

ASX Code: "THR"



20 September 2021

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AIM & ASX Listings:

Shares: THR
OTCQB Listing
Shares: THORF

Directors:

Nicole Galloway Warland
Mark Potter
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Key Projects:

- **Gold**
Ragged Range Pilbara WA
- **Copper**
Alford East SA
- **Uranium / Vanadium**
Colorado / Utah USA
- **Tungsten**
Molyhil NT
Pilot Mountain USA

Company Announcements Office

ASX Securities Limited,
20, Bridge Street,
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KAPUNDA DRILLING

Kapunda Copper ISR Project, South Australia

The directors of Thor Mining Plc ("Thor") (AIM, ASX: THR, OTCQB: THORF) are pleased to advise that drilling has commenced at the Kapunda Copper ISR Project in South Australia.

EnviroCopper Ltd ("EnviroCopper") (in which Thor holds a 30% equity interest), in collaboration with MinEx CRC, is undertaking an innovative Coiled Tube ("CT") drilling program at Kapunda. MinEx CRC is the world's largest mineral exploration collaboration, bringing together mining industry (including drilling companies), government and research organisations. The drilling is designed to trial technological advancements using a safer, environmentally friendly mining technology with a low footprint.

Drilling is targeting copper-gold mineralisation approximately 30m from the planned in-situ recovery ("ISR") push/pull test site to the south of Kapunda township (Figure 1 and 2). A geophysics IP anomaly was also identified in this area by Copper Range Ltd in 2008 (Figure 3). The drilling program is anticipated to take approximately 4 weeks.



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Nicole Galloway Warland, Managing Director of Thor Mining, commented:

"It's great to see mineral exploration collaborations between industry, government and research organisations, such as this Coiled Tubed ("CT") drilling program between EnviroCopper and MinEx CRC. Based on geology and access, Kapunda is an ideal location to be trialling the next generation of CT drilling, whilst collecting geological information on the copper-gold mineralisation, which is valuable for the further development of the Kapunda Copper ISR Project."

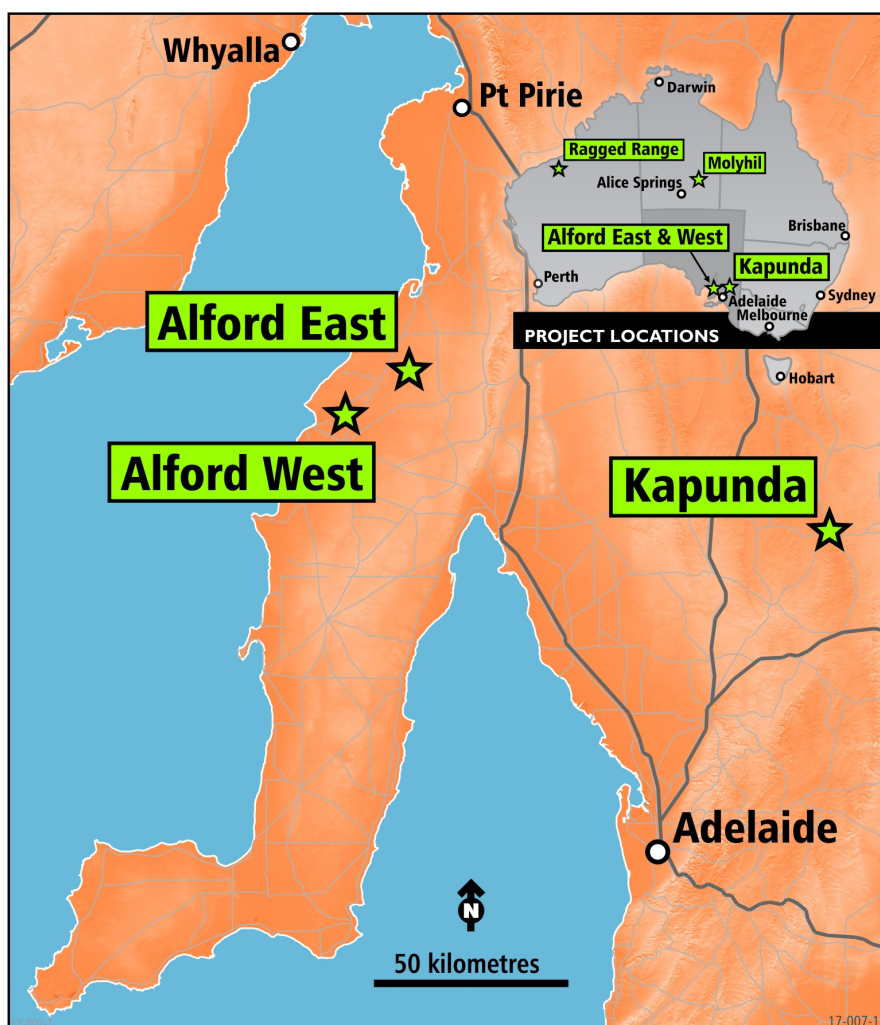


Figure 1: Kapunda Location Plan

About Kapunda and EnviroCopper

The Kapunda ISR Copper Project is located approximately 90 kilometres north north-east of Adelaide in South Australia (Figure 1).

