NATIONAL INSTRUMENT 43-101

TECHNICAL REPORT (AMENDED AND RESTATED)

ON THE MINERAL RESOURCE ESTIMATE FOR

THE KILBRICKEN ZINC-SILVER-LEAD-COPPER PROJECT

CO. CLARE, IRELAND

FOR

HANNAN METALS LTD

QUALIFIED PERSONS:

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EFFECTIVE DATE: 17th August 2017

AMENDED AND RESTATED: 28th January 2019

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Units and Abbreviations

Abbreviation	Definition
A	Ampere (Unit of electrical currency)
AA	Atomic Absorption
ABL	Argillaceous Bioclastic Limestone
Ag	Silver
BHEM	Bore Hole Electro-Magnetics
CMF	Central Mining Finance
CRM	Certified Reference Material
CSA	Crowe, Schaffalitzky and Associates
DIAS	Dublin Institute for Advanced Studies
Cu	Copper
dB	Decibel, measure of sound intensity
EM	Electro-Magnetic
EMD	Exploration and Mining Division
ESRI	Environmental Systems Research Institute
g/t	Grammes per Tonne
GIS	Geographic Information System
GPS	Global Positioning System
ha	Hectare
IBM	Irish Base Metals
ICP	Inductively Coupled Plasma
IP	Induced Polarization
ISO	International Organization for Standardization
JORC	Joint Ore Reserves Committee
OPTION AGREEMENT	Joint Venture Agreement
Km	kilometre
m	metre
mA	milliampere
MA	Multi Acid
mamsl	Metres above mean sea level
MKF	Main Kilbricken Fault
mV	Millivolt (unit of electrical potential)
mV/V	millivolts per Volt (unit of chargeability)
NSR	Net Smelter Return Royalty
nT/sec	Nanoteslas (units of magnetic flux density) per second
Pb	Lead
PL	Prospecting Licence
PLA	Prospecting Licence Area
Km^2	Square kilometre
QC	Quality Control
QEMSCAN™	Quantitative Evaluation of Materials by Scanning Electron Microscopy

Abbreviation	Definition
QP	Qualified Person
SG	Specific Gravity
VLF	Very Low Frequency
XRD	X-Ray Diffraction
Zn	Zinc

1 Summary

Dr. John Colthurst and Mr. Geoff Reed of Reed Leyton Consultants (“RLC”) were retained by Hannan Metals Limited (“Hannan”) to prepare an independent Technical Report on the Kilbricken Property (the Property), located in County Clare in Ireland. The purpose of this report is to support the disclosure of an initial Mineral Resource estimate for the Kilbricken project and for a summary of the exploration work and results conducted on the broader Clare Project. This Technical Report conforms to NI 43-101 Standards of Disclosure for Mineral Projects. RCL visited the Property and other project related facilities from May 15 to 16, 2017.

The National Instrument 43-101 Mineral Resource estimate for the Kilbricken Project is listed in Tables 1-3. The calculation was calculated by Mr. Geoff Reed, MAUSIMM (CP), of Reed Leyton Consulting Pty Ltd (“Reed Leyton”) from Sydney, Australia. The resource has an effective date of 28th January 2019. The Mineral Resource estimates conform to Canadian Institute of Mining, Metallurgy and Petroleum Definition Standards for Mineral Resources and Mineral Reserves dated May 10, 2014 (CIM definitions). The maiden resource uses a zinc equivalent (“ZnEq”) cut-off grade of 5%, based on based on Net Smelter Return (“NSR”) calculations of conceptual operating costs and metal revenue, in support of “reasonable chances of eventual economic extraction”.

The estimate calculated for Hannan’s 100%-owned Kilbricken zinc-lead-silver-copper deposit includes:

- Total indicated mineral resource of 2.7 million tonnes at 9.5% zinc equivalent (“ZnEq”), including 1.4 millions tonnes at 11.2% ZnEq;
- Total inferred mineral resource of 1.7 million tonnes at 8.6% ZnEq, including 0.6 million tonnes at 10.8% ZnEq;

Tables 1,2 and 3 below outline global indicated and inferred resources for each mineralized body as well as a breakdown of resources by location for various lower cut-off grades.

Table 1: Kilbricken Deposit Indicated Mineral Resources Base Case 5% ZnEq Lower Cut-off Grade

Zone	Category	Cutoff ZnEq%	Tonnes	Zn%	Pb%	Ag g/t	Cu%	ZnEq%	SG
Chimney	Indicated	5	1,369,000	5.6	4.2	66	0.1	11.2	3.5
Fort	Indicated	5	1,287,000	3.7	1.4	34	0.5	7.8	3.0
Total	**Indicated**	**5**	**2,656,000**	**4.7**	**2.9**	**50**	**0.3**	**9.5**	**3.2**

Table 2: Kilbricken Deposit Inferred Mineral Resources Base Case 5% ZnEq Lower Cut-off Grade

Zone	Category	Cutoff ZnEq%	Tonnes	Zn%	Pb%	Ag g/t	Cu%	ZnEq%	SG
Chimney	Inferred	5	635,000	5.9	3.6	61	0.1	10.8	3.4
Fort	Inferred	5	1,046,000	3.4	2.5	30	0.3	7.3	3.0
Total	**Inferred**	**5**	**1,681,000**	**4.4**	**2.9**	**41**	**0.2**	**8.6**	**3.1**

Table 3: Kilbricken Deposit Indicated and Inferred Mineral Resources for the Chimney and Fort Zones at Various ZnEq Lower Cut-off Grades. The 5% ZnEq base case is highlighted.

Zone	Category	Cutoff ZnEq%	Tonnes	Zn%	Pb%	Ag g/t	Cu%	ZnEq %	SG
Chimney	Indicated	4	1,444,000	5.4	4.1	64	0.1	10.8	3.4
Fort	Indicated	4	1,452,000	3.6	1.4	33	0.5	7.5	2.9
Chimney	Inferred	4	682,000	5.7	3.5	58	0.1	10.4	3.3

Fort	Inferred	4	1,194,000	3.2	2.4	30	0.3	7.1	3.0
Chimney	**Indicated**	**5**	**1,369,000**	**5.6**	**4.2**	**66**	**0.1**	**11.2**	**3.5**
Fort	Indicated	5	1,287,000	3.7	1.4	34	0.5	7.8	3.0
Chimney	**Inferred**	**5**	**635,000**	**5.9**	**3.6**	**61**	**0.1**	**10.8**	**3.4**
Fort	Inferred	5	1,046,000	3.4	2.5	30	0.3	7.3	3.0
Chimney	Indicated	6	1,291,000	5.8	4.4	67	0.1	11.5	3.5
Fort	Indicated	6	790,000	4.4	1.5	34	0.5	8.5	3.0
Chimney	Inferred	6	586,000	6.1	3.8	63	0.1	11,2	3.4
Fort	Inferred	6	876,000	3.5	2.7	31	0.3	7.6	3.0
Chimney	Indicated	7	1,173,000	6.0	4.5	70	0.1	12.0	3.5
Fort	Indicated	7	407,000	4.8	1.3	43	0.8	9.9	3.0
Chimney	Inferred	7	536,000	6.3	3.9	66	0.1	11.7	3.4
Fort	Inferred	7	267,000	4.2	2.6	44	0.5	9.3	3.0

Notes: Classification of the MRE was completed based on the guidelines presented by Canadian Institute for Mining (CIM), adopted for Technical reports which adhere to the regulations defined in Canadian National Instrument 43-101 (NI 43-101).

Inferred and Indicated Mineral Resources are reported at a 5.0% base case zinc equivalent (ZnEq) cut-off grade. Table 3 reports various zinc equivalent cut-off grades between 4% and 7%. The Inferred and Indicated Mineral Resource classification is based geological understanding of the deposit, the continuity of mineralization, bulk density measurements and quality control results and interpolation parametres.

The reported zinc equivalent (ZnEq) cut-offcut-off grade value was calculated using the following formula: ZnEq % = NSR(total) / NSR(Zn) * Grade(Zn%) where the NSR was calculated using: NSR(xx) = Grade(xx)*Recovery(xx)*Payability(xx)*(Price per metal tonne(xx) - Cost of sales per metal tonne(xx)) - (Grade(xx)*Recovery(xx)*Payability(xx)*Price per metal tonne(xx)*Royalty(xx). Assumed prices of Zn $2587/t; Cu $5437/t; Pb $2108/t and Ag $18.44/oz, prices dated August 2017. For full disclosure of variables see section "ZnEq" on page 102. Average In Situ Dry Bulk Density for mineralized material is reported in Table 1,2 and 3.

Mineralization wireframes were constructed to honour continuity of mineralization, stratigraphical and geological controls. The minimum width was 2 metres. The continuity of mineralization was assessed by using 1% and 3% wireframe zinc equivalent (ZnEq). The wireframe zinc equivalent (ZnEq) was calculated using the following formula: ZnEq% = Zn % + (Cu% * 2.102) + Pb% * 0.815) + (Ag g/t * 0.023) with assumed prices of Zn $2587/t; Cu $5437/t; Pb $2108/t and Ag $18.44/oz, prices dated August 2017.

TECHNICAL SUMMARY

Two styles of mineralization are evident at Kilbricken. The upper Chimney zone demonstrates the classic high-grade (>10% ZnEq) Irish stratabound mineralization targeted by Hannan. This body has been drilled within an area of 750 metres by 200 metres and averages 12 metres thickness. The lower Fort Zone was found later than the Chimney zone and has been tested with fewer drillholes. It is structurally hosted, lower grade, but thicker, averaging 40 metres, and drilled within a 400 metre by 200 metres area.

The initial resource is expandable at all scales, from near resource to prospect scale. Hannan has already commenced a drill resource expansion program with a three-fold objective:

1. To further delineate the underground potential around the current resource area. To date two holes have been completed for 1,365 metres.
2. To test conceptual and advanced exploration targets within 1-5 kilometres defined by recent structural and stratigraphic interpretation of re-processed 2D and 3D seismic data, lithogeochemistry and soil geochemistry.
3. Test for first order mineralization within the 40 kilometre under-tested Waulsortian host horizon that exists within Hannan's 100% owned 32,223 hectares of granted prospecting licences.

The Clare zinc-silver-lead-copper property (the "Clare Property") consists of 9 prospecting licences ("PLs") granted and issued by the Exploration and Mining Division ("EMD") of the Department of Communications, Climate Action and Environment in County Clare, Ireland and one prospecting licence under application (Figure 1). The western edge of the prospect area is 1.5 km east of the town of Ennis (Figure 2). All prospecting licences of the Clare Property are 100% owned by Hannan Metals Ireland Ltd ("Hannan Ireland"), a 100% owned subsidiary of Hannan Metals Ltd ("Hannan"), a public Canadian company listed on the TSXV (HAN).

The Irish base metal ore field is considered one of the world's best mineralized zinc provinces and is considered highly prospective for new zinc discoveries. In 2015 Ireland was the world's 10th largest zinc producing nation with 230,000 tonnes produced.

The Property is underlain by Upper Devonian (sandstones) to Lower Carboniferous (sandstones and limestones) rocks. The stratigraphy appears simple; beds are the right way up and most of the major units are consistent in thickness across the property, however syn-rift and/or later structures appear to complicate the geological framework. The stratigraphic succession of the Irish Lower Carboniferous is well constrained throughout, with the exception of the uppermost units. The axis of an open syncline runs southwest-northeast through the centre of the Property. Beds dip at between 10 and 15 degrees towards the centre of the syncline. The Lower Carboniferous sequence includes the Waulsortian Limestone, which hosts most of Ireland's important zinc-lead sulphide deposits, such as the Lisheen (pre-mining resource 18.9 Mt @ 15.0% Zn+Pb) and Galmoy (pre-mining resource of 6.2 Mt @ 12.4% Zn+Pb) deposits (EMD, 2009). This data has been sourced from the Irish Exploration, Mining Division website http://www.mineralsireland.ie/. The author has been unable to independently verify the information and states that the information is not necessarily indicative of the mineralization on the Clare Property that is the subject of the technical report.

The Clare Property has a rich history of small scale 19th century mining (Figure 3). Modern exploration efforts from the early-1960's, by Irish Base Metals, Rio-Finex, Central Mining Finance, Billiton and Belmore Resources Ltd followed up some of these earlier historic mines.

There are two known Waulsortian-hosted zinc-lead deposits on the property, the flagship Kilbricken prospect (see below) and the smaller Milltown prospect, where Belmore Resources Ltd ("Belmore") intersected 13.3m @ 5.8% Pb and 10.5% Zn from 45.4 metres in drillhole 3788/19 in 1994. The lowest part of the sequence is also prospective for copper-silver mineralization and contains numerous copper showings, most notable at Ballyvergin where Irish Base Metals drilled hole BV11 which intersected 31.5m @ 1.0% Cu from 51.7 metres in the 1960s. Given the general flat lying and stratabound nature of mineralization and steep angles of all drillholes mentioned, the true thickness of the mineralized intervals quoted is interpreted to be approximately 95% of the sampled thickness.

Significant historic exploration on the Property has concentrated on three project areas and on identifying other areas of the Property which have the potential to warrant similar investigation. The project areas are:

- Kilbricken
- Ballyvergin
- Kilmurry

In 2008, Belmore, a private Irish company, drill tested the base of the Waulsortian Limestone beneath near-surface sulphidic and calcite veined shelf carbonates at the historic Kilbricken lead mine. The discovery drillhole at Kilbricken, DH04, intersected 10m @ 13.8% Zn, 5.5% Pb, 0.08% Cu, and 62.8g/t Ag from 448.1 metres at the targeted base of Waulsortian Limestone. Given the general flat lying and stratabound nature of mineralization and steep angles of all drillholes mentioned, the true thickness of the mineralized intervals quoted is interpreted to be approximately 95% of the sampled thickness.

After this initial discovery, Lundin Mining Exploration Limited ("Lundin"), an Irish subsidiary of Lundin Mining Corporation (TSX:LUN), joint ventured Kilbricken and the wider tenure package from Belmore. In 2011, Lundin purchased 100% of Belmore. Drilling by Lundin from 2009 to 2012 continued to intersect sulphide mineralization in the hanging wall of the Main Kilbricken fault.

The main Kilbricken mineralization has been drilled within an area of 1,500 metres by 800 metres in plan view and remains open in most directions.

Given the general flat lying and stratabound nature of mineralization and steep angles of all drillholes mentioned, the true thickness of the mineralized interval quoted is interpreted to be approximately 95% of the sampled thickness.

Lundin completed significant work on the property. A total of 278 drillholes for 134,000 m of diamond drilling was completed over the entire project. A total of 222 drillholes for 118,000 metres were drilled at the Kilbricken area. Lundin also undertook regional exploration in the remainder of the Clare Property, largely focussed on other Waulsortian-hosted zinc-lead prospects. Lundin carried out 616 metres of drilling at the Ballyvergin prospect with the objective of discovering additional zones of copper-silver mineralization. Lundin drilled a total of 2,370 metres on the Kilmurry Project, located within the Clare project area, 9 kilometres south-east of Kilbricken. In addition, significant surface geochemical and multiple geophysical surveys have been undertaken by Lundin and previous operators on the Clare project area. Of note are a 3D seismic survey over the main Kilbricken mineralization in 2011, and 2D seismic survey conducted in 2012 that consisted of 8 traverses (each 3-3.5 km long) over a total 10 kilometre strike length, spaced between 1-2 kilometre across the Kilbricken trend.

Massive sulphide mineralization at Kilbricken most commonly consists of early massive-textured, fine-grained pyrite, galena and sphalerite cross-cut by coarse-grained sphalerite and galena, resembling sulphides found in the overlying veins. It differs from most other Irish zinc/lead prospects in that it is rich in silver, where the silver is generally associated with galena-rich zones.

RECOMMENDATIONS

The Kilbricken Project is considered by the authors to be highly prospective for discovering and developing important zinc-lead-silver sulphide deposits and expanding on the maiden resource presented in this report. The Kilbricken deposit, as currently delineated, is open along strike and both in an up-dip and down-dip direction. All projects on the Property are at an exploration stage; there are no mine developments or mining operations.

The authors concur with Hannan's planned work program and budget of $3.0 million for 2017. Work will include:

- 7,000 m of drilling to explore for additional mineralization at the Kilbricken deposit;
- Metallurgical test work; undertake preliminary metallurgical test work to refine the Zn% and Pb% plant feed grades and recoveries for use in the Zinc equivalent cut-off grade and Net Smelter Return calculations of conceptual operating cost and metal revenue in support of "reasonable chances of eventual economic extraction".
- 40 km of 2D seismic surveying
- Infill soil sampling around the Kilbricken deposit

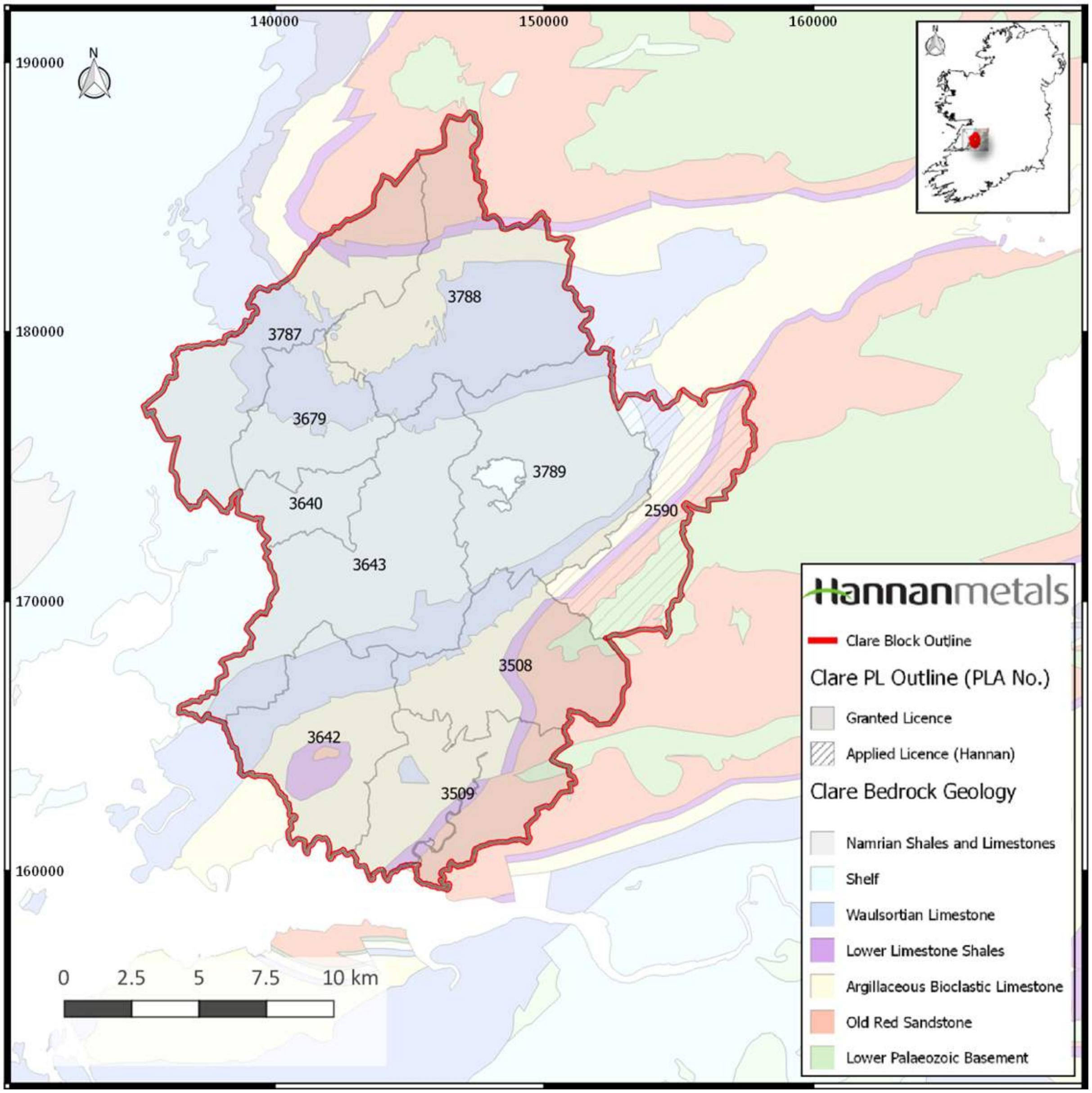

Figure 1 Clare Property Location and Geology

2 Introduction

2a Client

This report has been prepared for Hannan Metals Ltd ("Hannan"). The directors of Hannan requested Dr. John Colthurst and Mr. Geoff Reed to prepare this technical report on the initial mineral resource at the Kilbricken project and for a summary of the exploration work and results conducted on the broader Clare Project. Hannan is listed on the Toronto Venture Exchange.

2b Terms of Reference

The report was updated in January 2019 from the original dated 22nd of August 2017 to include further disclosure on parameters and calculations of conceptual operating costs and metal revenues, in support of the resource have a reasonable chance of eventual economic extraction. The original followed Hannan's announcement of its maiden mineral resource estimate for Kilbricken in Ireland on July 10, 2017.

Purpose of the Report

This report is required to satisfy the requirement of an independent report following Hannan's announcement of its maiden mineral resource estimate for Kilbricken in Ireland on July 10, 2017.

2c Data Sources

The data used in this report has come from two primary sources:

- Data gathered by Lundin or previous operators (2000-2016)
- Data gathered by Hannan (2016-present day)
- Data gathered from the Open File System of the Exploration and Mining Division (EMD), a line division of the Department of Communications, Climate Action and Environment. The Open File System contains copies of work reports filed by previous operators on the PLs. It should be noted that despite the best efforts of the EMD,

the Open File System is not always complete, especially for work carried out before the early 1990s.

2d Personal Inspection

Dr. Colthurst has worked on the Clare Property intermittently since 1993, and has thorough first-hand knowledge of the ground.

Mr. Geoff Reed made a visit to the Clare Property on the 15-16th May 2017 and has significant experience in resource estimations for base metal projects.

3 Reliance on Other Experts

Dr John Colthurst PGeo, EurGeol, Consultant Geologist and Mr. Geoff Reed MAUSIMM (CP), Consultant Geologist, are the Qualified Persons (QPs) for the purpose of the report. The report was prepared using confidential data and information provided by Hannan and publicly available information.

3a Reliance on non QPs for legal, political, environmental or tax matters

Not applicable.

3b Reliance on non QPs for valuations or pricing

Not applicable.

4 Property Description and Location

4a Property Area

The property covers 322 Km^2 (32,223 ha).

4b Property Location

The Clare Property is situated in the western part of the Republic of Ireland. The location of the property is shown in Figure 2. The outline of the Property is irregular so cannot be reported using corner co-ordinates. All figures in this report use Irish National Grid (IG) (EPSG 29902). Irish National Grid should not be confused with Irish Transverse Mercator (ITM).

4c Mineral Tenure

There are 9 Prospecting Licences ("PL"), including 1 under application, that currently comprise the Clare Property (Figure 2), each assigned to a Prospecting Licence Area (PLA). It is common practice in Ireland to refer to the PLA rather than the PL and that practice has been maintained in this report. Table 4, below, summarises the licences. Prospecting licences follow townland boundaries, most of which are based on individual field boundaries or other topographic features such as roads and rivers.

A townland is an official, geographic division of land. PL boundaries are supplied in two formats; as a paper topographic map containing townlands, or as an electronic copy in the format of a shapefile (ESRI format GIS file). The maps upon which townland boundaries are found were drawn in the late 19th and early 20th centuries and are subject to inaccuracies. Some of the features upon which they were based have now disappeared or have been significantly altered.

4d Nature and Extent of Title

Hannan Metals Ltd has a 100% interest in the Clare Property through its ownership of Hannan Metals Ireland Ltd. The company has no surface rights in the area. Under the terms of mining and exploration law in Ireland, only prospecting licence holders are considered for mining facilities. PLs are issued for a period of six years, after which a renewal report must be submitted. If the EMD is satisfied with the work and expenditure reported, it is normal practice for the licence to be re-issued to the holder. Hannan's prospecting licences are summarized in Table 4.

PLs are granted for a period of six years and are subject to certain expenditure commitments, which are made at the time of application. Interim Reports must be submitted every two years and expenditure commitments relate to each two-year period. Hannan's expenditure commitments are summarized in Table 5. Commitments for new licences vary (Table 6). If the expenditure commitments have been met, licences are normally re-issued on re-application. Classes of licence are as follows:

- 'Standard' refers to a PLA, which is neither 'Competition' nor 'Incentive' ground
- 'Incentives' refers to a PLA qualifying for lower expenditure than 'Standard'
- 'Open Ground' refers to ground, which does not have a PLA assigned to it.
- 'Competition' ground refers to a PLA, which is available in a competition. The required expenditure will be that proposed by the winning bidder.

In addition to the renewal report, an interim work report must be submitted at the end of each two-year period.

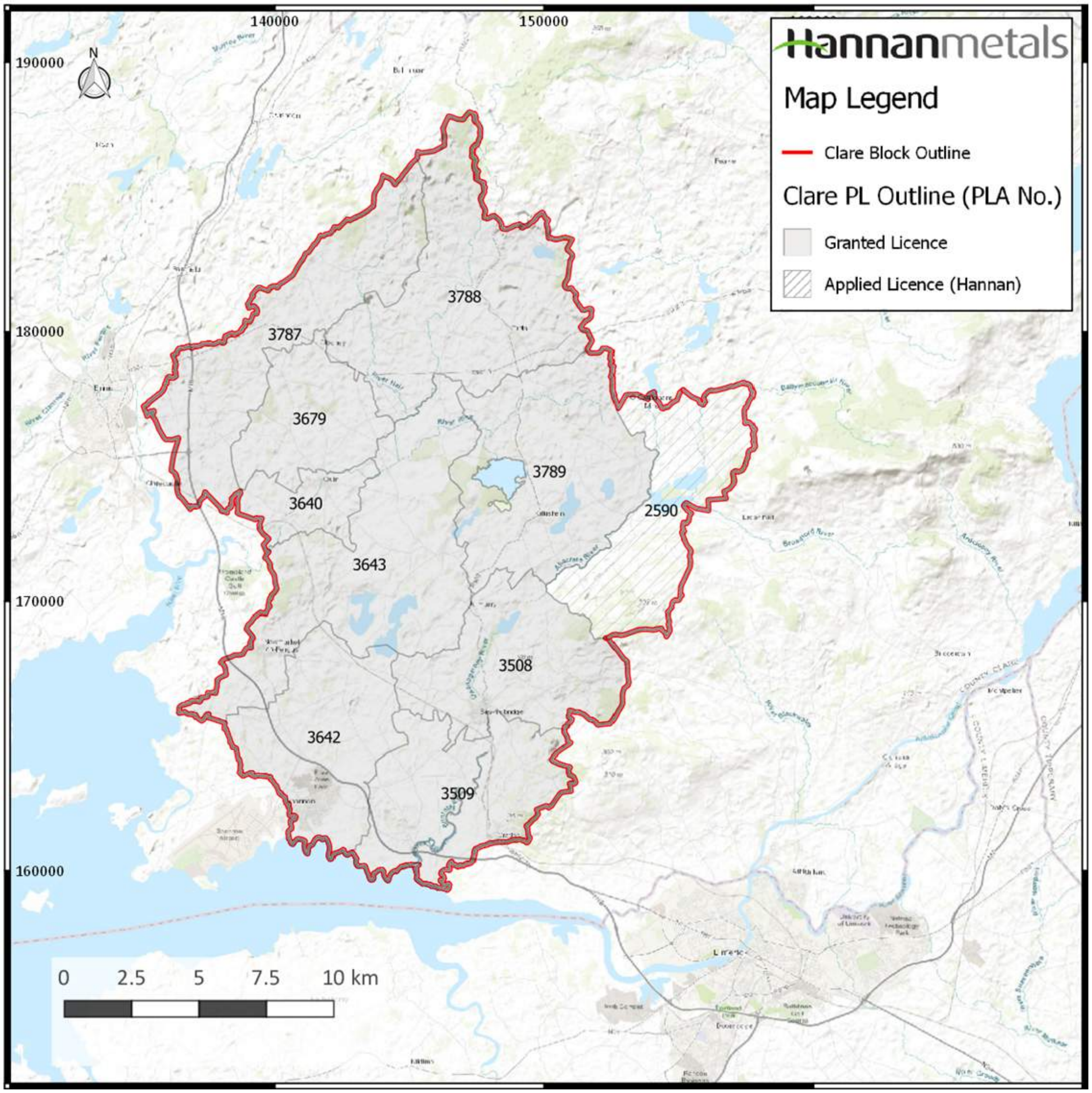

Figure 2 Property Location and Infrastructure

4e Royalties, Back-in Rights and other Encumbrances

On November 8, 2016 Mitchell Resources Ltd ("Mitchell") announced that it had reached an agreement with the shareholders of Hannan Metals Ltd to acquire all the issued and outstanding shares of Hannan Metals Ltd and, consequently, a 100% interest in Hannan Metals Ltd's rights, through its wholly-owned subsidiary Hannan Metals Ireland Ltd to the

Clare prospecting licences in County Clare, Ireland. Mitchell Resources Ltd subsequently was renamed Hannan Metals Ltd on completion of the acquisition.

PLs 3508 and 3642, were granted by Exploration and Mining Division on 17th of April 2017, and are 100% owned by Hannan Metals Ireland with no royalities, back-in rights or other encumbrances. PL2590 (3,220 hectares) with application date 9th July 2017-07-09 remains under application.

PLs 3509, 3640, 3643, 3679, 3787, 3788 and 3789 were assigned to Hannan Metals Ireland Ltd, and were acquired, effective September 21, 2016, pursuant to an Assignment Agreement (the "AA") between the Irish Minister for Communications, Climate Action and Environment, Hannan Metals Ireland Ltd and Lundin Mining Exploration Ltd. Under a separate Asset Purchase Agreement (the "APA"), dated June 3, 2016, Hannan Ireland purchased all exploration data associated with PLs from Lundin for a cash payment of US$150,000. Hannan Ireland must make two additional cash payments to Lundin Mining of US$425,000 each on September 21, 2017 and March 21, 2018.

Table 4 Summary of Prospecting Licences in Clare Property

Prospecting Licence	Prospecting Licence	Expiry Date	Minerals for which licence is held
Application	2590	Applied 09/07/2017	Base Metals, Barytes, Calcite
276621807	3508	17/04/2023	Base Metals, Barytes, Calcite
276621758	3642	17/04/2023	Base Metals, Barytes, Calcite
2813364	3787	07/06/2018	Base Metals, Barytes, Silver
2813372	3788	07/06/2018	Base Metals, Silver, Barytes, Calcite & Fluorite
2813380	3789	07/06/2018	Base Metals, Barytes, Silver
2813176	3643	24/05/2017	Base Metals, Barytes, Silver
48240118	3679	18/12/2017	Base Metals, Barytes, Silver, Gold
140293917	3640	14/07/2018	Base Metals, Barytes, Silver
258121316	3509	20/08/2018	Base Metals, Barytes, Silver

Table 5 Future Expenditure Commitments in the Clare Property

Prospecting Licence	Prospecting Licence	Expenditure Period	Expenditure Commitment (€)
276621807	3508	2017-2019	10,000
276621758	3642	2017-2019	10,000
2813364	3787	2016-2018	62,500
2813372	3788	2016-2018	62,500
2813380	3789	2016-2018 2016-2018	62,500
2813176	3643	2015-2017	50,000
48240118	3679	2015-2017	37,500
140293917	3640	2016-2018	51,400
258121316	3509	2016-2018	10,000

Table 6 Standard Prospecting Licence Expenditures

Years	STANDARD (€) Per 2 year period	INCENTIVES (€) Per 2 year period	OPEN GROUND (€) Per 2 year period
1 and 2	10,000	2,500	2,500
3 and 4	15,000	5,000	3,750
5 and 6	20,000	10,000	5,000

Lundin retained a 2% net smelter return royalty on all sales of mineral products extracted from the area of land subject to the PLs 3509, 3640, 3643, 3679, 3787, 3788 and 3789, subject to a 0.5% buy back right of Hannan Ireland for US$5,000,000, which must be exercised within one year from the date of commercial production.

Hannan Ireland is required to pay Lundin a one-time bonus payment of US$5,000,000 within the earlier of (i) Hannan Ireland's decision to proceed with mine construction or (ii) within 90 days of the establishment of commercial financing to finance capital costs for mine construction.

Additionally, Hannan Ireland will be required to pay a one-time cash fee of US$2,000,000 less cash payments already made to Lundin, if it transfers its rights to the PLs to an arm's length party for US$10,000,000 or greater within 18 months of the execution of the APA.

A potential pre-existing royalty to a third party may exist on PL 3640. Should this right be held, Hannan will pay Lundin the difference between 2% NSR and the underlying NSR on this Licence. For clarity the combined NSR payable by Hannan on any Licence, including PL3640, as defined in APA Agreement will not exceed 2% NSR in total. In addition, Hannan holds no buy back right from Lundin should an underlying NSR exist on PL 3640 and Lundin holds less than 2% NSR in total.

4f Environmental Liabilities

Under Irish mining law, a prospecting licence does not infer liability for historical environmental issues. It should be noted that the 19th century mine sites at Kilbricken and Ballyvergin contain minor spoil heaps. The land is not owned by Hannan and the owners of the land have not attempted to remediate the land.

4g Required Permits

The only permits required for mineral exploration are prospecting licences. Permission to conduct work on the ground must be sought from the relevant landowner, and this is standard practice in Ireland.

4h Factors and Risks Affecting Access, Title, Right or Ability to Work on the Property

Factors and risks affecting mineral exploration in Ireland are generally low. The most significant risk is with landowners that refuse access. Individual landholdings in Ireland rarely exceed 50 ha and are more usually in the order of between 20 ha and 30 ha, so it is considered that one landowner will not significantly affect the project. At present, the previous operator Lundin has had excellent relationships with local landowners and refusal is rare. Lundin has never been refused access in the Kilbricken area, apart from minor delays to facilitate agricultural activities such as silage-harvesting. PLs in Ireland are renewed by EMD once the requirements have been fulfilled and the author has no reason to believe that this situation is likely to change.

The national electricity grid covers the Property, providing both domestic and industrial power. A section of the national gas supply main runs through the Property. The Property also contains a mains drinking water supply.

5 Accessibility, Climate, Local Resources, Infrastructure and Physiography

5a Topography, Elevation and Vegetation

The area is mainly agricultural land, almost all of which is used for dairy or beef production. Crops other than grass or hay are uncommon. Less than 5% of land is used for forestry.

Quaternary glacial deposits are generally thin and rock outcrop is often revealed by land drainage excavations. The ground is mainly low-lying with an average elevation of approximately 20 m above mean sea level (mamsl). The highest point on the Property is 252 mamsl. The East Clare area is drained by the Fergus River, several tributaries of which flow through the Property. The main Fergus River is west of the Property and flows southwards to drain into the Shannon Estuary. The edge of the Shannon Estuary forms part of the south-western corner of the Property.

5b Means of Access

The M18, part of the Irish motorway network, passes through the western side of the Property (Figure 2). The Property is crossed by numerous other roads, both primary and secondary. A national rail line passes through the western side of the Property and links Ennis with the cities of Galway and Limerick to the north and southeast, respectively.

5c Proximity to a Population Centre, Nature of Transport

The Clare Property contains several population centres, in addition to being 1.5 km from the regional town of Ennis (Figure 2). The Property is 11 km northwest of Limerick City. The rural population density in the Clare area at the time of the 2006 census (Central Statistics Office Ireland 2007) is 41 people per km^2. Transportation is by surfaced roads and rail. Shannon International Airport is 2 km from the southwest corner of the Property.

5d Climate and Operating Season

The Irish climate is classified as a mild, maritime climate. Operations can be carried out for 12 months a year. Minimum air temperature falls below zero degrees Celsius on approximately 40 days per year inland, but on fewer than 10 days per year in most coastal areas (Met Eireann 2011). Air temperatures inland normally reach 18°C to 20°C during summer days, and about 8°C during wintertime. Average annual rainfall in the Property is 1,000 to 1,200 mm. December and January are the wettest months and April is the driest (Met Eireann 2011).

5e Sufficiency of Surface Rights for Mining Operations

It is considered that there are no significant impediments to the construction of a mine site. The land is gently rolling, with no significant physical features. Land use is approximately 90% agricultural.

6 History

6a Prior ownership of the property

In the mid- 19th Century there were several small mines on the Property. All the mines had closed by the start of the 20th Century.

