johnston – CHR (Li rights)	Live	Hampton Metals Ltd	100 ⁽²⁾
E63/1777	Lake Johnston – CHR (Li rights)	Live	Hampton Metals Ltd	100 ⁽²⁾
E69/3945	Glenayle	Live	Hampton Metals Ltd	100 ⁽¹⁾
E69/3946	Glenayle	Live	Hampton Metals Ltd	100 ⁽¹⁾
E69/3947	Glenayle	Live	Hampton Metals Ltd	100 ⁽¹⁾
E69/3948	Glenayle	Live	Hampton Metals Ltd	100 ⁽¹⁾
E69/3949	Glenayle	Live	Hampton Metals Ltd	100 ⁽¹⁾
E69/4045	Glenayle	Live	Hampton Metals Ltd	100 ⁽¹⁾
E26/240	Lefroy	Pending	MONGER EXPLORATION PTY LTD	100 ⁽¹⁾
E26/241	Lefroy	Pending	MONGER EXPLORATION PTY LTD	100 ⁽¹⁾
E15/1954	Lefroy	Pending	MONGER EXPLORATION PTY LTD	100 ⁽¹⁾
E15/1955	Lefroy	Pending	MONGER EXPLORATION PTY LTD	100 ⁽¹⁾
E26/260	Lefroy	Pending	MONGER EXPLORATION PTY LTD	100 ⁽¹⁾
E26/261	Lefroy	Pending	MONGER EXPLORATION PTY LTD	100 ⁽¹⁾
M15/1907	Lefroy	Pending	MONGER EXPLORATION PTY LTD	100 ⁽¹⁾
M25/379	Lefroy	Pending	MONGER EXPLORATION PTY LTD	100 ⁽¹⁾

E = Exploration Licence

M = Mining Lease

P = Prospecting
Licence

L = Miscellaneous
Licence

Notes to accompany tenement listing:

- (1) Hogans Resources Pty Ltd, Monger Exploration Pty Ltd and Hampton Metals Ltd are wholly owned subsidiaries of Lefroy Exploration Ltd.
- (2) E63/1722, E63/1723 and E63/1777 - Held under title by HMT. Charger Metals NL (ASX CHR) and Lithium Australia NL (ASX:LIT) have the rights to Lithium.

Tenements acquired (directly or beneficially) during the quarter:

Tenement ID	Project	Holder	Interest %	Ten Status
E 63/2395	Lake Johnston	MONGER EXPLORATION PTY LTD	100%	Pending grant
E 63/2396	Lake Johnston	MONGER EXPLORATION PTY LTD	100%	Pending grant
E 63/2402	Lake Johnston	MONGER EXPLORATION PTY LTD	100%	Pending grant
E 74/792	Lake Johnston	MONGER EXPLORATION PTY LTD	100%	Pending grant