Ironbark Zinc Limited

Level 3
22 Railway Road
Subiaco 6008
Western Australia

PO Box 8187
Subiaco East
WA 6008
T: +61 8 6146 5325
www.ironbark.gl
admin@ironbark.gl

Monday 19 July 2021

Australian Securities Exchange Limited
Level 40, Central Park,
152-158 St Georges Terrace
PERTH WA 6000

2021 Bankable Feasibility Study Confirms Citronen as World Class Zinc Project

EXIM Loan Application Pending

Ironbark Zinc Limited ("**Ironbark**", "**the Company**" or "**IBG**") is pleased to announce the results of the 2021 Bankable Feasibility Study ("**BFS**") for the Citronen Zinc-Lead Project ("**Citronen Project**").

2021 Bankable Feasibility Study Highlights

- Robust economics, with the 3.3Mtpa operation to deliver a post-tax free cash flow of US$1.46 billion (Bn)
    - Post-tax NPV$_{(8\%)}$ of US$363 million (M); IRR 15.2%; CAPEX US$654m
- Significant leverage to future zinc (Zn) price growth; 2.5 million tonnes (Mt) Zn metal produced life of mine (LOM) averaging ~130ktpa
- Competitive C1+sustaining capital costs per pound payable zinc
    - Year's 1 to 5 US$ 0.68/lb; LOM US$ 0.76/lb
- 50% increase in mine life to 20 years in a low-risk jurisdiction and emerging mining frontier
- Environmental, Social and Governance (ESG) approvals and management plans are well advanced
    - Process underway to ensure full compliance with Equator Principles and relevant IFC Performance Standards
- Binding offtake agreements remain in place with major Ironbark shareholders Trafigura (35% of LOM production) and Glencore 35% (10 years Zn, LOM Pb)
- IBG to now commence formal project financing process with United States EXIM Bank
- Significantly expanded Ore Reserve:
    - Mineral Resource of 85Mt @ 4.7% Zn and 0.5% Pb
    - Ore Reserve of 48.8Mt @ 4.8% Zn and 0.5% Pb
- Substantial exploration upside

The 2021 BFS represents the first ground-up evaluation of the Project in a decade and supersedes the feasibility study published on 12 September 2017.

Cautionary Statement:
The contents of this announcement reflect various technical and economic conditions at the time of writing. Given the nature of the resources industry, these conditions can change significantly over relatively short periods of time. Consequently, actual results may vary from those detailed in this announcement.

The drivers of the preparation of this BFS were threefold:

1. To update the development plan;
2. To increase the level of confidence in the study parameters; and
3. To apply a more conservative risk filter to key economic assumptions to demonstrate the robustness of cash flows over the extended mine life.

In updating the BFS, IBG has drawn on the services of a range of leading consultants to provide a much broader assessment of the project opportunities and risks. Some key assumptions adopted in the 2017 study were adjusted to incorporate the results of additional study work and deliver a realistic assessment of the Project in line with the prevailing outlook.

The combination of these various changes has had a material impact on project economics. These include both the impact of improved project design and more conservative economic and operational assumptions adopted as part of the financial analysis:

- Mine life extended to 20 years;
- Greatly improved, and more detailed, underground mine design has enhanced efficiency and lowered sustaining capital;
- Significant improvement on per tonne shipping costs;
- Evaluation uses a more conservative zinc price (US$1.30 vs US$1.38/lb);
- A higher 'real' discount rate has been applied (8.0% vs 5.5%); $\text{NPV}_{(8\%)}$ in 2017 had previously incorporated a 2.5% inflation rate to the zinc price;
- Full recognition of tax liabilities (in the 2017 Feasibility Study Announcement the 'post tax' NPV excluded US$554m owed in withholding tax, impacting the 'post tax' NPV*); and
- Cost increases occurred across CAPEX, OPEX (mostly energy costs) and overall project contingency

**In completing the updated feasibility model the Company revised its previous assumption that withholding tax should to be excluded from the post-tax NPV of the project. The Company considers the revised assumption to produce a more prudent and pragmatic estimate than that contained in the prior feasibility study dated 12 September 2017. The Company confirms however, that no material event or circumstance has arisen that has necessitated the revision to occur.*

While the net effect of these changes is a material decrease in the headline post-tax NPV and IRR, on a like-for-like basis (using common assumptions) however, the 2021 BFS has delivered an improved financial result (US$48m higher post tax $\text{NPV}_{8\%}$).