Irish Base Metals

From 1960 to 1978, Irish Base Metals ("IBM") conducted detailed exploration programmes on their licences and the work included stream sediment sampling, soil sampling, limited deep auger or Pionjar (hand-held, petrol-driven auger) sampling, dipole-dipole induced polarization ("IP"), and diamond drilling. The geochemistry is of questionable quality and has been repeated by more recent operators and therefore has been superseded.

The IP lines are now impossible to locate accurately as they were set out using local grids and so the data is now regarded to be of little value. The drillholes have been located on historic maps and Irish National Grid co-ordinates have subsequently been assigned to them. The co-ordinates are considered to be accurate to within 50 m. The QP inspected some of these holes in the past and is satisfied that the logging was satisfactory and can be relied upon. These drillholes have been included in the Hannan databases. Some original assays are available in the Open File System but they are incomplete and may be inaccurate. The assays have not been included in the Hannan databases. The drill core has largely been discarded and therefore check assaying will not be possible.

The Ballyvergin deposit was discovered in 1960 by IBM (Andrew 1986). There have been two different historical resource estimates made by Irish Base Metals; 150,000 tonnes grading 1.2% Cu and 15g/t Ag and 233,000 grading 0.97% Cu and 15g/t Ag (Andrew 1986). Andrew (1986) reports these as having been made in 1971 and 1980, respectively, but the relevant company reports cannot now be located. This historical estimate was prepared prior to the implementation of NI 43-101. The historical estimate quoted herein does not use the resource categories stipulated in Section 1.3 of NI 43-101, which are "inferred mineral resource", "indicated mineral resource" and "measured mineral resource". Rather, the historical resource estimate for the Ballyvergin Deposit is not a category stipulated in National Instrument 43- 101. The QP believes that term "resources" is used differently from the use of that term in NI 43-101. The Company does not have, and is not aware of, any more recent resource estimates or data, which conform to the standards required by NI 43-101 and the issuer is not treating the historical estimates as current Mineral Resources or Mineral Reserves and the Qualified Person has not done sufficient work to classify the historical estimate as current mineral resources or mineral reserves.

Rio-Finex

Rio Finex drilled four short holes in the early 1960's on PL90, now part of PL3642. These holes are located at Drumline near Shannon and tested soil geochemical anomalies. They located very minor vein mineralization in the Mellon House Beds.

Much of the other early work is of little significance. No diamond drilling was done by the other previous licence holders and their work largely consisted of geochemistry, which was examined by CMF and Belmore and has now been superseded by work completed by these three companies.

Central Mining Finance

Central Mining Finance ("CMF") acquired PLAs 3787, 3788 and 3789 in June 1994 and the QP, as a consultant to CMF, reviewed all the IBM data at that time and visited and remapped all the known mineral showings on the Property. Two areas were identified, at Carahin and Milltown, where diamond drilling tested the base of Waulsortian. The drilling at Carahin intersected minor mineralization that is interpreted to not have much potential for a deposit of significant size due to the extensive erosion of the Waulsortian host rock at Carahin. A total of 495 m were drilled at Carahin.

The exploration focus then switched to the Milltown area where mapping and prospecting located sulphide mineralization, including sulphide-bearing boulders in stone walls. Many of the walls were constructed from waste dumped around a small flooded open pit from which coarsely crystalline calcite, locally known as white spar, was extracted. Several diamond drillholes were targeted to test the base of the Waulsortian.

The first hole to be completed, 3788-06, drilled at -45° and an azimuth of 70°, intersected 4.5 m (true thickness) at 1.99% Pb, 8.69% Zn and 86.17 g/t Ag. Further drillholes intersected mineralization and the best drillhole, 3788-19 (vertical), had an intersection of 13.3 m (true thickness) at 5.78% Pb, 10.45% Zn and 65.85 g/t Ag. All the Milltown holes were logged by the QP. Given the general flat lying and stratabound nature of mineralization and steep angles of all drillholes mentioned, the true thickness of the mineralized intervals quoted is interpreted to be approximately 95% of the sampled thickness.

The QP logged the drillholes in detail and mineralized intervals were marked up and cut by the QP using a diamond saw. All assays were carried out by OMAC Laboratories Ltd. (OMAC), Co. Galway, Ireland, and the results sheets are available for inspection. Duplicates and blanks were used in the standard manner, no significant issues were observed with the assay data quality. The information from these holes is considered to be reliable.

The drilling of the Milltown prospect did not increase the extent of the mineralized zone and although it was considered too small to justify further drilling, it nevertheless demonstrated that the Property had the potential to contain large, high-grade Waulsortian-hosted zinc-lead-silver deposits.

In addition to the previously described work, Tesla Airborne Geoscience Pty conducted an airborne magnetometer survey over the northern part of the Property in 1998 and a number of IP grids were completed by Williams Geophysics. The QP, while not qualified as a geophysicist, has reviewed both the magnetometer and the IP survey data and results and considers both to be of good quality.

Central Mining Finance recognised the potential for Waulsortian-hosted targets and discovered the Milltown deposit in 1994. Belmore stated in its Prospectus (Belmore Resources 2004) that CMF delimited a historic resource of approximately 400,000 t at 12%

combined Zn+Pb and 79 g/t silver at Milltown. This historical estimate was prepared prior to the implementation of NI 43-101. The historical estimate quoted herein does not use the resource categories stipulated in Section 1.3 of NI 43-101, which are "inferred mineral resource", "indicated mineral resource" and "measured mineral resource". Rather, the historical resource estimate for the Milltown Deposit is not a category stipulated in National Instrument 43- 101. The QP believes that term "resources" is used differently from the use of that term in NI 43-101. The Company does not have, and is not aware of, any more recent resource estimates or data, which conform to the standards required by NI 43-101 and the issuer is not treating the historical estimates as current Mineral Resources or Mineral Reserves. All work completed by CMF was supervised by and reported to EMD by the QP.

CMF ceased exploration in Ireland in 1999 and joint ventured their licences to Billiton Ireland Resources BV (Billiton) who, in turn, transferred the licences to Belmore on 20th March, 2002.

Belmore contracted Crowe, Schaffalitzky and Associates (CSA, now part of the SLS Group) to review their information and to report on their planned exploration. The report, dated 14th May 2004 (CSA Report 006.04-3206) compiled by Roisin Goodman PGeo, EurGeol and Edward Slowey PGeo, EurGeol confirmed that the authors had examined the Milltown core and they agreed with the historical resource estimate outlined in the Prospectus and recommended further exploration on the licence Property. The QP considers the CSA personnel involved as fully qualified and competent to carry out the review and considers their conclusions as reliable.

Belmore continued a diamond drilling programme on the licences between 2004 and 2007, and all this drilling was supervised by the QP. All drilling was performed by Irish drilling contractors, Irish Drilling, Priority Drilling and Drilling 2000. The collar positions of all drillholes were recorded and all drill core was tagged and boxed in an acceptable manner. Drillhole 07-3679-04, which intersected high grade massive sulphide at Kilbricken, was logged and sampled by the QP and samples submitted directly to OMAC Laboratories for assay. The OMAC assay results are available. Prior to completing a joint venture with Belmore, Lundin requested OMAC to re-assay the original pulps as a data verification exercise. The results of the re-assay closely matched those of the original.

The work completed by CMF since 1994, and the subsequent work completed by Belmore is well documented and much of it has been incorporated into the Hannan databases. CMF assays of the Milltown deposit have been retained.

Lundin

Lundin completed a joint venture option agreement with Belmore and started an exploration programme in February 2009. Lundin subsequently acquired Belmore Resources (Holdings) Plc and its 100% subsidiary company Belmore Resources Plc in June 2011.

Lundin carried out a significant exploration program at the property between 2009 and September 2012. Their program consisted of 134,000 m of diamond drilling for 278 drillholes (Figure 3). The bulk of the drilling (222 drillholes for 118,000 metres) was targeted at the Kilbricken prospect. Drilling by Lundin discovered widespread zinc and lead mineralization within an area of 1,500 by 800 metres in plan view. Lundin also defined two areas of mineralization within the lower grade Zn-Pb envelope. The two zones are generally referred to as “the Chimney zone” and “the Cu-zone”. The Chimney zone, has been drilled within an area of 950 metres by 400 metres, between 360-440 metres vertically below surface. Significant drill results in this zone include 10-3679-46: 20.5m @ 7.5% Zn, 9.9% Pb, 0.07% Cu, 74.6g/t Ag from 415.3m and 10-3679-06: 21.3m @ 11% Zn, 4.8% Pb, 0.06% Cu, 94.4g/t Ag from 441.9m. The Fort zone was found later in the Lundin program and is drilled within an area of 400 metres by 200 metres, between 520-670 metres vertically below surface. Significant drill results in the Fort zone include DH167: 4.5m @ 0.8% Zn, 2.6% Pb, 18.91% Cu, 867.6g/t Ag from 616.

Lundin’s regional program consisted of 56 diamond drillholes for 16,000 metres and targeted geological, geophysical and geochemical anomalies within the property. Better regional results included DDH 11-3643-10 at the Kilmurry prospect, located 9 kilometres south southeast of Kilbricken which intersected 3.5m @ 4.9 % Zn+Pb and 63.4 g/t Ag. Two other drillholes at Kilmurry intersected sulphide (pyrite) mineralization in an area of anomalous Zn and Pb surface geochemical sampling. In total Lundin drilled 14 holes at Kilmurry, however further work is required to understand the context of the results.

Given the general flat lying and stratabound nature of mineralization and steep angles of all drillholes mentioned, the true thickness of the mineralized intervals quoted is interpreted to be approximately 95% of the sampled thickness.

In 2011 Lundin conducted a 3D seismic survey, and in 2012 a 2D seismic survey (Figure 4). The 2D survey consisted of 8 traverses for a total of 28.3 line km. The average line length was 3.5km.

The 3D seismic survey covered an area of 2.1 km by 1.6 km. They quality of the seismic acquisition, for both surveys, is considered good and was accompanied by down hole VSP and FSW surveys in selected drillholes. In 2015 and 2016 Lundin re-processed 4 survey lines of the 2D traverses. This reprocessing improved the data quality greatly and suggested that the initial interpretation completed by Lundin required further assessment.

Lundin conducted both detailed and regional gravity surveys over the Clare block (Figure 5). The detailed Kilbricken survey was taken on a grid oriented northwest-southeast, with station and line spacing of approximately 50 m. The survey covered an area of 4.06 km^2 with a total of 2,783 stations. The Lundin Kilbricken Roadside Survey covered approximately 35 line km of road/lanes, with a total of 802 stations. Station spacing varied but was 50 m where practical. The Lundin Clare Regional Roadside Survey covered approximately 61 line km of road/lanes, with a total of 722 stations. Station spacing was 100 metres.

The detailed Lundin gravity survey provided useful information regarding the locations of cross structures and some karst structures occurring in the project area. A subtle gravity low within the area of the mineralization at Kilbricken is interpreted to be a down-thrown fault block probably related to mineralization. Drill-testing of similar gravimetric features has not returned positive results.

The roadside survey carried out on behalf of Lundin is of limited value in isolation, due to the orientation of the roads in the area and the spacing between them (typically >1 km). The survey was intended as a reconnaissance survey, with the intention to infill areas of interest at a later date.

The data for both surveys is considered to be reliable. The largest area of uncertainty lies in the interpretation, as it is problematic to differentiate between deep-seated fault-related structural features and shallower karst-related structural features. It was intended that the surveys would help to identify areas where north-south secondary fault structures crossed the main target fault, thus providing a conduit for extensive mineralization away from the target fault

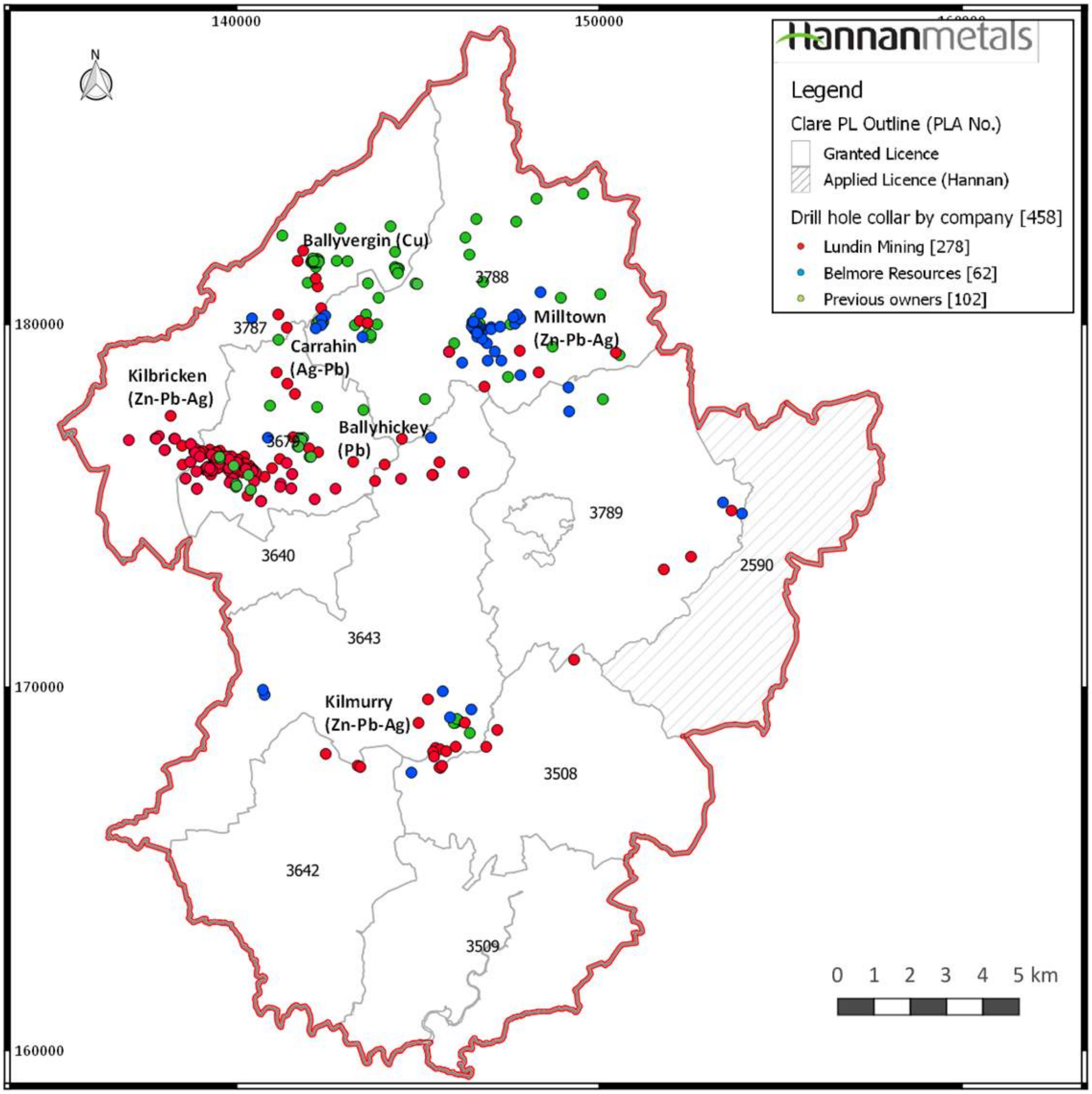

Figure 3 Historic Drill Collars with Significant Prospect Areas

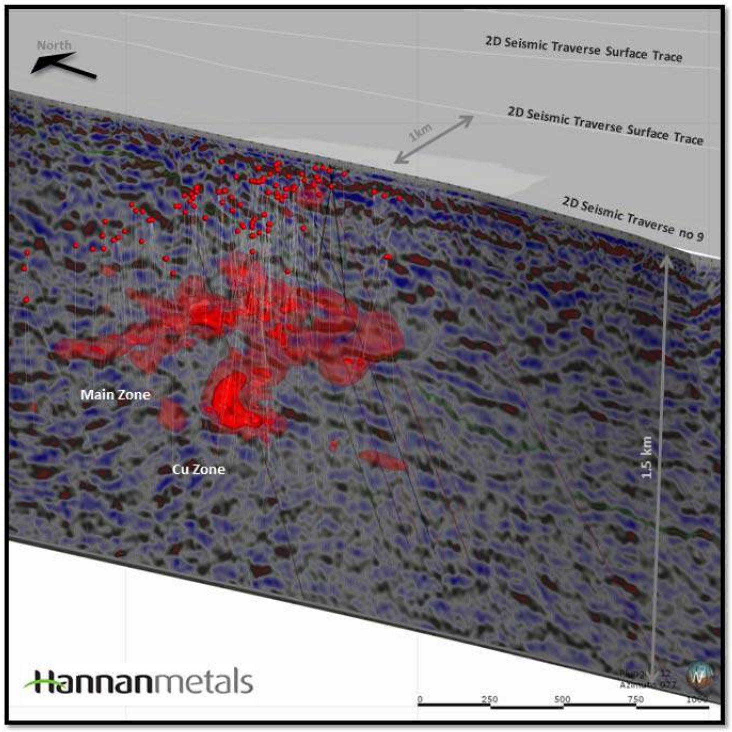

Figure 4 Line 9 2D Seismic Trace with Drillholes and Mineralization Shells (red)

In 2012 Lundin flew a low altitude airborne magnetics survey over an area measuring 10 x 15km (Figure 5). The survey was of high quality and Lundin processed and de-cultured the data, however by the time the processing was finished drilling had ceased at the project.

Other exploration surveys conducted by Lundin included borehole EM, Radial IP, Gradient Array IP, VLF. Some of these surveys provided valuable geological information, but all proved to be inconclusive when it came to directly detect mineralization.

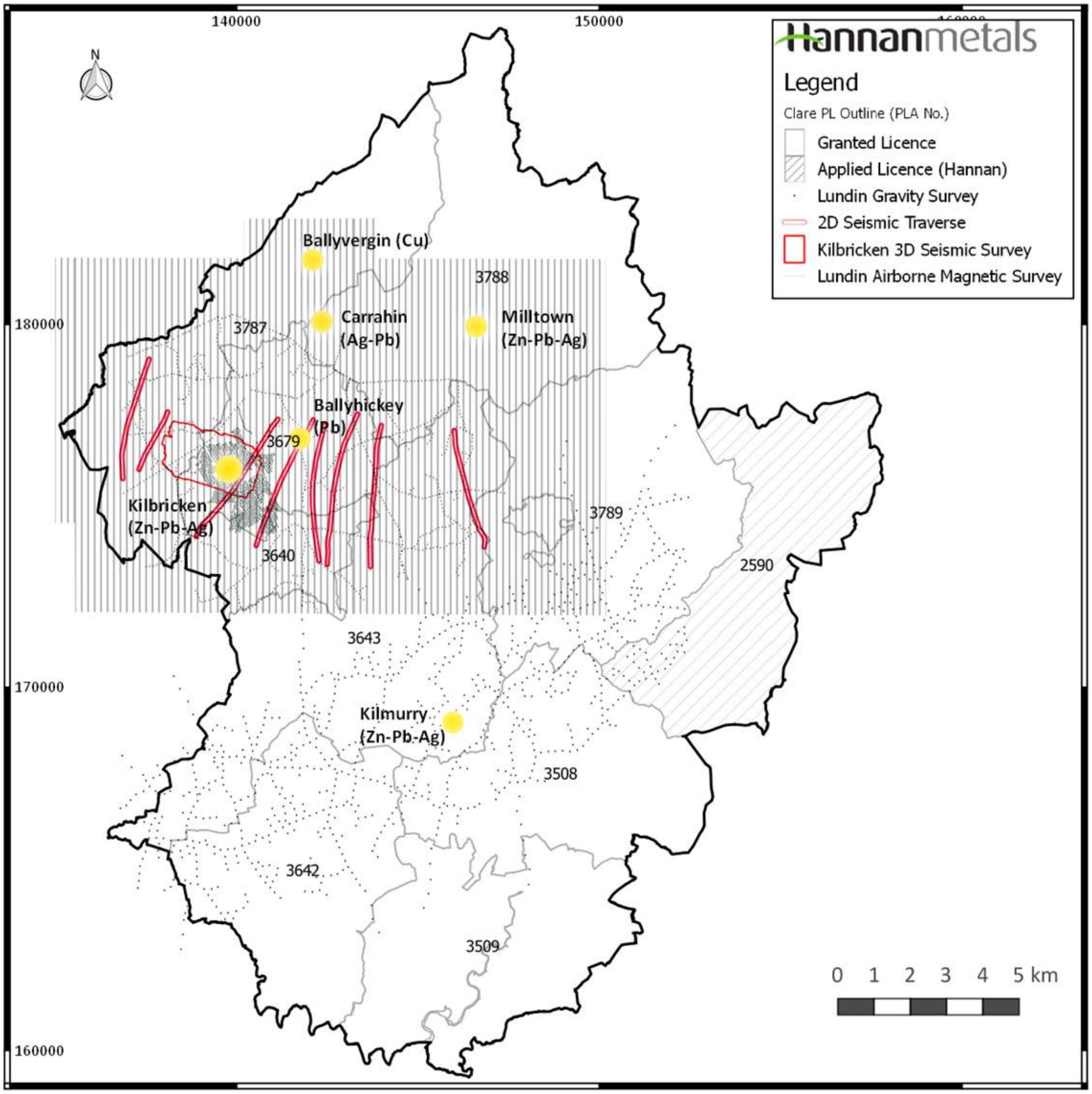

Figure 5 Lundin Historic Work Programs with Significant Prospect Areas

Lundin also carried out soil geochemical surveys in the Clare block. Approximately 3,000 samples in total were collected for multi-element analysis (Figure 6). The results show many anomalous areas, and further assessment is required to determine glacial transport, cover thickness and structure to fully understand the context of these anomalies (Figures 7 and 8).

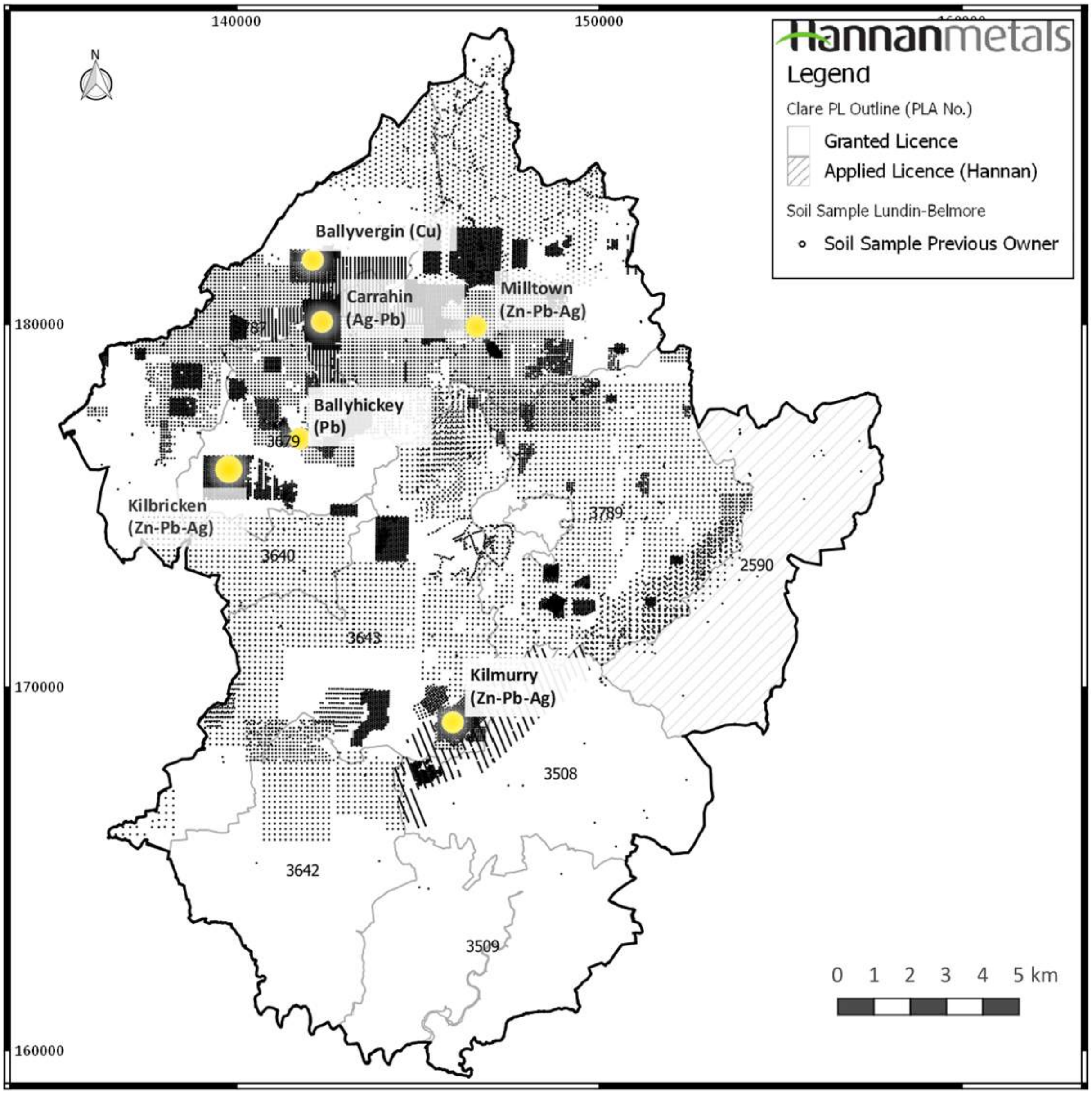

Figure 6 Historic Soil Surveys with Significant Prospect Areas

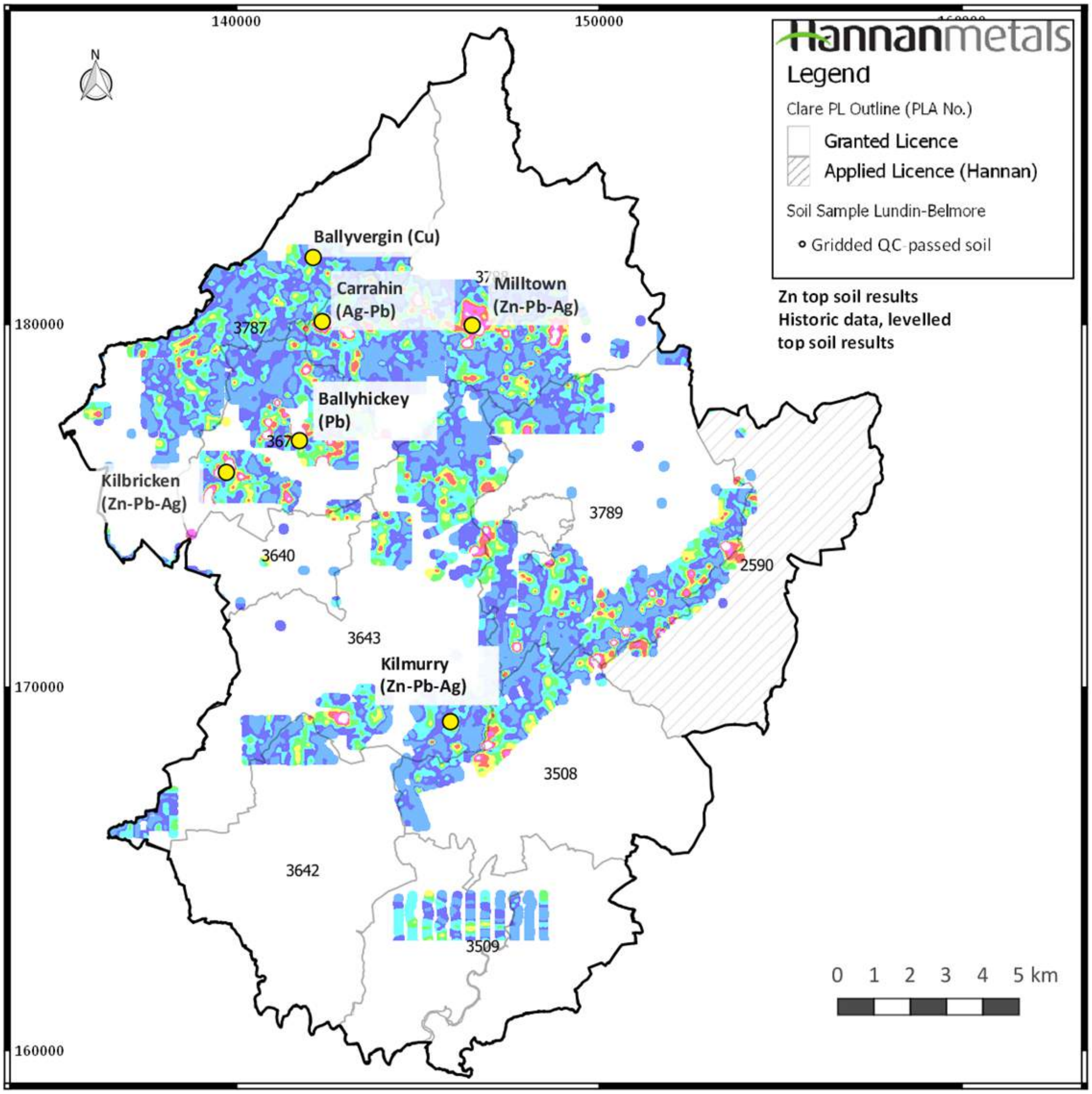

Figure 7 Historic Soil Surveys with QC-Controlled Levelled Zinc (Zn) Results and Significant Prospect Areas

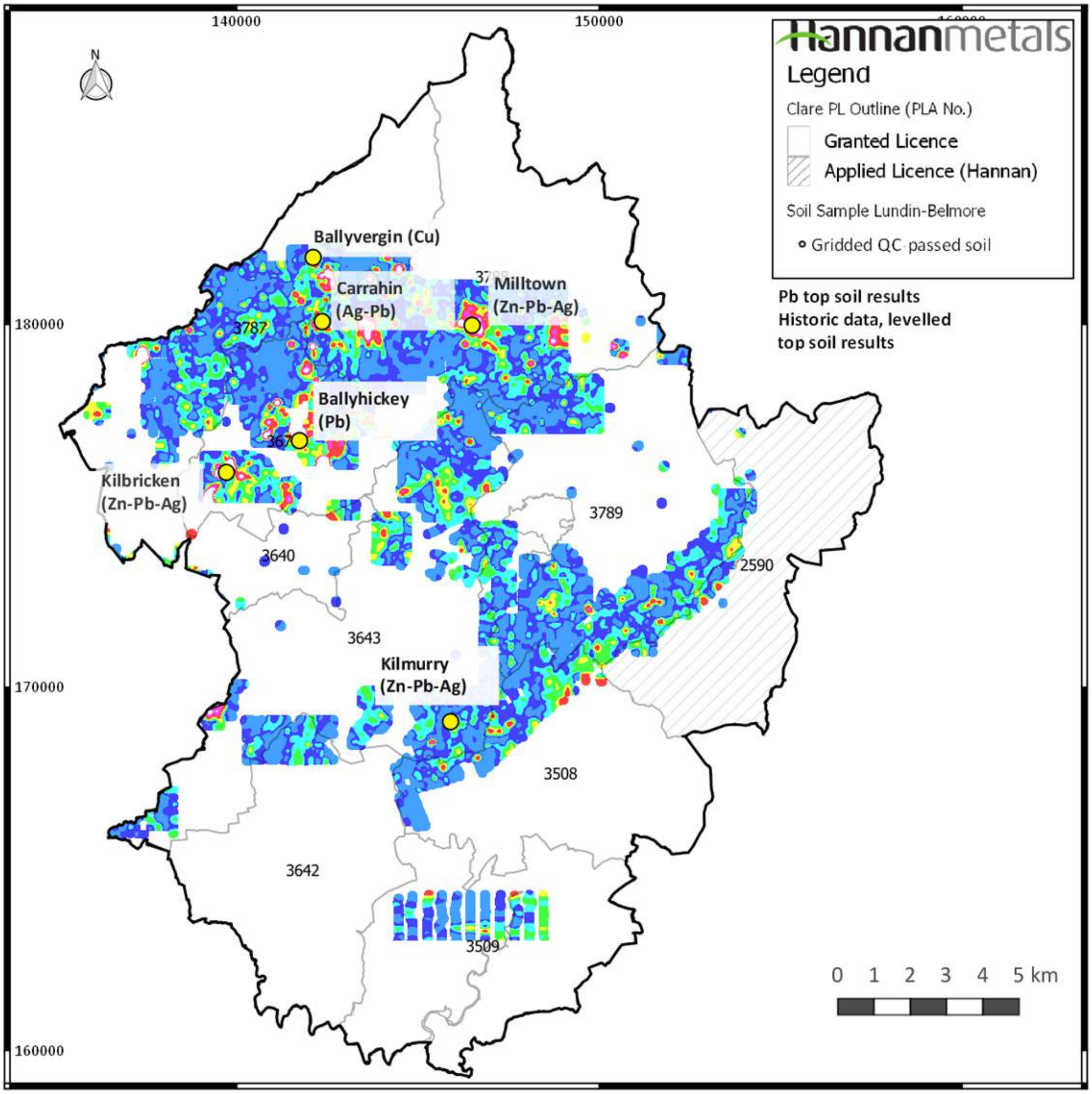

Figure 8 Historic Soil Surveys with QC-Controlled Levelled Lead (Pb) Results and Significant Prospect Areas

Tables 7 to Table 15, summarize all the work carried out on the Property prior to Hannan's involvement.

Table 7 Summary of pre-Hannan exploration on PL 3508

PL	Period	Licencee/Operator	Work Undertaken
3508 Formerly PL 553	1966-1970	Patino Mining Corporation	• Glacial drift directions • Stream sediment sampling • Chip samples • IP
3508 Formerly PL 2591	1977-1980	Preussag Aktiengessellschaft Metall	• Mapping • Stream sediment sampling • Geochemical soil sampling. Anomaly detected and tested with Pilcon deep over burden sampling.
3508	1988-1990	Rio Tinto Finance and Exploration plc.	• No data
3508	1998-2008	Central Mining Finance (CMF) CMF & Billiton JV in 1999 Billiton assign JV interest to Belmore Resources in 1991 CMF & Belmore Resources in 1991 Belmore Resources alone in 2008	• Data review 1998 • Mapping 1999 • Structural analysis by ERA 2000 • Regional DIAS gravity data reworked by Billiton 2000 • Huntings regional aeromag data acquired from GSI and reworked by Blliton. Resulting map is used for the structural analysis done by ERA 2000 • BHP conduct airborne GEOTEM and Magnetic survey. Data bought by Billiton and reprocessed. 25% of PL flown. 2000 • Mapping 2001 • DDH 3508/1 145m 2001 • Property Moratorium report submitted to Exploration and Mining Division (EMD) in 2004 during the Foot and Mouth Epidemic
3508	2009-2010	Lundin-Belmore	• Diamond drilling. 762.2m. Soil geochemistry 602 samples. Field mapping.

Table 8 Summary of pre-Hannan exploration on PL 3640

PL	Period	Licencee/Operator	Work Undertaken
3640	1992-1995	Chevron	• Geological compilation
3640	1999-2003	Billiton	• Mapping • Reprocessing of BHP airborne data
3640	2008	Belmore	• Reported with Lundin Mining Exploration
3640	2008-2010	Lundin-Belmore	• Paleodating.
3640	2010-2012	Lundin	• 2D Seismic, airborne survey.

