

# ASX CODE: KFM

Shares on issue: 42,250,001 Cash: \$4.0M (30 September 2021) Debt: Nil

# PROJECTS

Boolaloo: Copper-Gold Kingfisher: Copper-Base Metals Mick Well: Copper-Base Metals Arthur River: Copper

# **CORPORATE DIRECTORY**

WARREN HALLAM Non-Executive Chairman

JAMES FARRELL Executive Director and CEO

ADAM SCHOFIELD Non-Executive Director

SCOTT HUFFADINE Non-Executive Director

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# KINGFISHER CONFIRMS RARE EARTHS POTENTIAL AT GASCOYNE PROJECTS

- Anomalous rare earth elements (REE) have been identified from surface geochemical sampling at Mick Well and Kingfisher with up to 0.16% total rare earth oxides (TREO).
- Numerous carbonatite intrusions and dykes have been identified at Mick Well, Kingfisher and Kingfisher South. Carbonatites are a known source of rare earth elements.
- Sighter samples for rare earth elements and follow-up rock chip samples have been submitted to the laboratory for full chemical analysis.
- Land holding increased through targeted pegging of additional tenure interpreted to be prospective for rare earth elements.

Kingfisher Mining Limited (**ASX:KFM**) ("**Kingfisher**" or the "**Company**") is pleased to provide an update of the on-going exploration at its 100% owned projects in the Gascoyne Mineral Field in Western Australia.

The company has completed a helicopter-supported sighter sampling program and a follow-up rock chip sampling program at its Mick Well, Kingfisher, Kingfisher South and Arthur River Projects targeting outcropping carbonatites (Figure 1). The purpose of the programs was to identify rare earth elements (REE) associated with carbonatites and ironstones across its substantial tenement holding in the Gascoyne Mineral Field.



Figure 1: Kingfisher's James Farrell and Matt Roach sampling carbonatites at Mick Well.



Outcropping carbonatites were identified from rocks collected during the helicopter supported sighter sampling program. The sighter samples were then combined with the geology and geophysics to identify additional potential locations for carbonatites. Follow-up mapping has been completed, with outcropping carbonatites being identified by Kingfisher's geologists at more than 20 field sites (Figure 2).



Figure 2: Carbonatite samples from Kingfisher and Kingfisher South.

Results from rock chips collected during the Company's recent drilling campaign at the Mick Well and Kingfisher Projects have been received. The rock chip sampling unexpectedly returned highly encouraging anomalous REE results, with up to 0.16% total rare earth oxides (TREO) and 331 ppm Nd<sub>2</sub>O<sub>3</sub> + P<sub>6</sub>O<sub>11</sub> (Figure 3, Annexure 1), prompting a review of the REE potential of the tenements, the recent field program and the application for additional tenements. The anomalous REE rock chip results are also located adjacent to two of the targets drilled at Mick Well where results are still pending and expected in the coming weeks (conductors 2 and 3, see ASX Announcement 14 September 2021).

Kingfisher's Executive Director and CEO James Farrell commented: "Kingfisher looks to have a genuine rare earth opportunity in a hotspot for rare earth exploration in Western Australia. We have now mapped numerous outcrops of carbonatites which had previously not been identified. Similar regional carbonatites are known to be associated with rare earth mineralisation.

The recently received rock chip analyses returned anomalous rare earth element results, with two of the samples located close to recently drilled targets with pending assay results. I am particularly excited about these results as the samples initially were not targeting rare earths and led to the expediting of the recent field programs which have confirmed and highlight the significant potential of the area".





**Figure 3:** Kingfisher and Mick Well preliminary airborne electromagnetic survey showing late-time conductors (channel 45) and the total magnetic intensity first vertical derivative (inset) with the discrete magnetic lows associated with conductors 2 and 3. Also shown are the mapped carbonatites and anomalous rock chip samples, with two samples associated with conductors 2 and 3 for which drill results are awaited.

The Company holds exploration licences covering 969km<sup>2</sup> and has recently increased its interests in the Gascoyne Mineral Field by nearly 40% through the targeted pegging of additional tenure interpreted to be prospective for rare earth elements (Figure 4). The tenure includes rocks of the Proterozoic Durlacher Suite that hosts the world-class Yangibana Deposit which includes 27.42Mt @ 0.97% TREO<sup>#</sup> as well as the Archaean Halfway Gneiss.