Most importantly, the approach enhances the level of confidence ahead of the next project development phase which is necessary to secure project funding. The adoption of more conservative CAPEX and OPEX assumptions together with an increased project contingency and numerous technical and Project advancements since 2017 represents a sound basis for engaging with potential financiers, including the US EXIM Bank.

The Project has also been advanced with notable successes including:

- ~50% increase in mine life to 20 years;
- Positive reassessment of the further exploration potential of the various deposits;
- Declaration of an increased Ore Reserve;

- Removal of the vendor NSR Royalty;
- Completion of further permitting (Section 19-43 permit); and
- US EXIM Bank Letter of Interest in 2020.

IBG Managing Director Michael Jardine stated:

"The 2021 BFS update is the culmination of an intensive reassessment of the development plan for the Citronen Project. It is a pragmatic and grounded view of the asset that highlights the potential for Citronen to be developed into a significant producer of zinc metal over multiple pricing cycles.

This study worked through several challenges that required creative thinking, disciplined decision making in terms of trade-offs and a willingness to reconsider some long-standing assumptions about the project. For these reasons I am much more confident today than I was twelve months ago about the depth of understanding we have, and the solutions that are proposed.

There are few known large, near surface SEDEX zinc ore bodies that still await development, and even fewer located in low sovereign risk countries such as Greenland. Once built, Citronen will be a multi-decade mine underwritten by the strength of the Company's existing offtake agreements with Glencore and Trafigura, the world's largest and sixth largest zinc metal producers respectively.

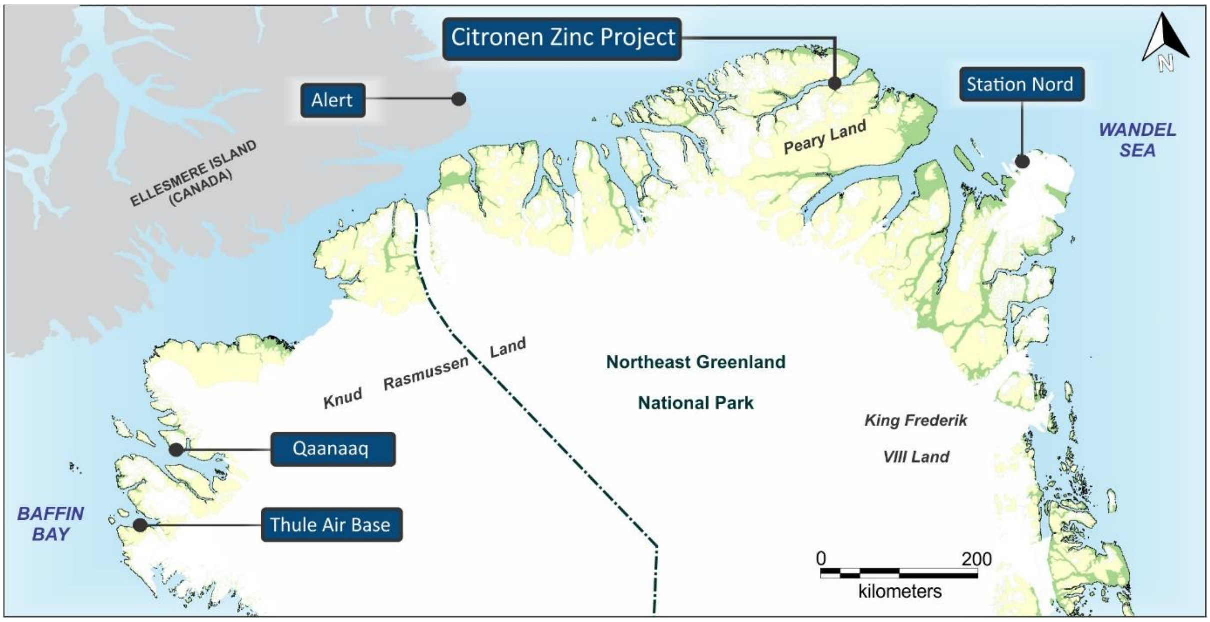
Given Citronen's highly strategic location and potential position within the Western World's zinc value chain, project funding solutions were actively progressed in parallel to the BFS workstream resulting in a promising preliminary dialogue with US EXIM Bank to provide substantial debt support linked to US content. With the completion of this study, it is anticipated that these discussions can now be advanced towards a conclusion.