Table 9 Summary of pre- Hannan exploration on PL 3642

PL	Period	Licencee/Operator	Work Undertaken
3642 Formerly PL 90	1962-1964	Goulding W. & H.M. Ltd. Anglo Austral Mines Ltd. (part of Rio Tinto Finance)	• Geochemical soil sampling • 4 drillholes
3642 Formerly PL 63	1963-1965	Denison Mines Ltd.	• Stream sediment sampling • Geochemical soil sampling.
3642 Formerly PL 644	1966-1970	Consolidated Gold Fields	• No data
3642 Formerly PL 1595	1972-1978	Irish Base Metals (IBM)	• Deep over burden sampling • Mapping • Gravity survey • IP survey • DDH x 2. Short holes
3642 Formerly PL 2846	1979-1983	Billiton Ireland Resources	• Mapping • Deep overburden sampling • DDH x 5. Short holes
3642	1992-1998	Chevron Mineral Corporation of Ireland Chevron's holding reverted to Rio Algom Exploration in 1994.	• Geological compilation • Reprocessing of geochemistry data • VLF 1994 • Regional airborne GEOTEM 1994?
3642	2000-2003	Billiton Ireland Resources	• Geological Mapping • BHP conduct airborne GEOTEM and Magnetic survey. Data bought by Billiton and reprocessed. 30% of PL flown. 2000 • Work carried out by AGC
3642	2002-2003	BHP Billiton	• Surrender support submitted
3642	2005-2007	Belmore Resources	• Soil Geochemistry 150m x 150m grid 350 samples.
3642	2009-2011	Lundin- Belmore	• Diamond drilling 877.5m

Table 10 Summary of pre- Hannan exploration on PL 3643

PL	Period	Licencee/Operator	Work Undertaken
3643 Formerly PL X43	1961-1978	Irish Base Metals	• No Data
3643	1991-1998	Celtic Gold	• Prospecting near surface for Calcite
3643	1999-2008	Central Mining Finance (CMF) CMF & Billiton JV in 1999 Billiton assign JV interest to Belmore Resources in 1991 CMF & Belmore Resources in 1991 Belmore Resources bought out CMF shares in 2008	• Structural analysis by ERA 2000 • Regional DIAS gravity data reworked by Billiton 2000 • Huntings regional aeromag data acquired from GSI and reworked by Blliton. Resulting map is used for the structural analysis done by ERA 2000 • BHP conduct airborne GEOTEM and Magnetic survey. Data bought by Billiton and reprocessed. 2000 • Mapping • IP and SMARTem/IP over airborne anomaly in 2001 • 2001-2003 DDH BC3643/2 49m • Property Moratorium report submitted to Exploration and Mining Division (EMD) in 2004 during the Foot and Mouth Epidemic. Land access was not permitted by the government. • 2005 DDH3643/5/05 406.5m • 2006 Prospecting, Mapping and IP • 2006 DDH 3643/6/06 • Soil sampling 159 samples in Rosroe
3643	2008-2010 200-2012	Lundin-Belmore Lundin	• 2009 Soil Geochemistry 169 samples • 2009 DDH3643/09/07 519m • 2010 DD3643/10/08 to 09. 940.8m • 2011 Gradient IP (2sq km) • 2011 DDH3643/11/10 to 18. 2977.6m • 2012 DDH3643/12/19 to 20. 1190m • 2012 2D seismic survey, 5.5 line km. • 2012 Airborne magnetic survey. • 2012 soil geochemistry, 224 samples • 2012 Field mapping and sampling

Table 11 Summary of pre- Hannan exploration on PL 3679

PL	Period	Licencee/Operator	Work Undertaken
3679 Formerly PL X30 and PL353	1960-1989	Irish Base Metals IBM became Westland Exploration at some point -	• Only one report on file with EMD for the year ending 1980 • Note the PLX30 encompasses a much larger area and also includes part or all of PL3787, PL3788 • Minimum 82 DDH • Deep over burden sampling

		undefined	• IP • IP/Resistivity soundings • EM survey – both input VLF and EM • Gravity • Stream sediment sampling • Soil sampling
3679	1991-date	Celtic Gold.	• Hold prospecting licence for Calcite
3679	2005-2008	Belmore Resources	• Soil sampling 713 samples • DDH 3679/01 to 3679/04
3679	2008-2009	Lundin-Belmore	• DDH 09-3679-05 to 09-3679-28. (11,947 m).
	2009-2011	Lundin-Belmore	• DDH 09-3679-29 to 11-3679-162 (64,630.9 m).
	2011-2013	Lundin	• Soil geochemistry (42 samples) • DD 11-3679-163 to 12-3679-216 (45032.4m) • Geological Mapping (13 samples) • Micropalaeontological dating(3 samples) • Airborne survey • Borehole E.M. survey • SGH survey (394 samples) • 2D Seismic survey, 11 line km. • 3D Seismic survey, (1.7x1.3km)
	2013-2016	Lundin	• Petrography report • Re-processing 2D seismic

Table 12 Summary of pre- Hannan exploration on PL 3787

PL	Period	Licencee/Operator	Work Undertaken
3787 (39.5 sqkm) Formerly PL X30 (85.5 sqkm)	1960-1989	Irish Base Metals IBM became Westland Exploration at some point - undefined	• Only one report on file with EMD for the year ending 1980 • Note the PLX30 encompasses a much larger area and also includes part or all of PL3788 • Minimum 82 DDH • Deep over burden sampling • IP • IP/Resistivity soundings • EM survey – both input VLF and EM • Gravity • Stream sediment sampling • Soil sampling
3787	1994-2009	Central Mining Finance (CMF) CMF & Billiton JV in 1999 Billiton assign JV interest to Belmore Resources in 1991	• Data review and compilation • Geochemical soil sampling. Carahan – 306 Pionjar sites totalling 407.5m. West Carahan – 106 soil samples and 54 Pionjar totalling 72m. Ballyvergin – 233 Pionjar totalling 718m. Gaurus and Noughval – 40 soil samples taken to check old IBM anomaly. Result was negative. • Mapping • Deep over burden geochemistry • EM47 survey 5.3 line km in Ballyvergin

		CMF & Belmore Resources in 1991 Belmore Resources alone in 2008	• IP – Ballyvergin – 3.2 line km over an EM anomaly. • Trenching. • Work was carried out for all points above in 1995 • Soil sampling – NW Carahan – 91 soil samples and 17 Pionjar totalling 45m in 1996 • Airborne magnetic survey in 1997. 75% of PL flown • Soil geochemistry 1997 • Structural analysis by ERA 2000 • Regional DIAS gravity data reworked by Billiton 2000 • Huntings regional aeromag data acquired from GSI and reworked by Blliton. Resulting map is used for the structural analysis done by ERA 2000 • BHP conduct airborne GEOTEM and Magnetic survey. Data bought by Billiton and reprocessed. 25% of PL flown. 2000 • Property Moratorium report submitted to Exploration and Mining Division (EMD) in 2004 during the Foot and Mouth Epidemic. Land access was not permitted by the government. • DDH 1 – 05-3787-01(262m) • 2006-2008 No work done
3787	2009-2010	Lundin Belmore	• DDH 09-3787-03 (691m)
3787	2010-2016	Lundin	• Soil Geochemistry (748 samples) • 2D Seismic • Gradient IP • DDH 10-3787-04 to 12-3787-31 • Airborne magnetics • Outcrop sampling (15 samples) • Field mapping • Digitalization of historic geochemistry

Table 13 Summary of pre- Hannan exploration on PL 3788

PL	Period	Licencee/Operator	Work Undertaken
3788 (52.1 sqkm) Formerly PL X30 (85.5 sqkm)	1960-1989	Irish Base Metals IBM became Westland Exploration at some point - undefined	• Only one report on file with EMD for the year ending 1980 • Note the PLX30 encompasses a much larger area and also includes part or all of PL3787 • Minimum 82 DDH • Deep over burden sampling • IP • IP/Resistivity soundings • EM survey – both input VLF and EM • Gravity • Stream sediment sampling

PL	Period	Licencee/Operator	Work Undertaken
			• Soil sampling
3788	1994-2009	Central Mining Finance (CMF) CMF & Billiton JV in 1999 Billiton assign JV interest to Belmore Resources in 1991 CMF & Belmore Resources in 1991 Belmore Resources bought out CMF shares in 2008	• Mapping • Geochemical soil sampling. Detailed below. • Carahan – 306 Pionjar totalling 407.5m • Carahan north and east – 170 soil samples and 60 Pionjar totalling 160.3m. Closed off existing Carahan anomaly • Newgrove – 13 soil samples and 71 Pionjar totalling 148m. Weak anomaly • East Carahan to Milltown including Crow Hill – 700 soil samples and 37 Pionjar totalling 30.5m. Strong anomaly at Crowhill and Milltown. Down drainage As anomaly stretches south east from Carahan. • Milltown – 159 Pionjar samples at 70 degrees over assumed trend of calcite mineralization totalling 290m • Milltown 290 soil samples on 100m x 100m grid and detailed 128 soil samples on 25m x 50m grid and 21 Pionjar samples totalling 30m. Resulting in significant Pb anomaly in Moymore and Clonteen SE of old mine at Milltown. • Geophysics – Carahan 5.8 line km of IP. Milltown 7.2 line km of IP. VLF/R 6 line km • DDH x 15. 3788/1 to 3788/15. Total 2704.6m. Mineralization in 5 DDH • All work above was in 1994-1995 • In 1996 Trenching in Milltown • 1996-1998 see below • DDH x 19. Mineralization in 5 DDH • Soil sampling – Milltown/Bunavory 349 samples. Milltown 179 Pionjar samples totalling 62m • Fluid inclusion work from sulphides • Cathode luminescence • 1998-2000 See below • DDH x 4 totalling 499m 1999 • IP – 1.7 and 4.8 line km 1999 • Structural analysis by ERA 2000 • Regional DIAS gravity data reworked by Billiton 2000 • Huntings regional aeromag data reworked by Blliton. Resulting map is used for the structural analysis done by ERA 2000 • BHP conduct airborne GEOTEM and Magnetic survey. Data bought by Billiton and reprocessed. 25% of PL flown. 2000 • Property Moratorium report submitted to Exploration and Mining Division (EMD) in 2004 during the Foot and Mouth Epidemic.
3788	2009-2010	Lundin-Belmore	• DDH 09-3788-49 to 09-3788-51 709.5m

PL	Period	Licencee/Operator	Work Undertaken
3788	2010-2012	Lundin	• Soil Geochemistry, 904 samples. • 2D Seismic Survey • Gradient IP survey • DDH 11-3788-52 to 11-3788-56, 1041m
3788	2012-2016	Lundin	• Digitalization of historical geochem • Airborne magnetic survey • Re-process geophysical data

Table 14 Summary of pre- Hannan exploration on PL 3789

PL	Period	Licencee/Operator	Work Undertaken
3789 (44 sqkm)	1961-1978	Irish Base Metals	• Geochemical soil sampling • DDH 018/11 • Pionjar and Cobra sampling
3789	1994-2008	Central Mining Finance (CMF) CMF & Billiton JV in 1999 Billiton assign JV interest to Belmore Resources in 1991 CMF & Belmore Resources in 1991 Belmore Resources bought out CMF shares in 2008	• Mapping 1994 • Data review 1994 • Geochemistry 1994 • Geochemistry – 501 soil samples in 1996 • Airborne magnetic survey in 1997 covering 80% of PL • Mapping in 1997 • DDH 3789/1 166m in 2000 • Structural analysis by ERA 2000 • Regional DIAS gravity data reworked by Billiton 2000 • Huntings regional aeromag data acquired from GSI and reworked by Blliton. Resulting map is used for the structural analysis done by ERA 2000 • BHP conduct airborne GEOTEM and Magnetic survey. Data bought by Billiton and reprocessed. 25% of PL flown. 2000 • DDH 3789/2 in 2002 • Property Moratorium report submitted to Exploration and Mining Division (EMD) in 2004 during the Foot and Mouth Epidemic. Land access was not permitted by the government. • DDH 3789/3 and 3789/4. Total 238.5m in 2006
3789	2008-2009	Lundin-Belmore	• DDH 09-3789-05. total 370 m
3789	2009-2010	Lundin-Belmore	• DDH 09-3789-06 to 10-3789-07. Total 932m.
3789	2010-2012	Lundin	• Airborne magnetic survey • 2D seismic survey • Outcrop sampling (17 samples)

3789	2012-2014	Lundin	• Outcrop sampling (6 samples) • Digitalization of historic geochemistry
3789	2014-2016	Lundin	• Re-process geophysics

Table 15 Summary of pre-Hannan exploration on PL 3509

PL	Period	Licencee/Operator	Work Undertaken
3509	1964-1965	Denison Mines LTD	• Stream sediment and soil sampling
3509	1966-1967	Consolidated Gold	• Stream sediment sampling
3509	1971-1977	Irish Base Metals	• Soil Sampling • Geological Mapping • IP Surveys • Diamond drilling
3509	1979-1983	Billiton Exploration	• Geological Mapping • Deep overburden sampling • RC Drilling
3509	1988-1990	Rio Tinto Finance	• Reconnaissance soil sampling

7 Geological Setting and Mineralization

7a Regional, Local and Property Geology

On a regional scale, the Irish Lower Carboniferous limestones are sub-divided into four provinces, the Limerick, North Midlands, Dunmore and Kildare provinces (Philcox 1984). The Clare Property lies within the Limerick Province. The Limerick Province contains several sedimentary sub-basins and fault-bounded synclines, with a broadly consistent stratigraphy across the province. The faults controlling these features are believed to act as conduits to mineralizing fluids in Irish type deposits.

The stratigraphy of the province consists of a marine transgressive sequence from (in ascending order) terrestrial red sandstones through shallow marine clastic shelf deposits to deeper marine carbonate ramp facies and mud mound deposits (Table 16). The youngest part of the sequence contains deep to shallow carbonate shelf deposits. The two most prospective parts of the sequence are the transitional beds (Mellon House Beds and Ringmoylan Shales) above the red sandstones and the Waulsortian Limestone mud mound deposits above the carbonate ramp limestones. The Mellon House Beds and Ringmoylan Shales sequence is considered prospective for copper-silver mineralization, while the Waulsortian Limestone is considered prospective for zinc-lead-silver mineralization.

Table 16 Summary Regional Stratigraphy

Age	Limerick basin sub-divisions	Ireland	Thickness in Clare Property	Lithology
Arundian - Asbian	Shelf facies	Various units		
Courceyan - Chadian	Waulsortian Reef	Waulsortian Reef	170-300m	Massive occasionally dolomitised stromatactic biomicrites
Courceyan	Ballynash Member	Argillaceous Bioclastic	20-35m	Cherty nodular bedded calcarenites and micrites, rare green tuff marker
Courceyan	Ballysteen Lst	Limestone or ABL	80 -140m	Argillaceous bioclastic fossiliferous limestones
Courceyan	Ballymartin Fm		15-30m	Interbedded mudstones and fossiliferous calcarenites

Courceyan	Ballyvergin Shale	Lower Limestone Shales passing	3-9m	Non calcareous grey-green mudstone, Silurian acritarchs
Courceyan	Ringmoylan Shale	northwards into	20-30m	Fossiliferous black shales
Courceyan	Mellon House Beds	Navan Beds	12-25m	Calcareous sandstones and flaser bedded siltstones
U Dev- L. Carb	Old Red Sandstone	Old Red Sandstone	100m+	Red, yellow, green sandstones & mudstones

The Clare Property straddles the East Clare Syncline, a regional west-southwest to east-northeast striking, open fold structure which plunges to the west-southwest (Figure 1). Beds within the syncline have a shallow dip, with some local steepening resulting from parasitic folding. The northern and southern limbs of the syncline contain red sandstones of Devonian to Carboniferous (Tournasian) age, with upper Visean shelf limestones at the centre.

The principal target for economic mineralization in the area is the base of the Waulsortian Limestone in the immediate hanging wall of a syn-sedimentary normal fault, the same basic model as most 'Irish-type' deposits, e.g. Lisheen and Galmoy (see section 8, below).

The area of the historic deposit at Kilbricken was the main focus of Lundin's activities in the Clare Property. The historic deposit is hosted in calcite veins in the shelf limestone units above the Waulsortian Limestone. More extensive mineralization has been found below the calcite-hosted deposit.

The recently discovered deposit resembles many other Irish-type carbonate-hosted massive sulphide deposits in that it is hosted at or near the base of the Waulsortian Limestone in close proximity to a syn-sedimentary normal fault. Within the Property, the Waulsortian Limestone (thickness of between 180 m and 230 m) is overlain by approximately 250 m of shelf limestones and between 70 m and 100 m of transitional, sometimes cherty, clean calcarenites. Micropalaeontological (Foraminifera) dating has yielded Chadian to Holkerian ages for this shelf succession (Jones 2010). The succession consists of a series of grainstones, sparry wackestones and shaley, bioclastic limestones.

Evidence of biogenic burrowing is seen in at least one distinctive unit. Chert is common, particularly in a unit, which is transitional from Shelf rocks to Waulsortian Limestone. The shelf succession contains evidence of at least two cycles of rising and falling sea levels.

The Waulsortian Limestone is underlain by the Ballysteen Formation (thickness between 110 m and 140 m), composed of dark grey bedded argillaceous bioclastic limestones, with a distinctive nodular bedded cherty unit at the top, the Ballynash Member or Nodular Micrite Unit (between 15 m and 35 m thick).

Underneath the Ballysteen Formation is the 15 m to 30 m thick Ballymartin Formation, consisting of very fossiliferous calcareous shales and bioclastic limestones. This in turn rests on the very distinctive non-calcareous Ballyvergin Shale, which is 6 m thick in the east Clare area.

The structural setting of sulphide mineralization at the Kilbricken prospect resembles that of Lisheen (Hitzman, O' Connor, et al. 1992) and Galmoy (Doyle, et al. 1992) in the respect of the sulphide mineralization being concentrated within the hanging-wall of a normal fault. The overall fault trend at Kilbricken is WNW, but relay faults, trending NNE, are important controls to mineralization.

The Kilbricken fault system compromise a small proportion of a larger WNE-ESE fault trend that has been traced up to 10 km in re-processed seismic and airborne magnetic data. (Fig.10).

At Kilbricken two linked faults are controlling the mineralization; these are named Fort and Chimney fault (Fig 10). Both faults are syn-sedimentary extensional faults; to-date there is only minor evidence of inversion. The Fort fault is 1.5km long and parallel to the Chimney Fault. The maximum displacement is up to 150m and the mineralization is located close to the zone of maximum displacement. The link between the Fort Fault and the Chimney Fault is marked by a failed relay ramp which controls the bulk of the mineralization at the Chimney zone.

The Chimney fault is 1 km long. Drilling showed that it is shallow dipping to the South with up to 160m displacement.

The most important type of alteration at Kilbricken is dissolution of the limestone. These dissolution zones range in width from 10 cm to several metres thin a stratigraphic package ranging in thickness between 10-100m. Texturally the dissolution zones are either brecciated, laminated or both. Often they show a complex relationship of processes such as dissolution, cavity fill and cavity collapse.

Recent work by Hannan has identified strongly altered mafic dykes at the faulted contact between the Old Red Sandstone and the limestones. Both the wall rock and the dyke carry disseminated chalcopyrite and or bornite. The composition of the dykes is not yet known but they are believed to be related to early-rift related volcanism. The heat from this event may have driven hot acidic fluids which in turn could have caused the massive dissolution of the limestone. Dolomitization of the limestone is common too but rarely related to mineralization.

7b Mineralized Zones

There are three main types of sulphide mineralization observed in the Clare Property:

- Irish Type zinc-lead(-silver) sulphide mineralization hosted within the basal rocks of the Waulsortian Limestone
- Calcite vein associated zinc-lead (-silver) sulphide mineralization hosted in supra-Waulsortian rocks.
- Copper-silver sulphide mineralization hosted by rocks of the Ringmoylan Shales and Mellon House Beds

There are two Irish Type deposits (see section 8) known in the Clare Property. The first to be discovered was at Milltown (Figure 9) where a historic resource was estimated to contain approximately 400,000 t at a combined zinc plus lead grade of 12%. This was outlined in the mid-1990s by CMF (Belmore Resources 2004). The mineralization occurs at a depth of approximately 70 m and varies in thickness from 1 m to 23 m. The historical estimate quoted was prepared prior to the implementation of NI 43-101. The historical estimate quoted herein does not use the resource categories stipulated in Section 1.3 of NI 43-101, which are "inferred mineral resource", "indicated mineral resource" and "measured mineral resource". Rather, the historical resource estimate for the Milltown Deposit is not a category stipulated in National Instrument 43- 101. The QP believes that term "resources" is used differently from the use of that term in NI 43-101. The Company does not have, and is not aware of, any more recent resource estimates or data, which conform to the standards required by NI 43-101 and the issuer is not treating the historical estimates as current Mineral Resources or Mineral Reserves. All work completed by CMF was supervised by and reported to EMD by the QP.

The mineralized zone is approximately 150 m by 150 m in horizontal extent and is both stratabound and stratiform. Apart from stratigraphy, the structural controls on the deposit are not obvious, although mineralization is cut-off to the north by an interpreted south down-throwing fault and to the west by a north-south trending, faulted monocline. The mineralization is hosted by rocks within the basal part of the Waulsortian Limestone, above the Ballysteen Limestone Formation.

The second prospect is at Kilbricken, the main focus of exploration activities by previous workers, especially Lundin (Figure 9). The Kilbricken mineralization is also hosted by rocks within the basal part of the Waulsortian Limestone but also by rocks at the top of the underlying Ballysteen Limestone Formation. The structural setting is analogous to that of Lisheen and Galmoy as the mineralization occurs in the hanging-wall of a normal fault.

Two mineralized bodies are present at Kilbricken, the Chimney Zone and the Fort Zone. Both show an association with WNW striking extensional faults. The Chimney Zone, being the initial discovery area, has been most intensively drilled within an area of 750 metres by 200 metres, between 440-530 metres below surface and averages 12 metres thickness. Mineralization is controlled by a failed relay ramp between two extensional fault segments.

It is stratabound at the base of the Waulsortian limestone. The Fort Zone was found later in the Lundin program and is drilled over an area of 400 metres by 200 metres, between 480-720 metres below surface with an average thickness of 40 metres. The mineralized body is wedge shaped and transgressive to the host rock. Both the mineralization at the Chimney Zone and Fort Zone are hosted by Waulsortian Limestone that has undergone extensive dissolution. The sulphide minerals are seen to replace the dissolution residues. The texture of the residues may be both brecciated or laminated and the mineralization range from massive to semi-massive and disseminated within the dissolution zones.

The primary sulphides intersected by the diamond drilling at Kilbricken are pyrite, sphalerite, galena, chalcopyrite and arsenopyrite. Pyrite is the dominant sulphide mineral; it is most commonly fine-grained and is the paragenetically earliest sulphide present. It is cross-cut by sphalerite, galena and arsenopyrite, with clasts of this early pyrite present in sulphide breccias.

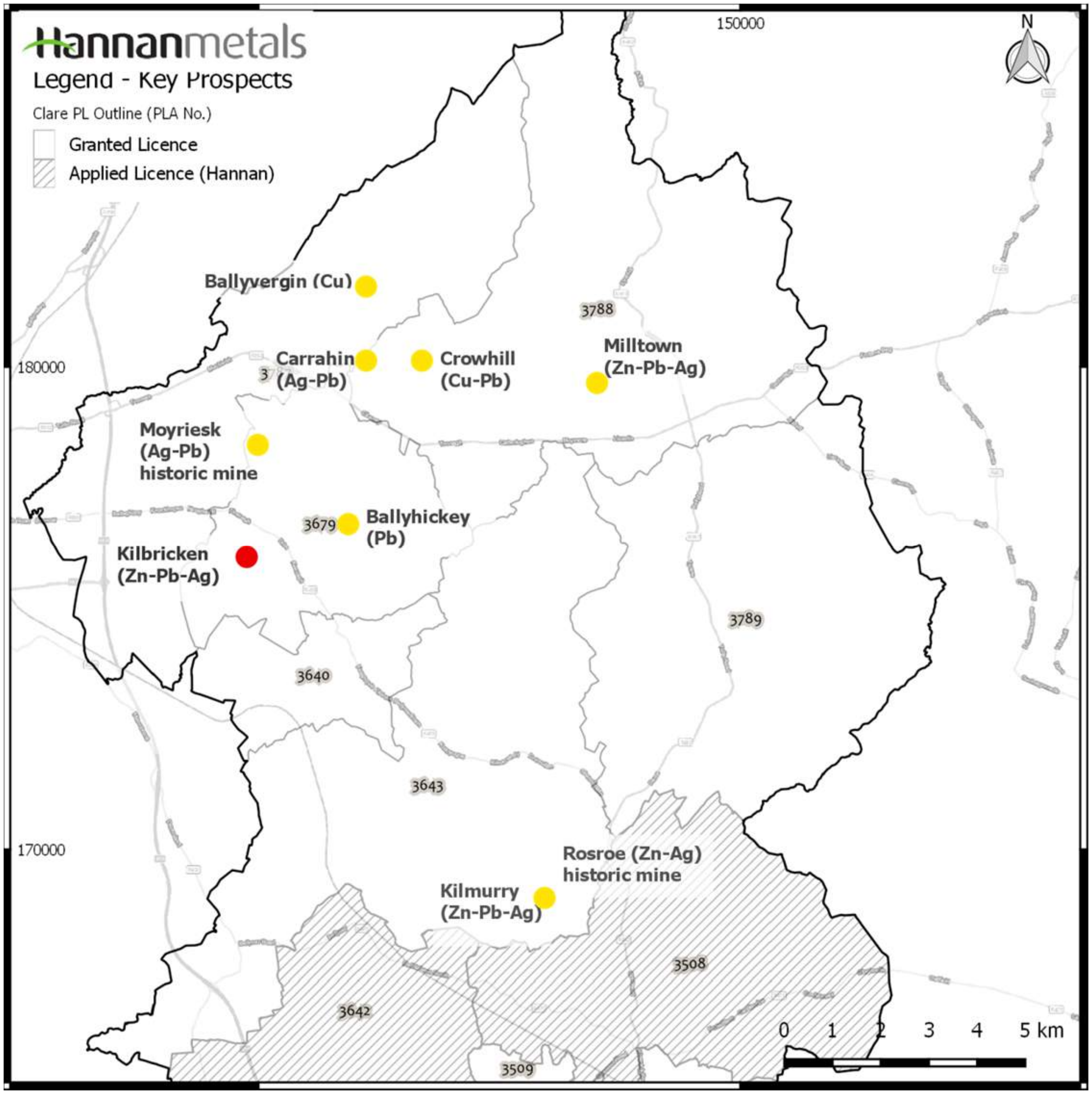

Figure 9 Key prospects in the Clare block

After the pyrite, the next mineral in the paragenesis is a pale brown sphalerite which is commonly found with galena and fine-grained arsenopyrite. The pale sphalerite is cross-cut and replaced by later, slightly coarser grained pyrite and sphalerite, with or without arsenopyrite. The final stage in the paragenesis is a red-brown, coarse-grained sphalerite associated with coarse-grained galena. The galena occurs in massive (both grade and texture) sections up to 1.0 m in thickness, replacing almost all the limestone. Silver of significant grade (>50 g/t) is present in composited interval lengths from 3.5 m to 25.8 m (true thickness). The highest silver grade intercepted has been in drillhole 10-3679-43, with 927.9 g/t over 1.1 m (true thickness). High silver grades are almost always associated with massive to semi-massive galena.

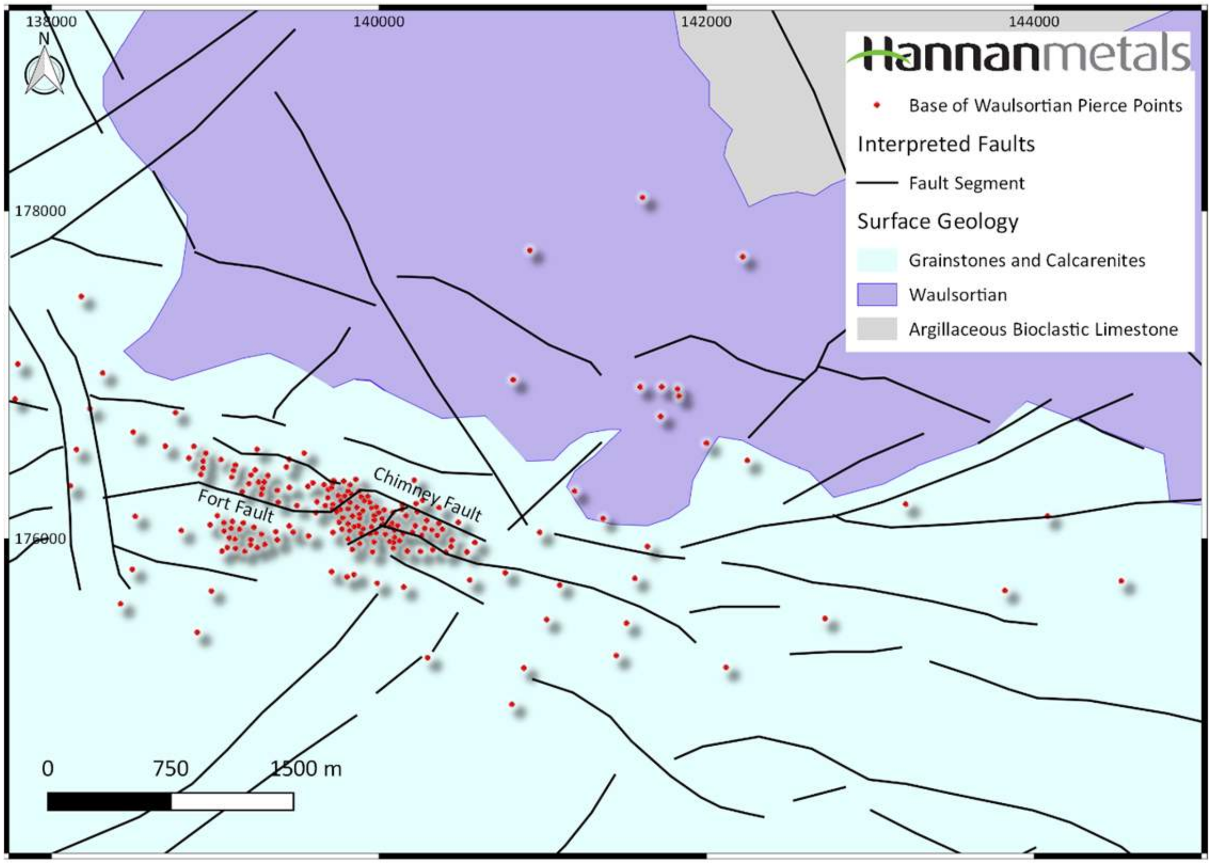

Figure 10 Kilbricken Drilling and Structural Geology

The sulphides at Kilbricken replace the Waulsortian Limestone micrites, limestone at the top of the Ballysteen Limestone and both clasts and matrix in dissolution breccias.

A copper-silver deposit hosted by rocks located within the upper part of the Old Red Sandstone, Mellon House Beds and Ringmoylan Shales occurs at Ballyvergin, in the northern half of the Property. Mineralization occurs as fracture-fill, disseminated and bedding parallel veins of pyrite, chalcopyrite, galena and arsenopyrite. The deposit has been postulated to have been emplaced by mineralizing fluids exploiting space created by a fault-bounded pericline, with the locus of mineralization in the hinge of the fold. There are also calcite vein hosted zinc and lead deposits, which were worked in the 19th Century mines as at Kilbricken and Ballyhickey. The historic deposit at Kilbricken is in a vein apparently measuring approximately 100 m by 30 m, in a south-southeast to north-northwest orientation. The deposit was reported as having been worked to a depth of 54 m (Cole 1922). The deposit may represent a re-mobilization of the Irish-type sulphide mineralization present at depth, exploiting a steeply-dipping fracture. Little is known about the vein at Ballyhickey except that it has an east-west orientation and pinches out at depth. Similar deposits about which less is known occurred elsewhere in the Property (Table 17).

Table 17 Summary of Mineralized Zones and Historic Workings

Name	Prospecting Licence Area	Description	Tailings/Waste Deposits/Other
Kilbricken	3679	19th Century silver & lead mine and currently explored prospect	Minor spoil heaps. Up to five shafts, fenced off.
Ballyvergin	3787	19th Century silver mine and historic copper prospect	Minor spoil heaps. Two covered shafts.
Milltown	3788	Zinc and lead prospect	None
Ballyhickey	3679	19th Century silver & lead mine, size unknown	Small open pit. Now water-filled and fenced off.
Crow Hill	3788	19th Century lead mine, size unknown	Shaft, filled in.
Moyriesk	3679	19th Century silver & lead mine, size unknown.	Unknown
Carahin	3788	19th Century lead mine	
Maghera	3787	Copper prospect, similar to Ballyvergin but smaller. Little or no remaining detail	None
Rossroe	3643	Silver mine recorded on old ordnance survey map, no other information	None

8 Deposit Types and Exploration Models

There are two types of mineralization being targeted in the Property:

- Waulsortian-hosted Irish Type zinc-lead(-silver) sulphide mineralization
- Ballyvergin Type copper-silver sulphide mineralization.

Waulsortian-hosted deposits contain zinc, lead and silver and the Ballyvergin Type contains copper and silver with some zinc and lead.

Irish Type

Irish Type zinc-lead (-silver) deposits are stratabound and stratiform or wedge-shaped, hosted in carbonate rocks and adjacent to growth faults (Everett, Wilkinson and Rye 1999), (Hoy 1996). The Waulsortian Limestone is the most prospective unit; the ore deposits at Lisheen, Galmoy, Silvermines and Tynagh all being Waulsortian-hosted. The origin of the mineralization is considered to have been metal-bearing fluids exploiting fault systems and mixing with sulphur-bearing brines to precipitate metal sulphides (Everett, Wilkinson and Rye 1999). The most common sulphides in these deposits are pyrite, sphalerite and galena.

Irish-type deposits tend to be thicker (up to 40 m) closer to the growth fault and pinch out distally. Ore development can occur >1 km from the fault e.g. the ‘K Zone’ at Galmoy.

Detailed geological mapping combined with geophysical techniques and geochemistry can assist in identifying prospective fault systems, but they can only be confirmed by drilling. When the depth to the target is relatively shallow (<200 m) there is a reasonable possibility that traces of mineralization will migrate upward along a fault and produce a soil geochemical signature. Soil sampling in areas where the base of the Waulsortian sub-crops can also be valuable, as traces of mineralization may extend along the base of Waulsortian from a deposit located along strike or down-dip.

Ballyvergin Type

Ballyvergin type copper-silver deposits are interpreted as being structurally located along anticlinal hinge zones (see section 7b, above). The large re-entrant of ABL protruding into the Waulsortian in PLs 3679 and 3788 (Figure 1) is interpreted to be a large dome. It is thought the pericline at Ballyvergin is a parasitic fold on the margin of this dome. The remainder of the ABL re-entrant is considered to be prospective for Ballyvergin-type deposits. Depth to the target horizons is <200 m, so it is thought that geophysical EM methods (such as IP) and shallow soil geochemistry could be useful in targeting such deposits. Surveys employing both of these methods are underway at the time of writing of this Technical Report. See section 6, above for details of the Ballyvergin Deposit.

9 Exploration

Hannan has also conducted a 157 point, shallow soil geochemistry survey over PL 3509 (Figure 11) in October/November 2016. The target for the survey was the western extension of the Silvermines Fault which is the controlling structure at Silvermines historic mine (pre-mining resource 17.7Mt @ 8.9% Zn+Pb) (EMD, 2009). This data has been sourced from the Irish Exploration, Mining Division website http://www.mineralsireland.ie/. The author has been unable to independently verify the information and states that the information is not necessarily indicative of the mineralization on the Clare Property that is the subject of the technical report.

The survey aimed to screen a larger area for anomalies in the top-soil which could define potential mineralization in the underlying bedrock.

9b Sampling Methods and Quality

The soil survey conducted by Hannan used a standard, stainless steel soil auger to collect the samples. The auger was cleaned after each sample. Samples were taken from the B horizon, at a depth of approximately 0.5 m. Duplicate field samples for quality control purposes were taken every 25th samples and certified reference material was inserted at the same rate. The samples were transmitted by Hannan personnel to ALS laboratories, Loughrea, Co. Galway, Ireland. The samples are considered to be representative for the area.

9c Location, Number, Type, Nature and Spacing of Samples

The soil survey covered an area of 4 km2 and sampling was carried out with a line spacing of 400 m and a sample spacing of 100 m (Figure 11). The survey was oriented North-South. In total 144 samples B-Horizon samples were taken.

9d Results and Interpretation

The key elements from the soil sampling target area are: Zn, Pb, Cu, As, Ba, Ag, Cd, Hg, Ge and Mg. The results from the survey show two multi-element anomalies that may be of interest for further follow-up. Both anomalies correlate with mapped structures on the GSI 100K bedrock map (Figures 11-14).

The first anomaly is a combined Zn-Pb-Ag-Hg anomaly, approximately 1.2k long, parallel to the presumed trace of the Silvermines Fault and present on 4 different survey lines. The second anomaly is an As-Ge-Mg anomaly approximately 400m x 400m present on two survey lines.

There are other anomalies in the data but the two above are considered to be most significant based on the size and multi-element character. Further assessment of these anomalies is planned and will include a structural interpretation of the fault pattern in the area.