Thor holds a 30% interest in EnviroCopper, which in turn holds rights to earn up to a 75% interest in the mineral rights over metals which may be recovered via ISR contained in the Kapunda deposit from Australian listed company, Terramin Australia Limited ("Terramin" ASX:TZN). (ASX:THR Announcement 11 November 2020).

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For detail of the ISR process, investors are invited to view the EnviroCopper website: <https://www.envirocopper.com.au/>

EnviroCopper-MinEX CRC Collaboration

EnviroCopper is an affiliate of the \$10M MinEx CRC program and currently has the CT drilling rig on site at Kapunda. The drill program will supply geological information to EnviroCopper whilst testing various aspects of the rig and the solid handling system.

Copper Range Ltd in November 2008, drilled two reverse circulation (“RC”) drill holes (SK001 and SK002) into an IP anomaly, with SK002 intersecting 22m @ 0.6% Cu (4-26m) including 4m @ 2.4% (4-8m) (Open File Envelope ENV11691). The CT rig aims to validate this mineralisation, in addition to gaining geological information on the copper mineral species.

Table A: Historic Drill Collar Summary, Cooper Range, 2008
(Sourced from Open File Envelope ENV 11691)

Drillhole	Easting (WGS84)	Northing (WGS84)
SK01	308680	6196337
SK02	308640	6196306
SK03	308635	6196660
SK04	308613	6196630
SM01	310015	6196862

Kapunda MinEX CRC Coil Tube Drilling

MinEx CRC is the world’s largest mineral exploration collaboration bringing together industry, government and research organisations with a total of \$220M funding. For further information view MinEx CRC website www.minexcrc.com.au

Coiled Tubing drilling offers the potential for rapid, safe, energy and water-efficient drilling at a fraction of the cost of conventional techniques. MinEx CRC is building on the RoXplorer® CT technology developed by DET CRC and deployed to field trials in Nevada in 2018. The Nevada trials confirmed the potential of CT drilling but showed that there could be improvements to fluid management, streamline sampling procedures and reduce the footprint of drill sites. The Kapunda drilling trial represents the next generation of CT drilling, with these improvements being added to the platform.

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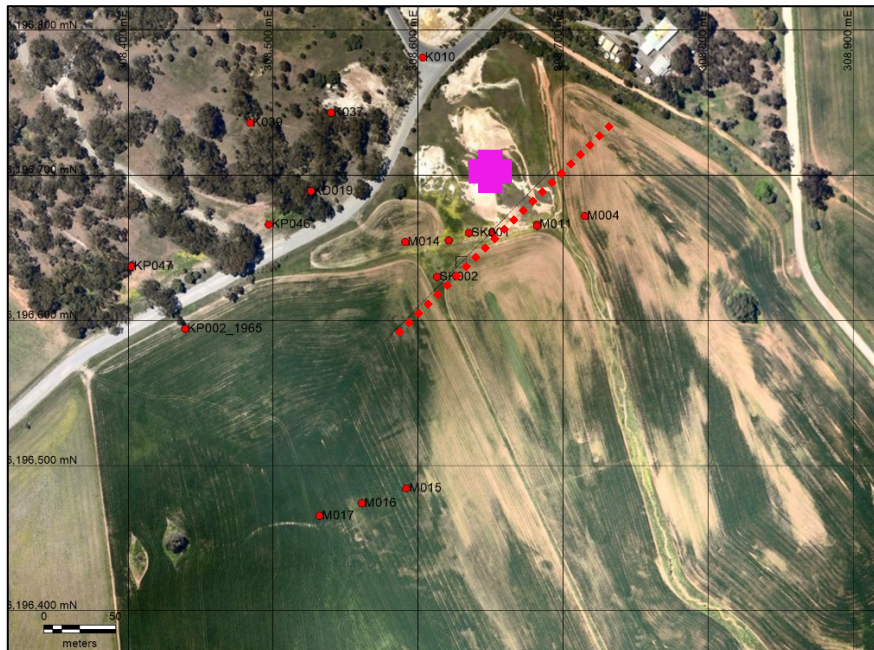


Figure 2: CT Drill Site (Pink cross), Historic drillholes (red dot) and IP Survey line (red Dashed line) overlaying google earth image showing historic Kapunda mine workings