On behalf of the Board, I would like to thank the dedicated Ironbark team for their hard work over the last 9 months; some of whom have been with the project since 2006 making them eminently qualified to develop the first ever large scale mine in Greenland."

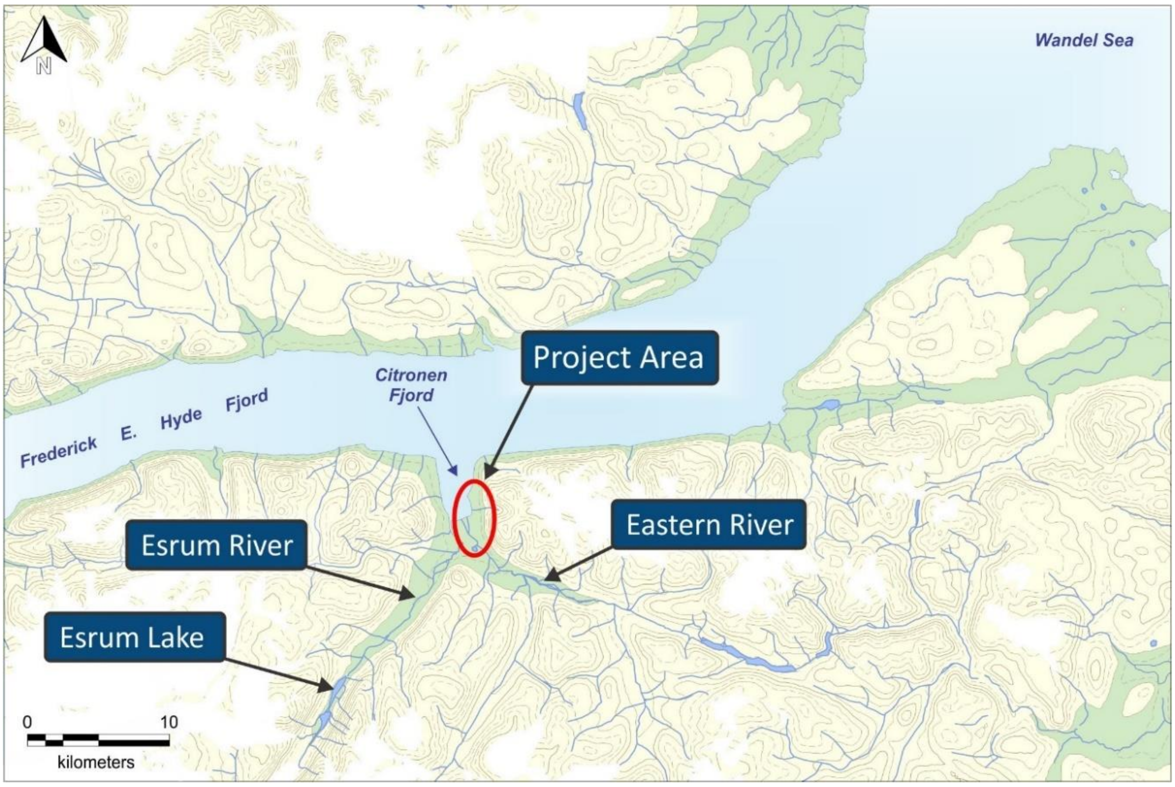
Maps 1-3 show the location of the Citronen Project in Greenland.