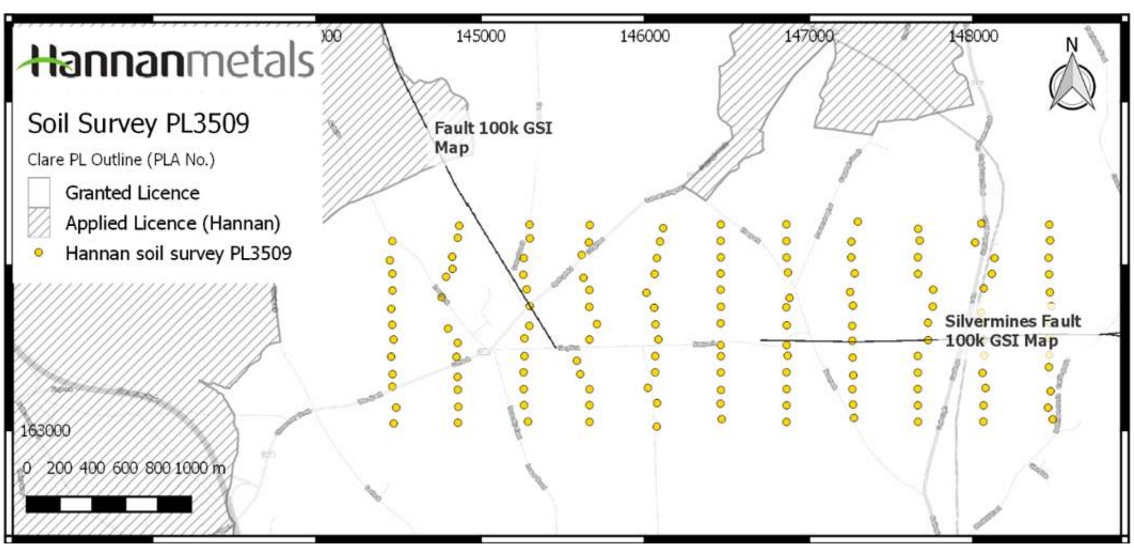

Figure 11: PL3509 soil sampling sites

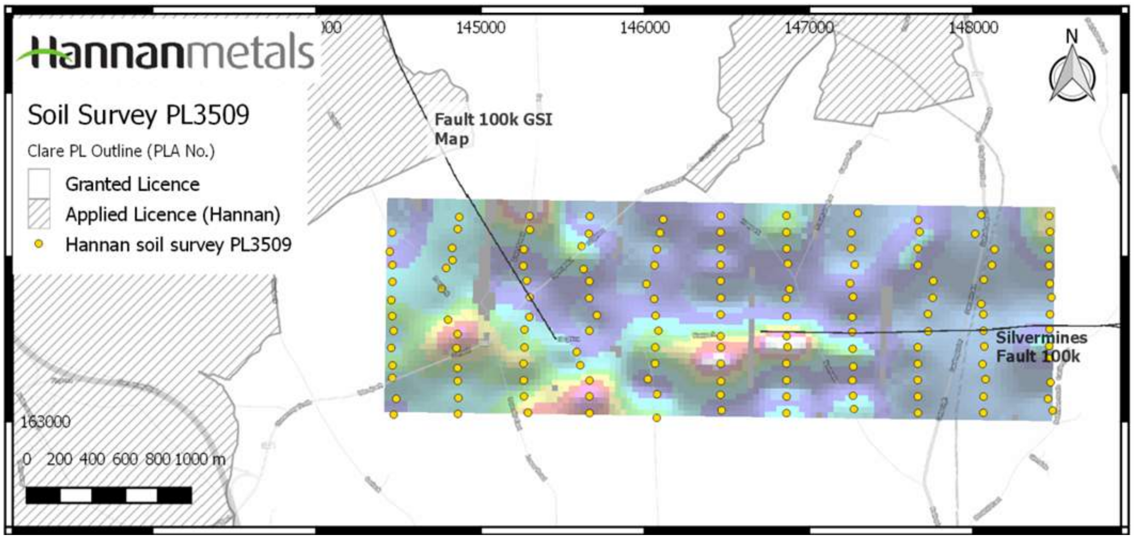

Figure 12: PL3509 soil sampling with Zinc (Zn) Results

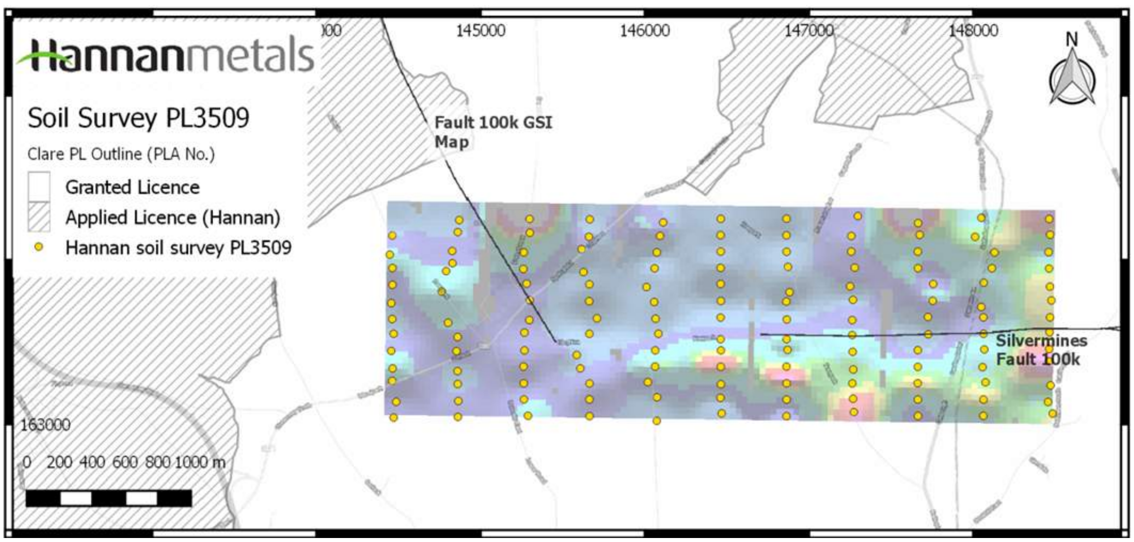

Figure 13: PL3509 soil sampling with Lead (Pb) Results

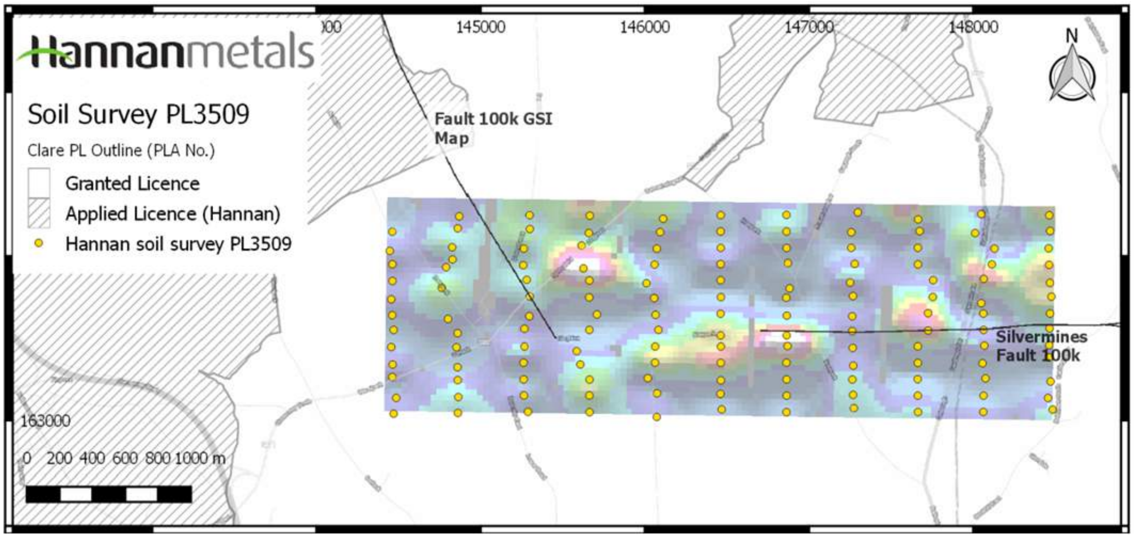

Figure 14: PL3509 soil sampling with Silver (Ag) Results

10 Drilling

10a Type and Extent of Drilling, Summary and Interpretation of Results

Hannan commenced a resource expansion diamond drill program in April 2017 at Kilbricken. The diamond drilling programme is being carried out by Priority Drilling, an Irish based drilling contractor.

The aims of the program are to focus on extracting metallurgical samples and on expanding the footprint of the known mineralization beyond the current 1,500 metres strike length. As of the date of this technical report two holes have been completed for 1,365 metres.

Results from the first diamond drillhole, DH 17-3679-217 (“DH217”) were announced during July 2017. DH217 is one of the most mineralized ever drilled at the property. Highlights include:

- 8.0 metres @ 4.1% Zn, 33.7% Pb and 174 g/t Ag (37.9% Zn+Pb) from 528 metres, including 3.2 metres @ 8.4% Zn, 72.8% Pb and 388 g/t Ag (81.2% Zn+Pb) from 528 metres;
- 3.4 metres @ 5.2% Zn, 4.3% Pb and 33 g/t Ag (9.5% Zn+Pb) from 570 metres;
- 26.6 metres @ 7.5% Zn, 0.9% Pb and 14 g/t Ag (8.4% Zn+Pb) from 588 metres, including 18.8 metres @ 8.8% Zn, 1.1% Pb, 19 g/t Ag (9.9% Zn+Pb) from 588 metres;

A 2.2 metre interval from 528 metres assayed 86% lead which approximates to pure galena.

DH217 was completed at 714 metres into the Fort Zone at Kilbricken. Base metal mineralization was intersected over a total downhole length of 128 metres with multiple intervals exceeding the grade and thickness cut-off for the mineral resource area;

DH217 was a 20 metre step out from drillhole DH167 which intersected a lower zone of mineralization that returned 4.5m @ 0.8% Zn, 2.6% Pb, 18.91% Cu, 867.6g/t Ag from 616.5m. The higher-grade mineralization shows good lateral continuity and is contained within a broader mineralized zone totalling 79 metres downhole length. DH217 was not included in the maiden resource calculation with an effective date of July 10, 2017 and the main subject of this report.

Lundin Drilling

Prior to Hannan's involvement in the project from September 2016, Lundin Mining Ltd ("Lundin") completed significant work on the property. A total of 278 drillholes for 134,000 m of diamond drilling were completed over the entire project. A total of 222 drillholes for 118,000 metres were in the Kilbricken area (PLs 3679 and 3787) with an average drillhole depth of 531 m.

Lundin used three different drill contractors on the Clare Property. Irish Drilling Ltd. and Drilling 2000 are both Irish-owned operations, while Hy-Tech Drilling is a Canadian-owned company which began drilling in Ireland for Lundin in March 2011.

Diamond drilling was the only drill technique in use. Drillholes were planned by Lundin company geologists and laid out by company personnel. The holes were drilled using NQ drill bits, apart from in a small karst zone where holes were collared in HQ, with a subsequent change to NQ once rock quality improved. All rigs used the industry standard wireline system for core barrel retrieval.

Drill results have been positive, particularly in the Kilbricken area (above), with approximately half of the drillholes intersecting sulphide mineralization exceeding 1% zinc+lead with many of those holes exceeding much higher combined zinc+lead grades; for details see Appendix 1, Clare Assay Summary (summary of significant mineralized intersections).

Lundin drilled approximately 5,700 m on the Kilmurry prospect (prospecting licence 3508), with two holes containing significant sulphide mineralization.

Drillholes were surveyed using both single-shot and multi-shot Reflex instruments. The survey instruments are regularly checked against a known azimuth and dip. Drill collars were surveyed by Lundin personnel using a Topcon Hyper-pro differential GPS survey instrument.

10b Drilling, Sampling and Recovery Factors

Recovery is generally very good in sulphide-mineralized rock and it is not considered that recovery factors could have a material effect on the reliability of the results. Recovery rates have averaged better than 90%. Care is taken when marking up and cutting the core to ensure that the half-core sample is representative of the interval.

10c Drilling Details

(i) Appendix 2, below, details all drillholes on the property. The table includes holes drilled by previous operators and this is noted in the table under the heading 'Company'. Some details are missing for holes drilled by previous operators.

(ii) Sample length and true thickness for assay intervals are given in Appendix 1. Mineralization is flat-lying to shallowly dipping in most cases, with some local variation. The local variations in dip are not thought to be significant, so the sulphide-mineralized zones are treated as horizontal for the purposes of determining true thickness.

The results of the drilling at Kilbricken indicate that there is a mineralized zone measuring 590 m by 250 m with drillholes containing intercepts with grades of between 3% to 10% Zn and 50 g/t and 80 g/t Ag. This is based on 222 drillholes for 118,000 metres. It should be noted that the potential quantity and grade is conceptual in nature.

There has been insufficient exploration to define a Mineral Resource at Kilbricken and it is therefore uncertain if further exploration will result in the estimation of a Mineral Resource in this area.

See Appendix 1 for details of intercepts.

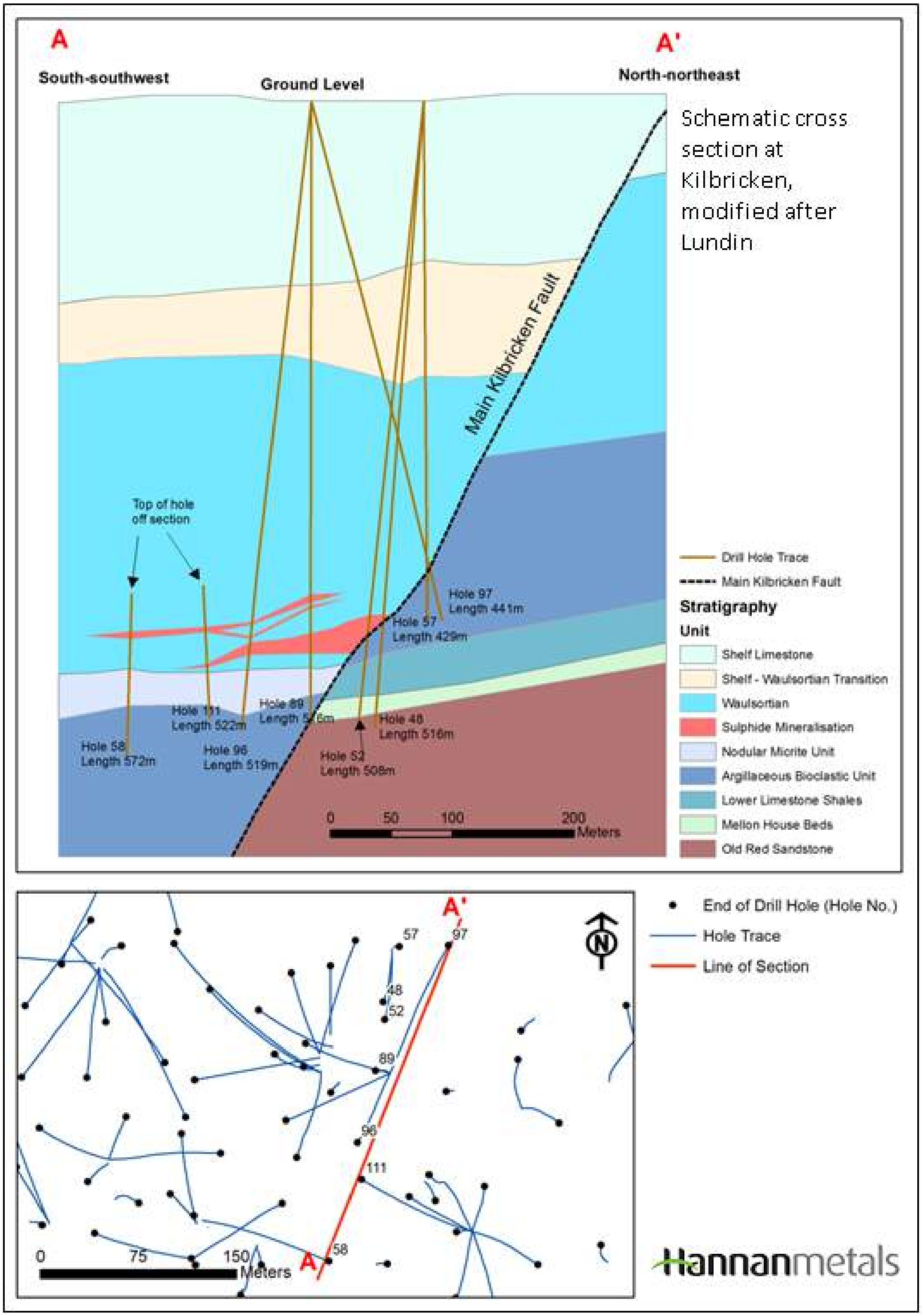

Figure 15 Interpreted Cross Section through the Kilbricken Deposit (modified after Lundin, 2011)

11 Sampling Preparation, Analyses and Security

11a Sample Preparation and Quality Control (QC) Methods Prior to Dispatch

For Hannan's recent drill program, one diamond drill rig from Priority Drilling Limited with water recirculation and drill cuttings collection systems was used. Core diameter is NQ2 (50.6 mm). Core recoveries were excellent and average close to 95-100% in fresh rock. After photographing and logging, core intervals averaging 1-2 metre for mineralized samples were cut in half at Hannan's core facilities in Ennis, Co. Clare, Ireland. The remaining half core is retained for verification and reference purposes.

Analytical samples were transported by Hannan personnel from site to the ALS Loughrea premises located at Dublin Road, Loughrea, Co. Galway, Ireland. At the laboratory samples are dried, crushed to 100% passing 2mm, then 500 grams pulverized for multi-element analysis by method ME-MS6, a four-acid digest performed on 0.25g of sample to quantitatively dissolve most geological materials. Analysis is via ICP-MS + ICP-AES. Samples assaying over range 1% zinc, lead, or copper and 100g/t silver were re-assayed using methods Ag/Pb/Zn-OG62, a precise ore grade method to determine lead, zinc and silver by HF-HNO3-HClO4 Digest, HCl leach and ICP-AES. For lead >20% and <80% method Pb-AAORE <80% was applied. This is a high precision analysis of lead ore, where lead was released with a strong oxidizing attack and analyzed by AAS. For lead >80%, method ME-CON02 was selected where lead is normally determined in concentrates by a combination of acid digests with spectroscopy finish.

The QA/QC program of Hannan consists of the systematic insertion of certified reference material of known base metal content and blanks at the start of each batch and within interpreted mineralized rock. In addition, ALS inserts blanks and standards into the analytical process.

The following quality control program was applied by the previous project operator on the project, Lundin Mining Ltd. Samples are marked up and tagged by geologists and cut by technicians into two halves using a diamond-tipped core saw. One half of the sawn core sample is bagged and sealed, then driven by company personnel to an arm's length and commercial third party, ISO 17025 and ISO9001:2008 accredited laboratory, ALS Loughrea (formerly OMAC) Laboratories. The remaining half is returned to the core tray. A dispatch sheet is included for each batch, and each drillhole is given its own batch number for ease of tracking. Approximately one in 20 samples is a QC sample, although the actual frequency of QC sample insertion is deliberately varied to avoid creating a pattern. QC samples are of three different types:

- Standards: Certified Reference Materials ("CRM") were purchased from Geostats Pty, Western Australia.
- Duplicates: Returned pulps from previously analysed samples are used as duplicates. The pulps are given a new sample number.
- Blanks: Unaltered, unmineralized drill core from the Waulsortian Limestone is used as blanks. The Waulsortian Limestone is a particularly suited to being used as a blank as it is a very pure limestone.

The results from CRMs are considered to lie within acceptable limits by the Senior Lundin Geologist responsible for Quality Control. For Pb, Zn, Cu the CRMs fall within two standard deviations ("2SD") of the certified values of respective element. The CRM results for Ag are also acceptable; most batches fall within 2SD of the certified value of Ag but a few batches fall within 3SD.

The results from duplicate samples show very good reproducibility of Zn, Pb, Cu and Ag across all batches.

The results from blanks generally show good results across all batches. However, single samples of a very limited number of batches show higher results than expected. The values are in the order of 10s of ppm and in one instance 100s of ppm. The cause of this is unclear but possibly the original blank naturally contained elevated values of Zn-Pb as country rock of the Waulsortian limestone was used.

The author believes that the sample preparation, sample integrity and analytical procedures have been adequate and appropriately applied for the project.

The basal 20 m of the Waulsortian Limestone in all drillholes in the Kilbricken area was sampled. Samples are generally 2 m in length, with variations for mineralized zones. The minimum sample interval is 0.5 m, with some exceptions for shorter, higher grade intervals. There have been approximately 12,000 halved core samples taken by Lundin in the Clare Property.

A cut-off grade of 4% Zn+Pb is used as a guide for compositing assay results. The mineralization has sharp upper and lower contacts, which makes the best composite interval obvious in most drillholes.

The specific gravity (SG) of each halved core sample is measured using the weight in air and water method before being sent to the laboratory. A certified stainless steel weight is measured using the same method at the beginning of each sampling session to ensure consistency. The results of these QC measurements are recorded and signed off by the relevant technician.

11b Sample Preparation and Analysis at ALS Loughrea Laboratories

Drill core samples collected by previous operator Lundin were prepared at the ALS Loughrea (formerly OMAC) laboratory according to P5 sample preparation protocol, as follows: dry, jaw crush total to <2mm, riffle-split to 1 kg and pulverize to 100 µm.

Three different types of analyses are used, as required by Lundin. These are:

- Inductively Coupled Plasma, Multi-Acid digestion (ICP-MA) with measurement by mass spectrometry is the normal analysis requested (Stewart Group 2011).

- ICP-ORE, a base metal assaying method is requested when a faster turnaround time is required.
- Assay by atomic absorption is requested for zinc, lead, silver, iron and arsenic in ore grade samples.

The results of these samples are graphed, with the following pass/fail criteria:

- CRM: Mean +/- twice the standard deviation is deemed a fail
- Blank: Greater than three times the minimum detection level is deemed a fail
- Duplicates: As a limited number of duplicated samples have been returned to date, the procedure for duplicates has yet to be implemented but it is intended that the Mean Absolute Paired Duplicate cut-off threshold will be 10%.

12 Data Verification

(a) The QP (Dr. John Colthurst) has visited the project regularly since 1993, especially during the period when Lundin carried out exploration from 2009 to 2012.

The soil sampling has been conducted as described in Section 9 and sample point locations were checked using a hand-held GPS. The sampling methods are suitable for Irish conditions and the laboratory used is fully accredited. Spoil from old mines, in particular calcite, has on occasion been used to surface minor roads and paths in the area. This can lead to spurious geochemical anomalies, especially in the areas sampled by CMF/Belmore, but these man-made anomalies have been largely identified and discounted.

Gradient Array Induced Polarisation Surveys have been carried out by a recognised contractor, BRG (Geotechnics) Ltd. This work was done in a professional manner but all geophysical surveys in Ireland are affected by the relatively high levels of rural settlement and associated culture in particular, electric power supplies and electric fences which are employed for livestock control. Cultural effects have been filtered out of the data as much as possible and cultural sources were recorded during the course of the surveys but it must be recognised that some IP anomalies may be due to culture which cannot be physically removed.

An extensive drilling programme, detailed in Section 10 has been carried out by Lundin Mining since February 2009. The QP has visited the drill sites on many occasions and confirms that the diamond drilling and collection of core was conducted in a professional manner. Relations with all local stakeholders are excellent and drill sites were fully re-claimed after drilling was completed. Drillholes were accurately located by Lundin personnel using a differential GPS and front and back sights were used for all angle holes.

The QP (Dr. John Colthurst) has examined many of the drillholes and confirms that they were correctly marked up, that the mineralized intervals were measured and marked correctly and that the core was cut and sampled in a professional manner. The logging of the drillholes was carried out by qualified Lundin geologists and their logs have been verified on numerous occasions by the QP Dr. John Colthurst.

b) The QP (Dr. John Colthurst) was present on several occasions when Gravity Surveys, Radial IP Surveys and Borehole Electromagnetics were being carried out but is not qualified to comment specifically on the results.

c) The QP (Dr. John Colthurst) can verify that there is a secure chain of custody for core samples, which were transported directly by Lundin personnel from the Lundin core store in Ennis to the OMAC Laboratory in Loughrea, County Galway.

All of the Lundin mineralized intersections are stored in secure warehousing in Ennis and have been readily accessible at any time to the QPs and Hannan's authorised staff.

The QP (Dr. John Colthurst) has reviewed the assay results from OMAC and considers that the results of the QAQC indicate a high level of precision with no bias, no significant contamination and a high degree of accuracy. These results provide a high level of confidence in the use of this data. The QP Dr. John Colthurst can also confirm that the data gathered is more than adequate for the purposes of this report.

The QP Mr. Geoff Reed of Reed Leyton Consultants ("RLC") travelled to the Kilbricken Project with representatives from Hannan in May 2017.

Six holes from the Fort deposit and six holes from the Chimney deposit were selected by RLC for re-logging and the mineralized intervals were laid out in their entirety and re-logged. RLC checked a random selection of printed logsheets against the data provided in the database.

These did not indicate any issue with data integrity.

Assayers ALS Chemex automatically insert standards and blanks in their normal assay procedure. Lundin included their standards in the sample stream in addition to ALS Chemex's internal practice.

Hannan has documented its duplicate-assay and analytical control program and demonstrated that there is no evidence of major systematic errors or bias in that data.

The audit of Lundin's data collection procedures and resultant database by RLC has resulted in a digital database that is supported by verified certified assay certificates, original drill logs and sample books. RLC has high confidence that all assays used in the Mineral Resource Calculation are consistent with information in drill logs and sample books. A comparison of the assay certificates and drillhole logs show consistency for the Lundin drillholes, RLC believes there is sufficient data to enable their use in a Mineral Resource estimate.

Based on data supplied, RLC believes that the analytical data has sufficient accuracy for use in resource estimation for the Kilbricken deposit.

RLC independently checked 40 sample assays by directly acquiring previously prepared original samples from the Lundin/Hannan database, the results of which are given on Table 18. A range of 40 zinc assay values were selected independently by RLC from borehole intervals to review potential variance over a range of grades. These ¼ core samples were independently selected and requested by RLC to be dispatched and assayed at ALS-Chemex Loughrea. The analytical method applied was ALS Chemex suite ME-MS61, an ultra trace level method using ICP – MS and ICP – AES which is recommended for Zinc analysis.

Final results were received by the author via direct email from ALS Chemex on June 13, 2017. The raw data, analysis certificate and supporting QC data were received. Figure 16 is a scatter plot that compares the original sample values for Zn versus the check sample value. There is extremely good agreement between the individual samples over a range of grades as evidenced by the high correlation coefficients posted to the plots.

All QAQC data for this project has been deemed acceptable for the purposes of estimation.

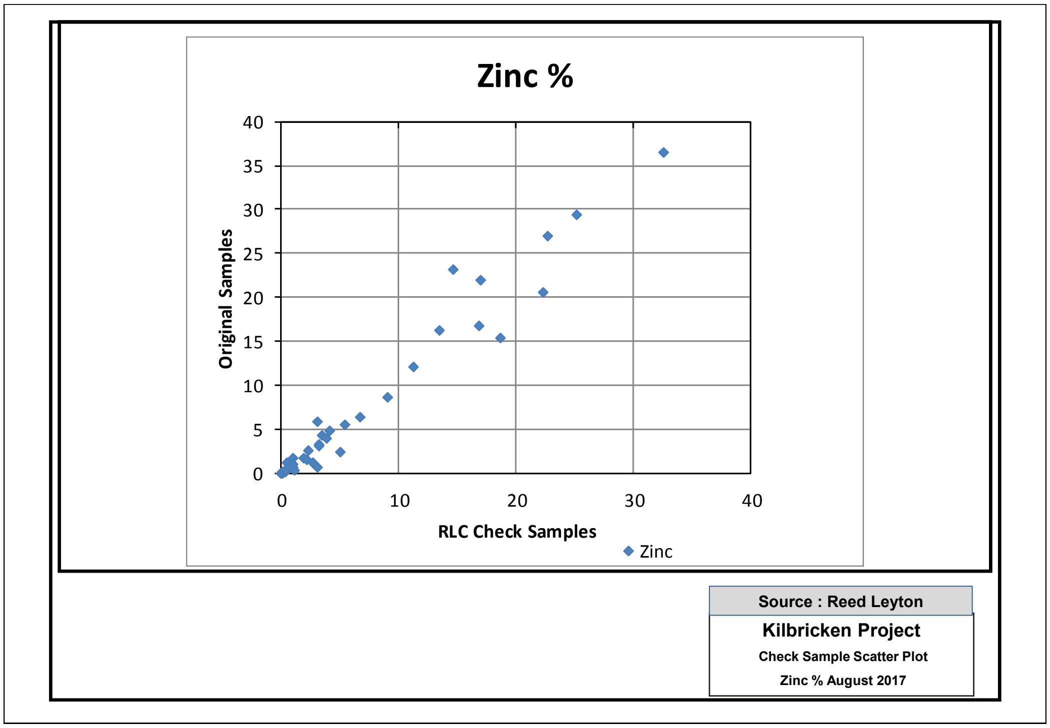

Figure 16 Original Zn % Samples vs RLC Zn % Scatter Plot

Table 18: Comparison of Reed Leyton Consultants ("RLC") versus Lundin's original zinc assays

DEPOSIT	HOLEID	FROM	TO	WIDTH	RLC ZN%	ORIG ZN%
FORT	11-3679-167	566.6	568.0	1.4	29.30	25.20
FORT	11-3679-167	595.8	597.6	1.8	3.26	3.24
FORT	11-3679-167	617.3	617.8	0.5	1.26	0.82
FORT	11-3679-167	617.8	619.2	1.4	1.70	1.90
FORT	11-3679-171	636.0	638.0	2.0	1.02	0.88
FORT	11-3679-171	638.0	640.0	2.0	1.51	2.16
FORT	11-3679-161	596.0	598.0	2.0	6.41	6.70
FORT	11-3679-161	598.0	599.2	1.2	1.22	2.68
FORT	11-3679-161	603.0	605.0	2.0	8.56	9.01
FORT	11-3679-161	624.4	626.0	1.6	12.15	11.25
CHIMNEY	11-3679-89	445.3	446.6	1.3	2.42	5.01
CHIMNEY	11-3679-89	446.6	448.0	1.4	0.11	0.05
CHIMNEY	11-3679-89	448.0	449.0	1.0	0.02	0.02
CHIMNEY	11-3679-170	606.7	608.7	2.0	0.74	1.00
CHIMNEY	11-3679-170	624.0	626.0	2.0	1.26	0.47
CHIMNEY	11-3679-153	633.7	635.8	2.1	4.84	4.11
CHIMNEY	11-3679-153	640.6	642.4	1.8	5.48	5.40
CHIMNEY	11-3679-153	658.5	659.5	1.0	0.03	0.03
CHIMNEY	11-3679-153	667.0	669.0	2.0	0.04	0.04
CHIMNEY	12-3679-181	507.2	509.2	2.0	1.64	0.95

CHIMNEY	12-3679-181	529.2	531.2	2.0	0.57	0.50
CHIMNEY	12-3679-181	531.2	533.2	2.0	0.66	0.59
CHIMNEY	12-3679-181	533.2	535.2	2.0	1.06	1.00
CHIMNEY	10-3679-52	427.2	427.7	0.5	0.67	3.07
CHIMNEY	10-3679-52	429.8	430.8	1.0	0.08	0.07
CHIMNEY	10-3679-52	436.8	437.8	1.0	0.38	1.07
CHIMNEY	10-3679-52	442.8	443.8	1.0	16.80	16.79
CHIMNEY	10-3679-52	443.8	445.0	1.2	26.90	22.66
CHIMNEY	10-3679-65	439.2	440.6	1.5	4.24	3.50
CHIMNEY	10-3679-65	441.3	441.6	0.3	0.23	0.35
FORT	10-3679-65	443.3	443.8	0.5	16.15	13.45
FORT	10-3679-65	447.2	447.4	0.2	23.20	14.61
FORT	3679-06	440.0	441.0	1.0	3.88	3.79
FORT	3679-06	441.9	442.9	1.0	20.50	22.24
FORT	3679-06	446.9	447.9	1.0	36.40	32.55
FORT	3679-06	453.6	455.6	2.0	2.59	2.24
FORT	3679-04	443.7	445.0	1.3	3.04	3.26
FORT	3679-04	448.1	450.0	1.9	15.30	18.61
FORT	3679-04	454.0	455.0	1.0	5.87	3.03
FORT	3679-04	455.0	457.0	2.0	22.00	17.01

13 Mineral Processing and Metallurgical Testing

In March 2011, a preliminary mineralogical investigation on several samples was carried out by SGS Canada (Appendix 3). SGS analysed 12 quarter-core samples, and two composite samples, which consisted of pulps from three assay samples. The samples were analysed by X-ray diffraction (XRD), QEMSCAN™ (Quantitative Evaluation of Materials by Scanning Electron Microscopy), electron microprobe and chemical analysis.

No assumptions have been made regarding recovery estimates.

Analysis of the composite samples indicated that the best grades and recoveries for all minerals are projected for the fine fractions (Grammatikopoulos 2011). 'Overall, grade - recovery curves respectively, representing the whole sample, indicate that for:

Pyrite

- grades between 97% and 79% for recoveries of 68% to 96%.

Sphalerite

- grades between 98% and 81% for recoveries of 78% to 95%.

Galena

- grades between 98% and 84% for recoveries of 88% to 96%. (Grammatikopoulos 2011)

The study was preliminary in nature and did not include a laboratory float test. The samples originated from drill core which had already been cut and sampled so they cannot be considered to be truly representative.

The study was inconclusive with regard to the two elements most likely to be deleterious (mercury and arsenic). It is possible that arsenic is linked to calcite and can therefore be avoided in concentrates. Arsenic occurs mainly as arsenopyrite, which is usually coarse grained and may not be difficult to remove. Further work is planned.

A metallurgical gap analysis was performed for Hannan and reported on 30 March 2017, by Dr. Kurt Forrester of ARN Perspective Ltd, based on a report the SGS Mineral Services, Lakefield Facility, dated September 2010 and titled: "An Investigation by High Definition Mineralogy into the mineralogical characteristics of Fourteen Rock Samples from A Carbonate Hosted Base Metal Deposit, Ireland, prepared for Lundin Mining Exploration". Key points from this gap analysis were:

- Based on the available information it is likely a conventional lead-zinc flotation circuit at Kilbricken would be able to achieve saleable mineral concentrates;
- It is anticipated that there should be no penalties due to the presence of deleterious elements (arsenic, manganese, cadmium, selenium), subject to confirmation from the assessment of bulk element deportment during lead-zinc flotation;
- A primary grind of between 100µm to 150µm is anticipated to achieve satisfactory liberation and there are no red flags with the modal mineralogical analysis with respect to mineral processing and beneficiation;
- Based on the information available, it is anticipated that Kilbricken should be able to achieve high recoveries of both zinc and lead concentrates. Results from limited grade recovery analysis indicated the following recoveries probable using a conventional flowsheet:
    - Targeting a sphalerite grade of 85% in the zinc concentrate would result in recoveries in excess of 85%;
    - Targeting a galena grade of 70% in the lead concentrate would result in recoveries in excess of 75%;

Recommendations include conducting metallurgical test work across the deposit as part of an ongoing exploration and development program.

14 Mineral Resource and Mineral Reserve Estimates

The Mineral Resources disclosed in this technical report have been estimated by QP, Mr. Geoff Reed, MAUSIMM (CP), Director of Reed Leyton Consulting Pty Ltd and independent of Hannan Metals Ltd. By virtue of his education and relevant experience, Mr. Reed is a “Qualified Person” for the purpose of National Instrument 43-101. The Mineral Resources have been classified in accordance with CIM Definition Standards for Mineral Resources and Mineral Reserves adopted by the CIM council on May 10, 2014. QP, Mr. Reed, MAUSIMM (CP), has read and approved the contents of this press release as it pertains to the disclosed Mineral Resource estimates.

A maiden resource estimate has been calculated for Hannan’s 100%-owned Kilbricken zinc-lead-silver-copper deposit. The resource has been classified as inferred and indicated based on CIM guidelines. The classification is based on geological understanding of the deposit, the continuity of mineralization, bulk density measurements and quality control results and interpolation parameters.