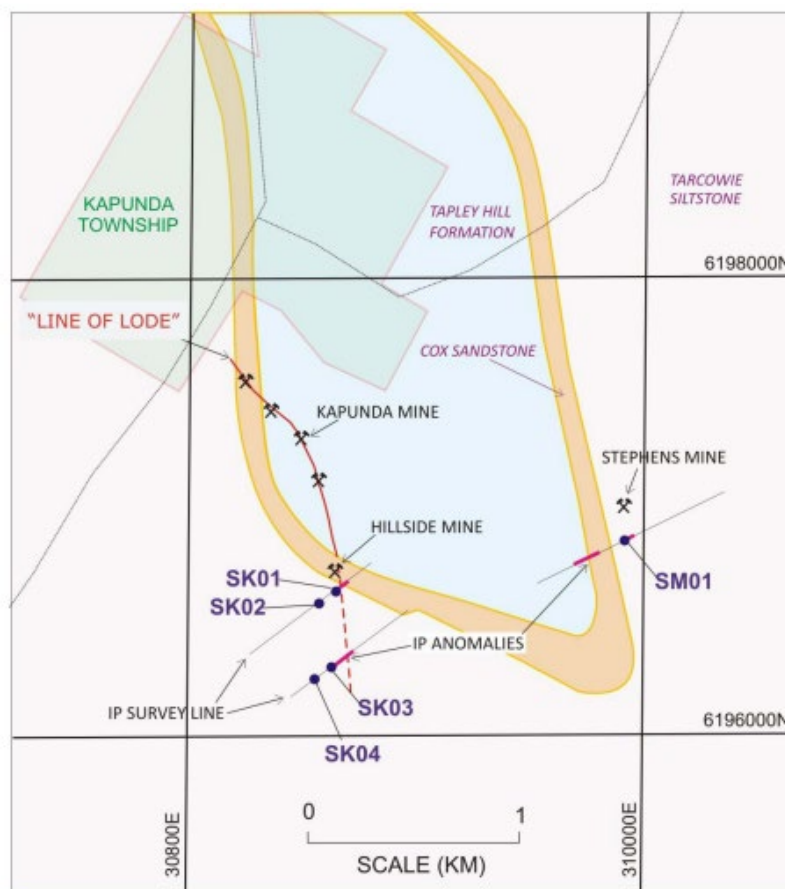


Figure 3: IP Survey Lines showing historic drillholes (ENV 11691)

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This announcement is authorised for release by the Board of Directors

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Competent Persons Report

The information in this report that relates to Exploration Results and the Estimation and Reporting of the Alford East Mineral Resource Estimation is based on information compiled by Nicole Galloway Warland, who holds a BSc Applied geology (HONS) and who is a Member of The Australian Institute of Geoscientists. Ms Galloway Warland is an employee of Thor Mining PLC. She has sufficient experience which is relevant to the style of mineralisation and type of deposit under consideration and to the activity which she is undertaking to qualify as a Competent Person as defined in the 2012 Edition of the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves'. Nicole Galloway Warland consents to the inclusion in the report of the matters based on her information in the form and context in which it appears.

Forward Looking Statements

This document may contain certain forward-looking statements. Forward-looking statements include, but are not limited to, statements concerning Thor Mining PLC current expectations, estimates and projections about the industry in which Thor operates, and beliefs and assumptions regarding Thor's future performance. When used in this document, words such as "anticipate", "could", "plan", "estimate", "expects", "seeks", "intends", "may", "potential", "should", and similar expressions are forward-looking statements. Although Thor believes that its expectations reflected in these forward-looking statements are reasonable, such statements are subject to known and unknown risks, uncertainties and other factors, some of which are beyond the control of Thor and no assurance can be given that actual results will be consistent with these forward-looking statements

Updates on the Company's activities are regularly posted on Thor's website www.thormining.com, which includes a facility to register to receive these updates by email, and on the Company's twitter page @ThorMining.

About Thor Mining PLC

Thor Mining PLC (AIM, ASX: THR; OTCQB: THORF) is a diversified resource company quoted on the AIM Market of the London Stock Exchange, ASX in Australia and OTCQB Market in the United States.

The Company is advancing its diversified portfolio of precious, base, energy and strategic metal projects across USA and Australia. Its focus is on progressing its copper, gold, uranium and vanadium projects, while seeking investment/JV opportunities to develop its tungsten assets.

Thor owns 100% of the Ragged Range Project, comprising 92 km² of exploration licences with highly encouraging early stage gold and nickel results in the Pilbara region of Western Australia, for which drilling is planned in the second half of 2021.

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At Alford East in South Australia, Thor is earning an 80% interest in copper deposits considered amenable to extraction via In Situ Recovery techniques (ISR). In January 2021, Thor announced an Inferred Mineral Resource Estimate of 177,000 tonnes contained copper & 71,000 oz gold¹.

Thor also holds a 30% interest in Australian copper development company EnviroCopper Limited, which in turn holds rights to earn up to a 75% interest in the mineral rights and claims over the resource on the portion of the historic Kapunda copper mine and the Alford West copper project, both situated in South Australia, and both considered amenable to recovery by way of ISR.²³

Thor holds 100% interest in two private companies with mineral claims in the US states of Colorado and Utah with historical high-grade uranium and vanadium, drilling and production results.

Thor holds 100% of the advanced Molyhil tungsten project, including indicated and inferred resources⁴, in the Northern Territory of Australia, which was awarded Major Project Status by the Northern Territory government in July 2020.