Map 1 – Citronen Project Location

Map 2 - North Greenland showing the nearest settlements to the Citronen Project



Map 3 - Location of Frederick E. Heyde Fjord and Citronen Fjord



Financial Highlights

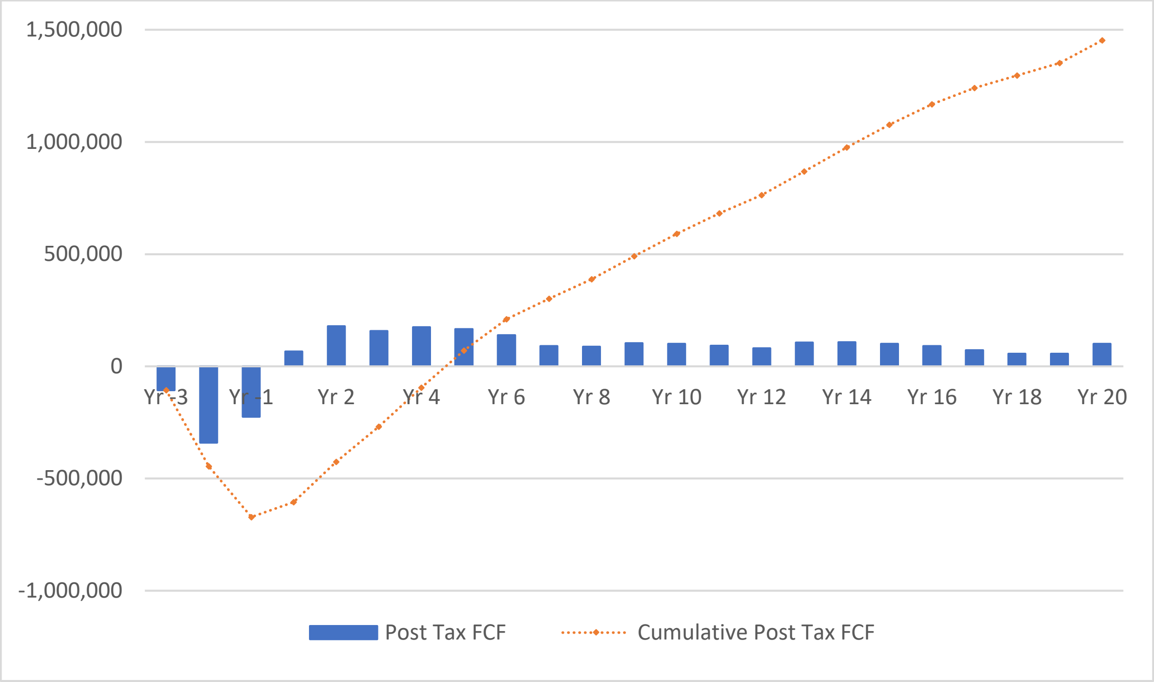
The financial analysis is based on capital, cost and revenue assumptions derived over the preceding six months using industry consensus pricing and foreign exchange rates in line with a real discount rate of 8%. Key financial and production metrics and assumptions are listed below in Tables 1, 2 & 4.

Table 1 – Citronen Project key financial metrics

	LOM US$M
Capex (see Table 3 for further details)	(654)
Net revenue (after TCs)	5,431
Opex	
Underground mining	(1,466)
Open pit mining	(30)
Processing	(971)
G&A	(298)
Sustaining capital	(70)
Taxes and Royalties (to Greenland Government)	(485)
Post tax free cash flow	1,457
C1 Cash Costs + sustaining capex /lb payable Zn (first 5 years)	0.68
C1 Cash Costs + sustaining capital /lb payable Zn (LOM)	*0.76*
Accumulated tax losses	37
Corporate tax rate in Greenland	25%
Post tax NPV$_{8\%}$	363
IRR	15.2%
Price assumptions	Zn 1.30/lb Pb 0.95/lb
Treatment charges	160/t
Payability	85%
Opex costs - US$t/ore	
O/P Mining	6.66
U/G Mining	25.77
Processing	14.93
G&A	4.58

It is considered that the long-term value generation potential of Citronen is not adequately recognised in the simple discounted cash flow assessment of the Project's economic worth given the relatively long initial mine life (20 years) and the potential for it be extended through further exploration. With its competitive LOM operating cost, the Citronen Project is well positioned to survive periods of low prices and prosper by exploiting the upside in the cycle, whenever it might occur and for whatever duration it might persist.