The Kilbricken deposit shows reasonable continuity of mineralization within well-defined geological constrains. Drill hole spacing at 25 m by 25 m is sufficient to allow the geology and mineralization to be modelled into coherent wireframes for each domain.

Reasonable chances of eventual economic extraction are derived from using a zinc equivalent (“ZnEq”) cut-off grade of 5%, based on Net Smelter Return (“NSR”) calculations of conceptual operating costs and metal revenue.

No mining optimisation or Economic Study has been completed, and the reported Mineral Resources do not have proven and probable mining reserves.

The mineral resource reported is:

- Total indicated mineral resource of 2.7 million tonnes at 9.5% zinc equivalent (“ZnEq”), including 1.4 million tonnes at 11.2% ZnEq;

- Total inferred mineral resource of 1.7 million tonnes at 8.6% ZnEq, including 0.6 million tonnes at 10.8% ZnEq;

Tables 19, 20 and 21 below outline global indicated and inferred resources for each mineralized body as well as a breakdown of resources by location for various cut-off grades.

Table 19: Kilbricken Deposit Indicated Mineral Resources Base Case 5% ZnEq Lower Cut-off Grade

Zone	Category	Cutoff ZnEq%	Tonnes	Zn%	Pb%	Ag g/t	Cu%	ZnEq%	SG
Chimney	Indicated	5	1,369,000	5.6	4.2	66	0.1	11.2	3.5
Fort	Indicated	5	1,287,000	3.7	1.4	34	0.5	7.8	3.0
Total	**Indicated**	**5**	**2,656,000**	**4.7**	**2.9**	**50**	**0.3**	**9.5**	**3.2**

Table 20: Kilbricken Deposit Inferred Mineral Resources Base Case 5% ZnEq Lower Cut-off Grade

Zone	Category	Cutoff ZnEq%	Tonnes	Zn%	Pb%	Ag g/t	Cu%	ZnEq%	SG
Chimney	Inferred	5	635,000	5.9	3.6	61	0.1	10.8	3.4
Fort	Inferred	5	1,046,000	3.4	2.5	30	0.3	7.3	3.0
Total	**Inferred**	**5**	**1,681,000**	**4.4**	**2.9**	**41**	**0.2**	**8.6**	**3.1**

Table 21: Kilbricken Deposit Indicated and Inferred Mineral Resources for the Chimney and Fort Zones at Various ZnEq Lower Cut-off Grades.

Zone	Category	Cutoff	Tonnes	Zn%	Pb%	Ag g/t	Cu%	ZnEq %	SG
Chimney	Indicated	4	1,444,000	5.4	4.1	64	0.1	10.8	3.4
Fort	Indicated	4	1,452,000	3.6	1.4	33	0.5	7.5	2.9
Chimney	Inferred	4	682,000	5.7	3.5	58	0.1	10.4	3.3
Fort	Inferred	4	1,194,000	3.2	2.4	30	0.3	7.1	3.0
Chimney	**Indicated**	**5**	**1,369,000**	**5.6**	**4.2**	**66**	**0.1**	**11.2**	**3.5**
Fort	**Indicated**	**5**	**1,287,000**	**3.7**	**1.4**	**34**	**0.5**	**7.8**	**3.0**
Chimney	**Inferred**	**5**	**635,000**	**5.9**	**3.6**	**61**	**0.1**	**10.8**	**3.4**
Fort	**Inferred**	**5**	**1,046,000**	**3.4**	**2.5**	**30**	**0.3**	**7.3**	**3.0**
Chimney	Indicated	6	1,291,000	5.8	4.4	67	0.1	11.5	3.5
Fort	Indicated	6	790,000	4.4	1.5	34	0.5	8.5	3.0
Chimney	Inferred	6	586,000	6.1	3.8	63	0.1	11.2	3.4
Fort	Inferred	6	876,000	3.5	2.7	31	0.3	7.6	3.0
Chimney	Indicated	7	1,173,000	6.0	4.5	70	0.1	12.0	3.5
Fort	Indicated	7	407,000	4.8	1.3	43	0.8	9.9	3.0
Chimney	Inferred	7	536,000	6.3	3.9	66	0.1	11.7	3.4
Fort	Inferred	7	267,000	4.2	2.6	44	0.5	9.3	3.0

Notes: Classification of the MRE was completed based on the guidelines presented by Canadian Institute for Mining (CIM), adopted for Technical reports which adhere to the regulations defined in Canadian National Instrument 43-101 (NI 43-101).

Inferred and Indicated Mineral Resources are reported at a 5.0% base case zinc equivalent (ZnEq) cut-off grade. Table 3 reports various zinc equivalent cut-off grades between 4% and 7%. The Inferred and Indicated Mineral Resource classification is based on geological understanding of the deposit, the continuity of mineralization, bulk density measurements and quality control results and interpolation parameters.

The reported zinc equivalent (ZnEq) cut-off grade value was calculated using the following formula: ZnEq % = NSR(total) / NSR(Zn) * Grade(Zn%) where the NSR was calculated using: NSR(xx) = Grade(xx)*Recovery(xx)*Payability(xx)*(Price per metal tonne(xx) - Cost of sales per metal tonne(xx)) - (Grade(xx)*Recovery(xx)*Payability(xx)*Price per metal tonne(xx)*Royalty(xx). Assumed prices of Zn $2587/t;

Cu $5437/t; Pb $2108/t and Ag $18.44/oz, prices dated August 2017. For full disclosure of variables see section "ZnEq" on page 102. Average In Situ Dry Bulk Density for mineralized material is reported in Table 1,2,3

Mineralization wireframes were constructed to honour continuity of mineralization, stratigraphical and geological controls. The minimum width was 2 metres based. The continuity of mineralization was assessed by using 1% and 3% wifreframe zinc equivalent (ZnEq). The wireframe zinc equivalent (ZnEq) was calculated using the following formula: ZnEq% = Zn % + (Cu% * 2.102) + Pb% * 0.815) + (Ag g/t * 0.023) with assumed prices of Zn $2587/t; Cu $5437/t; Pb $2108/t and Ag $18.44/oz, prices dated August 2017.

Methodology

Reed Leyton estimated the Kilbricken Mineral Resource using a drill database of 222 drillholes for 118,152 metres produced by Lundin Mining Ltd, drilled from 2010 to 2012. The resource was calculated using mineralized intercepts from 76 drillholes and a comprehensive re-interpretation of the geology by Hannan. The resource does not include any 2017 drilling by Hannan.

A set of cross-sections and level plans were used to construct three-dimensional wireframe models at approximate 1% and 3% wireframe ZnEq for both the Chimney and Fort zones. The mineralized wireframe zinc equivalent (ZnEq) value was calculated using the following formula: ZnEq% = Zn % + (Cu% * 2.102) + Pb% * 0.815) + (Ag g/t * 0.023) with assumed prices of Zn $2587/t; Cu $5437/t; Pb $2108/t and Ag $18.44/oz, prices dated August 2017 Equivalent recovery for all metals is assumed.

All assays were composited, with a majority composited to two metre lengths, with a minimum half metre length. No upper cut-off was applied to zinc but an upper cut-off was used for lead and copper mineralization at the Chimney zone and to lead, copper and silver at the Fort zone.

Block model grades within the wireframe models were interpolated in Vulcan by Ordinary Kriging with secondary check models by inverse distance squared. Classic density measurements (specific gravity of "SG") were performed on all samples. Indicated Mineral Resources were defined by at least 2 holes falling within a 30 metres sample distance, with the remainder of mineralization greater than 30 metres sample distance categorized as Inferred Mineral Resources.

CIM definitions were followed for Mineral Resources. Mineral Resources are not Mineral Reserves and do not have demonstrated economic viability. There is no certainty that all or any part of the Mineral Resources will be converted into Mineral Reserves.

Background Resource Data

Drilling data

- Two hundred and twenty two (222) diamond drillholes totalling 118,152m, drilled into the Kilbricken area in 2008 - 2012.
- Seventy six (76) diamond drillholes were included in the current mineral resource estimation.
- Data relating to the collar locations, drill collar orientations were sighted by Geoff Reed in sections and plans of the day.
- Geoff Reed inspected the drilling area with the Issuer's personnel and was not able to locate drillhole collars due to the removal of drill collars for farming.
- Approximately 60% of drillholes were spaced at a distance between holes of 25m and are steeply dipping. Hole lengths are average 350 metres. The maximum hole length is 909 metres. Shorter holes were drilled where the carbonate host comes close to surface.
- All drillholes were surveyed for deviation. The start azimuth was measured with a hand held compass.
- Lundin surveyed all drill collars by DGPS.

All mineralized intersections from drill core has been located by the Issuer's staff in Ennis, Ireland. Core from mineralized intersections from 12 holes was inspected by the Mr. Geoff Reed.

Table 22 - Kilbricken Drilling Database Summary

Hole Type	*Drill Series*	*Drill Number*	*Drill Metres*	*Resource Intersection Metres*
DD	K series	3	452	
DD	2008/9	36	17,787	**187**
DD	2010	41	19,190	**281**
DD	2011	100	54,986	**712**
DD	2012	42	25,737	**124**
Total		**222**	**118,152**	**1304**

Database Integrity

- Capture of digital data was completed by the Issuer's staff. Hard copy data has been verified and all data is stored in a database and managed by the Issuer.
- Drilling data from drill programs were kept in digital format by the Issuer's staff.
- Digital data has been both randomly and systematically checked by the author and shown to be correct using a number of checks. Assay data in original laboratory sheets has been sighted from the 2008, 2009, 2010, 2011 and 2012 drilling program.
- The digital data was compiled directly into Microsoft Excel csv format by the Issuer. The database was then validated and imported into Maptek Vulcan software in the csv format.
- The database for Kilbricken was attributed to two hundred and twenty two (222) diamond drillholes, which provided the verified information for compositing (specifically the collar, survey, lithology and assay tables). The database included drillholes with recorded collar elevation. This database was named clrfinZnEq17.dd7.isis.

Drill Spacing

- Two hundred and twenty-two (222) diamond drillholes for 118,152m of diamond drilling were drilled at Kilbricken, while seventy-six (76) drillholes were used in the resource calculation.
- Kilbricken has seen intense drilling into specific areas. Approximately 60% of drillholes were spaced at a distance between holes of 25m and are steeply dipping.
- For wire framing purposes 105 degrees strike was considered the optimal orientation. Strike of mineralization varied from 100 degrees to 110degrees.
- Polygons were created every 15m through the seventy-six (76) drillholes) diamond drillholes at the project.

Drilling Orientation

- Due to the difficulty in moving large and sound proofed drill rigs around farms in the project area, drillholes orientations were variable with fans of three dimensional holes drilled from single collars.
- Due to the amount of drilling and orientation, the true thickness is generally considered to be 90%-95% of drilled thickness.
- The likelihood that mineralization is developed in an orientation other than that interpreted is considered to be low.

Chemical Analysis

- A total of 5756 samples from two hundred and twenty-two (222) drillholes were analysed in total at Kilbricken for diamond drillholes with seventy-six (76) diamond drillholes included in the current mineral resource estimation.

- Core drilled were sampled and analysed by ALS Loughrea located at Dublin Road, Loughrea, Co. Galway, Ireland. At the laboratory samples are dried, crushed to 100% passing 2mm, then 500 grams pulverized for multi-element analysis by method ME-MS6, a four-acid digest performed on 0.25g of sample to quantitatively dissolve most geological materials. Analysis is via ICP-MS + ICP-AES. Samples assaying over range 1% zinc, lead, or copper and 100g/t silver were re-assayed using methods Ag/Pb/Zn-OG62, a precise mineralization grade method to determine lead, zinc and silver by HF-HNO3-HClO4 Digest, HCl leach and ICP-AES. For lead >20% and <80% method Pb-AAORE <80% was applied. This is a high precision analysis of lead mineralization, where lead was released with a strong oxidizing attack and analyzed by AAS. For lead >80%, method ME-CON02 was selected where lead is normally determined in concentrates by a combination of acid digests with spectroscopy finish.

Sample length

- All holes drilled at Kilbricken were sampled with an average of 1.5 metre intervals. Check sampling by the Issuer at the request of the author used identical sample intervals.
- Composites of the drillhole assays are generated using Maptek Vulcan software with run lengths of 2 metre.
- These composites honour the geological wireframes. Checking was undertaken by generating an Isis file and visually inspecting the result of the composite.
- Specific components of the compositing include
  - Run lengths of 2 metre;
  - Data fields Zn, Pb, Ag, As, Cu, SG, ZnEq was composited;
  - The composite file was then applied a tag for each composite with the character (101,107,301-305 for Chimney) (111,112,116,117,301,302,305 for Fort) in the ‘bound’ column. This new composite file was called viekilb2.cmp.isis and used in the estimation process.

- High grade cuts were applied to the composite.
- 2m sample lengths were chosen for both the Fort and Chimney Zones (figures 17 and 18).

Table 23 High grade cutting applied to the Chimney Zone

Chimney **(>3%ZnEq)**	Chimney **(>1%ZnEq)**
Zn -None	Zn None
Pb None	Pb 1.0%
Cu 1.0%	Cu None
Ag None	Ag None
As None	As None

Table 24 High grade cutting applied to the Fort Zone

Fort (>3%ZnEq)	Fort (>1%ZnEq)
Zn -None	**Zn None**
Pb None	**Pb 4.0%**
Cu 13.2%	**Cu 0.74%**
Ag 582 g/t	**Ag 200 g/t**
As 1.69%	**As 1.67%**

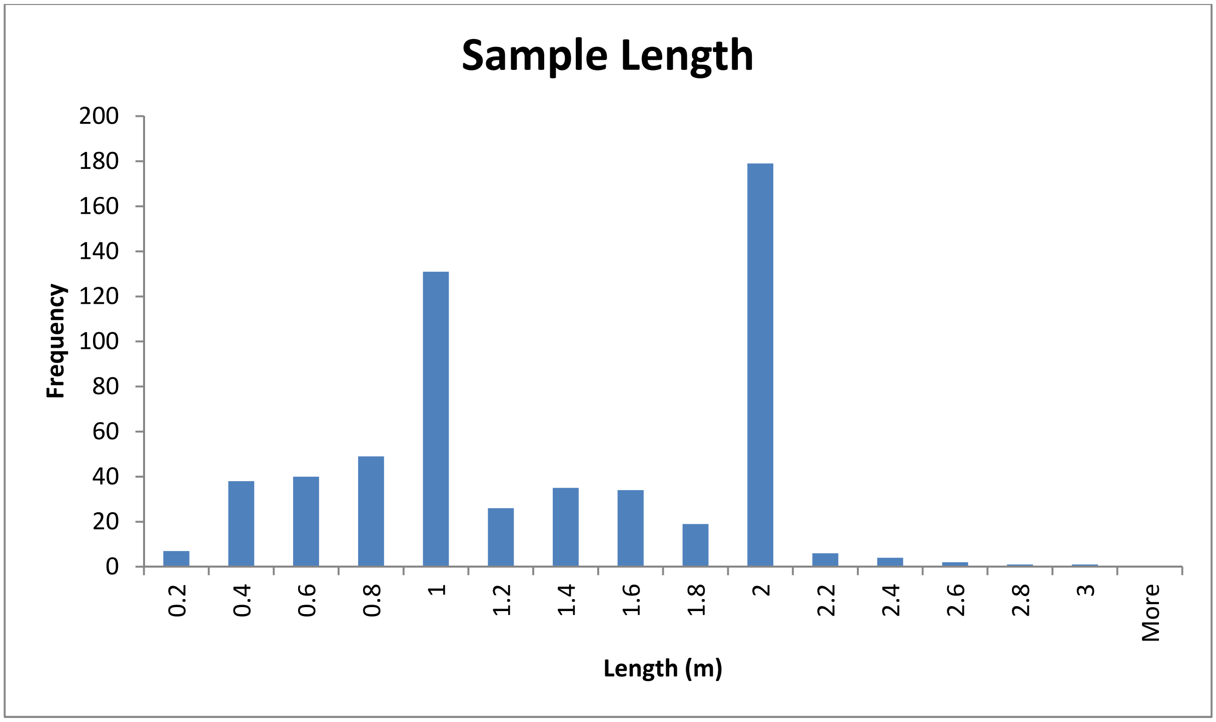

Figure 17 Histogram of Chimney Sample Lengths

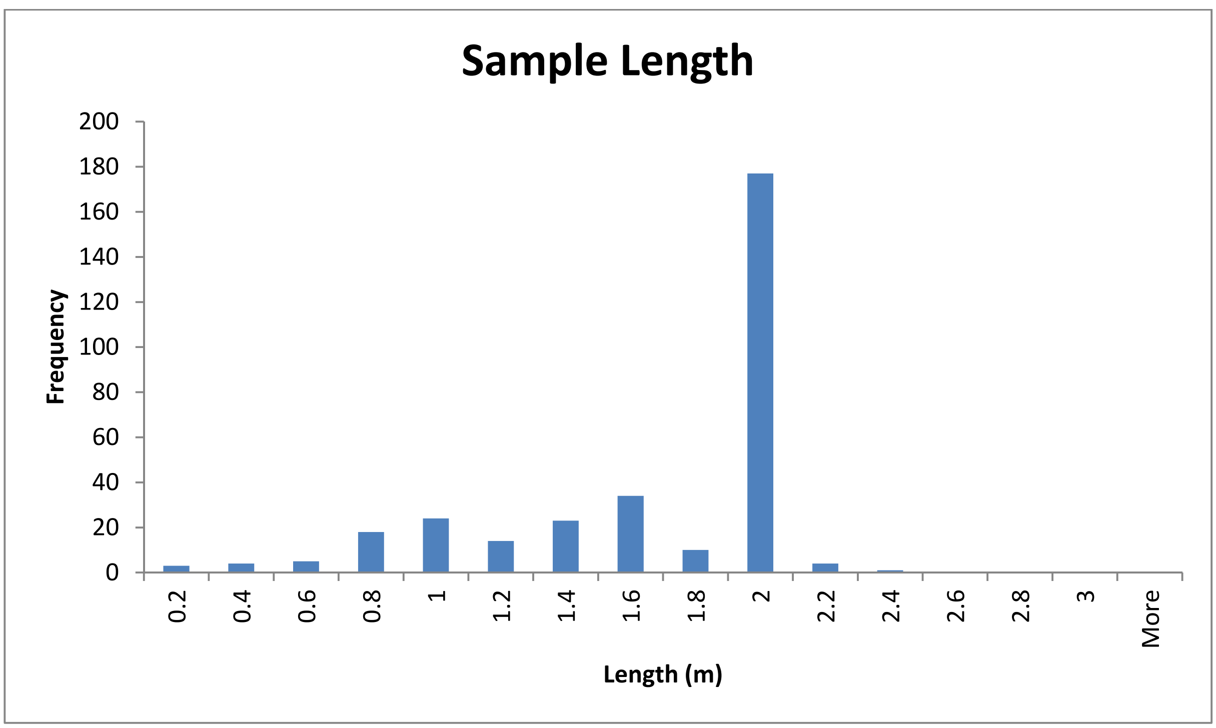

Figure 18 Histogram of Fort Sample Lengths

Relative density

- Classic density measurements (specific gravity of "SG") were performed on all samples by the Issuer for each assay interval within the geology database. The author created a file to estimate various density grades within the resource and waste blocks outside the resource.

Geological Model

Chimney

- The block model was created using the one bdf file, viech2525ok_rlccut.bdf. This original block model contained only default values except for the variable domain, which was populated in relation to the wireframes in which the blocks resided in.
- An origin xyz coordinates of 140500x, 175800y,-600z
- A Block rotation of 0 Bearing, 0 Plunge and 0 Dip was applied.
- Parent block size was 25m x 25m x 5m with sub blocks at 2.5m x 2.5m x 1m.
- An offset of 800m x 1000m x 300m was applied
- The variables include the type and their default values before estimation.

Fort

- The block model was created using the one bdf file, vieft25255ok_rlccut.bdf. This original block model contained only default values except for the variable domain, which was populated in relation to the wireframes in which the blocks resided in.
- An origin xyz co ordinates of 139500x, 175800y,-700z
- A Block rotation of 0 Bearing, 0 Plunge and 0 Dip was applied.
- Parent block size was 25m x 25m x 5m with sub blocks at 2.5m x 2.5m x 1m.
- An offset of 400m x 1000m x 300m was applied
- The variables include the type and their default values before estimation.

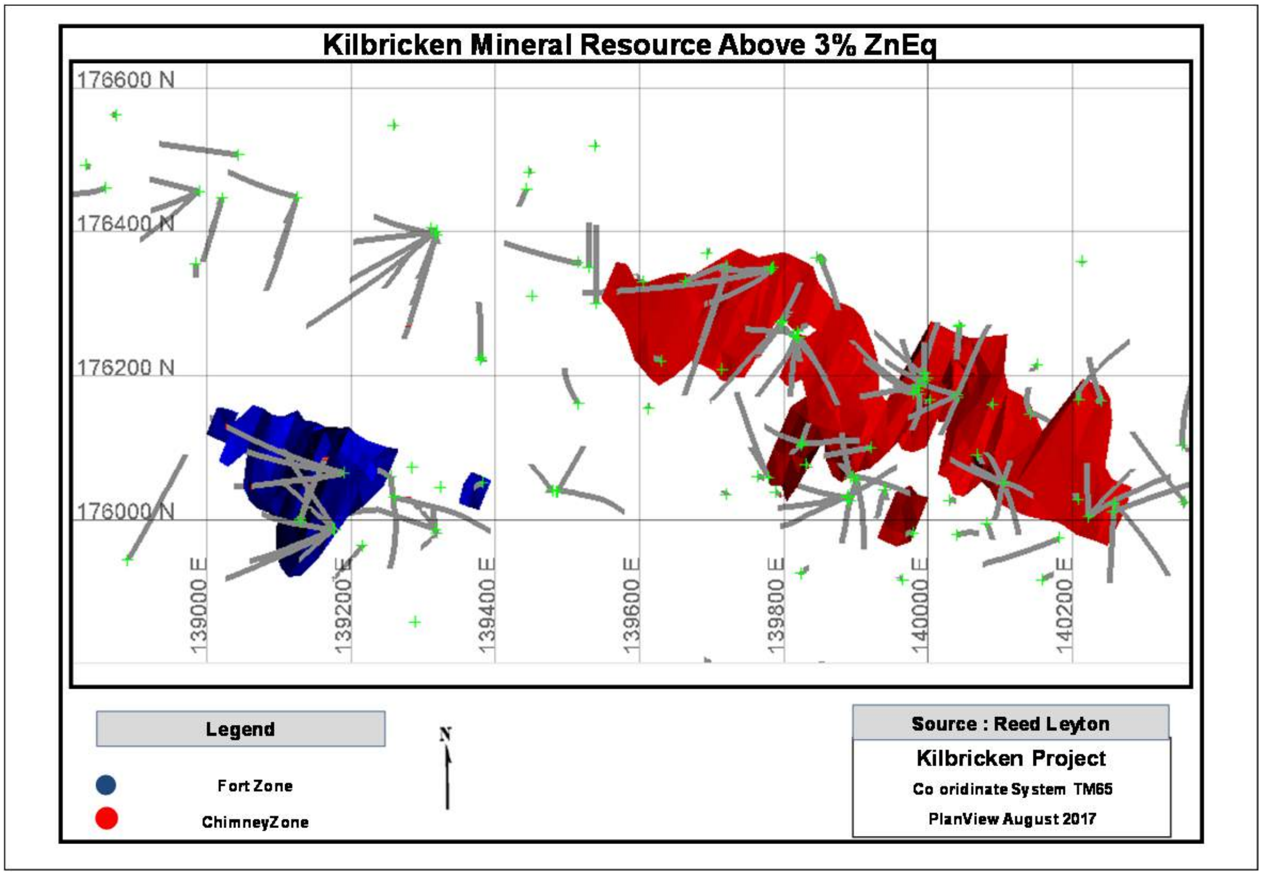

Figure 19 Mineral Resource Plan View, Kilbricken

Wire framing

- Using the above drillhole data, wire framing of the geological boundaries were performed by joining digitized section outlines at a 15m spacing.
- The digitized sections are snapped to drillholes within +/-7.5m influence using above 1% ZnEq and 3% ZnEq wireframe domain at Kilbricken.
- The mineralized wireframe zinc equivalent (ZnEq) cut-off grade value was calculated using the following formula: ZnEq% = Zn % + (Cu% * 2.102) + Pb% * 0.815) + (Ag g/t * 0.023) with assumed prices of Zn $2587/t; Cu $5437/t; Pb $2108/t and Ag $18.44/oz, prices August 2017.
- Vertical plane sections were digitised at 105 degree orientation at a 15 metre spacing. There is sufficient evidence for continuity of the mineralized envelope

between a number of sections. The mineralization has been drilled out to the extent to determine if the mineralization is continuous over the 700m strike distance for Chimney and 200m strike distance for Fort (Figure 19).

- All modelled wireframes were checked in plan, cross section, long section and 3D rotated views (Figure 20).
- All geological wireframes were checked for crossing, inconsistencies and closure.

Table 25- Kilbricken: Chimney and Fort Domains (above 1% and 3% ZnEq)

Chimney	Fort
Ch_301 (>3%ZnEq)	Ft_301 (>3%ZnEq)
Ch_302 (>3%ZnEq)	Ft_302 (>3%ZnEq)
Ch_303 (>3%ZnEq)	Ft_305 (>3%ZnEq)
Ch_304 (>3%ZnEq)	Ft_111 (>1%ZnEq)
Ch_305 (>3%ZnEq)	Ft_112 (>1%ZnEq)
Ch_101 (>1%ZnEq)	Ft_116 (>1%ZnEq)
Ch_107 (>1%ZnEq)	Ft_117 (>1%ZnEq)

Table 26- Kilbricken domain volume validation

Domain	Wireframes Volume	Model Volume	Domains
Ch301	593387	593169	100.04%
Ft301	885384	885425	99.995%

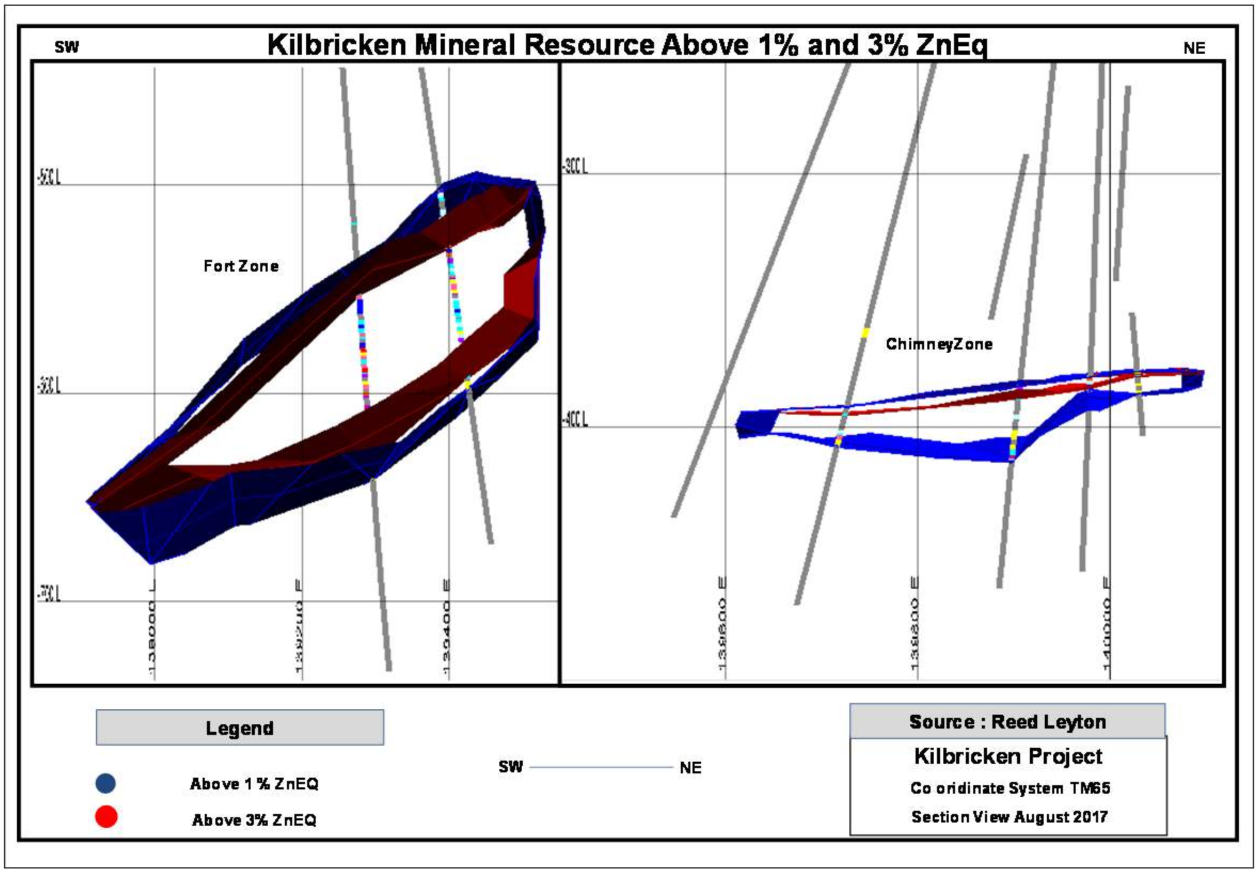

Figure 20 Mineral Resource Cross Section, Kilbricken

Grade Interpolation

- Grade interpolation was undertaken using ordinary kriging defined by the domain wireframes. The allocations of composites were calculated using a hard boundary at the domain wireframes.
- Using Maptek Vulcan's Estimation Editor the grade estimation was run for Kilbricken. Variables were populated using one single search ellipses with no cutoff to the ore domains.

- Constant parameters used in this block estimation file, include:
  - The grade variable populated was Zn, Pb, Ag, As, Cu, SG, ZnEq . The default given was-99
  - The number of samples used was populated in the variable numsam. The default given to this variable was -99
  - The number of drillholes used was stored in nodrill. The default given was -99
  - The sample distance used was stored in the variable samdis
  - The ordinary kriged method was applied.

Table 27- Block Model Parametres for Kilbricken

Variables	Description
zn	Zinc grade – reportable uncut
pb	Lead grade – reportable uncut
cu	Copper grade – reportable uncut
ag	Silver grade – reportable uncut
as	Arsenic grade – not reportable
ZnEq	Zinc equivalent variable
bd	Bulk density variable
Category	Resource category variable
Nodrill	Number of drillholes
Samdis	Sample distance
Mined	Mined or insitu
Numsam	Number of samples

Domain	Mineralized domain
Pass	Number of passes
Zn_bv	Block variance for Zinc
Zn_kv	Kriging Variance for Zinc
Zn_ke	Kriging Efficiency for Zinc
Zn_sor	Slope of regression for Zinc

- Variography was completed using Snowden's Supervisor V8 software. The composited uncut data from all domains were used for geostatistical modelling. To determine the nugget value, a downhole variogram with a 2 metre lag was used. Then directional semi-variograms using a normal scores transform were produced in the horizontal, across-strike and dip plane directions. The results of the nugget and semi-variograms were then fitted to a nested spherical model with up to two structures if required. The semi-variograms were then modelled to produce a sill and range in each of the principal directions.

- A multi-block kriging neighbourhood analysis was completed for the Chimney deposit using the 3% ZnEq zone to determine the optimum block size as well as appropriate minimum and maximum number of samples used in the estimate. This was achieved by estimating a given point at certain block sizes, differing number of samples, differing search ranges determined by the variography and discretisation steps.

- From the block sizes chosen for the kriging neighbourhood analysis there was a wide range of results that had lower than acceptable levels of kriging efficiency and slope of regression. A kriging efficiency above 80% and a slope of regression above 0.9 is considered a robust estimate.
- A block size of 25(X) x 25(Y) x 5(Z) was chosen due to the results of the minimum and maximum samples used for the estimate and also the dimensions of the mineralization and the spacing of drilling.
- A maximum of 25 samples were chosen whereby there is little change to the kriging efficiency and slope of regression when more samples are used. Therefore, choosing more samples does not improve the estimation.
- A comparison of the discretisation steps showed a 3(X) x 3(Y) x 3(Z) to be appropriate.
- Tables 28 to 34 show the results of the Variography and kriging neighbourhood analysis.

Table 28- Search Parametres for Kilbricken

Pass	Bearing (z)	Plunge (y)	Dip (x)
Ch_101	112	-2	-18
Ch_107	127	-10	-1
Ch_301	112	-2	-18
Ch_302	106	-2	-6
Ch_303	120	-10	-9
Ch_304	138	0	-3
Ch _305	278	-13	30
Pass	Bearing (z)	Plunge (y)	Dip (x)
Ft_111	290	-25	30
Ft_112	105	-2	-45
Ft_116	292	0	11
Ft_117	297	-2	19
Ft_301	290	-25	30
Ft_302	117	-1	-40

Ft_305	106	-12	-40

Table 29 Estimation Parameters for Chimney Ch_301

Pass	Min Sample	Max Sample	Distance (z)	Distance (y)	Distance (x)	Discretisation
1	10	25	80	30	10	3x:3y:3z
2	10	25	250	100	30	3x:3y:3z
3	2	25	250	100	30	3x:3y:3z

Table 30 Estimation Parameters for Chimney Ch_101

Pass	Min Sample	Max Sample	Distance (z)	Distance (y)	Distance (x)	Discretisation
1	10	25	110	40	10	3x:3y:3z
2	10	25	350	130	30	3x:3y:3z
3	2	25	350	130	30	3x:3y:3z

Table 31- Variography Parameters for Chimney

Domain	Nugget	Sill	Bearing	Plunge	Dip	Major	SemiMajor	Minor
Ch_301 (STR1)	0.17	0.51	85	0.4	-5	171	26	9
Ch_301 (STR2)		0.31	85	0.4	-5	250	107	55
Ch_101 (STR1)	0.19	0.52	129	-3	-10	88	65	28
Ch_101 (STR2)		0.28	129	-3	-10	141	128	33

Table 32 Estimation Parameters for Fort Ch_301

Pass	Min Sample	Max Sample	Distance (z)	Distance (y)	Distance (x)	Discretisation
1	10	25	30	25	20	3x:3y:3z
2	10	25	100	75	60	3x:3y:3z
3	2	25	100	75	60	3x:3y:3z

Table 33 Estimation Parameters for Fort Ch_111

Pass	Min Sample	Max Sample	Distance (z)	Distance (y)	Distance (x)	Discretisation
1	10	25	50	25	20	3x:3y:3z
2	10	25	150	70	50	3x:3y:3z
3	2	25	150	70	50	3x:3y:3z

Table 34- Variography Parameters for Fort

Domain	Nugget	Sill	Bearing	Plunge	Dip	Major	SemiMajor	Minor
Ft_301 (STR1)	0.22	0.3	50	45	-90	10.5	28	28.5
Ft_301 (STR2)		0.49	50	45	-90	79	75	64
Ft_111 (STR1)	0.27	0.73	68	37	-50	141	66	48

Once the estimations had run, several additional variables were added or calculated. These variables included:

- The resource has initially been classified using the variable "category". To classify the resource as measured, indicated and inferred. This script looked at the nearest neighbour distance variable ("samdis") and the number of drilholes "nodrill".
    - Measured blocks = Sample distance(samdis) < 7.5m and No of Drillholes (no drill) > 3
    - Indicated blocks = Sample distance(samdis) > 7.5 and <30m and No of Drillholes (no drill) > 3
    - Indicated blocks = Sample distance <30m and No of Drillholes (no drill) = 2
    - Inferred blocks = Sample distance(samdis) <30m and No of Drillholes (no drill) = 1
    - Inferred blocks = Sample distance(samdis) >30m

Minimum width

Mineralization wireframes were constructed to honour continuity of mineralization, stratigraphical and geological controls. The minimum width was 2 metres. The continuity of mineralization was assessed by using 1% and 3% wifreframe zinc equivalent (ZnEq). The wireframe zinc equivalent (ZnEq) was calculated using the following formula: ZnEq% = Zn % + (Cu% * 2.102) + Pb% * 0.815) + (Ag g/t * 0.023) with assumed prices of Zn $2587/t; Cu $5437/t; Pb $2108/t and Ag $18.44/oz, prices dated August 2017.