Adjacent to Molyhil, at Bonya, Thor holds a 40% interest in deposits of tungsten, copper, and vanadium, including Inferred resource estimates for the Bonya copper deposit, and the White Violet and Samarkand tungsten deposits.⁵

Thor holds 100% of the Pilot Mountain tungsten project in Nevada, USA which is subject to a sale option agreement.⁶

Notes

¹ www.thormining.com/sites/thormining/media/pdf/asx-announcements/20210127- maiden-copper-gold-estimate-alford-east-sa.pdf

² www.thormining.com/sites/thormining/media/pdf/asx-announcements/20172018/20180222-clarification-kapunda-copper-resource-estimate.pdf

³ www.thormining.com/sites/thormining/media/aim-report/20190815-initial-copper-resource-estimate---moonta-project---rns---london-stock-exchange.pdf

⁴ www.thormining.com/sites/thormining/media/pdf/asx-announcements/20191011-molyhil-mineral-resource-estimate-enhanced.pdf

⁵ www.thormining.com/sites/thormining/media/pdf/asx-announcements/20200129-mineral-resource-estimates---bonya-tungsten--copper.pdf

⁶ <http://www.thormining.com/sites/thormining/media/pdf/asx-announcements/20210901-pilot-mountain-project-us1.8m-sale-option.pdf>

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1. APPENDICES

Checklist of Assessment and Reporting Criteria (JORC Code Table 1)

Section 1: Sampling Techniques and Data

Criteria	JORC Code explanation	Commentary																												
	<p><i>Nature and quality of sampling (eg cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc). These examples should not be taken as limiting the broad meaning of sampling.</i></p>	<p>Historic drilling reported Since the cessation of mining, Kapunda has been explored by numerous exploration companies. Five of these companies undertook drilling and their work is summarized below.</p> <p>The 2008 drilling undertaken by Copper Range utilized reverse circulation with the first 6m collared using a 6 ½ inch hammer bit. Individual metre sample intervals were collected in 600x900mmx150um plastic bags fitted to a rig mounted cyclone. A sub sample for analysis was then collected in a calico bag by passing the whole metre sample through a two-tier riffle splitter.</p> <p>A summary of the drilling undertaken at Kapunda is presented in table below.</p> <table border="0"> <tr> <td>Diamond core holes</td> <td>Total</td> </tr> <tr> <td>KP Mines Exploration (1965-66)</td> <td>3</td> </tr> <tr> <td>K Northlands (1972-73)</td> <td>52</td> </tr> <tr> <td>KD Utah (1974-76)</td> <td>23</td> </tr> <tr> <td>Total diamond core holes</td> <td>78</td> </tr> <tr> <td colspan="2">Percussion Holes</td> </tr> <tr> <td>KV Mines Exploration (1965-66)</td> <td>43</td> </tr> <tr> <td>M Noranda (1970)</td> <td>24</td> </tr> <tr> <td>Z Noranda (1970)</td> <td>1</td> </tr> <tr> <td>KP Utah (1974-76)</td> <td>36</td> </tr> <tr> <td>SM Copper Range (2008)</td> <td>1</td> </tr> <tr> <td>SK Copper Range (2008)</td> <td>4</td> </tr> <tr> <td>Total percussion holes</td> <td>109</td> </tr> <tr> <td>Total drillholes</td> <td>187</td> </tr> </table> <p>Total meterage of all drillholes - f 22,712.8m.</p>	Diamond core holes	Total	KP Mines Exploration (1965-66)	3	K Northlands (1972-73)	52	KD Utah (1974-76)	23	Total diamond core holes	78	Percussion Holes		KV Mines Exploration (1965-66)	43	M Noranda (1970)	24	Z Noranda (1970)	1	KP Utah (1974-76)	36	SM Copper Range (2008)	1	SK Copper Range (2008)	4	Total percussion holes	109	Total drillholes	187
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Total drillholes	187																													
	<p><i>Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.</i></p>	<p>Core was aligned and measured by tape, comparing back to downhole core blocks consistent with industry practice. Documentation indicates that the diamond and percussion drilling was completed by</p>																												

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Criteria	JORC Code explanation	Commentary
		previous operators to industry standard at that time.
	<i>Aspects of the determination of mineralisation that are Material to the Public Report. In cases where ‘industry standard’ work has been done this would be relatively simple (eg ‘reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30 g charge for fire assay’). In other cases more explanation may be required, such as where there is coarse gold that has inherent sampling problems. Unusual commodities or mineralisation types (eg submarine nodules) may warrant disclosure of detailed information.</i>	Sampling was to industry standard at the time of drilling, with samples collected from various interval sizes depending on the company involved. Samples were assayed at certified laboratories.
<i>Drilling techniques</i>	<i>Drill type (eg core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc) and details (eg core diameter, triple or standard tube, depth of diamond tails, face-sampling bit or other type, whether core is oriented and if so, by what method, etc).</i>	Copper Range’s SK series holes were drilled using reverse circulation.
<i>Drill sample recovery</i>	<i>Method of recording and assessing core and chip sample recoveries and results assessed.</i>	Core recovery was measured for each drill run between the driller’s marker blocks. No historic information is available for KP series holes.
	<i>Measures taken to maximise sample recovery and ensure representative nature of the samples.</i>	The historic records describe in length (as detailed above) the efforts that went into maximizing core recovery.
	<i>Whether a relationship exists between sample recovery and grade and whether sample bias may have occurred due to preferential loss/gain of fine/coarse material.</i>	Statistical analysis indicates no significant sample bias caused by preferential loss/gain of course/fine material.