Figure 1 – Life of mine cash flows (US$ ‘000)



Capital expenditure

Total CAPEX (Table 2) has increased from US$514M (2017) to US$654M (2021) as seen in Table 2 with the main drivers being:

- Genset cost increased by US$30M (new vs. second hand)
- Indexation effect of US$27M (cost increases since 2017)
- Airport increased by US$24M (location change due to regulations)
- Tailings Storage Facility increased by US$14M (primarily driven by higher earthworks unit costs)
- Concentrate storage and materials handling increased by US$13M (of which US$9M due to changes to conveying system)

Table 2 – Capital cost estimate

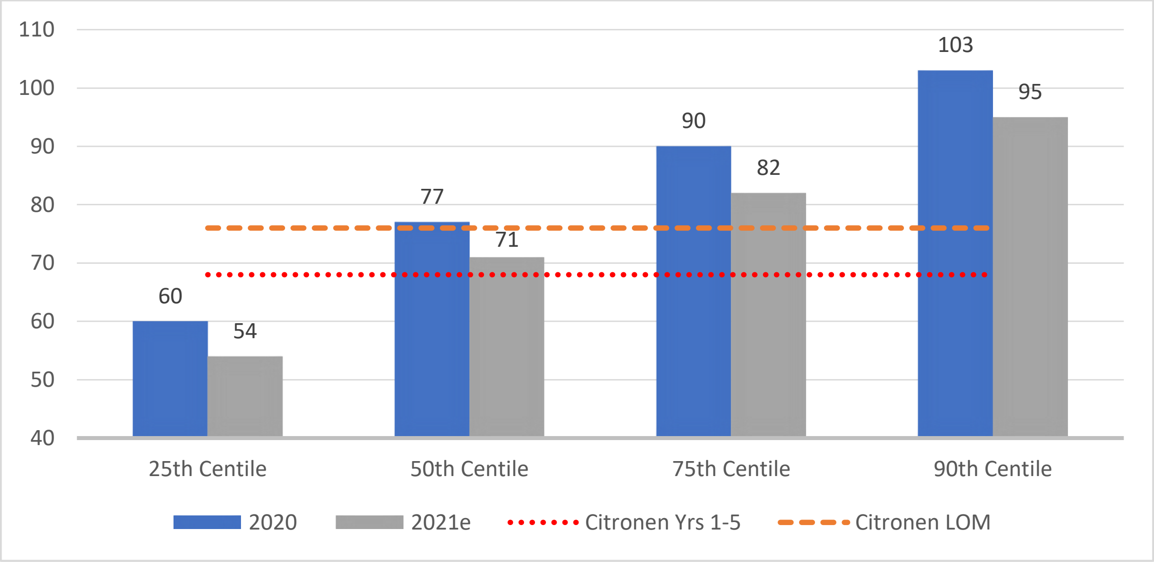
Direct Costs	**(US$ M)**
Mining	81
Crushing plant and fine ore feed	16
Process plant	108
Concentrate storage	13
Tailings and water management	27
Plant site	39
Power and heating	80

Port	30
Infrastructure (airport and roads)	44
Site services and utilities	6
Temporary services	6
Sub Total – Direct Costs	**448**
Indirect Costs	
Construction	43
Project	89
Owner costs	24
Contingency	49
Sub Total – Indirect Costs	**206**
TOTAL CAPEX	**654**

Cost Curve Position

Citronen's C1 cash costs + sustaining capital of US$0.68/lb payable zinc in years 1-5 and US$0.76/lb LOM average is plotted against industry averages in Figure 2. The superior performance in years 1 to 5 is driven largely by the grade differential in the Beach Zone relative to either Discovery or Esrum.

Figure 2 – Zinc producers C1+sustaining capital cost curve analysis



Source: Wood Mackenzie "Centiles_Zinc" Costs Q2 2021 Zinc-Lead

Sensitivity Analysis

As a near pure zinc play, the Citronen Project demonstrates considerable sensitivity to movements in the zinc price as expected with every US$0.10/lb impacting NPV by approximately US$150M and post-tax free cash flow by US$360M (Table 3):

Table 3 – Sensitivity Analysis

		Zn price US$/lb and movement		
		-0.10	**1.30**	**+0.10**
Change to	**Post tax $NPV_{8\%}$ US$M**	-158	363	+156
	IRR %	-2.9	15.2	+2.6
	Post tax FCF US$Bn	-0.36	1.46	+0.36

Production Highlights

Citronen will be a 3.3Mtpa combined open pit and underground operation treating an average grade of 4.7% Zn and 0.5% Pb, over an initial 20 year mine life.

The Mine schedule is optimised to prioritise zinc grade in the early years of production, with the highest-grade zone (Beach Zone) being prioritised for milling. Feed from the underground will be supplemented with ore from the Discovery open pit. Waste rock generated during the initial development of the open pit and underground operations will be used as fill for construction purposes (an open pit ore stockpile will be generated ahead of the commencement of processing). Table 4 contains a breakdown of key mining metrics.