The Kilbricken deposit shows reasonable continuity of mineralization within well-defined geological constrains. Drill hole spacing at 25 m by 25 m is sufficient to allow the geology and mineralization to be modelled into coherent wireframes for each domain.

Model Validation

To check that the interpolation of the block model correctly honoured the drilling data, RLC carried out a validation of the estimate using the following procedures:

1. A comparison of the composited sample grade statistics with block model grade statistics (Figures 21 and 22).
2. Comparison of volumes defined by the resource wireframes and the associated block model (Figures 21 and 22).
3. Visual sectional comparison of drillhole grades vs. estimated block grades.
4. Spatial comparison of composite grades and block grades by easting, northing and elevation.

Resource Classification

The Mineral Resource was classified based on drilling density, grade continuity and geological confidence. The Kilbricken deposit due to its mineralization type shows good geological and mineralization continuity at a low grade threshold (>1% ZnEq) (derived from an assessment of the natural grade cut-off). Within this low grade >1% ZnEq wireframe there is a reasonable level of confidence that further drilling will increase the geological confidence and allow for measured resource in the future.

As noted, the drill spacing is 25m by 25m for 60% of the resource, but still not sufficiently dense for the current resource estimate. RLC believes the current estimated grade is of low to medium level of confidence and further drilling may possibly impact on the internal mineralization distribution, as a result the resource was classified as an Inferred and Indicated Mineral Resources.

Reasonable chances of eventual economic extraction are derived from using a zinc equivalent ("ZnEq") cut-off grade of 5 %, based on Net Smelter Return ("NSR") calculations of conceptual operating costs and metal revenue. These are further discussed in the next section.

A ZnEq grade is used at Kilbricken to generate a single value based on both the zinc and lead grades within the Mineral Resource.

The zinc equivalent (ZnEq) value was calculated using the following formula: ZnEq % = NSR(total) / NSR(Zn) * Grade(Zn%) where the NSR was calculated using: NSR(xx) = Grade(xx)*Recovery(xx)*Payability(xx)*(Price per metal tonne(xx) - Cost of sales per metal tonne(xx)) - (Grade(xx)*Recovery(xx)*Payability(xx)*Price per metal tonne(xx)*Royalty(xx). Assumed prices of Zn $2587 /t; Cu $5437/t; Pb $2108/t and Ag $18.44/oz, prices dated August 2017 For full disclosure of variables see section "ZnEq" on page 102.

ZnEq, NSR and and reported cut-off grade assumptions

Cut-off grade

The reported base case of 5% ZnEq was derived from an assessment of the natural grade cut-off. The reasonable chances of eventual economic extraction are based on Net Smelter Return ("NSR") calculations of conceptual operating costs and metal revenue. The mining and metallurgical assumptions have been made based on costs of similar mines and other sources in order to calculate ZnEq and establish cut-off grade.

Mining Assumptions

Two styles of mineralization are evident at Kilbricken. The Chimney zone demonstrates the classic high-grade (>10% ZnEq) Irish stratabound mineralization targeted by Hannan. This body has been drilled within an area of 750 metres by 200 metres and averages 12 metres thickness. The Fort Zone was found later than the Chimney zone and has been tested with fewer drillholes. It is structurally hosted, lower grade, but thicker, averaging 40 metres, and drilled within a 400 metre by 200 metre area.

- The methodology selected could be room and pillar mining, where:
    - Mining cost: US$46.50/t considering the administration cost.
    - Processing cost: US$21.25/t

Metallurgical Assumptions

A metallurgical gap analysis was performed for Hannan and reported in March 2017 by Dr. Kurt Forrester of ARN Perspective Ltd. Based on the results from this work:

- Based on the available information it is likely a conventional lead-zinc flotation circuit at Kilbricken would be able to achieve saleable mineral concentrates;
- It is anticipated that there should be no penalties due to the presence of deleterious elements (arsenic, manganese, cadmium, selenium), subject to confirmation from the assessment of bulk element deportment during lead-zinc flotation;
- A primary grind of between 100µm to 150µm is anticipated to achieve satisfactory liberation and there are no red flags with the modal mineralogical analysis with respect to mineral processing and beneficiation;
- Based on the information available, it is anticipated that Kilbricken should be able to achieve high recoveries of both zinc and lead concentrates. Results from limited grade recovery analysis indicated the following recoveries probable using a conventional flowsheet:

  - Targeting a sphalerite grade of 85% in the zinc concentrate would result in recoveries in excess of 85%;
  - Targeting a galena grade of 70% in the lead concentrate would result in recoveries in excess of 75%;

Life of Mine (“LOM”).

- Considering Zn >0% is 4,583,641 tonnes, using the Taylor rule, the LOM could considered as:
- LOM = 0.2*(Resources)1/4
- Thus, the LOM=1,416 t/day (350 days/year) or 495,600 t/year.

Selling Cost

- Selling cost
  - Payability: Zn = 85%, Pb = 94%, Ag =90% and Cu = 90%
  - Grades in concentrate : 85% Zn, 70% Pb, 70% Ag and 80% Cu
  - Treatment charges: US$1.00/t of concentrates
  - Selling cost
    - Zn = US$1,257/t metal
    - Pb = US$1,026/t metal
    - Ag = US$90,199/t metal
    - Cu = US$597/t metal
    - Royalty: 1.5%
- Prices
  - Zn: US$2,587/t
  - Pb: US$2,425/t
  - Ag: US$573,539/t
  - Cu: US$5,437/t

In summary:

- NSR was calculated using: NSR(xx) = Grade(xx)*Recovery(xx)*Payability(xx)*(Price per metal tonne(xx) - Cost of sales per metal tonne(xx)) - (Grade(xx)*Recovery(xx)*Payability(xx)*Price per metal tonne(xx)*Royalty(xx). Where xx equals Zn or Pb or Ag or Cu.
- NSR(total) = NSR(Zn) + NSR(Pb) + NSR(Ag) + NSR(Cu)
- ZnEq % = NSR(total) / NSR(Zn) * Grade(Zn%)

Block Model Validation by Elevation

Section	Block Model		Composites			
Section	Model Volume	Model	Number of Comps	Comps*factor	Comp	Sample Ratio
Z	BCM	zn_pct	All Elements	3754	zn_pct	BCM/comp
-375	25	5				
-380	4,481	5.6	3	11,263	3.45	1494
-385	20,688	6.4	5	18,771	5.10	4138
-390	27,756	5.2	9	33,788	6.42	3084
-395	29,906	3.8	8	30,034	1.46	3738
-400	17,388	4.6	3	11,263	0.01	5796
-405	36,700	4.5	11	41,297	4.53	3336
-410	78,269	4.2	20	75,085	2.52	3913
-415	120,075	5.7	22	82,593	6.50	5458
-420	87,413	6.3	22	82,593	7.25	3973
-425	57,406	6.4	17	63,822	6.78	3377
-430	32,988	6.76	14	52,559	7.11	2356
-435	22,131	6.51	8	30,034	2.80	2766
-440	13,025	6.32	5	18,771	5.28	2605
-445	9,031	6.41	0	0		
-450	6,594	6.60	0	0		
-455	5,019	6.39	2	7,508	1.61	2509
-460	4,219	6.96	0	0		
-465	3,706	7.19	1	3,754	10.19	3706
-470	3,550	7.86	3	11,263	7.99	1183
-475	3,513	8.64	4	15,017	8.28	878
-480	3,263	7.24	1	3,754	3.73	3263
-485	2,738	6.64				
-490	2,013	6.46				
-495	1,088	6.89				
-500	181	7.28				
-505	6	7.37				
Total	**593,169**	**5.66**	**158**	**593,169**	**5.35**	**3754**

Note: Calculated validation grades may differ from resource grades due to weighting by volume, not tonnes.

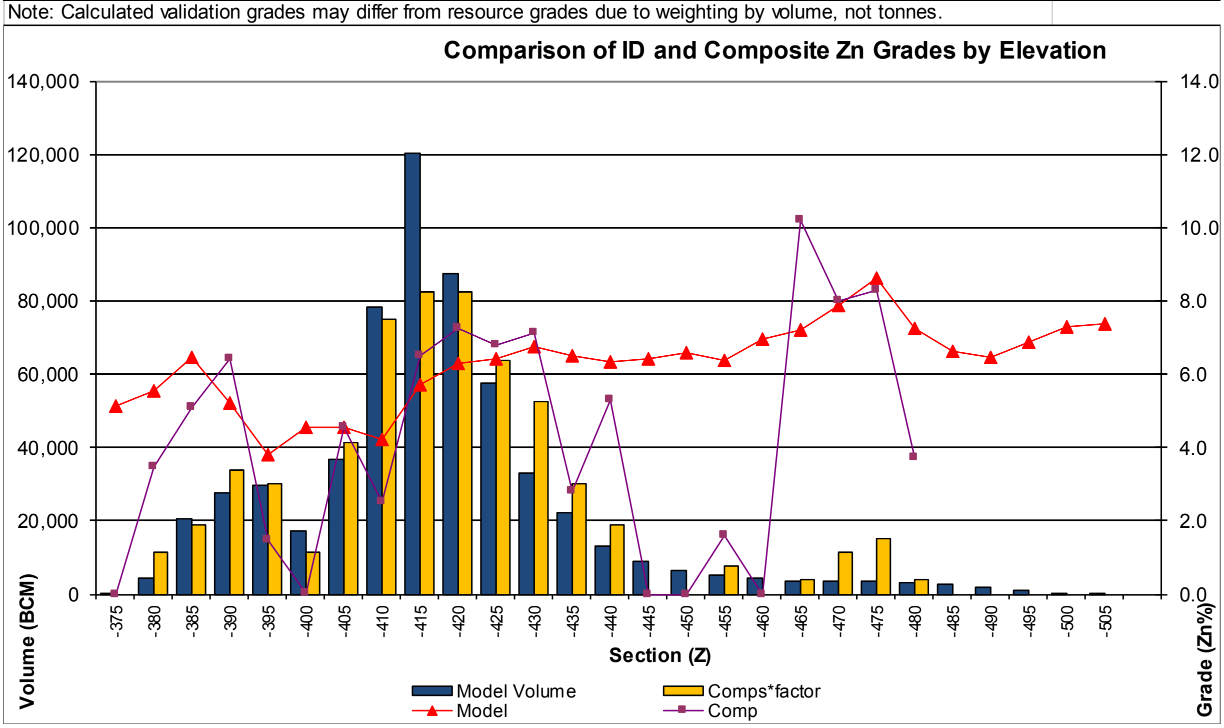

Figure 21 Block model Validation by Elevation, Chimney, Kilbricken

Block Model Validation by Elevation						
	Block Model		Composites			
Section	Model Volume	Model	Number of Comps	Comps*factor	Comp	Sample Ratio
Z	BCM	zn_pct	All Elements	8353	zn_pct	BCM/comp
-470						
-480	94	0.7				
-490	4531	1.6				
-500	27513	2.4	1	8,353	1.55	27513
-510	34388	2.5	3	25,059	0.19	11463
-520	37075	3.0				
-530	42106	3.5				
-540	48206	4.2	5	41,765	8.35	9641
-550	54419	4.4	5	41,765	3.67	10884
-560	60306	4.5	8	66,825	3.26	7538
-570	65456	4.3	10	83,531	2.54	6546
-580	71081	3.35	10	83,531	6.36	7108
-590	78513	3.07	10	83,531	2.38	7851
-600	80463	2.54	7	58,471	5.15	11495
-610	77613	2.20	8	66,825	7.04	9702
-620	71825	1.97	12	100,237	1.59	5985
-630	60419	1.72	14	116,943	2.23	4316
-640	40100	1.47	9	75,178	0.04	4456
-650	20069	1.34	4	33,412	0.02	5017
-660	10275	1.32				
-670	975	1.46				
Total	**885,425**	**2.95**	**106**	**885,425**	**3.25**	**8353**

Note: Calculated validation grades may differ from resource grades due to weighting by volume, not tonnes.

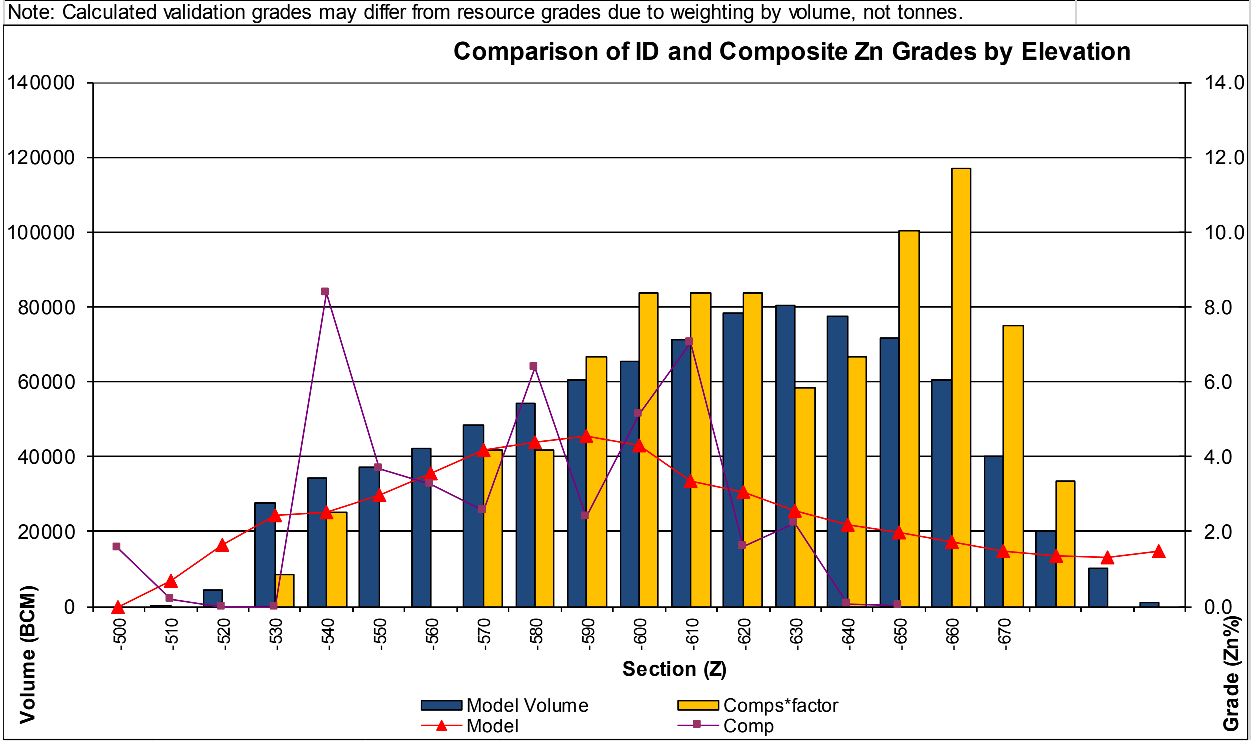

Figure 22 Block model Validation by Elevation, Fort, Kilbricken

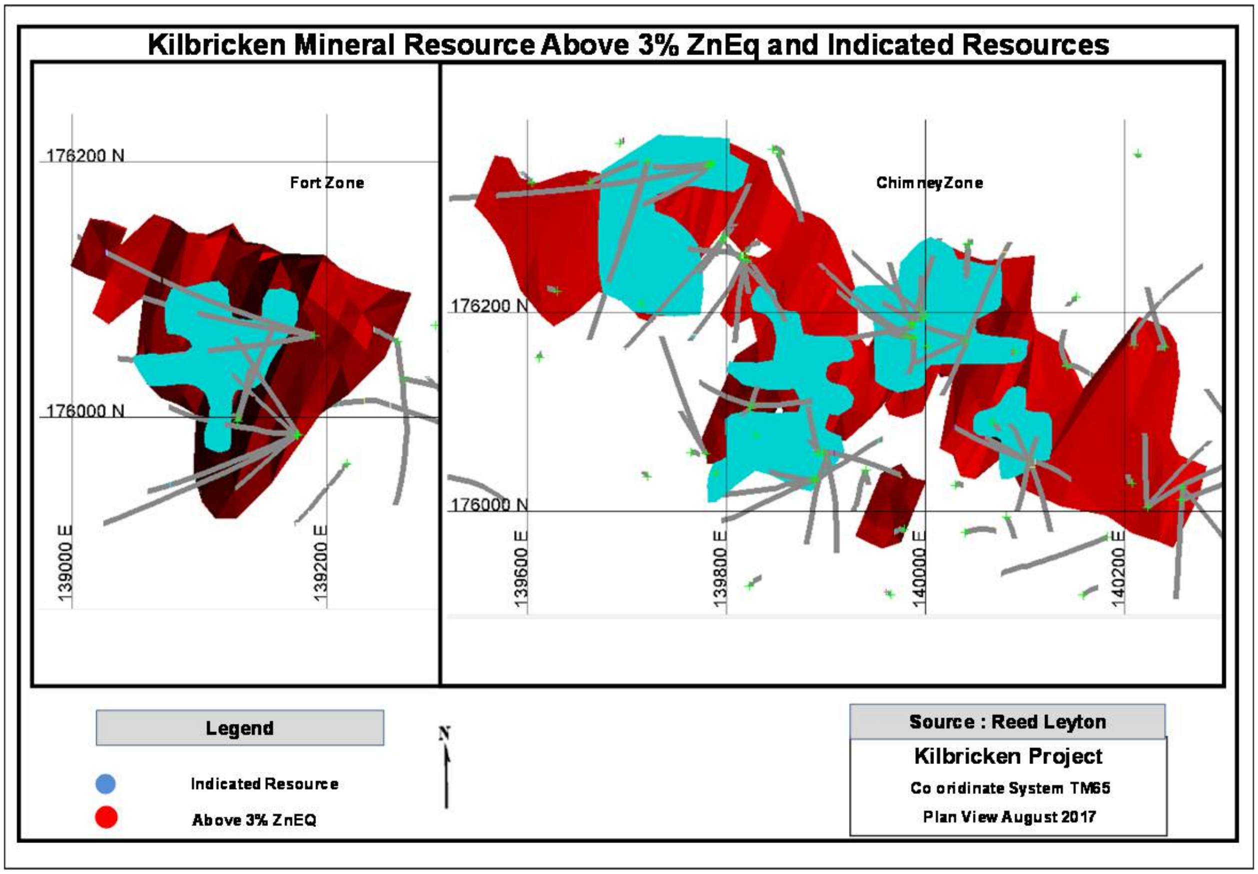

Figure 21 Indicated Mineral Resource, Fort and Chimney Zone, Kilbricken

Sections 15-22

Sections not applicable for this NI43-101 technical report.

23 Adjacent Properties

There are three adjacent permit holders to Hannan's Clare Property as shown in Figure 24. IMC Exploration holds permits to the northeast, southeast and southwest while Conroy Gold and Natural Resources Plc. holds ground to the east of the Clare block. Unicorn holds ground northwest and east of the Property.

24 Other Relevant Data and Information

No other relevant data or information is required.

25 Interpretation and Conclusions

- The mineral resource estimation for Kilbricken is reported at a zinc equivalent (ZnEq) cut-off grade of 5%, based on NSR calculations of conceptual operating costs and metal revenue, and indicates reasonable prospects for eventual economic extraction. The Kilbricken mineral resource estimation satisfies the requirements for the Inferred and Indicated Mineral Resource category as embodied in the NI 43-101 Canadian National Instrument for the reporting of Mineral Resources and Reserve. Total indicated mineral resource of 2.7 million tonnes at 9.5% zinc equivalent ("ZnEq"), including 1.4 millions tonnes at 11.2% ZnEq;
- Total inferred mineral resource of 1.7 million tonnes at 8.6% ZnEq, including 0.6 million tonnes at 10.4% ZnEq;

The initial resource is expandable at all scales, from near resource to prospect scale, and Hannan has already commenced a drill resource expansion program.

The deposit remains open in several directions and further infill drilling is needed to better delineate the limits of mineralization. The QPs believes that there is considerable potential to expand the initial Mineral Resource at Kilbricken. Property objectives should be to A) further extend and define major zones of mineralization at Kilbricken and B) identify and test additional prospective areas on the property as indicated by mineralization intersections/geophysical targets, etc.

Lundin also drilled on most of the other licences in the Property. Two drillholes on PL 3508 located shallow, low-grade Waulsortian-hosted sulphide mineralization at Kilmurry on the southeast flank of the Clare Syncline indicating that mineralization is not confined solely to the northern limb of the syncline.

The QP considers the quality of the exploration work completed by Lundin to be of a high quality. Previous work by other companies, such as by Irish Base Metals, so far as it has been verified, is of good quality and the drillhole information is reliable.

The key technical risks and uncertainties that could reasonably be expected to affect the reliability or confidence in the exploration information relate to normal geological uncertainties in interpretation at this relatively early stage of discovery.

Factors and risks affecting mineral exploration in Ireland are generally low. The most significant risk is with landowners that refuse access. Individual landholdings in Ireland rarely exceed 50 ha and are more usually in the order of between 20 ha and 30 ha, so it is considered that one landowner will not significantly affect the project. At present, the previous operator Lundin has had excellent relationships with local landowners and refusal is rare. Lundin has never been refused access in the Kilbricken area, apart from minor delays to facilitate agricultural activities such as silage-harvesting. PLs in Ireland are renewed by EMD once the requirements have been fulfilled and the author has no reason to believe that this situation is likely to change.

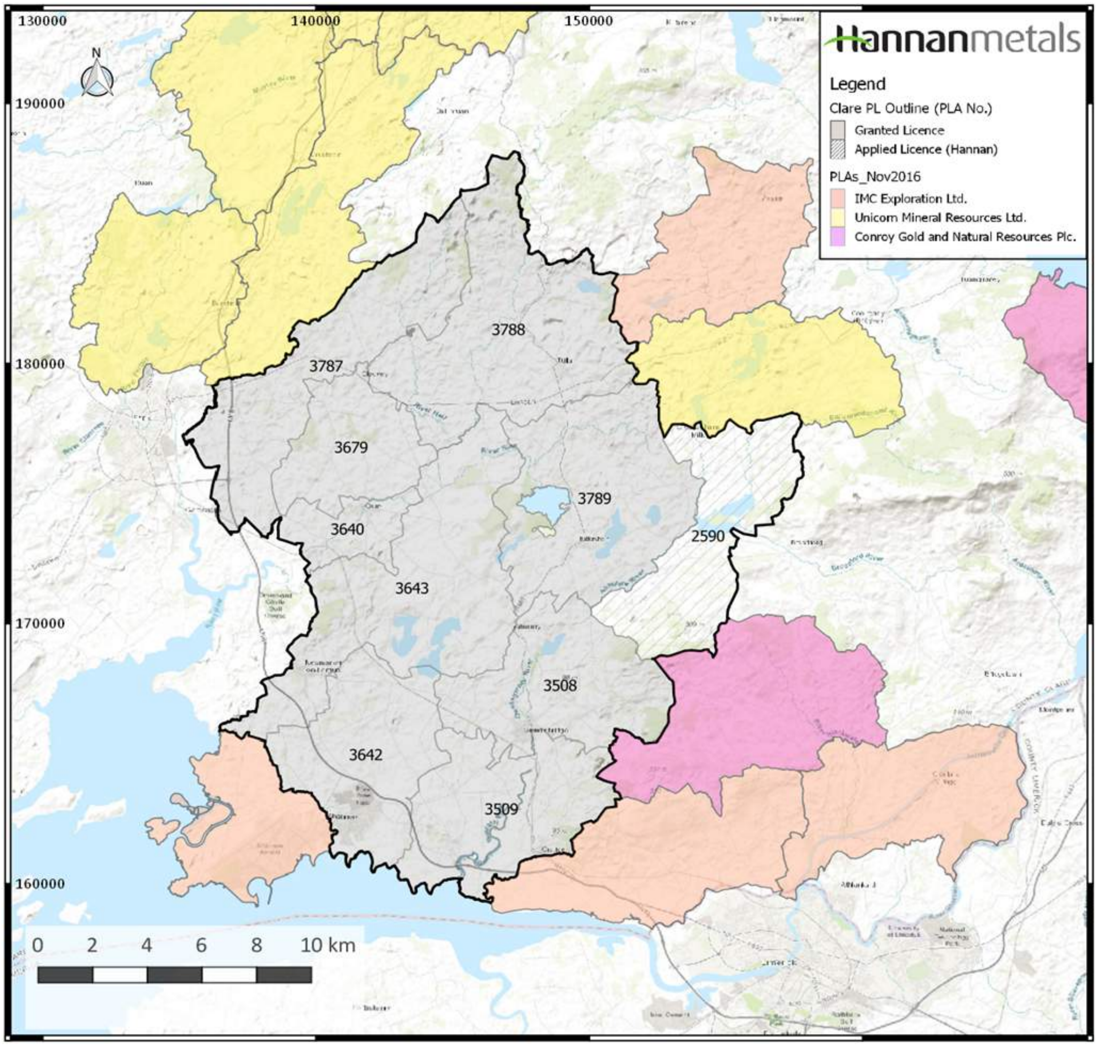

Figure 22 Properties Adjacent to the Clare Property

26 Recommendations

The goals of the forthcoming phase will be threefold:

- To further delineate the underground potential around the current resource area.
- To test conceptual and advanced exploration targets within 1-5 kilometres defined by recent structural and stratigraphic interpretation of re-processed 2D and 3D seismic data, lithogeochemistry and soil geochemistry.
- Test for first order mineralization within the 40 kilometre under-tested Waulsortian host horizon that exists within Hannan's 100% owned 32,223 hectares of granted prospecting licences.

The Kilbricken Project is considered by the authors to be highly prospective for discovering and developing important zinc-lead-silver sulphide deposits. The Kilbricken deposit, as currently delineated, is open along strike and both in an up-dip and down-dip direction. All projects on the Property are at an exploration stage; there are no mine development or mining operations.

The authors concur with Hannan's planned work program and budget of $3.0 million for 2017 (Table 35). Work will include:

- 7,000 m of drilling to explore for additional mineralization at the Kilbricken deposit;
- Metallurgical test work; undertake preliminary metallurgical test work to refine the Zn% and Pb% plant feed grades and recoveries for use in the Zinc equivalent cut-off grade and Net Smelter Return calculations of conceptual operating cost and metal revenue in support of "reasonable chances of eventual economic extraction".
- 40 km of 2D seismic surveying
- Infill soil sampling around the Kilbricken deposit
- The Kilbricken deposit remains the most attractive prospect on the Property. It seems to consist of several higher grade sulphide bodies separated by areas of weaker sulphide mineralization. It is potentially open to the north and is at least partially open to the west and south where mineralization is still present in the

currently most distant step-out drillholes. Evidence suggests that a second normal fault, located to the south of the Main Kilbricken Fault, further down-drops the mineralized rocks southwards; the hanging wall of this fault should be fully tested by diamond drilling. Target depths will generally be in excess of 500 m and may be as much as 700 m in some areas. The structures in the area are not fully understood yet but the recently completed seismic survey should elucidate the structural setting and will greatly assist in generating drill targets.

Table 35: Hannan's planned work program and budget

COST CENTRE	$CDN	% TOTAL
PERSONNEL	205,714	6.8
EMPLOYMENT COSTS	5,001	0.2
OFFICE/ACCOMMODATION	23,338	0.8
CONSUMABLE EQUIPMENT AND SUPPLIES	7,766	0.3
COMPUTING	7,317	0.2
VEHICLES	16,708	0.6
FREIGHT, TRANSPORT, STORAGE	1,000	0.0
TRAVEL + ACCOMMODATION	22,178	0.7
ADVERTISING AND PR	46,899	1.6
COMMUNICATION	1,565	0.1
ADMINISTRATION	105,721	3.5
OHSE	13,707	0.5
PERMIT COSTS	7,060	0.2
PROPERTY PAYMENTS LUNDIN	562,422	18.7
DRILLING (7000m)	889,653	29.6
SEISMIC (40km 2D)	714,119	23.8
SOILS	39,005	1.3
METALLURGGICAL STUDIES	112,954	3.8
CONTINGENCY @ 8%	222,570	7.4
TOTAL	3,004,697	100.0

The westward extension of the Kilbricken Fault, extending towards Ennis is also prospective but can only realistically be tested as a westward extension of the current Kilbricken Drilling. Approximately five drillholes are required to test this target.

Drilling to the east of Kilbricken has failed to adequately define the Main Kilbricken Fault but a significant fault is known to be present at Dangan on PL 3643 and geological mapping indicates that a continuation of this fault extends eastwards. The fault zone requires drill testing as it may host Kilbricken-style mineralization.

The discovery of mineralization on PL3508 indicates that the Waulsortian on the south-eastern limb of the East Clare syncline is prospective. This area has been subjected to very little attention to date and the base of Waulsortian on the southern part of PL 3643 and on PL3642 needs to be tested by additional diamond drilling.

Copper-silver mineralization at the base of the Carboniferous succession is a secondary target type in the current exploration program. The Ballyvergin deposit is small but there remain a number of possible targets especially on licences 3787, 3788 and on new licence 3508.

References

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Certificate of Qualified Person

I, Dr John Colthurst PGeo, EurGeol. Do hereby certify that:

(a) I am a Consultant Geologist of:

Blackhall, Clane, County Kildare, Rep of Ireland.

(b) The title of the technical report to which this certificate refers is NATIONAL INSTRUMENT 43-101 TECHNICAL REPORT (AMENDED AND RESTATED) ON THE MINERAL RESOURCE ESTIMATE FOR THE KILBRICKEN ZINC-SILVER-LEAD-COPPER PROJECT CO. CLARE, IRELAND FOR HANNAN METALS LTD. dated 28th January 2019

(c) I obtained a 1st class B.A. Mod. in Geology from Trinity College Dublin (TCD) in 1972 and completed a Ph.D at TCD in 1977. I am a certified European Geologist (Number 00003) and a Professional Geologist and Founder Member of The Institute of Geologists of Ireland (Number 008). I have worked as an exploration geologist in Ireland, largely seeking carbonate hosted base metal and barite mineralization, between 1976 and 1984 before becoming a consultant in 1984. Since 1984 I have worked for various exploration and mining companies in Ireland, including management of the exploration programmes in the East Clare area for Central Mining Finance (a subsidiary of Charter plc.) and Belmore Resources. I have also worked as a consultant for the Lisheen and Galmoy mines.

(d) I have been visiting the property on a regular basis since 1993. My last visit was as recently as 2nd December 2016.

(e) I am responsible for all sections of the Technical Report and am a Qualified Person for purposes of this Instrument;

(f) I am independent of the issuer applying all of the tests in Section 1.5 of National Instrument 43-101. As per Exchange Policy requirement (Appendix 3F). I am also independent of the Vendor (Hannan Metals Ireland Ltd and Hannan Metals Ltd) and the property.

(g) I have an involvement with the property in managing exploration programmes for various companies as an independent consultant since 1993.

(h) I have read National Instrument 43-101 and the Technical Report and the Technical Report has been prepared in compliance with that instrument

(i) As of the date of the certificate, to the best of my knowledge, information and belief, the Technical Report contains all scientific and technical information that is required to be disclosed to make the technical report not misleading.

Date January 28, 2019

(Signed) "*John Colthurst*"

Dr. John Colthurst, PGeo, EurGeol

Certificate of Qualified Person

I, Geoffrey Charles Reed, B App Sc, MAusIMM (CP) do hereby certify that:

a) I am currently employed as the Principal Geologist at Manse Leyton Services Pty Ltd trading as Reed Leyton Consulting 110 Albany Street Point Frederick Gosford NSW Australia 2250.

b) I graduated with a degree in Geology with a Bachelor of Applied Science from the University of Technology, Sydney, NSW, Australia, awarded in 1997.

c) I am a Member of the Australasian Institute of Mining and Metallurgy since 1998.

d) I have worked as a geologist for a total of over 20 years since my graduation from University.

e) I have read the definition of "qualified person" set out in National Instrument 43101("NI 43-101") and certify that by reason of my education, affiliation with a professional association (as defined in NI 43-101) and past relevant work experience, I fulfill the requirements to be a "qualified person" for the purposes of NI 43-101.

f) I am responsible for the preparation of Sections 12 and 14 of this technical report titled NATIONAL INSTRUMENT 43-101 TECHNICAL REPORT (AMENDED AND RESTATED) ON THE MINERAL RESOURCE ESTIMATE FOR THE KILBRICKEN ZINC-SILVER-LEAD-COPPER PROJECT CO. CLARE, IRELAND FOR HANNAN METALS LTD dated January 28, 2019, which is based in large part on examination of the material presented to me by Hannan Metals Limited during May 2017 to August 2017. I visited the Kilbricken property on the May 17, 2017. First hand impressions about the style of mineralization are based on examinations of drill core from representative drillholes on the May 18, 2017.

g) I have had no prior involvement with the properties which are the subject of this Technical Report.

h) I am not aware of any material fact or material change with respect to the subject matter of this Technical Report which is not reflected in the Technical Report, the omission to disclose which would make this Technical Report misleading.

i) I am independent of the issuer applying all of the tests in section 1.4 of National Instrument 43-101.

j) I have read National Instrument 43-101 and Form 43-101F1, and this Technical Report has been prepared in compliance with that instrument and form.

k) I consent to the filing of this Technical Report with any stock exchange and other regulatory authority and any publication by them, including electronic publication in the public company files on their websites accessible by the public, of this Technical Report.

Dated at Gosford, Australia, this 28th January 2019

(Signed) "*Geoff Reed*"

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Mr Geoff Reed MAusIMM (CP)

Appendices

Appendix 1 Clare Assay Summary

Given the general flat lying and stratabound nature of mineralization and steep angles of all drillholes mentioned, the true thickness of the mineralized intervals quoted is interpreted to be approximately 95% of the sampled thickness.