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Criteria	JORC Code explanation	Commentary
Logging	<i>Whether core and chip samples have been geologically and geotechnically logged to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies.</i>	All drillholes have been geologically logged for recovery, lithology, mineralisation and colour with abundant petrographical and petrological studies to adequately support the Mineral Resource estimation, mining studies and metallurgical studies. SK series holes were logged for recovery, rock type, mineralisation and a geological description which included, colour, texture and grain size. A total of 98 petrographic samples and 70 petrological samples were described. Geotechnical logging has been undertaken by Environmental Copper Recovery Pty Ltd (ECR) geologists on drill core stored at the South Australian Drill Core Reference Library.
	<i>Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc) photography.</i>	Logging is qualitative based on visual field estimates. Qualitative code logging was conducted for lithology, alteration, veining, tone and colour.
	<i>The total length and percentage of the relevant intersections logged.</i>	Entire holes are logged in all instances.
Sub-sampling techniques and sample preparation	<i>If core, whether cut or sawn and whether quarter, half or all core taken.</i>	RC Reported only
	<i>If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry.</i>	The 2008 drilling undertaken by Copper Range utilized reverse circulation with the first 6m collared using a 6 ½ inch hammer bit. Individual metre sample intervals were collected in 600x900mmx150um plastic bags fitted to a rig mounted cyclone. A sub sample for analysis was then collected in a calico bag by passing the whole metre sample through a two-tier riffle splitter.
	<i>For all sample types, the nature, quality and appropriateness of the sample preparation technique.</i>	Documented sample preparation techniques followed best practice of the time and are considered adequate.
	<i>Quality control procedures adopted</i>	No additional historical information is available on quality control procedures to

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Criteria	JORC Code explanation	Commentary
	<i>for all sub-sampling stages to maximise representivity of samples.</i>	that detailed above.
	<i>Measures taken to ensure that the sampling is representative of the in situ material collected, including for instance results for field duplicate/second-half sampling.</i>	Techniques followed best practice of the time including regular cleaning of the cyclones and splitters and careful flushing of holes when water encountered.
	<i>Whether sample sizes are appropriate to the grain size of the material being sampled.</i>	Sample sizes are considered appropriate.
Quality of assay data and laboratory tests	<i>The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.</i>	Assaying was carried out at certified analytical laboratories and the techniques are considered appropriate, although little historical information is available on checks and standards. No information is available on checks and standards.
	<i>For geophysical tools, spectrometers, handheld XRF instruments, etc, the parameters used in determining the analysis including instrument make and model, reading times, calibrations factors applied and their derivation, etc.</i>	Geophysical tools, spectrometers, handheld XRF instruments, etc. were not available to earlier companies. No geophysical tools were used by Terramin to estimate published mineral or element percentages.
	<i>Nature of quality control procedures adopted (eg standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (ie lack of bias) and precision have been established.</i>	Minimal historical information is available on the use of standards, blanks or duplicates. The use of check analyses were documented by Northland. Check analyses were undertaken at their main laboratory, Amdel and cross lab checks done at Robertson Research and McPhar Geophysics. Original assay reports from Amdel show that at the time they ran a mix of standards and blanks every fifteenth sample, although the results of these internal lab checks were not documented.
Verification of	<i>The verification of significant</i>	

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Criteria	JORC Code explanation	Commentary
<p>sampling and assaying</p>	<p><i>intersections by either independent or alternative company personnel.</i></p>	<p>Utah’s KD005 which returned from 45m, 27m @ 1.18% copper was resampled by Copper Range in 2007. Copper Range’s resampling returned from 45m, 27m @ 1.20% copper.</p> <p>Utah’s deep intercept of primary copper sulphide in KD011 returned from 426m, 11m @ 2.00% copper was resampled by Terramin returned from 426m, 11m @ 1.89% copper and 0.1g/t gold. Terramin’s samples were a quarter cut of the remaining half core sample. (TZN ASX announcement – 1st Quarter Report, 29/4/2016)</p> <p>Other significant intersections from drill core have been visually reviewed by Terramin and ECR staff. Terramin has also utilised a hand held XRF to validate copper assays of percussion holes stored at the South Australian Drill Core Reference Library.</p>
	<p><i>The use of twinned holes.</i></p>	<p>There were two sets of planned twin holes: KD001 twinned drillhole K015 and KD0019 twinned drillholes KP046 and K076. There are a further 6 pairs of drillholes that are close enough to be considered twins.</p> <p>As part of compiling data for the Kapunda Mineral Resource estimate it was deemed necessary to be comfortable with the wide variety of drilling and sampling methods used on the Kapunda Project over a number of years.</p> <p>In order to look at the issue it was decided to;</p> <ul style="list-style-type: none"> • Compare summary statistics for the different drillhole series. • Compare a selection of twined holes. • Compare poor recovery core holes with good recovery drillholes • Compare rotary drilling with diamond drilling within a specific, geologically constrained spatial area. • The process entailed creating a 2m