Table 4 – Citronen Project key mining metrics (LOM)

Open pit	Ore tonnes (kt)	8,001
	Waste tonnes (kt)	8,959
	Zn grade	2.9%
	Pb grade	0.5%
	Zn metal tonnes (kt)	228
	Pb metal tonnes (kt)	41
Underground	Ore tonnes (kt)	57,043
	Waste tonnes (kt)	1,948
	Zn grade	5.0%
	Pb grade	0.5%
	Zn metal tonnes (kt)	2,820
	Pb metal tonnes (kt)	263
Total	**Ore tonnes (kt()**	**65,044**
	Waste tonnes (kt)	**10,907**
	Zn grade	**4.7%**
	Pb grade	**0.5%**

For the first ten years of mill feed, 92% of ore tonnes will come from Proved and Probable Reserves.

The Life of Mine plan is driven predominantly from Ore Reserves in the first instance with a modest contribution from Inferred Mineral Resources. In IBG's opinion, the Inferred Mineral Resources are likely to be converted into Measured or Indicated Mineral Resources with further exploration and grade control drilling. The Company intends to continue infill drilling upon mobilisation to convert Inferred Resources to a higher category.

The life of mine proposed mill feed schedule includes approximately 25% (16.3Mt) Inferred Mineral Resource. There is a low level of geological confidence associated with Inferred Mineral Resource and there is no certainty that further exploration work will result in the conversion of the material into a Measured or Indicated Mineral Resource.

Further details of the mine plan are shown in Figure 3 (Forecast Annual Metal Production), Figure 4 (Total Production Target by Resource Category and Figure 5 (Forecast Annual Schedule by Resource Category).

Figure 3 – Forecast annual metal production (tonnes)