*Figure 4:* Location of the Kingfisher and Mick Well Projects in the Gascoyne Mineral Field showing the extents of the Archean Halfway Gneiss.

### Upcoming News

- January 2022: Gascoyne drilling results; Mick Well and Kingfisher.
- January 2022: Boolaloo drilling results; Erny Bore, Green Hills and EM1 targets.
- January 2022: Updated exploration strategy for 2022, including rare earth element focus in the Gascoyne Mineral Field.
- **February 2022:** Rock chips results from sighter and follow-up programs targeting carbonatites and rare earth elements.

### About the Kingfisher and Mick Well Projects

The Kingfisher and Mick Well Projects are located approximately 230km east of Carnarvon, in the Gascoyne region of Western Australia. The area is prospective for volcanogenic massive sulphide style mineralisation and rare earth elements associated carbonatite intrusions and dykes.



Copper mineralisation at the Kingfisher Project is exposed in a series of shallow historical mining pits over a strike length of 2km. Previous exploration at the project has included geophysical surveys, surface geochemical sampling and limited reverse circulation drilling, with significant drilling intercepts including 3m @ 0.6% Cu (KFRC10) and rock chip results of 15.3% Cu, 6.3% Cu, 6.2% Cu, 5.9% Cu and 3.4% Cu<sup>1</sup>.

Mineralisation at Mick Well outcrops as quartz reefs and gossanous ironstones which are up to 10m in width. Past exploration in the area is limited, with previous rock chip sampling showing results up to 10.6% Cu over a strike length of 1km within a laterally extensive geological horizon. Only four drill historical holes have been completed at Mick Well, with the best result being 11m @ 0.25% Cu from 118 m (MWDD001)<sup>1</sup>.

This announcement has been authorised by the Board of Directors of the Company.

Ends

#### For further information, please contact:

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#### **About Kingfisher Mining Limited**

Kingfisher Mining Limited (**ASX:KFM**) is a mineral exploration company committed to increasing shareholder wealth through the acquisition, exploration and development of mineral resource projects throughout Western Australia. The Company's tenements and tenement applications cover 1,676km<sup>2</sup> in the underexplored Ashburton and Gascoyne Mineral Fields.

The Company has secured significant landholdings across the interpreted extensions to its advanced copper-gold exploration targets giving it more than 30km of strike across the Boolaloo Project target geology in the Ashburton Basin and more than 50km of strike across the target geological unit that covers the Kingfisher and Mick Well Projects in the Gascoyne region.

To learn more please visit: www.kingfishermining.com.au

#### **Previous ASX Announcements**

- ASX:KFM: Drilling Underway at Kingfisher's VMS and Copper-Gold Targets 14 September 2021.
- <sup>#</sup> ASX Announcement 'Yangibana Project updated Measured and Indicated Mineral Resources tonnes up by 54%, TREO oxides up by 32% Australia'. Hastings Technology Metals Limited (ASX:HAS), 5 May 2021.

#### **Total Rare Earth Oxide Calculation**

Total Rare Earths Oxides (TREO) is the sum of the oxides of the light rare earth elements lanthanum (La), cerium (Ce), praseodymium (Pr), neodymium (Nd), and samarium (Sm) and the heavy rare earth elements



europium (Eu), gadolinium (Gd), terbium (Tb), dysprosium (Dy), holmium (Ho), erbium (Er), thulium (Tm), ytterbium (Yb), lutetium (Lu), and yttrium (Y).

#### **Forward-Looking Statements**

This announcement may contain forward-looking statements which involve a number of risks and uncertainties. These forward-looking statements are expressed in good faith and believed to have a reasonable basis. These statements reflect current expectations, intentions or strategies regarding the future and assumptions based on currently available information. Should one or more of the risks or uncertainties materialise, or should underlying assumptions prove incorrect, actual results may vary from the expectations, intentions and strategies described in this announcement. No obligation is assumed to update forward looking statements if these beliefs, opinions, and estimates should change or to reflect other future developments.

#### **Competent Persons Statements**

The information in this report that relates to Exploration Results is based on information compiled by Mr James Farrell, a geologist and Executive Director / CEO employed by Kingfisher Mining Limited. Mr Farrell is a Member of the Australian Institute of Geoscientists and has sufficient experience that is relevant to this style of mineralisation and type of deposit under consideration and to the activity that is being reported on to qualify as a Competent Person as defined in the 2012 edition of the "Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves". Mr Farrell consents to the inclusion in the report of the matters in the form and context in which it appears.