Hole_ID	Easting	Northing	From	To	Width	Zn%	Pb%	Cu%	As%	Ag g/t	Fe%
3679-04	139881.9	176112.6	448.1	458.1	10	13.84	5.52	0.08	6.42	62.84	24.06
3679-05	139877.7	176074.9	473	476.5	3.5	1.64	3.82	0.01	1.08	58.68	1.75
3679-06	139834.7	176133	441.9	463.15	21.25	11.00	4.82	0.06	1.28	94.41	15.95
3679-07	139899.8	176112	442.75	447.7	4.95	4.94	1.31	0.07	0.69	59.26	34.92
3679-08	139901.6	176151.2	445.6	451.1	5.5	6.18	2.67	0.06	0.50	57.96	15.59
3679-11	139979	176106.1	427.5	429.5	2	1.89	1.90	0.01	1.28	47.20	12.25
3679-14	139682.9	176277	423.55	427	3.45	3.07	1.48	0.01	0.22	21.20	8.09
3679-15	139846.5	176067.2	457.55	473.55	16	0.46	0.32	0.00	0.04	6.15	0.82
3679-18	139528.5	176271.5	462.15	470.7	8.55	1.67	0.89	0.00	0.32	18.58	5.57
3679-19	139829.7	176214	431	434.85	3.85	10.23	5.99	0.06	1.63	76.22	19.66
3679-21	139875.1	176272.5	445.05	447.9	2.85	0.40	2.08	0.01	0.43	21.93	9.63
3679-22	139384.6	176217.7	407.1	438.1	31	0.42	0.14	0.00	0.03	3.75	0.50
3679-28	139736.8	176262.8	417.5	430.3	12.8	0.45	0.65	0.08	0.80	28.06	2.38
3679-32	139692.7	176369.8	355.8	360.5	4.7	8.48	1.93	0.02	0.09	18.18	6.65
3679-34	139717.5	176207.6	425.8	430	4.2	3.54	2.36	0.03	0.29	28.12	3.15
3679-37	140202.7	176041.2	443	446.2	3.2	1.90	0.74	0.01	0.16	31.61	2.46
3679-38	139991	176165	397.1	399.95	2.85	9.36	8.96	0.14	8.03	85.38	10.73
3679-42	139597.4	176233.8	413.8	417.3	3.5	2.02	0.53	0.01	0.06	34.18	5.41
3679-43	140083.9	176159	442.1	451.45	9.35	4.11	12.04	0.52	1.14	242.75	7.31
3679-44	140074.7	176075.8	447.9	465.05	17.15	2.85	4.40	0.11	0.54	83.48	4.76
3679-46	139992.5	176238.1	415.25	435.75	20.5	7.52	9.85	0.07	8.37	74.56	23.45
3679-48	140035.5	176227.8	423.5	431.85	8.35	5.02	2.63	0.06	2.50	34.83	9.48
3679-49	139782.9	176349.6	402.2	406	3.8	5.78	2.37	0.11	0.15	109.78	12.48
3679-50	139810.3	176080.3	484.6	496.4	11.8	9.84	5.73	0.07	2.88	178.23	14.18
3679-52	140038.5	176220.5	425.7	445	19.3	7.15	1.22	0.18	2.66	64.64	24.04
3679-55	139710	176348.4	404.6	406.4	1.8	8.12	2.09	0.01	0.07	34.88	17.19
3679-57	140043.3	176269.6	328.2	331	2.8	3.43	1.24	0.01	1.64	14.33	7.99
3679-58	139974	176043	469.9	472.5	2.6	2.76	0.61	0.08	0.37	25.94	29.81
3679-60	140160.7	176140.9	497	500	3	0.01	2.61	0.04	0.09	18.09	1.66
3679-63	139876	176290.2	431.25	434.3	3.05	9.17	2.00	0.01	0.25	40.98	17.08
3679-65	139904.7	176170	438.8	448.1	9.3	3.57	1.61	0.01	1.36	23.26	5.65
3679-68	139978.7	175981.7	504.7	512.5	7.8	7.66	1.76	0.00	0.32	68.33	33.44
3679-76	139369.3	176042.1	530.7	535.8	5.1	1.91	6.12	0.04	1.89	44.34	3.87

Hole_ID	Easting	Northing	From	To	Width	Zn%	Pb%	Cu%	As%	Ag g/t	Fe%
3679-80	140233.6	176164.3	445.58	450	4.42	4.53	1.30	0.03	0.18	26.00	2.98
3679-84	139284.5	176070	517	521.5	4.5	2.31	0.49	0.01	0.01	3.37	0.88
3679-89	140030.3	176174.6	439	446.6	7.6	6.08	4.48	0.06	0.37	38.96	2.81
3679-91	140259.2	176020.2	447	449.6	2.6	3.40	0.76	0.00	0.08	21.78	2.22
3679-92	139983.3	176192.2	430	439	9	3.02	1.98	0.04	0.85	14.74	4.44
3679-94	139957.8	176132.7	454.9	461	6.1	9.30	5.29	0.16	7.29	78.41	21.09
3679-102	139966.7	176243.4	328	332	4	1.70	1.29	0.00	0.62	8.92	1.33
3679-105	140093.2	176050.9	448.3	452	3.7	4.23	1.40	0.01	0.20	33.95	3.00
3679-106	139826.8	176045.2	499	504	5	3.92	0.78	0.00	0.06	19.06	0.92
3679-107	139454.2	176076.8	501	507	6	0.82	0.57	0.00	0.01	5.24	0.83
3679-108	140112	176077	444	447	3	1.77	2.18	0.01	0.07	12.04	1.43
3679-110	140079	176092.3	444	448.3	4.3	3.60	1.93	0.01	0.11	23.60	3.80
3679-111	140024.3	176088.1	447.6	451.7	4.1	21.53	5.75	0.10	0.43	95.36	20.30
3679-116	139821.6	176326	413.1	418	4.9	5.01	1.73	0.00	0.07	33.19	13.46
3679-118	139860.1	176193.5	439.6	446.4	6.8	3.12	1.21	0.01	0.17	15.44	5.49
3679-119	140094.1	176007.2	60.5	64	3.5	2.88	2.16	0.01	0.03	84.14	0.51
3679-121	143221	176209	277.8	287.8	10	0.48	0.07	0.14	0.05	35.48	56.44
3679-125	139417.5	176383.4	369	373.3	4.3	3.53	0.93	0.00	0.08	10.26	3.60
3679-126	139714	176351.2	409.3	414	4.7	8.48	3.02	0.06	0.22	78.52	8.84
3679-137	140219.9	176077.8	444.6	448	3.4	2.89	0.75	0.01	0.15	17.08	4.81
3679-149	140438.9	175949.5	457.7	462	4.3	5.19	1.74	0.01	0.08	29.67	5.13
3679-151	140443.4	175989.4	455.8	462	6.2	1.81	1.77	0.00	0.11	15.09	2.19
3679-153	139119.2	175992	640.6	653.4	12.8	4.83	2.31	0.08	0.14	28.28	1.64
3679-155	139715.9	176336.4	406	411	5	4.56	0.93	0.01	0.19	29.03	7.14
3679-156	139279.6	176270.3	427.3	430.1	2.8	3.71	1.01	0.01	0.16	26.79	9.79
3679-157	139708.1	176309.6	411.8	417	5.2	6.48	1.69	0.02	0.07	34.08	8.55
3679-161	139145.3	176050.7	607	617.4	10.4	8.45	3.86	0.09	0.79	26.54	4.11
3679-163	140407.1	175916.1	488	492	4	2.95	1.40	0.04	0.20	31.81	2.29
3679-167	139169.5	176094.1	616.5	621	4.5	0.80	2.57	18.91	3.73	867.58	5.86
3679-171	139099.1	176059.9	648	652.1	4.1	2.68	1.20	0.18	0.41	24.43	1.60
3679-179	139124.7	175941.5	656	661.6	5.6	0.59	0.89	0.04	0.06	10.99	1.63
3679-181	139233.9	176068.7	523.2	531.2	8	0.56	5.22	0.04	0.04	21.68	1.10
3679-186	139209.2	175993	539	543	4	0.64	2.11	0.04	0.52	10.95	1.40
3679-196	139214.1	175961.1	609	615.7	3.9	4.00	2.00	0.04	0.06	15.14	1.15
3679-199	140151.5	175702.7	575.7	579.7	4	2.08	1.77	0.00	0.01	13.13	0.52
3679-200	139990.1	175726.1	534.7	539.4	4.7	0.93	2.55	0.00	0.01	12.75	1.07
3679-206	139010.1	176140.1	619	629	10	0.90	8.72	0.16	0.24	90.68	1.59
3679-207	139046.2	176046.2	663.1	669.4	6.3	0.02	4.84	0.96	0.41	27.25	4.16
3679-208	138968	176085.1	371	376	5	2.94	0.88	0.00	0.91	17.99	0.97
3679-211	139845.2	175779.6	604.6	609.6	5	1.67	1.06	0.01	0.13	19.32	4.71
3643-10	145277	169666.1	166	169.5	3.5	2.80	2.11	0.11	0.12	63.60	0.10
3787-06	138837.1	176491	346.8	353.6	6.8	1.89	0.45	0.00	2.05	5.25	2.25

Appendix 2 Drill Summary

HoleNo	East	North	RL	Az	Dip	Depth (m)	Company	PL	Year
014-01	146580	180170	46.5	0	-90	124	Irish Base Metals (IBM)	3788	
014-02	146700	180018	46.2	0	-90	162.5	Irish Base Metals (IBM)	3788	
014-03	143058	181740	59.9	0	-90	114	Irish Base Metals (IBM)	3787	
014-04	142760	181750	59.6	0	-90	0	Irish Base Metals (IBM)	3787	
014-05	143915	180730	60	0	-90	0	Irish Base Metals (IBM)	3788	
014-06	143602	180023	58.8	0	-90	78	Irish Base Metals (IBM)	3788	
014-07	142010	176350	60.3	0	-90	258.2	Irish Base Metals (IBM)	3679	
014-09	146420	181920	60	0	-90	178.6	Irish Base Metals (IBM)	3788	
014-10	146800	181170	60.6	0	-90	113.7	Irish Base Metals (IBM)	3788	
014-11	144245	182700	61	0	-90	55.4	Irish Base Metals (IBM)	3787	
014-12	142860	182640	60.8	0	-90	20.1	Irish Base Metals (IBM)	3787	
014-13	143620	181130	59.5	0	-90	128	Irish Base Metals (IBM)	3788	
014-14	140920	177760	59.7	0	-90	151.5	Irish Base Metals (IBM)	3679	
014-15	142220	177720	59.9	0	-90	118.6	Irish Base Metals (IBM)	3679	
014-16	143495	177640	60.3	0	-90	114	Irish Base Metals (IBM)	3679	
014-17	145195	177940	60.4	0	-90	119	Irish Base Metals (IBM)	3788	
014-18	144370	181996	60.1	0	-90	100.5	Irish Base Metals (IBM)	3787	
014-19	146000	179475	59.1	0	-90	64	Irish Base Metals (IBM)	3788	
014-20	147545	180000	43.4	0	-90	155.4	Irish Base Metals (IBM)	3788	
014-21	143577	179697	54.8	0	-90	86.25	Irish Base Metals (IBM)	3788	
014-22	143638	179702	59.2	0	-90	62.5	Irish Base Metals (IBM)	3788	
014-23	143875	180000	60.1	0	-90	78	Irish Base Metals (IBM)	3788	
014-24	143260	179978	59.9	0	-90	49.7	Irish Base Metals (IBM)	3788	
014-25	141155	179575	59.4	0	-90	112	Irish Base Metals (IBM)	3787	
014-26	143568	180270	58	0	-90	115.2	Irish Base Metals (IBM)	3788	
014-27	141960	181145	59.5	0	-90	136.25	Irish Base Metals (IBM)	3787	
014-28	141260	182447	57.5	0	-90	94.8	Irish Base Metals (IBM)	3787	
014-29	143693	179635	59.1	0	-90	51	Irish Base Metals (IBM)	3788	
014-30	143614	179760	57.8	0	-90	55.7	Irish Base Metals (IBM)	3788	
014-31	143700	179706	59.6	0	-90	50	Irish Base Metals (IBM)	3788	
014-32	147485	178550	59.5	0	-90	142.3	Irish Base Metals (IBM)	3788	
018-01	147710	182830	52.9	0	-90	92.6	Irish Base Metals (IBM)	3788	
018-02	146610	182900	62.9	0	-90	113	Irish Base Metals (IBM)	3788	
018-03	148270	183460	59.9	0	-90	67	Irish Base Metals (IBM)	3788	
018-04	149555	183600	60	0	-90	76.2	Irish Base Metals (IBM)	3788	
018-05	150030	180830	60.2	0	-90	152.4	Irish Base Metals (IBM)	3788	
018-06	148940	180730	61.9	0	-90	106	Irish Base Metals (IBM)	3788	
018-07	148710	179385	60.5	0	-90	150	Irish Base Metals (IBM)	3788	
018-08	150560	179150	60	0	-90	141	Irish Base Metals (IBM)	3788	
018-09	146310	182390	61	0	-90	156.4	Irish Base Metals (IBM)	3788	

HoleNo	East	North	RL	Az	Dip	Depth (m)	Company	PL	Year
018-11	150100	177935	60	0	-90	141.5	Irish Base Metals (IBM)	3789	
019-01	146145	169070	38	0	-90	536.5	Irish Base Metals (IBM)	3643	
019-02	146025	169020	38	0	-90	273	Irish Base Metals (IBM)	3643	
019-03	146430	168740	35	0	-45	123.7	Irish Base Metals (IBM)	3643	
019-04	145990	169015	38	0	-90	42.6	Irish Base Metals (IBM)	3643	
019-08	146075	169125	38	0	-90	274.6	Irish Base Metals (IBM)	3643	
05-3643-05	145882.5	169171	43	0	-90	406.5	Belmore Resources	3643	2005
05-3787-01	140423	180164	36	0	-90	262.5	Belmore Resources	3787	2005
05-3788-44	146610	179818	40	0	-90	109.5	Belmore Resources	3788	2005
05-3788-45	147678	180016	45	0	-90	97.5	Belmore Resources	3788	2005
05-3788-46	146670	179926.5	44.5	0	-90	73.5	Belmore Resources	3788	2005
05-3789-03	153412	175091	34	0	-90	394.5	Belmore Resources	3789	2005
06-3643-06	146472	169388	40	0	-90	343.6	Belmore Resources	3643	2006
06-3679-01	141769	176819	39	25	-66	253	Belmore Resources	3679	2007
06-3789-04	153936	174787	28	0	-90	238.5	Belmore Resources	3789	2006
07-3679-02	141692	176869	39	25	-70	223	Belmore Resources	3679	2007
07-3679-03	140862	176876	39	330	-60	235	Belmore Resources	3679	2007
08-3679-04	139892	176058	22	346.6	-81.3	472	Belmore Resources	3679	2008
09-3508-02	149307	170759	29	0	-90	127.3	Lundin Mining/Belmore	3508	2009
09-3642-01	142457	168164	29	0	-90	449.5	Lundin Mining/Belmore	3642	2009
09-3643-07	145412	175852	25	0	-90	519	Lundin Mining/Belmore	3643	2009
09-3679-05	139892	176058	22	332	-87	531	Lundin Mining/Belmore	3679	2009
09-3679-06	139825	176107	22.047	15	-87	482.4	Lundin Mining/Belmore	3679	2009
09-3679-07	139825.1	176107	22.047	90	-77	497	Lundin Mining/Belmore	3679	2009
09-3679-08	139821	176253	21.929	142	-78	511	Lundin Mining/Belmore	3679	2009
09-3679-09	139980	176176	22.149	270	-84	479	Lundin Mining/Belmore	3679	2009
09-3679-10	139825	176107	22.047	282	-84	508	Lundin Mining/Belmore	3679	2009
09-3679-11	139987.8	176174.8	22.149	180	-84	503	Lundin Mining/Belmore	3679	2009
09-3679-12	139817.2	176253.9	21.929	173	-80	489	Lundin Mining/Belmore	3679	2009
09-3679-13	139892	176057.5	22	344	-84	64	Lundin Mining/Belmore	3679	2009
09-3679-14	139782.2	176347.3	21.895	216	-79	472	Lundin Mining/Belmore	3679	2009
09-3679-15	139830	176076	21	128.25	-90	518	Lundin Mining/Belmore	3679	2009
09-3679-16	139817.2	176253.9	21.929	205.5	-79	473.5	Lundin Mining/Belmore	3679	2009
09-3679-17	139987	176174	22	279	-76.6	512	Lundin Mining/Belmore	3679	2009
09-3679-18	139782	176347	21	245	-68	547	Lundin Mining/Belmore	3679	2009
09-3679-19	139817.2	176253.9	21.929	155	-86	487	Lundin Mining/Belmore	3679	2009
09-3679-20	140030	176026	26	0	-90	530	Lundin Mining/Belmore	3679	2009
09-3679-21	139987	176174	22	295	-76	539.4	Lundin Mining/Belmore	3679	2009
09-3679-22	139380.5	176224.6	20	0	-90	490	Lundin Mining/Belmore	3679	2009
09-3679-23	139720.7	176034.7	21	320	-88	586.3	Lundin Mining/Belmore	3679	2009
09-3679-24	139819.2	176261	19.7	61	-88	498.2	Lundin Mining/Belmore	3679	2009
09-3679-25	139538.5	176519.2	20.25	0	-90	386	Lundin Mining/Belmore	3679	2009

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09-3679-26	139823	175925	23	0	-90	633	Lundin Mining/Belmore	3679	2009
09-3679-27	139258.2	176548	18.508	0	-90	355	Lundin Mining/Belmore	3679	2009
09-3679-28	139814	176257	21.7	286	-81	468	Lundin Mining/Belmore	3679	2009
09-3679-29	140081.1	175994.5	26.76	0	-90	512	Lundin Mining/Belmore	3679	2009
09-3679-30	139611.8	176154	20.928	0	-90	523	Lundin Mining/Belmore	3679	2009
09-3679-31	139965	175916.1	22.696	0	-90	596	Lundin Mining/Belmore	3679	2009
09-3679-32	139692.7	176369.8	26.495	0	-90	428	Lundin Mining/Belmore	3679	2009
09-3679-33	140157.9	175915.5	25.707	0	-90	515	Lundin Mining/Belmore	3679	2009
09-3679-34	139714.2	176208.7	23.469	0	-90	499	Lundin Mining/Belmore	3679	2009
09-3679-35	140151.4	176215	33.416	0	-90	460	Lundin Mining/Belmore	3679	2009
09-3679-36	139604.8	176330	26.746	0	-90	488	Lundin Mining/Belmore	3679	2009
09-3679-37	140207.5	176028.1	29.939	0	-90	524	Lundin Mining/Belmore	3679	2010
09-3679-38	140001.8	176165.7	22.172	0	-90	515	Lundin Mining/Belmore	3679	2009
09-3787-02	138180	177478	23	0	-90	397	Lundin Mining/Belmore	3787	2009
09-3787-03	138510	176135	15	0	-90	691	Lundin Mining/Belmore	3787	2009
09-3788-47	146834	178283	35	0	-90	208	Lundin Mining/Belmore	3788	2009
09-3788-48	144558	176844	28	0	-90	233	Lundin Mining/Belmore	3788	2009
09-3788-49	150458	179222	48	0	-90	349.5	Lundin Mining/Belmore	3788	2009
09-3789-05	153649	174869	35	0	-90	370	Lundin Mining/Belmore	3789	2009
09-3789-06	151780	173247	38	0	-90	466.4	Lundin Mining/Belmore	3789	2009
10-3508-03	146884.4	168358.3	34.872	0	-90	54.7	Lundin Mining/Belmore	3508	2010
10-3508-04	145622.9	167781.7	28.449	0	-90	82	Lundin Mining/Belmore	3508	2010
10-3508-05	145593.3	167790.1	27.697	0	-90	331	Lundin Mining/Belmore	3508	2010
10-3508-06	145663.9	167835.5	27.959	0	-90	72.8	Lundin Mining/Belmore	3508	2010
10-3508-07	147187.1	168823.1	39.859	0	-90	93.8	Lundin Mining/Belmore	3508	2010
10-3643-08	145395.9	175854.6	22.044	349	-73	664	Lundin Mining/Belmore	3643	2010
10-3643-09	145487.5	168328	32.893	0	-90	276.8	Lundin Mining/Belmore	3643	2010
10-3679-39	139846.1	176363.7	22.203	0	-90	406	Lundin Mining/Belmore	3679	2010
10-3679-40	139379.3	176222.3	21.175	5.9	-83	496.5	Lundin Mining/Belmore	3679	2010
10-3679-41	140213	176359.4	35.819	0	-90	383	Lundin Mining/Belmore	3679	2010
10-3679-42	139629.7	176220.7	22.903	0	-90	490	Lundin Mining/Belmore	3679	2010
10-3679-43	140089.5	176159.8	28.698	0	-90	497.8	Lundin Mining/Belmore	3679	2010
10-3679-44	140067.5	176089.8	27.855	0	-90	499.5	Lundin Mining/Belmore	3679	2010
10-3679-45	139289.3	175857	20.719	0	-90	271.6	Lundin Mining/Belmore	3679	2010
10-3679-46	139995	176202.7	22.141	0	-84	503	Lundin Mining/Belmore	3679	2010
10-3679-47	140352.4	176103.3	23.403	0	-90	478	Lundin Mining/Belmore	3679	2010
10-3679-48	140042.2	176268.1	22.296	177.5	-84	516	Lundin Mining/Belmore	3679	2010
10-3679-49	139782.9	176349.7	21.875	0	-90	520	Lundin Mining/Belmore	3679	2010
10-3679-50	139824.2	176103.6	21.893	270	-88	533	Lundin Mining/Belmore	3679	2010
10-3679-51	140352.4	176103.3	23.403	9	-78	427.6	Lundin Mining/Belmore	3679	2010
10-3679-52	140042	176268.3	22.234	196	-83	508	Lundin Mining/Belmore	3679	2010
10-3679-53	141718.3	176744.7	36.857	0	-90	274.8	Lundin Mining/Belmore	3679	2010

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10-3679-54	140141.4	176146.8	31.995	0	-85.3	494	Lundin Mining/Belmore	3679	2010
10-3679-55	139785.8	176350.1	22.844	260	-82	453	Lundin Mining/Belmore	3679	2010
10-3679-56	141192.9	176288.8	43.3	0	-90	358	Lundin Mining/Belmore	3679	2010
10-3679-57	140043.3	176269.6	22.286	0	-90	429	Lundin Mining/Belmore	3679	2010
10-3679-58	139896.4	176060.1	21.305	102	-82	571.6	Lundin Mining/Belmore	3679	2010
10-3679-59	139446.8	176483.1	19.398	0	-90	379	Lundin Mining/Belmore	3679	2010
10-3679-60	140141.2	176146.1	31.991	0	-90	518.5	Lundin Mining/Belmore	3679	2010
10-3679-61	141556.6	176888.3	36.069	55	-74	241.7	Lundin Mining/Belmore	3679	2010
10-3679-62	139986.4	176179.5	22.09	258	-80	135	Lundin Mining/Belmore	3679	2010
10-3679-63	139851.9	176360.5	21.156	173	-82	484	Lundin Mining/Belmore	3679	2010
10-3679-64	139443.3	176459.2	19.45	205	-86	390	Lundin Mining/Belmore	3679	2010
10-3679-65	139986.9	176185.1	22.137	260	-79	512	Lundin Mining/Belmore	3679	2010
10-3679-66	142247.8	176476.2	38.776	0	-90	256	Lundin Mining/Belmore	3679	2010
10-3679-67	139764	176059.2	20.921	0	-90	556.6	Lundin Mining/Belmore	3679	2010
10-3679-68	139978.7	175981.6	21.679	0	-90	557	Lundin Mining/Belmore	3679	2010
10-3679-69	140239.7	176165	33.99	12	-81	398	Lundin Mining/Belmore	3679	2010
10-3679-70	139324.7	176044.6	24.452	0	-90	150	Lundin Mining/Belmore	3679	2010
10-3679-71	141608.1	178082.2	46.64	0	-90	82	Lundin Mining/Belmore	3679	2010
10-3679-72	141399.1	178365.7	49.66	0	-90	106	Lundin Mining/Belmore	3679	2010
10-3679-73	141103.5	178673.4	37.124	0	-90	73	Lundin Mining/Belmore	3679	2010
10-3679-74	140208.8	176166.9	34.233	0	-78.5	484	Lundin Mining/Belmore	3679	2010
10-3679-75	141998.8	176582.2	36.739	0	-90	265	Lundin Mining/Belmore	3679	2010
10-3679-76	139383	176051.2	23.85	0	-90	707	Lundin Mining/Belmore	3679	2010
10-3679-77	140445.2	176003.4	21.82	21.72	-79	515	Lundin Mining/Belmore	3679	2010
10-3679-78	139891.4	176025.8	29	0	-90	469.5	Lundin Mining/Belmore	3679	2010
10-3679-79	140301.5	175278.6	24.374	0	-90	826.4	Lundin Mining/Belmore	3679	2010
10-3679-80	140239.7	176165	33.99	0	-90	487	Lundin Mining/Belmore	3679	2010
10-3679-81	140445.2	176003.4	21.82	30	-86	290	Lundin Mining/Belmore	3679	2010
10-3679-82	140039.8	175978.5	24.409	0	-90	530	Lundin Mining/Belmore	3679	2010
10-3679-83	140977.2	176036.1	45.714	0	-90	385.6	Lundin Mining/Belmore	3679	2010
10-3679-84	139284.5	176072.1	24.357	0	-90	535	Lundin Mining/Belmore	3679	2010
10-3679-85	140771.1	175800.2	26.016	0	-90	516.6	Lundin Mining/Belmore	3679	2010
10-3787-04	141384.7	179908.9	50.235	0	-90	79	Lundin Mining/Belmore	3679	2010
10-3787-05	141149.4	180271	52.235	0	-90	100	Lundin Mining/Belmore	3787	2010
10-3787-06	138832.2	176493	14.886	0	-90	482	Lundin Mining/Belmore	3787	2010
10-3787-07	138873.7	176562.4	14.77	0	-90	404	Lundin Mining/Belmore	3787	2010
10-3788-50	147807.3	179271.1	50.656	0	-90	202.5	Lundin Mining/Belmore	3788	2010
10-3788-51	148329.1	178676.3	40.139	0	-90	157.5	Lundin Mining/Belmore	3788	2010
10-3789-07	152532	173596	40	0	-90	455	Lundin Mining/Belmore	3789	2010
11-3642-02	143339	167839	26.81	0	-90	88	Lundin Mining/Belmore	3642	2011
11-3642-03	143411	167804	27	0	-90	340	Lundin Mining/Belmore	3642	2011
11-3643-10	145277	169666.1	40.663	0	-90	753.7	Lundin Mining/Belmore	3643	2011

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11-3643-11	145591.9	176200.1	26.757	340	-50	409	Lundin Mining/Belmore	3643	2011
11-3643-12	145016.3	169019.1	66.906	0	-90	446.9	Lundin Mining/Belmore	3643	2011
11-3643-13	145611.2	168291.8	34.2	0	-50	457	Lundin Mining/Belmore	3643	2011
11-3643-14	145416	168225	33.495	0	-90	238	Lundin Mining/Belmore	3643	2011
11-3643-15	145779.9	168238.5	35.6	0	-90	139	Lundin Mining/Belmore	3643	2011
11-3643-16	145445	168091	32.753	0	-90	190	Lundin Mining/Belmore	3643	2011
11-3643-17	146041.7	168362.7	36.145	0	-90	136	Lundin Mining/Belmore	3643	2011
11-3643-18	146292.8	169025.7	37.6	0	-90	208	Lundin Mining/Belmore	3643	2011
11-3679-100	139986.6	176188.3	22.018	16	-78	421.3	Lundin Mining/Belmore	3679	2011
11-3679-101	139939.6	176041	22.275	191	-89	534	Lundin Mining/Belmore	3679	2011
11-3679-102	139985.8	176188.7	22.045	331	-81	480	Lundin Mining/Belmore	3679	2011
11-3679-103	139996.6	176193.3	22.1	278	-82	483	Lundin Mining/Belmore	3679	2011
11-3679-104	139889.7	176030.8	21.43	53	-81	531	Lundin Mining/Belmore	3679	2011
11-3679-105	140103.9	176051.4	29.387	0	-90	489	Lundin Mining/Belmore	3679	2011
11-3679-106	139888.3	176031.1	22.215	271	-81	552	Lundin Mining/Belmore	3679	2011
11-3679-107	139478.9	176040.3	20.357	312	-85	620	Lundin Mining/Belmore	3679	2011
11-3679-108	140103.9	176051.4	29.39	16	-84	520.7	Lundin Mining/Belmore	3679	2011
11-3679-109	139795.3	176272.6	22.619	194	-88	492	Lundin Mining/Belmore	3679	2011
11-3679-110	140103.9	176051.4	29.387	331	-81	513	Lundin Mining/Belmore	3679	2011
11-3679-111	140103.9	176051.4	29.387	286	-78	522	Lundin Mining/Belmore	3679	2011
11-3679-112	139795.3	176272.6	22.619	201	-82	471	Lundin Mining/Belmore	3679	2011
11-3679-113	140103.9	176051.4	29.387	106	-84	552	Lundin Mining/Belmore	3769	2011
11-3679-114	139795.3	176272.6	22.619	35	-87	465	Lundin Mining/Belmore	3769	2011
11-3679-115	140103.9	176051.4	29.387	286	-84	508	Lundin Mining/Belmore	3679	2011
11-3679-116	139795.3	176272.6	22.619	21	-80	447	Lundin Mining/Belmore	3679	2011
11-3679-117	140103.9	176051.4	29.387	151	-81	519	Lundin Mining/Belmore	3679	2011
11-3679-118	139795.3	176272.6	22.619	131	-78	516	Lundin Mining/Belmore	3679	2011
11-3679-119	140103.9	176051.4	29.387	196	-84	543	Lundin Mining/Belmore	3679	2011
11-3679-120	139779.1	176057.6	20.999	328	-84	486.7	Lundin Mining/Belmore	3679	2011
11-3679-121	143215.3	176209.5	35.335	0	-90	322	Lundin Mining/Belmore	3679	2011
11-3679-122	139779.1	176057.6	20.999	330	-75	489	Lundin Mining/Belmore	3679	2011
11-3679-123	139514.6	176356.8	27.011	0	-90	501.4	Lundin Mining/Belmore	3679	2011
11-3679-124	139663.2	176331.1	26.011	0	-90	483	Lundin Mining/Belmore	3679	2011
11-3679-125	139514.6	176356.8	27.011	276	-76	481	Lundin Mining/Belmore	3679	2011
11-3679-126	139663.2	176331.1	26.011	61	-80	435	Lundin Mining/Belmore	3679	2011
11-3679-127	139485.3	176038.7	20.146	30	-80	425	Lundin Mining/Belmore	3679	2011
11-3679-128	139317.8	176396.1	18.784	0	-90	444	Lundin Mining/Belmore	3679	2011
11-3679-129	139886.7	176030.3	21.23	262	-78	601.9	Lundin Mining/Belmore	3769	2011
11-3679-130	139317.8	176396.1	18.784	283	-77	453	Lundin Mining/Belmore	3679	2011
11-3679-131	139900.6	176054.8	21.307	165	-80	606	Lundin Mining/Belmore	3679	2011
11-3679-132	139124.7	176448.1	17.2	0	-90	450	Lundin Mining/Belmore	3679	2011
11-3679-133	139900.6	176054.8	21.307	0	-90	532.6	Lundin Mining/Belmore	3679	2011

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11-3679-134	139124.7	176448.1	17.2	287	-77	460.5	Lundin Mining/Belmore	3679	2011
11-3679-135	139900.6	176054.8	21.307	198	-81	591	Lundin Mining/Belmore	3679	2011
11-3679-136	140222.3	176003.7	29.326	33	-80	528	Lundin Mining/Belmore	3679	2011
11-3679-137	140222.3	176003.7	29.326	357	-79	521.4	Lundin Mining/Belmore	3679	2011
11-3679-138	140222.3	176003.7	29.326	55	-75	537	Lundin Mining/Belmore	3679	2011
11-3679-139	140355.9	176024.2	24.33	321	-90	522	Lundin Mining/Belmore	3679	2011
11-3679-140	139021	176446.8	18.161	196	-88	475	Lundin Mining/Belmore	3679	2011
11-3679-141	140355.9	176024.2	24.33	321	-75	507	Lundin Mining/Belmore	3679	2011
11-3679-142	139021	176446.8	18.161	196	-83	465	Lundin Mining/Belmore	3679	2011
11-3679-143	139888.2	176032.9	21.346	239	-82	725.6	Lundin Mining/Belmore	3679	2011
11-3679-144	139021	176446.8	18.161	196	-78	498	Lundin Mining/Belmore	3679	2011
11-3679-145	139485.3	176038.7	20.146	30	-80	614	Lundin Mining/Belmore	3679	2011
11-3679-146	139124.7	176448.1	17.2	196	-84	459	Lundin Mining/Belmore	3679	2011
11-3679-147	140533.5	175916.9	22.929	16	-89	534	Lundin Mining	3679	2011
11-3679-148	139124.7	176448.1	17.2	196	-78	480	Lundin Mining	3679	2011
11-3679-149	140440.1	175954.1	23.863	0	-90	537	Lundin Mining	3679	2011
11-3679-150	139124.7	176448.1	17.2	196	-73	519	Lundin Mining	3679	2011
11-3679-151	140440.1	175954.1	23.863	16	-84	526.2	Lundin Mining	3679	2011
11-3679-152	139319.1	176400.7	18.8	196	-81	492	Lundin Mining	3679	2011
11-3679-153	139130.1	176000.7	22.352	0	-90	780	Lundin Mining	3679	2011
11-3679-154	139319.1	176400.7	18.8	196	-75	480	Lundin Mining	3679	2011
11-3679-155	139720.8	176351.9	25.354	195	-88	483	Lundin Mining	3679	2011
11-3679-156	139319.1	176400.7	18.8	196	-69	495	Lundin Mining	3679	2011
11-3679-157	139720.8	176351.9	25.354	195	-85	492	Lundin Mining	3679	2011
11-3679-158	139319.1	176400.7	18.8	230	-64	543	Lundin Mining	3679	2011
11-3679-159	138725	176212.2	17.386	0	-90	623	Lundin Mining	3679	2011
11-3679-160	139319.1	176400.7	18.8	241	-72	510	Lundin Mining	3679	2011
11-3679-161	139130.2	176001.1	22.432	16	-85	759	Lundin Mining	3679	2011
11-3679-162	139319.1	176400.7	18.8	261	-76	513	Lundin Mining	3679	2011
11-3679-163	140440.1	175954.1	23.863	196	-84	538	Lundin Mining	3679	2011
11-3679-164	139720.8	176351.9	25.354	195	-67	522	Lundin Mining	3679	2011
11-3679-165	139311.3	176405.2	18.996	217	-79	615	Lundin Mining	3679	2011
11-3679-166	139720.8	176351.9	25.354	200	-74	513	Lundin Mining	3679	2011
11-3679-167	139130	175997	22.431	16	-78	705	Lundin Mining	3679	2011
11-3679-168	140440.1	175954.1	23.863	32	-77	541	Lundin Mining	3679	2011
11-3679-169	138724	176208.3	17.471	138	-77	785	Lundin Mining	3679	2011
11-3679-170	139177.1	175986.5	24.83	328	-77	740	Lundin Mining	3679	2011
11-3679-171	139176	175986.3	24.81	309	-80	771	Lundin Mining	3679	2011
11-3679-172	138903.2	175475.5	22.086	196	-86	831	Lundin Mining	3679	2011
11-3679-173	138905.1	175465	22.562	16	-71	825	Lundin Mining	3679	2011
11-3679-174	139177.4	175986.4	24.586	280	-82	789	Lundin Mining	3679	2011
11-3679-175	139177.4	175986.4	24.586	257	-80	795	Lundin Mining	3679	2011

HoleNo	East	North	RL	Az	Dip	Depth (m)	Company	PL	Year
11-3679-176	138591	175750.9	23.873	298	-79	849	Lundin Mining	3679	2011
11-3679-177	139177.4	175986.4	24.586	245	-77	798	Lundin Mining	3679	2011
11-3679-178	138591	175750.9	23.873	226	-72	909	Lundin Mining	3679	2011
11-3679-179	139177.4	175986.4	24.586	239	-84	810	Lundin Mining	3679	2011
11-3679-86	139888.3	176030.8	21.316	0	-90	526.5	Lundin Mining/Belmore	3679	2011
11-3679-87	144081.4	176136.7	31.358	0	-90	382	Lundin Mining/Belmore	3679	2011
11-3679-88	143817.6	175684.6	29.518	0	-90	424	Lundin Mining/Belmore	3679	2011
11-3679-89	140040.7	176173.1	22.989	285	-89	516	Lundin Mining/Belmore	3679	2011
11-3679-90	139478.9	176040.3	20.357	0	-90	590	Lundin Mining/Belmore	3679	2011
11-3679-91	140257.6	176023.5	25.337	0	-90	531	Lundin Mining/Belmore	3679	2011
11-3679-92	140040.7	176173.1	22.989	285	-83	516	Lundin Mining/Belmore	3679	2011
11-3679-93	140257.6	176023.5	25.337	135	-76	540	Lundin Mining/Belmore	3679	2011
11-3679-94	140040.7	176173.1	22.989	244	-80	531	Lundin Mining/Belmore	3679	2011
11-3679-95	140257.6	176023.5	25.337	179	-77	521	Lundin Mining/Belmore	3679	2011
11-3679-96	140040.9	176169.7	23.096	203	-83	519	Lundin Mining/Belmore	3679	2011
11-3679-97	140040.4	176172.9	23.033	23	-77	441	Lundin Mining/Belmore	3679	2011
11-3679-98	140182	175974	28.188	246	-76	534.8	Lundin Mining/Belmore	3679	2011
11-3679-99	139940.1	176041	22.223	201	-84	540	Lundin Mining/Belmore	3679	2011
11-3787-08	138496.5	176656.4	9.044	0	-90	415	Lundin Mining/Belmore	3787	2011
11-3787-09	141684.7	181748.2	52.465	0	-90	163	Lundin Mining/Belmore	3787	2011
11-3787-10	142178.1	181734.9	56.723	0	-90	106	Lundin Mining/Belmore	3787	2011
11-3787-11	141834.1	182030.7	54.197	0	-90	136	Lundin Mining/Belmore	3787	2011
11-3787-12	142163	181708.2	54.922	200	-70	130	Lundin Mining/Belmore	3787	2011
11-3787-13	142232.7	181041.8	47.21	80	-70	187	Lundin Mining/Belmore	3787	2011
11-3787-14	142180.6	181262.6	48.911	300	-54	193	Lundin Mining/Belmore	3787	2011
11-3787-15	142332.5	180444.5	50.919	0	-90	214	Lundin Mining/Belmore	3787	2011
11-3787-16	139044	176506.6	15.49	278	-76	465	Lundin Mining/Belmore	3787	2011
11-3787-17	138989.8	176456	15.25	284	-81	459	Lundin Mining/Belmore	3787	2011
11-3787-18	138989.8	176456	15.25	249	-79	459	Lundin Mining/Belmore	3787	2011
11-3787-19	138989.8	176456	15.25	232	-76	474	Lundin Mining/Belmore	3787	2011
11-3787-20	138733.8	176701.1	12.539	195	-67	459	Lundin Mining	3787	2011
11-3787-21	138733.8	176701.1	12.539	16	77	414	Lundin Mining	3787	2011
11-3787-22	138722	176210	18	315	-78	521	Lundin Mining	3787	2011
11-3787-23	138860	176461	12	249	-81	440	Lundin Mining	3787	2011
11-3788-52	143393.5	180094.4	42.209	0	-90	139	Lundin Mining/Belmore	3788	2011
11-3788-53	143614	180038.3	41.731	264	-61	130	Lundin Mining/Belmore	3788	2011
11-3788-54	146628.4	179898.1	41.558	0	-90	307	Lundin Mining/Belmore	3788	2011
11-3788-55	145857.2	179241	33.102	342	-90	239	Lundin Mining	3788	2011
11-3788-56	145857	179241.7	33.128	342	-75	226	Lundin Mining	3679	2011
12-3643-19	146261	175916	36	0	-90	693	Lundin Mining	3643	2012
12-3643-20	144533	175744	28	0	-90	507	Lundin Mining	3643	2012
12-3679-180	138984.1	176355.5	16.65	179	-86	509	Lundin Mining	3679	2012