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Criteria	JORC Code explanation	Commentary
		<p>downhole composite set of drill assays and splitting these into their component drill series types for statistical analysis.</p> <p>Results;</p> <ul style="list-style-type: none"> • The results in general show no significant bias due to drilling type. • Twin holes Q-Q plots indicate there is little bias. • There appears to be very little difference between holes with poor core recovery versus those with good core recovery. • While there are some individual difference between rotary and diamond holes, looking at a larger sample they appear to give relatively consistent results.
	<p><i>Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.</i></p>	<p>Primary data was recorded on paper log sheets, photocopies of originals were submitted as part of statutory reporting. These have subsequently been scanned to PDF and made available online at South Australian Resources and Information Gateway (SARIG) in the Resource and Energy Georeference Database.</p> <p>Terramin was also able to obtain digital data sets of the drill data from Copper Range Ltd and the digital data set used by Stuart Metals NL (Stuart Metals) for their 1992 Kapunda Resource estimate. Where differences were found between the data contained in the original company reports and the data provided by Stuart Metals database, the original companies’ values were used.</p> <p>The data was entered into Excel spreadsheets before being imported into a Maxwell Geo Services' DataShed and QAQCR which was used to validate the data viz; overlapping intervals, excessive drillhole deviation, assay QAQC. Secondary validation</p>

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Criteria	JORC Code explanation	Commentary
		<p>by Maptek's Vulcan software and visual validation was also undertaken.</p>
	<p><i>Discuss any adjustment to assay data.</i></p>	<p>No adjustments are made to reported summary intersections.</p> <p>The Mineral Resource estimate makes an allowance for core loss with lost intervals assumed to have a zero grade.</p>
<p><i>Location of data points</i></p>	<p><i>Accuracy and quality of surveys used to locate drill holes (collar and down-hole surveys), trenches, mine workings and other locations used in Mineral Resource estimation.</i></p>	<p>Mines Exploration established the original grid baseline parallel to main strike of mineralization with grid north at 335 degrees magnetic. All subsequent companies, except for Copper Range used this grid. Copper Range use GDA94 Zone 53</p> <p>Initial survey control was by licensed surveyor using theodolite. Collars were fixed by theodolite surveys and metal pin bench marks. Coordinate position 1000N 00E (collar of drillhole KV002).</p> <p>To allow for the incorporation of drillhole data from Copper Range an affine transformation was used to convert the earlier drillhole coordinates to MGA Zone 54 (GDA 94).</p>
	<p><i>Specification of the grid system used.</i></p>	<p>The data is reported in grid system MGA Zone 54 (GDA94).</p>
	<p><i>Quality and adequacy of topographic control.</i></p>	<p>In 1972 Northland Minerals contracted surveying consultants Alex & Symonds Pty Ltd to survey the site and locate drill collars. The level datum used throughout the grid and drillhole levelling is based upon a Lands Department Bench Mark Number 6921.</p> <p>A digital terrain model was created by Terramin from the survey's 528 survey points collected across the deposit. Drillhole collar RL's not picked up during this survey were then assigned a value from this surface.</p> <p>With the exception of the historic workings, the area has low relief. The site has a gentle slope to the south, over the 1,500m of strike length there is just a maximum difference of</p>

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Criteria	JORC Code explanation	Commentary
		25m in collar RLs.
Data spacing and distribution	<i>Data spacing for reporting of Exploration Results.</i>	Drillhole spacings and sample interval lengths are considered appropriate.
	<i>Whether the data spacing and distribution is sufficient to establish the degree of geological and grade continuity appropriate for the Mineral Resource and Ore Reserve estimation procedure(s) and classifications applied.</i>	The data spacing and the characteristics of the Kapunda mineralisation determined from reviewing historical drilling results, and visual inspections of the core are suitable for the defined Mineral Resource to be classified as Inferred for ISR. However, the protocol for estimation and reporting of Mineral Resources for exploitation using ISR has a number of additional steps compared to conventional mining and processing. Before any portion of the Kapunda Mineral Resource can be classified as Indicated or Measured pump testing and hydrogeological modeling will be required.
	<i>Whether sample compositing has been applied.</i>	Field sample compositing was not undertaken on any of the diamond or percussion drill samples. Sample sizes are considered appropriate.
Orientation of data in relation to geological structure	<i>Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.</i>	The orientation of the drilling is considered to be appropriate for the oxide copper and secondary copper sulphide mineralisation.
	<i>If the relationship between the drilling orientation and the orientation of key mineralised structures is considered to have introduced a sampling bias, this should be assessed and reported if material.</i>	Drilling orientation is not deemed to have introduced any significant sampling bias.
Sample security	<i>The measures taken to ensure sample security.</i>	Chain of custody management was not documented.
Audits or reviews	<i>The results of any audits or reviews of sampling techniques and data.</i>	Prior to acquiring the Kapunda Project from Maximus Resources Ltd (Maximus), Terramin audited the Stuart Metals database against original reports and viewed drill core at the South Australian Drill Core Reference Library. Historical density techniques were considered inappropriate and discarded.