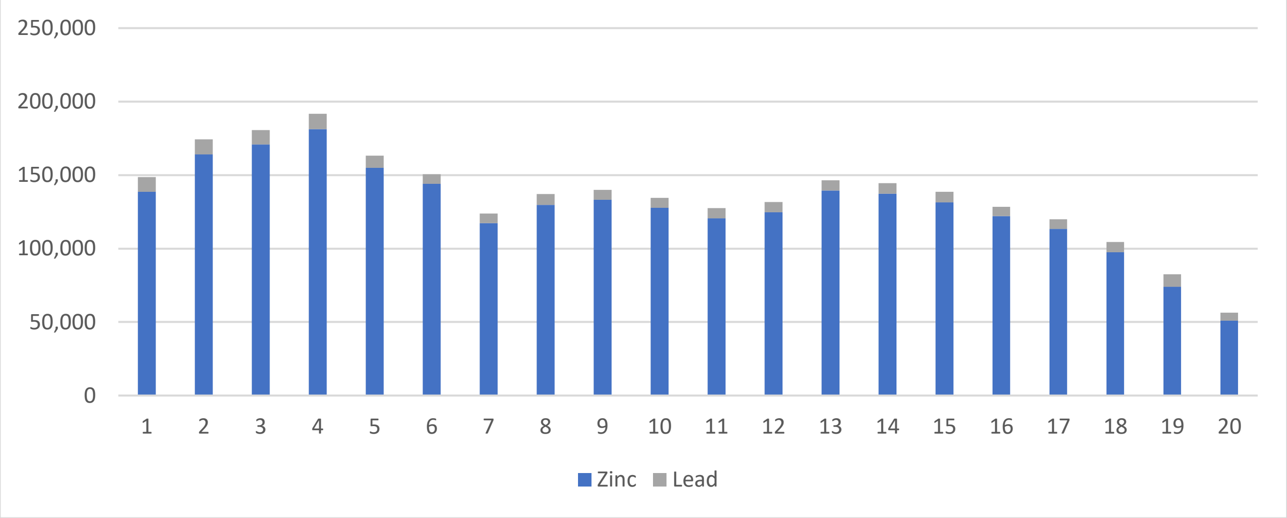


Figure 4 – Total mill feed - Ore Reserve and Inferred Resource

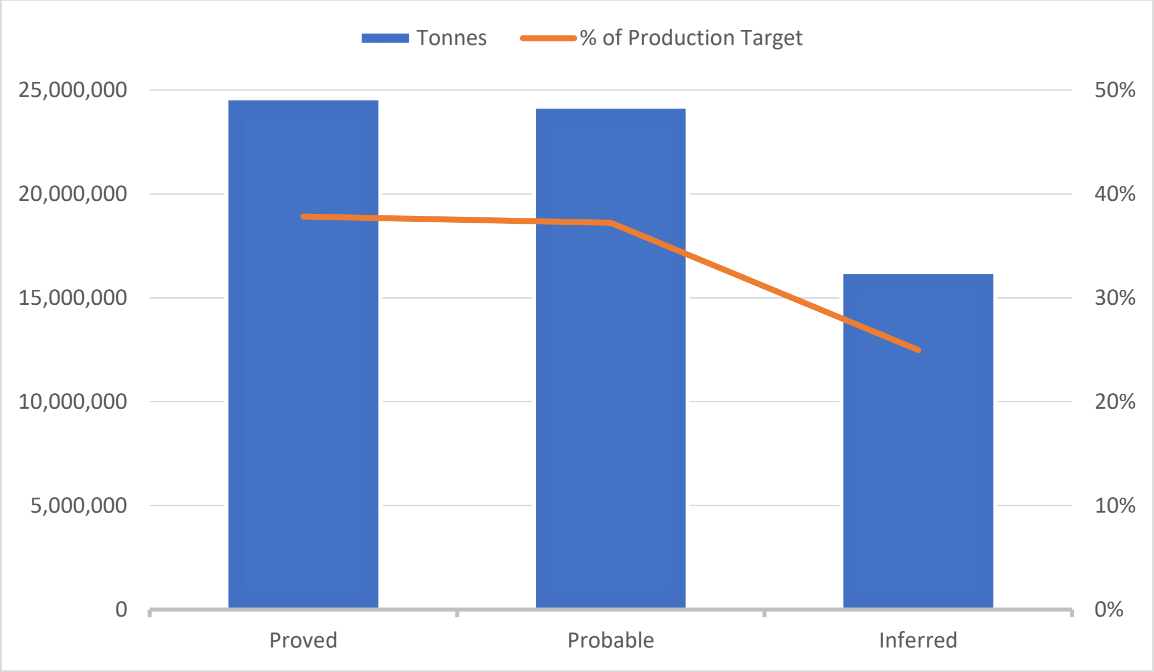
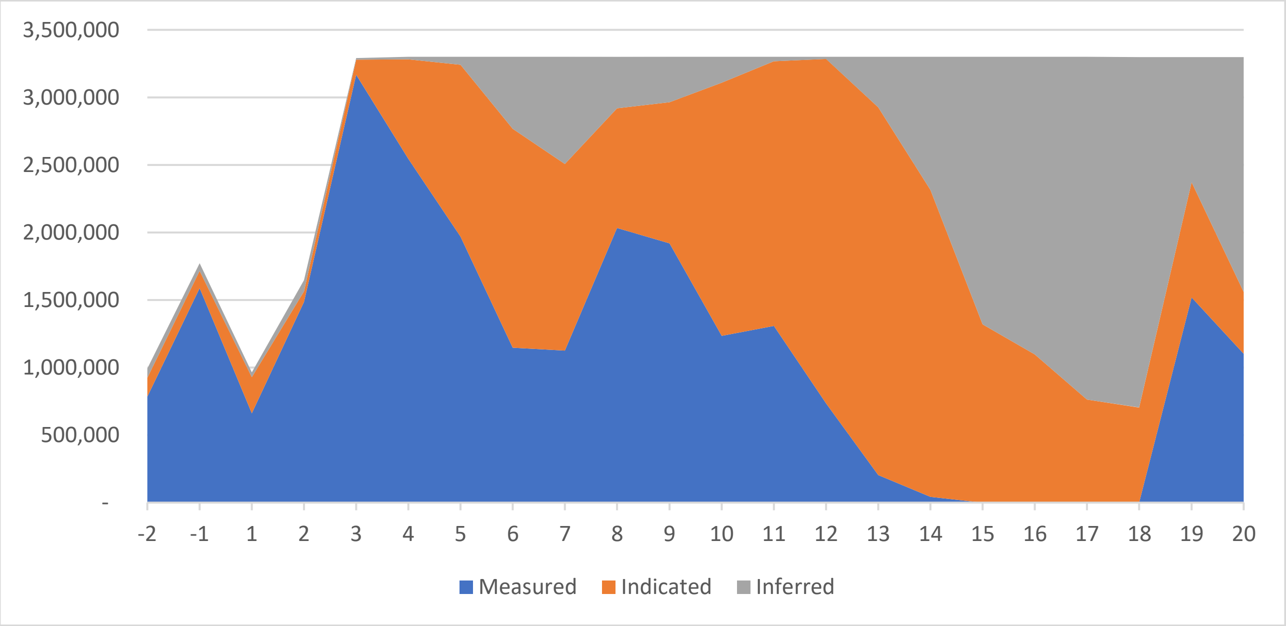