HoleNo	East	North	RL	Az	Dip	Depth (m)	Company	PL	Year
12-3679-181	139255	176059.4	24.405	295	-86	664.4	Lundin Mining	3679	2012
12-3679-182	139255	176059.4	24.405	178	-80	780	Lundin Mining	3679	2012
12-3679-183	139515.3	176160.7	22.514	322	-84	500	Lundin Mining	3679	2012
12-3679-184	141381.2	176178.8	50.322	194	-76	461	Lundin Mining	3679	2012
12-3679-185	140483.2	175678.5	27.321	41	-79	570	Lundin Mining	3679	2012
12-3679-186	139318	175986	23.826	289	-80	767	Lundin Mining	3679	2012
12-3679-187	140676.8	175131.2	24.036	64	-69	777	Lundin Mining	3679	2012
12-3679-188	140668.7	175122.5	24.89	120	-74	855	Lundin Mining	3679	2012
12-3679-189	141214.2	175611	33.554	309	-67	492	Lundin Mining	3679	2012
12-3679-190	141202.3	175523.3	31.08	262	-67	606	Lundin Mining	3679	2012
12-3679-191	141532.6	175874.5	42.639	52	-68	429	Lundin Mining	3679	2012
12-3679-192	141532.6	175874.5	42.639	166	-72	453	Lundin Mining	3679	2012
12-3679-193	141507.1	175478.5	33.895	0	-90	486	Lundin Mining	3679	2012
12-3679-194	141507.1	175478.5	33.895	196	-63	588	Lundin Mining	3679	2012
12-3679-195	142152	175179.3	31.997	318	-80	516	Lundin Mining	3679	2012
12-3679-196	139215.2	175963.4	24.171	0	-90	779.8	Lundin Mining	3679	2012
12-3679-197	139215.2	175963.4	24.171	223	-86	765	Lundin Mining	3679	2012
12-3679-198	139840.7	175700.3	27.028	333	-78	645	Lundin Mining	3679	2012
12-3679-199	139896	175750	26.347	98	-66	718.3	Lundin Mining	3679	2012
12-3679-200	139896	175750	26.347	98	-80	636.8	Lundin Mining	3679	2012
12-3679-201	139318.3	175980.9	23.702	340	-85	447.3	Lundin Mining	3679	2012
12-3679-202	139318.3	175980.9	23.702	340	-85	705	Lundin Mining	3679	2012
12-3679-203	139896	175750	26.347	276	-71	729	Lundin Mining	3679	2012
12-3679-204	139190.2	176064.5	23.405	279	-77	757.2	Lundin Mining	3679	2012
12-3679-205	139318.3	175980.9	23.702	0	-90	765	Lundin Mining	3679	2012
12-3679-206	139190.2	176064.5	23.405	285	-73	720	Lundin Mining	3679	2012
12-3679-207	139190.2	176064.5	23.405	257	-77	803	Lundin Mining	3679	2012
12-3679-208	138890.2	175943.4	20.315	32	-76	773.3	Lundin Mining	3679	2012
12-3679-209	142726.2	175470.2	31.627	356	-84	437	Lundin Mining	3679	2012
12-3679-210	139259.9	176030.4	24.636	102	-77	741	Lundin Mining	3679	2012
12-3679-211	139806.2	175639.3	28.558	11	-74	717	Lundin Mining	3679	2012
12-3679-212	139999.2	176197	22.188	308	-77	504	Lundin Mining	3679	2012
12-3679-213	139789	176038.1	20.805	0	-90	579	Lundin Mining	3679	2012
12-3679-214	139798.2	176275.7	22.447	24	-71	516	Lundin Mining	3679	2012
12-3679-215	139450.4	176310.7	23.107	0	-90	507	Lundin Mining	3679	2012
12-3679-216	140256.3	176011.1	25.489	70	-70	507	Lundin Mining	3679	2012
12-3787-24	137026.6	176809.2	13.794	9	-65	791.2	Lundin Mining	3787	2012
12-3787-25	138280.2	176850.9	7.278	9	-65	453	Lundin Mining	3787	2012
12-3787-26	138300.2	176848.9	7.57	225	-78	513	Lundin Mining	3787	2012
12-3787-27	138024.6	176537.7	7.692	86	-72	510	Lundin Mining	3787	2012
12-3787-28	138011.2	176537.1	7.345	158	-65	624	Lundin Mining	3787	2012
12-3787-29	137855.4	176922.1	16.971	333	-71	594	Lundin Mining	3787	2012

HoleNo	East	North	RL	Az	Dip	Depth (m)	Company	PL	Year
12-3787-30	137760.8	176859.5	29.827	213	-82	134	Lundin Mining	3787	2012
12-3787-31	137788	176853	29	0	-90	600	Lundin Mining	3787	2012
3788-13	146825	179850	40.5	0	-90	76	Belmore Resources	3788	1996
3788-14	146725	180300	46.5	0	-90	85	Belmore Resources	3788	1996
3788-15	146900	179480	38	70	-50	178	Belmore Resources	3788	1996
3788-16	146634	179962	43	0	-90	67.5	Belmore Resources	3788	1996
3788-17	147018	179920	42	0	-50	51.5	Belmore Resources	3788	1996
3788-18	147018	179865	42	0	-60	64.5	Belmore Resources	3788	1996
3788-19	146586	179928	41	90	-90	76	Belmore Resources	3788	1996
3788-20	146700	179900	41	90	-90	56	Belmore Resources	3788	1996
3788-21	146539	179911	41.5	90	-90	110	Belmore Resources	3788	1997
3788-22	146586	179902.1	41	70	-50	88	Belmore Resources	3788	1997
3788-23	146586	179902	41	0	-90	269	Belmore Resources	3788	1997
3788-24	146610	179850	40	0	-90	91	Belmore Resources	3788	1997
3788-25	146552	180020	42	0	-90	55	Belmore Resources	3788	1997
3788-26	146555	179865	41	270	-70	111.8	Belmore Resources	3788	1997
3788-27	146645	179810	39	0	-90	106.3	Belmore Resources	3788	1997
3788-28	146700	179680	37	70	-70	91	Belmore Resources	3788	1997
3788-29	147120	179250	38	270	-50	60.3	Belmore Resources	3788	1997
3788-30	146666	179860	40	0	-90	70	Belmore Resources	3788	1998
3788-31	146634	179825	39.5	0	-90	84.5	Belmore Resources	3788	1998
3788-32	146600	180000	43	0	-90	55	Belmore Resources	3788	1998
3788-33	146634	179656	38	70	-50	111	Belmore Resources	3788	1998
3788-34	147267	179934	44	0	-90	91	Belmore Resources	3788	1998
3788-35	147825	178600	45	0	-90	130	Belmore Resources	3788	1998
3788-36	147300	179000	40	0	-90	127	Belmore Resources	3788	1998
3788-37	146770	179600	36	0	-90	112	Belmore Resources	3788	1998
3788-38	146925	179000	36	0	-90	139	Belmore Resources	3788	2000
3788-39	147820	180152	45	0	-90	49	Belmore Resources	3788	2000
3788-40	147730	180270	45	0	-90	88	Belmore Resources	3788	2000
3788-41	148380	180885	58	0	-90	85	Belmore Resources	3788	2000
3788-42	146220	178945	35	0	-90	73	Belmore Resources	3788	2000
3788-43	147630	180200	45	0	-90	83.45	Belmore Resources	3788	2000
BH-1	141810	176850	37	208	-80	102.1	Unknown	3679	
BH-2	141830	176870	37	0	-90	205	Unknown	3679	
BV-1	142106	181686	51	80	-45	134.2	Irish Base Metals (IBM)	3787	1962
BV-10	142127	181727	51	80	-45	100.46	Irish Base Metals (IBM)	3787	1962
BV-11	142156	181732	52	80	-45	91.13	Irish Base Metals (IBM)	3787	1962
BV-12	142215	181742	52	0	-90	75.3	Irish Base Metals (IBM)	3787	1962
BV-13	142196	181770	52	0	-90	87.7	Irish Base Metals (IBM)	3787	1962
BV-14	142202	181647	51.5	0	-90	131.97	Irish Base Metals (IBM)	3787	1962
BV-15	142183	181580	51.5	0	-90	131.15	Irish Base Metals (IBM)	3787	1962

HoleNo	East	North	RL	Az	Dip	Depth (m)	Company	PL	Year
BV-16	142061	181730	51	80	-45	97.62	Irish Base Metals (IBM)	3787	1962
BV-17	142138	181760	52	260	-45	64.61	Irish Base Metals (IBM)	3787	1962
BV-18	142261	181780	51	0	-90	99.7	Irish Base Metals (IBM)	3787	1962
BV-19	142220	181804	52	0	-90	90.7	Irish Base Metals (IBM)	3787	1962
BV-2	142132	181690	51	80	-45	113	Irish Base Metals (IBM)	3787	1962
BV-20	142158	181795	52	0	-90	97.9	Irish Base Metals (IBM)	3787	1962
BV-21	142130	181790	52	0	-90	93.8	Irish Base Metals (IBM)	3787	1962
BV-22	142092	181814	51	0	-90	90.4	Irish Base Metals (IBM)	3787	1962
BV-24	142060	181714	51	80	-60	117.3	Irish Base Metals (IBM)	3787	1962
BV-3	142139	181692	51	80	-30	17.8	Irish Base Metals (IBM)	3787	1962
BV-4	142203	181708	52	0	-90	81.9	Irish Base Metals (IBM)	3787	1962
BV-5	142220	181712	52	0	-90	78.33	Irish Base Metals (IBM)	3787	1962
BV-6	142266	181719	51	0	-90	12.64	Irish Base Metals (IBM)	3787	1962
BV-7	142094	181720	51	80	-45	111.7	Irish Base Metals (IBM)	3787	1962
BV-8	142106	181724	51	80	-30	42.21	Irish Base Metals (IBM)	3787	1962
BV-9	142125	181743	51	210	-40	37.24	Irish Base Metals (IBM)	3787	1962
Ca-1	142303	180038	50.5	90	-45	75	Irish Base Metals (IBM)	3788	
Ca-2	142387	180055	49	270	-45	92	Irish Base Metals (IBM)	3788	
Ca-3	142286	180033	50.5	0	-90	61.6	Irish Base Metals (IBM)	3788	
Ca-4	142355	180046	50	0	-90	30.8	Irish Base Metals (IBM)	3788	
Ca-5	142206	180028	55	90	-45	127	Irish Base Metals (IBM)	3788	
Ca-6	142270	180093	56	0	-90	33.5	Irish Base Metals (IBM)	3788	
Ca-7	142268	180080	56	180	-45	52.7	Irish Base Metals (IBM)	3788	
DH3643-01	140771	169790	35	0	-90	242	Belmore Resources	3643	2001
DH3643-02	140725	169930	30	0	-90	49	Belmore Resources	3643	
DH3643-03	145360	176880	28	0	-90	286	Belmore Resources	3643	
DH3643-04	145685	169890	39	0	-90	70.6	Belmore Resources	3643	
DH3788-01	142443	180238	50	360	-70	101.75	Belmore Resources	3788	1994
DH3788-02	142340	180149	52	0	-90	200	Belmore Resources	3788	1995
DH3788-03	142333	179977	48	0	-50	143.6	Belmore Resources	3788	1994
DH3788-04	142180	179888	49	0	-90	49.75	Belmore Resources	3788	1994
DH3788-05	143470	179650	50	0	-90	133.3	Belmore Resources	3788	1995
DH3788-06	146572	179865	41	70	-49	145	Belmore Resources	3788	1995
DH3788-07	146521	179961	43	70	-48	104	Belmore Resources	3788	1995
DH3788-08	146556	179854	42	70	-80	110	Belmore Resources	3788	1995
DH3788-09	146484	179948	43	70	-49	120	Belmore Resources	3788	1995
DH3788-10	146502	180062	43.5	70	-50	49	Belmore Resources	3788	1995
DH3788-11	146537	180073	43.5	70	-50	70	Belmore Resources	3788	1995
DH3788-12	146632	179764	38.5	70	-50	110.4	Belmore Resources	3788	1996
DH3789-01	149150	178260	40.5	0	-90	166	Belmore Resources	3789	1998
DH3789-02	149170	177600	45	0	-90	340.5	Belmore Resources	3789	2001
DH3863-01	144900	167800	35	0	-90	145	Belmore Resources	3508	2002

HoleNo	East	North	RL	Az	Dip	Depth (m)	Company	PL	Year
Kl-1	139980	175600	27	26	-55	0	Irish Base Metals (IBM)	3679	
Kl-10	139920	176100	27	260	-60	134	Irish Base Metals (IBM)	3679	
Kl-10a	141680	176640	42	330	-55	145	Irish Base Metals (IBM)	3679	
Kl-11	142050	176350	42	26	-50	91	Irish Base Metals (IBM)	3679	
Kl-12	141750	176850	36	113	-55	0	Irish Base Metals (IBM)	3679	
Kl-13	141790	176820	36	18	-45	0	Irish Base Metals (IBM)	3679	
Kl-14	141710	176630	38	0	-90	0	Irish Base Metals (IBM)	3679	
Kl-2	139980	175520	27	26	-55	0	Irish Base Metals (IBM)	3679	
Kl-3	140000	175550	27	26	-55	117.7	Irish Base Metals (IBM)	3679	
Kl-4	139540	176300	25	0	-45	155	Irish Base Metals (IBM)	3679	
Kl-5	139530	176350	25	0	-60	126.8	Irish Base Metals (IBM)	3679	
Kl-6	140390	175440	29	0	-60	200.9	Irish Base Metals (IBM)	3679	
Kl-8	140330	175850	27	26	-55	0	Irish Base Metals (IBM)	3679	
Kl-9	140390	175440.1	29	0	-75	198	Irish Base Metals (IBM)	3679	
M1	144366	181577	48	0	-90	119	Irish Base Metals (IBM)	3787	1962
M2	144429	181489	49.5	0	-90	88	Irish Base Metals (IBM)	3787	1962
M3	144455	181512	48.5	0	-90	81	Irish Base Metals (IBM)	3787	1962
M4	144474	181536	47	0	-90	74	Irish Base Metals (IBM)	3787	1962
M5	144405.6	181462.9	49	0	-90	93.2	Irish Base Metals (IBM)	3787	1962
M6	144431	181541	49	0	-90	77.4	Irish Base Metals (IBM)	3787	1962
M7	144380	181525	50	0	-90	93.3	Irish Base Metals (IBM)	3787	1962
M8	144445	181407	45	45	-50	111.5	Irish Base Metals (IBM)	3787	1962
NG-01	144930	181125	45	0	-90	61	Irish Base Metals (IBM)	3788	
NG-02	144982	181110	45	330	-60	119	Irish Base Metals (IBM)	3788	

Appendix 3 Executive Summary from SGS Mineralogy Report

The mineralogical examination of the samples was carried out with X-ray diffraction (XRD), QEMSCAN™, electron microprobe and chemical analysis. The purpose of this test program was to determine the overall mineral assemblage and textural characteristics in each sample, and the liberation/association of the REE carriers. A summary of the results is presented below.

Modal Mineralogy

The results from the XRD and QEMSCAN™ are in close agreement.

XRD Analysis

- Sample 8551 consists of major amounts of pyrite, moderate sphalerite, minor galena and trace amounts of mica, arsenopyrite and quartz.
- Sample 8565 consists of major pyrite, moderate sphalerite, galena and arsenopyrite, minor quartz and calcite and trace amounts of mica.
- Sample 8619 consists of major amounts of pyrite, moderate calcite, minor sphalerite and trace amounts of galena.
- Sample 8622 consists of major pyrite and calcite, moderate sphalerite and minor galena.
- Sample 8622 consists of major pyrite and calcite, moderate sphalerite and minor galena.
- Sample 8839 consists of major pyrite, moderate calcite and sphalerite, minor galena, mica and potassium feldspar and trace quartz and arsenopyrite.
- Sample 8988 consists of major pyrite and calcite, moderate sphalerite and minor galena and dolomite.
- Sample 9061consists of major calcite, moderate dolomite and trace arsenopyrite,*pyrite and galena.
- Sample 9066 consists of major sphalerite, moderate galena, pyrite and arsenopyrite and minor calcite.
- Sample 9176 consists of major galena, moderate pyrite, minor sphalerite, dolomite and mica and trace calcite and ankerite
- Sample 9179 consists of major galena and sphalerite and minor pyrite, dolomite, ankerite, calcite and arsenopyrite.
- Sample 9485 consists of major pyrite, moderate galena, sphalerite and arsenopyrite and minor calcite.

QEMSCAN™ Analysis of as Received Samples

All samples are dominated by pyrite (0.35% to 96.0%), dolomite (nil to 76.8%), calcite (0.01% to 70.6%), sphalerite (0.15% to 61.2%), arsenopyrite (0.01% to 55.7%), galena (0.02% to 50.8%), minor micas (0.01% to 9.8%) and trace amounts (<1%) of other phases.

- 9176 consists mainly of galena (44.8%) and pyrite (38.9%), minor micas (9.8%), sphalerite (4.1%) and trace amounts (<1%) of other phases.

- 9066 consists mainly of arsenopyrite (53.7%), moderate pyrite (15.1%), calcite (13.2%), sphalerite (12.4%), minor galena (5.1%) and trace amounts (<1%) of other phases.
- 8551 consists mainly of sphalerite (61.2%) and pyrite (32.1%), minor galena (6.1%) and trace amounts (<1%) of other phases.
- 8619 consists mainly of pyrite (96.0%), minor calcite (3.6%) and trace amounts (<1%) of other phases.
- 9485 consists mainly of pyrite (62.8%), moderate arsenopyrite (16.6%) and sphalerite (10.9%), minor calcite (6.8%), and trace amounts (<1%) of other phases.
- 9179 consists mainly of galena (50.8%) and sphalerite (39.9 %), minor calcite (8.6%) and trace amounts (<1%) of other phases.
- 8839 consists mainly of sphalerite (55.0%) and pyrite (27.0%), minor calcite (6.9%), galena (5.2%), micas (3.7%), arsenopyrite (1.3%) and trace amounts (<1%) of other phases.
- AT741 consists mainly of arsenopyrite (36.0%) and sphalerite (34.0%), moderate pyrite (17.6%), minor calcite (9.8%), micas (2.0%) and trace amounts (<1%) of Cu sulphides, galena enargite, other sulphides, quartz, feldspar, clays, other silicates, oxides, dolomite and other.
- 8565 consists mainly of arsenopyrite (55.7%), moderate galena (20.9 %), minor pyrite (9.8%), sphalerite (7.7%), calcite (4.8%), and trace amounts (<1%) of other phases.
- 9061 consists mainly of calcite (70.6%), moderate arsenopyrite (17.3%), minor micas (5.0 %), dolomite (4.1 %), galena (1.3 %) and trace amounts (<1%) of other phases.
- 8622 consists mainly of pyrite (54.2%) and sphalerite (33.9%), minor calcite (7.7%), galena (3.5%) and trace amounts (<1%) of other phases.
- 8528 consists mainly of dolomite (76.8%), moderate galena (13.4 %), minor calcite (3.1%), sphalerite (3.0%), arsenopyrite (2.2%) and trace amounts (<1%) of other phases.
- 8988 consists mainly of sphalerite (59.5%) and pyrite (29.2%), minor calcite (6.9%), galena (4.1%) and trace amounts (<1%) of other phases.
- AT744 consists mainly of pyrite (48.7%), moderate sphalerite (17.9 %), arsenopyrite (15.0%), minor galena (7.8%), calcite (7.1%), micas (1.6%) and trace amounts (<1%) of other phases.

QEMSCAN™ Analysis of the K_{80} 212 µm Samples

All samples are dominated by calcite (0.05% to 79.5%), pyrite (0.15% to 60.1%), galena (1.4% to 53.4%), sphalerite (0.02% to 50.4%), arsenopyrite (nil to 21.5%), dolomite (nil to 15.9%), minor micas (0.02% to 7.3%), quartz (0.02% to 5.1%), feldspar (nil to 1.6%) and trace amounts (<1%) of other phases.

- 8551 consists mainly of pyrite (52.4%) and sphalerite (37.3%), minor galena (6.2%), arsenopyrite (1.8%), micas (1.7%) and trace amounts (<1%) of other phases.
- 8565 consists mainly of pyrite (38.7%) and sphalerite (28.3%), moderate arsenopyrite (10.7%), galena (10.5%), minor quartz (5.1%), calcite (3.6%), micas (1.6%) and trace amounts (<1%) of other phases.
- 8619 consists mainly of pyrite (60.1%) and calcite (29.8 %), minor sphalerite (7.3%), galena (1.4%) and

trace amounts (<1%) of other phases.

- 8622 consists mainly of calcite (52.5%) and pyrite (30.4%), moderate sphalerite (14.0 %), minor galena (2.8%) and trace amounts (<1%) of other phases.
- 8839 consists mainly of pyrite (44.6%), moderate calcite (20.4%), sphalerite (19.8%), minor micas (7.3%), galena (3.9%), feldspar (1.6%), arsenopyrite (1.5%) and trace amounts (<1%) of other phases.
- 8988 consists mainly of calcite (32.3%), pyrite (31.8%) and sphalerite (29.3%), minor galena (3.2%), dolomite (3.1%) and trace amounts (<1%) of other phases.
- 9061 consists mainly of calcite (79.5%), moderate dolomite (15.9%), minor galena (1.6%) and trace amounts (<1%) of other phases.
- 9066 consists mainly of sphalerite (33.8 %), moderate arsenopyrite (21.5%), galena (17.3%), pyrite (17.0%), minor calcite (9.3%) and trace amounts (<1%) of other phases.
- 9176 consists mainly of galena (53.4%) and pyrite (27.9%), minor sphalerite (7.1%), micas (5.1%), dolomite (2.7%) and trace amounts (<1%) of other phases.
- 9179 consists mainly of sphalerite (50.4%) and galena (30.4%), minor dolomite (7.4%), pyrite (4.0%), calcite (4.0%), arsenopyrite (3.5%) and trace amounts (<1%) of other phases.
- 9485 consists mainly of pyrite (44.7%) and sphalerite (24.8%), moderate galena (14.7%), arsenopyrite (11.3%), minor calcite (3.9%) and trace amounts (<1%) of other phases.

QEMSCAN™ Analysis of the Composite Sample

The Composite sample is dominated by calcite (33.5%) and pyrite (23.3%), moderate sphalerite (16.4%) and dolomite (15.6%), minor galena (3.9%), arsenopyrite (3.7%), micas (2.7%) and trace amounts (<1%) of other phases.

Cumulative Grain Size Distribution

K_{80} 212 µm Samples

The d_{50} (mid point in the size distribution) is as follows:

- pyrite mid-point average is 50% passing ~46 µm;
- sphalerite mid-point average is 50% passing ~51 µm;
- galena mid-point average is 50% passing ~30 µm;
- arsenopyrite mid-point average is 50% passing ~25 µm;
- quartz/feldspar mid-point average is 50% passing ~12 µm;
- mica/clays mid-point average is 50% passing ~20 µm;
- carbonates mid-point average is 50% passing ~56 µm;
- Overall particle mid-point average is 50% passing ~68 µm.

Composite Sample

The d_{50} (mid point in the size distribution) is as follows:

- pyrite is 53 µm,
- sphalerite is 53 µm,
- galena is 53µm,
- arsenopyrite is 30 µm,
- quartz/feldspar is 12 µm,
- mica/clays is 25 µm and
- carbonates is 34 µm.
- Overall particle mid-point average is 50% passing 61 µm.

Electron Microprobe Analyses

Sphalerite consists of (all average wt% values) Zn 63.9%, Cu 0.06%, Fe 2.05%, Mn 0.01%, S 32.6%, Hg 0.09%, In 0.01% and Cd 0.24%.

Liberation and Association of Pyrite, Sphalerite, Galena, Arsenopyrite and Tetrahedrite

K_{80} 212 µm Samples

- Liberated pyrite accounts for ~69%. Pyrite forms mainly complex middling particles (3.6% to 39.2%) and middlings with sphalerite (nil to 11.1%), carbonates (nil to 10.9%), galena (nil to 12.1%), arsenopyrite (nil to 5.4%) and mica/clays (1.1% to 3.4%).
- Liberated sphalerite accounts for ~78%. Sphalerite forms mainly complex middling particles (nil to 23.2%) and middlings with pyrite (nil to 15.0%), carbonates (nil to 20.0%) and galena (nil to 9.7%).
- Liberated galena accounts for ~73%. Galena forms mainly complex middling particles (0.7% to 26.9%) and middlings with pyrite (nil to 15.5%), sphalerite (nil to 15.3%), carbonates (nil to 6.4%) and arsenopyrite (nil to 3.1%).
- Liberated arsenopyrite accounts for ~43%. Arsenopyrite forms mainly complex middling particles (nil to 66.0%) and middlings with pyrite (nil to 21.2%), sphalerite (nil to 44.4%), carbonates (nil to 22.2%) and galena (nil to 39.0%).

Composite Sample

- Liberated pyrite accounts for 67% and complex middling particles for 20% and middlings with sphalerite for 6%, carbonates for 4% and mica/clays for 2%.
- Liberated sphalerite accounts for 80%, complex middling particles for 9% and middlings with pyrite for 7% and carbonates for 3%.
- Liberated galena accounts for 88%, complex particles for 5% and middlings with sphalerite for 3% and pyrite for 3%.
- Liberated arsenopyrite accounts for 52%, complex particles for 35% and middlings with pyrite for 6% and galena for 3%.

- Liberated tetrahedrite accounts for 55%, complex particles for 4% and middlings with galena for 40%.

Mineral Release for Pyrite, Sphalerite, Galena, Arsenopyrite and Tetrahedrite

Composite Sample

- Liberation in the pyrite ranges from 56% to 63% to 73% to 87% for 425 µm, 163 µm, 52 µm and 9 µm, respectively.
- Liberation in the sphalerite ranges from 56% to 71% to 83% to 95% for the same sizes respectively.
- Liberation in the galena ranges from 57% to 75% to 87% to 93% for the same sizes respectively.
- Liberation in the arsenopyrite ranges from 14% to 32% to 55% to 76% for the same sizes respectively.
- Liberation in the tetrahedrite ranges from nil% to nil% to 2% to 64% for the same sizes respectively.

Grade Recovery of Pyrite, Sphalerite and Galena

K_{80} 212 µm Samples

Pyrite

- **8551** grades between 97% and 85% for recoveries of 77% to 98%, respectively.
- **8565** grades between 95% and 77% for recoveries of 66% to 98%, respectively.
- **8619** grades between 98% and 92% for recoveries of 84% to 99%, respectively.
- **8622** grades between 99% and 90% for recoveries of 79% to 96%, respectively.
- **8839** grades between 97% and 90% for recoveries of 85% to 99%, respectively.
- **8888** grades between 97% and 86% for recoveries of 71% to 95%, respectively.
- **9061** grades between 100% and 72% for recoveries of 46% to 69%, respectively.
- **9066** grades between 97% and 85% for recoveries of 79% to 95%, respectively.
- **9176** grades between 95% and 73% for recoveries of 58% to 96%, respectively.
- **9179** grades between 95% and 59% for recoveries of 48% to 85%, respectively.
- **9485** grades between 95% and 74% for recoveries of 64% to 97%, respectively.

Sphalerite

- **8551** grades between 98% and 83% for recoveries of 82% to 97%, respectively
- **8565** grades between 98% and 72% for recoveries of 66% to 93%, respectively.
- **8619** grades between 95% and 81% for recoveries of 75% to 90%, respectively.
- **8622** grades between 96% and 79% for recoveries of 76% to 95%, respectively
- **8839** grades between 99% and 86% for recoveries of 86% to 98%, respectively
- **8888** grades between 96% and 78% for recoveries of 78% to 96%, respectively.
- **9061** grades between 100% and 60% for recoveries of 20% to 36%, respectively.

- **9066** grades between 98% and 90% for recoveries of 91% to 98%, respectively.
- **9176** grades between 99% and 75% for recoveries of 63% to 94%, respectively.
- **9179** grades between 99% and 94% for recoveries of 92% to 99%, respectively.
- **9485** grades between 96% and 69% for recoveries of 67% to 95%, respectively.

Galena

- **8551** grades between 98% and 83% for recoveries of 72% to 88%, respectively.
- **8565** grades between 98% and 74% for recoveries of 59% to 81%, respectively.
- **8619** grades between 99% and 82% for recoveries of 71% to 81%, respectively.
- **8622** grades between 100% and 79% for recoveries of 57% to 89%, respectively.
- **8839** grades between 100% and 83% for recoveries of 65% to 78%, respectively.
- **8888** grades between 98% and 73% for recoveries of 57% to 74%, respectively.
- **9061** grades between 99% and 97% for recoveries of 97% to 98%, respectively.
- **9066** grades between 99% and 86% for recoveries of 84% to 95%, respectively.
- **9176** grades between 99% and 88% for recoveries of 85% to 98%, respectively.
- **9179** grades between 99% and 94% for recoveries of 94% to 98%, respectively.
- **9485** grades between 98% and 76% for recoveries of 62% to 88%, respectively.

Composite Sample

The best grades and recoveries for all minerals are projected for the fine fractions. Overall, grade - recovery curves respectively, representing the whole sample, indicate that for:

Pyrite

- grades between 97% and 79% for recoveries of 68% to 96%.

Sphalerite

- grades between 98% and 81% for recoveries of 78% to 95%.

Galena

- grades between 98% and 84% for recoveries of 88% to 96%.

Appendix 4 Kilbricken – Drillholes and Intervals Used in Resource Calculation

Project	*Hole Number*	*From (m)*	*To (m)*	*Interval (m)*	*Zn (%)*
Kilbricken	08-3679-04	435.4	459	23.6	6.424
Kilbricken	09-3679-05	471.5	477	5.5	1.052
Kilbricken	09-3679-06	439.95	464.15	24.2	9.96
Kilbricken	09-3679-07	442.75	463.95	21.2	1.906
Kilbricken	09-3679-08	445.6	459.6	14	2.881
Kilbricken	09-3679-09	443.8	444.8	1	0.08
Kilbricken	09-3679-11	427.5	429.5	2	1.89
Kilbricken	09-3679-14	423.55	428	4.45	2.549
Kilbricken	09-3679-15	457.55	469.55	12	0.558
Kilbricken	09-3679-16	437.1	438.25	1.15	1.81
Kilbricken	09-3679-17	447.25	447.5	0.25	1.539
Kilbricken	09-3679-18	462.147	462.747	0.6	8.724
Kilbricken	09-3679-18	467.05	470.7	3.65	2.329
Kilbricken	09-3679-19	429.4	436.85	7.45	5.592
Kilbricken	09-3679-20	450.3	453.25	2.95	0.04
Kilbricken	09-3679-21	447.05	447.898	0.849	1.22
Kilbricken	09-3679-28	417.5	447.35	29.85	0.22
Kilbricken	09-3679-34	425.8	445	19.2	0.854
Kilbricken	09-3679-37	443	446.2	3.2	1.893
Kilbricken	09-3679-38	418.5	424.3	5.799	7.506
Kilbricken	09-3679-38	448	452	4	0.009

Kilbricken	10-3679-42	413.4	423	9.6	1.5
Kilbricken	10-3679-43	428.2	459.7	31.5	2.185
Kilbricken	10-3679-44	445.9	474.7	28.8	1.987
Kilbricken	10-3679-46	415.25	446.2	30.95	0.005
Kilbricken	10-3679-48	423.5	471.15	47.65	0.938
Kilbricken	10-3679-49	402.2	430	27.8	1.325
Kilbricken	10-3679-50	484.6	500.4	15.8	7.489
Kilbricken	10-3679-52	423.7	445.8	22.1	6.349
Kilbricken	10-3679-55	404.55	421.55	17	1.063
Kilbricken	10-3679-58	469.85	470.95	1.1	5.935
Kilbricken	10-3679-60	449.7	450.3	0.6	0.03
Kilbricken	10-3679-63	431.25	434.298	3.048	9.102
Kilbricken	10-3679-65	438.8	452.9	14.1	2.485
Kilbricken	10-3679-68	504.7	512.5	7.8	7.658
Kilbricken	10-3679-76	524.2	539.2	15	1.768
Kilbricken	10-3679-80	445.58	450	4.42	2.609
Kilbricken	10-3679-84	517	520.8	3.8	2.705
Kilbricken	11-3679-103	444	446	2	0.005
Kilbricken	11-3679-105	448.3	449.1	0.8	18.99
Kilbricken	11-3679-105	467	468	1	0.01
Kilbricken	11-3679-106	479.15	523	43.85	0.623
Kilbricken	11-3679-108	446	459	13	0.431
Kilbricken	11-3679-108	473	477	4	0.01
Kilbricken	11-3679-110	439.6	450	10.4	2.153

Kilbricken	11-3679-111	447.6	451.7	4.1	22.771
Kilbricken	11-3679-112	418.8	446	27.199	0.467
Kilbricken	11-3679-113	443.8	453	9.2	0.865
Kilbricken	11-3679-114	413.4	415	1.6	1.5
Kilbricken	11-3679-115	462.8	465	2.2	0.005
Kilbricken	11-3679-116	413.1	418	4.9	5.205
Kilbricken	11-3679-118	439.6	453.4	13.8	1.503
Kilbricken	11-3679-124	401.5	402.499	0.998	1.92
Kilbricken	11-3679-124	409	411	2	3.4
Kilbricken	11-3679-126	409.3	418.1	8.8	0.005
Kilbricken	11-3679-133	476.6	486.3	9.7	0.134
Kilbricken	11-3679-137	444.6	451.7	7.1	2.593
Kilbricken	11-3679-153	612.4	692	79.6	1.135
Kilbricken	11-3679-155	406	411	5	4.453
Kilbricken	11-3679-157	411.8	442	30.2	1.351
Kilbricken	11-3679-161	575	666.8	91.8	3.449
Kilbricken	11-3679-166	432.3	448	15.7	0.695
Kilbricken	11-3679-167	534	630	96	2.864
Kilbricken	11-3679-170	606.7	673.4	66.7	0.121
Kilbricken	11-3679-171	613	682.8	69.8	0.44
Kilbricken	11-3679-175	674	678	4	0.01
Kilbricken	11-3679-179	654.5	667.8	13.3	0.402
Kilbricken	11-3679-86	489.2	495	5.8	0.408
Kilbricken	11-3679-89	439	456	17	2.746

Kilbricken	11-3679-91	444.8	449.6	4.8	2.318
Kilbricken	11-3679-92	430	459	29	0.92
Kilbricken	11-3679-94	449.5	464.2	14.7	3.986
Kilbricken	11-3679-96	449.5	451.1	1.6	0.03
Kilbricken	12-3679-181	507.824	535.2	27.375	0.425
Kilbricken	12-3679-181	649.7	660.5	10.8	0.005
Kilbricken	12-3679-186	665	670	5	0.035
Kilbricken	12-3679-196	610	615.7	5.7	2.696
Kilbricken	12-3679-202	682.3	697.9	15.6	0.005
Kilbricken	12-3679-204	654.4	656.4	2	0.005
Kilbricken	12-3679-206	619	627	8	0.958
Kilbricken	12-3679-207	663.1	674	10.9	0.019