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Criteria	JORC Code explanation	Commentary
		<p>New measurements collected by TZN and ERC show that density had previously been overcalled by over 10%.</p> <p>All data was loaded into a DataShed database and validated. Mineralisation was then visually checked and modelled using Maptek's Vulcan.</p> <p>Re-assaying of drill core by Copper Range and Terramin has confirmed the veracity of original sampling techniques and results. External audits and review of modelling techniques and data has been undertaken by Leon Faulkner from ECR.</p>

Section 2: Reporting for Exploration Results

Criteria	JORC Code explanation	Commentary
<p><i>Mineral tenement and land tenure status</i></p>	<p><i>Type, reference name/number, location and ownership including agreements or material issues with third parties such as joint ventures, partnerships, overriding royalties, native title interests, historical sites, wilderness or national park and environmental settings.</i></p>	<p>The Kapunda Mineral Resource is located approximately 90 km north of Adelaide and sits within exploration license (EL) 6198 held by Terramin Exploration Pty Ltd (Terramin Exploration). EL 6198 is currently in good standing and owned 100% by Terramin Exploration.</p> <p>In August 2017 Terramin Exploration entered a joint venture agreement with ECR (TZN ASX announcement – New Copper Joint Venture Development, 2/8/2017) who will investigate the potential to extract the copper through low cost in-situ recovery (ISR) from shallow oxide ores in and around the historic Kapunda Mine area.</p> <p>The majority of the Mineral Resource sits beneath the heritage listed Kapunda Mine historic site which is owned by Light Regional Council. The southern extent of the Mineral Resource sits beneath freehold farmland.</p> <p>With the Kapunda Mine historic site heritage listed and the encroachment of housing within a few hundred metres of the site there is no likelihood of extracting copper by traditional open cut or underground mining techniques. ISR is seen as the only potential method that</p>

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Criteria	JORC Code explanation	Commentary
		<p>could be permitted to extract copper. The site consists of an unrehabilitated historic mining site covered by numerous old workings including open cut pits, shafts and waste dumps. There are also remnants of Australia’s first heap leach trials which were undertaken in the 1950’s. Vegetation regrowth has been minimal because of the high copper content of the soils and a large portion of the historic workings fenced off for the safety of the general public.</p>
	<p><i>The security of the tenure held at the time of reporting along with any known impediments to obtaining a licence to operate in the area.</i></p>	<p>EL 5262 is currently in good standing. The majority of the project area falls within the Kapunda Mine historic site which is owned by the Light Regional Council and as such the land is classified as exempt land under the South Australian Mining Act 1971. This will require a waiver of exemption to be signed before any exploration or mining activities can take place. Clearance from the Department of Environment, Water and Natural Resources (DEWNR) will be required before activities can be conducted within the Heritage Site. Proximity to the Kapunda township means that significant community engagement will need to be carried out before preliminary testing or mining operations can be conducted.</p>
<p><i>Exploration done by other parties</i></p>	<p><i>Acknowledgment and appraisal of exploration by other parties.</i></p>	<p>Since the cessation of mining, Kapunda has been explored by several different government agencies and exploration companies including.</p> <ul style="list-style-type: none"> SA Dept of Mines (1961-64) Mines Exploration (Broken Hill South) (1964-69) Minefields Exploration (1970) Noranda (1970) Northern Minerals Syndicate (1970-72) Northland Minerals (1971-85) (including Utah Development Co. (1974-78) Aztec Minerals Ltd (1987-88) Shell company (1995) Stuart Metals (1995-99) Minefinders Pty Ltd (1999-2000) Flinders Mines Ltd (2003-08)