# Annexure 1: Rock Chip Sample Locations

Sample ID	Easting	Northing	Nd₂O₃ (ppm)	P <sub>6</sub> O <sub>11</sub> (ppm)	TREO (ppm)
MWGS0001	401746	7249018	15	4	89
MWGS0002	401639	7249191	258	73	1566
MWGS0003	399109	7251155	8	2	47
MWGS0004	399331	7250970	11	3	66
MWGS0005	402157	7249521	39	10	231
MWGS0006	410581	7244924	12	3	95
MWGS0007	410512	7244908	11	3	90
MWGS0008	410508	7244901	4	1	27
MWGS0009	405380	7246417	1	0	9
MWGS0011	411352	7245059	3	1	23
MWGS0012	411064	7245997	49	12	352
KFGS0001	418237	7243528	17	4	96
KFGS0002	418158	7243667	5	1	40

# Attachment 1: JORC Code, 2012 Edition – Table 1

# Section 1 Sampling Techniques and Data

Criteria	JORC Code explanation	Commentary
Sampling techniques	<ul> <li>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.</li> <li>Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.</li> <li>Aspects of the determination of mineralisation that are Material to the Public Report.</li> <li>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.</li> </ul>	<ul> <li>Rock chip samples were taken as individual rocks representing an outcrop to give an indication of possible grades and widths that can be expected from drilling. Individual rock samples can be biased towards higher grade mineralisation.</li> </ul>
Drilling techniques	<ul> <li>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).</li> </ul>	<ul> <li>No new drilling results are included in this report.</li> </ul>
Drill sample recovery	<ul> <li>Method of recording and assessing core and chip sample recoveries and results assessed.</li> <li>Measures taken to maximise sample recovery and ensure representative nature of the samples.</li> <li>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.</li> </ul>	• No new drilling results are included in this report.
Logging	<ul> <li>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.</li> <li>Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc) photography.</li> <li>The total length and percentage of the relevant intersections logged.</li> </ul>	<ul> <li>No new drilling results are included in this report.</li> </ul>

Criteria	JORC Code explanation	Commentary
Sub-sampling techniques and sample preparation	<ul> <li>If core, whether cut or sawn and whether quarter, half or all core taken.</li> <li>If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry.</li> <li>For all sample types, the nature, quality and appropriateness of the sample preparation technique.</li> <li>Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.</li> <li>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.</li> <li>Whether sample sizes are appropriate to the grain size of the material being sampled.</li> </ul>	<ul> <li>The entire rock chip sample was submitted for analysis. The samples were crushed and pulverised to -105 micron.</li> </ul>
Quality of assay data and laboratory tests	<ul> <li>The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.</li> <li>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.</li> <li>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.</li> </ul>	<ul> <li>Rock chip samples were analysed by Bureau Veritas Minerals Pty Ltd in Perth using Laser Ablation Inductively Coupled Plasma Mass Spectrometry and Inductively Coupled Plasma (ICP) Optical Emission Spectrometry. Laboratory repeats were completed at a rate of 1:15 and laboratory standards were analysed at a rate of 1:3 for QAQC.</li> </ul>
Verification of sampling and assaying	<ul> <li>The verification of significant intersections by either independent or alternative company personnel.</li> <li>The use of twinned holes.</li> <li>Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.</li> <li>Discuss any adjustment to assay data.</li> </ul>	<ul> <li>Independent checks or field duplicates were not conducted for rock chips and are not considered necessary for that type of sample.</li> </ul>
Location of data points	<ul> <li>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.</li> <li>Specification of the grid system used.</li> <li>Quality and adequacy of topographic control.</li> </ul>	<ul> <li>Rock chip sample locations were surveyed using a handheld GPS using the UTM coordinate system, with an accuracy of +/- 5m.</li> </ul>
Data spacing and distribution	<ul> <li>Data spacing for reporting of Exploration Results.</li> <li>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.</li> <li>Whether sample compositing has been applied.</li> </ul>	<ul> <li>No new drilling results are included in this report.</li> </ul>