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Criteria	JORC Code explanation	Commentary
		<p>Copper Range (2007 – 09) Maximus (2008-2013) Terramin (2013-present) Work carried out by these groups has included geophysics, mapping, rock chip sampling, trenching, percussion and diamond drilling. Metallurgical and economic studies on the feasibility of restarting the Kapunda mine have been undertaken on at least 2 occasions. The largest phases of exploration occurred during the mid-1960’s through to the mid 1970’s with several groups undertaking detailed drilling programs. A brief summary of the larger drilling programs is provided below. Detail is available in the open file envelopes on the South Australian government’s SARIG website. Mines Exploration Pty. Ltd. 3 Diamond holes 45 Percussion holes</p> <p>Noranda Australia Ltd. 56 percussion holes Northland Minerals Ltd. 53 diamond holes 369 Auger holes (not used in the Mineral Resource estimate) 11 percussion holes Utah Development Co. 18 diamond core holes 66 non-core holes Copper Range 4 RC holes 1 Diamond core hole</p>
<p>Geology</p>	<p><i>Deposit type, geological setting and style of mineralisation.</i></p>	<p>The Kapunda Mineral Resource is located in the Tindelpina Shale Member of the Tapley Hill Formation. It is a structurally controlled copper deposit with the orebody sitting on the western limb of an antiform with primary copper mineralisation consisting of an en echelon series of lodes striking at ~020 degrees magnetic and dipping ~70 degrees west.</p>

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		<p>Secondary supergene enrichment has taken place leading to the development of a significant copper enriched zone with kaolinized metasediments.</p> <p>Mineral species targeted by this Kapunda Mineral Resource include copper oxides (azurite, malachite and cuprite) and secondary copper sulphide minerals (chalcocite and covellite) within 100m of surface.</p>
Drill hole Information	<p><i>A summary of all information material to the understanding of the exploration results including a tabulation of the following information for all Material drill holes:</i></p>	<p>No new drillhole data or other exploration results are reported. All information has been compiled from “open file envelopes” available for download through the South Australian Government’s SARIG website- http://map.sarig.sa.gov.au/</p>
	<p><i>easting and northing of the drill hole collar</i></p>	
	<p><i>elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar</i></p>	
	<p><i>dip and azimuth of the hole</i></p>	
	<p><i>down hole length and interception depth</i> <i>hole length.</i></p>	
	<p><i>If the exclusion of this information is justified on the basis that the information is not Material and this exclusion does not detract from the understanding of the report, the Competent Person should clearly explain why this is the case.</i></p>	<p>No new exploration results have been reported, all information is publicly available from SARIG.</p>
Data aggregation methods	<p><i>In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (eg cutting of high grades) and cut-off grades are usually Material and should be stated.</i></p>	<p>No new exploration results have been reported, all information is publicly available from SARIG.</p>

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	<p>Where aggregate intercepts incorporate short lengths of high grade results and longer lengths of low grade results, the procedure used for such aggregation should be stated and some typical examples of such aggregations should be shown in detail.</p>	
	<p>The assumptions used for any reporting of metal equivalent values should be clearly stated.</p>	No metal equivalents are reported.
<p>Relationship between mineralisation widths and intercept lengths</p>	<p>These relationships are particularly important in the reporting of Exploration Results.</p> <p>If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.</p> <p>If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (eg ‘down hole length, true width not known’).</p>	No new exploration results have been reported, all information is publicly available from SARIG.
<p>Diagrams</p>	<p>Appropriate maps and sections (with scales) and tabulations of intercepts should be included for any significant discovery being reported These should include, but not be limited to a plan view of drill hole collar locations and appropriate sectional views.</p>	Appropriate maps and diagrams included in announcement
<p>Balanced reporting</p>	<p>Where comprehensive reporting of all Exploration Results is not practicable, representative reporting of both low and high grades and/or widths should be practiced to avoid misleading reporting of Exploration Results.</p>	No new exploration results have been reported, all information is publicly available from SARIG.
<p>Other substantive exploration data</p>	<p>Other exploration data, if meaningful and material, should be reported including (but not limited to): geological observations; geophysical survey results; geochemical survey</p>	The overall copper grade of the Mineral Resource estimate fits within the accepted parameters for copper ISR operations. Initial hydrogeological investigations show that the en echelon and conjugate fracture systems provide transmissivity values

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	<p><i>results; bulk samples – size and method of treatment; metallurgical test results; bulk density, groundwater, geotechnical and rock characteristics; potential deleterious or contaminating substances.</i></p>	<p>within the range needed for successful ISR operations.</p>
<p><i>Further work</i></p>	<p><i>The nature and scale of planned further work (eg tests for lateral extensions or depth extensions or large-scale step-out drilling).</i></p>	<p>Following approvals from the Light Regional Council and regulators, a groundwater sample from the mineralized lode system will be collected and be used in the laboratory testing of lixiviant systems on core samples to be undertaken by CSIRO. Further hydrogeological investigations including aquifer pump testing and beneficial use studies will be undertaken. Understanding the hydrogeology of the area is critical to the Kapunda Project. Consequently, detailed hydrogeological investigations will be undertaken to accurately model groundwater parameters. These models will allow ECR to undertake design work to ensure that there is no compromising existing users’ water quality or ability to access water. Groundwater Science has been engaged by ECR to carry out further groundwater studies.</p>
	<p><i>Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.</i></p>	<p>Additional drilling is required to better define and potentially extend the southern limits of the Kapunda mineralisation, Figure 2.</p>