Criteria	JORC Code explanation	Commentary
Orientation of data in relation to geological structure	<ul> <li>Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.</li> <li>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.</li> </ul>	<ul> <li>Rock chip samples were selected to target specific geology, alteration and mineralisation. The samples were collected to assist the Company in developing its understanding of the geology and exploration potential of its tenure.</li> <li>No drilling results are included in this report.</li> </ul>
Sample security	• The measures taken to ensure sample security.	<ul> <li>Samples were given individual samples numbers for tracking.</li> <li>The sample chain of custody was overseen by the Company's geologists. Samples were transported to Perth in a sealed bulka bag and subsequently to the laboratory.</li> </ul>
Audits or reviews	• The results of any audits or reviews of sampling techniques and data.	• The rock chip results have not been audited.

# Section 2 Reporting of Exploration Results

Criteria	JORC Code explanation	Commentary
Mineral tenement and land tenure status	<ul> <li>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.</li> <li>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.</li> </ul>	<ul> <li>The project area is located 80km northeast of the Gascoyne Junction and 235km east of Carnarvon.</li> <li>The project includes four granted Exploration Licences, E09/2242, E09/2349, E09/2319 and E09/2320 as well as seven Exploration Licence applications, E09/2481, E09/2494, E09/2495, E09/2653, E09/2654, E09/2655, E09/2660 and E09/2661.</li> <li>The tenements are held by Kingfisher Mining Ltd.</li> <li>The tenements lie within Native Title Determined Areas of the Wajarri Yamatji People and Gnulli People.</li> <li>All the tenements are in good standing with no known impediments.</li> </ul>
Exploration done by other parties	• Acknowledgment and appraisal of exploration by other parties.	<ul> <li>The majority of the material work at Kingfisher undertaken was by Pasminco Ltd in 1994, Mt Phillips Exploration Pty Ltd in 2006 and WCP Resources in 2007.</li> <li>The majority of the material work at Mick Well was completed by Helix Resources Ltd in 1994, WA Exploration Services Pty Ltd in 1996, Mt Phillips Exploration Pty Ltd in 2006 and WCP</li> </ul>

Criteria	JORC Code explanation	Commentary
		Resources in 2007.
Geology	• Deposit type, geological setting and style of mineralisation.	• The Company's tenements in the Gascoyne Mineral Field are prospective for volcanogenic massive sulphide (VMS) style mineralisation and base metals associated with hydrothermal systems. The area is also prospective for rare earth elements and uranium.
Drill hole Information	<ul> <li>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: <ul> <li>easting and northing of the drill hole collar</li> <li>elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar</li> <li>dip and azimuth of the hole</li> <li>down hole length and interception depth</li> <li>hole length.</li> </ul> </li> <li>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.</li> </ul>	• No new drilling results are included in this report.
Data aggregation methods	<ul> <li>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.</li> <li>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.</li> <li>The assumptions used for any reporting of metal equivalent values should be clearly stated.</li> </ul>	<ul> <li>No new drilling results are included in this report.</li> </ul>
Relationship between mineralisation widths and intercept lengths	<ul> <li>These relationships are particularly important in the reporting of Exploration Results.</li> <li>If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.</li> <li>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').</li> </ul>	<ul> <li>No new drilling results are included in this report.</li> </ul>

Criteria	JORC Code explanation	Commentary
Diagrams	<ul> <li>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.</li> </ul>	<ul> <li>A map showing relevant data has been included in the report along with documentation.</li> </ul>
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 to avoid misleading reporting of Exploration Results.	• All of the rock chip samples are included in Annexure 1 and anomalous results are included in the diagrams in this report.
Other substantive exploration data	<ul> <li>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.</li> </ul>	<ul> <li>All of the historical rock chip samples are included in this report.</li> <li>All exploration information was is available via WAMEX.</li> </ul>
Further work	<ul> <li>The nature and scale of planned further work (eg tests for lateral extensions or depth extensions or large-scale step-out drilling).</li> <li>Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.</li> </ul>	<ul> <li>The Company's exploration strategy for the tenure will be determined from the drill hole and rock chip results.</li> <li>On-going exploration is likely to include tenement-scale acquisition of geophysics data to define the extents of carbonatites.</li> <li>Downhole geophysics is planned for the drill holes that were completed at Mick Well and Kingfisher.</li> </ul>