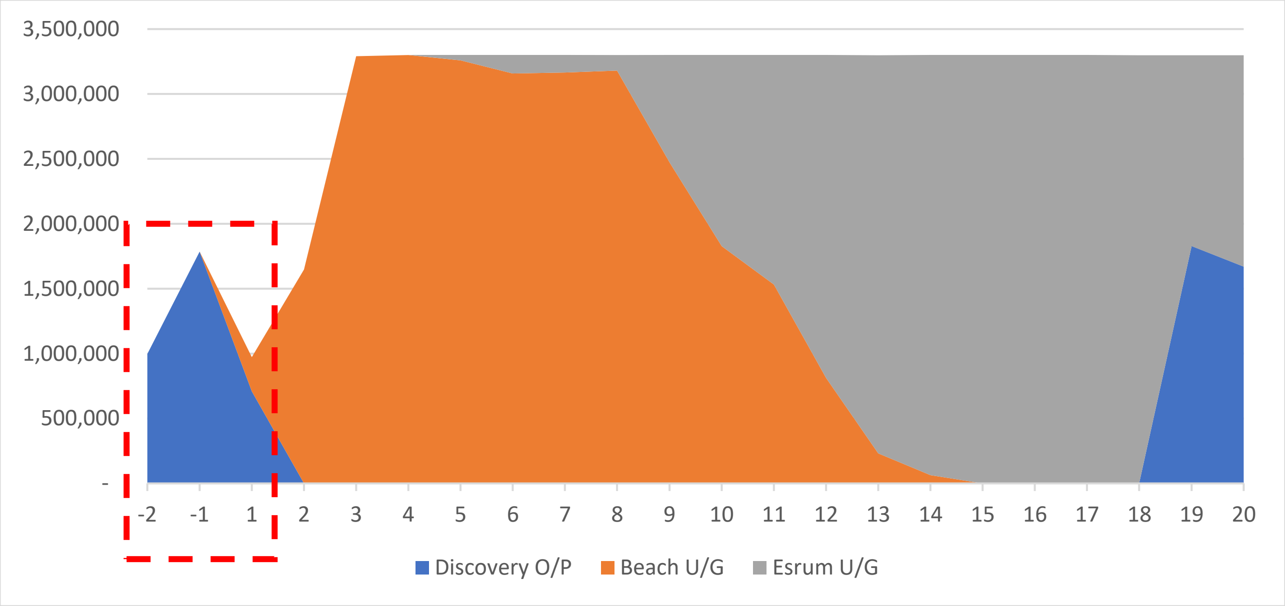
Figure 5 – Forecast Mine Schedule in Project Years by Mineral Resource category (tonnes)



The elevated zinc metal production (and associated lower C1 Costs) expected in years 2 to 6 on Figure 2 is driven by the milling of higher-grade Beach Zone Underground Ore, relative to the Discovery Open Pit to the southeast or Esrum Underground to the northwest. It is the intention of the Board to re-commence exploration drilling upon the establishment of site infrastructure with the aim of improving the grade profile of the Project by replacing Esrum tonnes with Beach material in the schedule (Production by Mining Area is shown in Figure 6).

For further information on the Citronen Exploration Target, please see the ASX announcement dated 11 February 2021. The Exploration Target has not been included in the calculation of the life of mine or project NPV.

Figure 6 – Production by mining area (tonnes)



The period highlighted in the red box relates to open pit development for construction fill generation.

Processing highlights

Process flow sheet

The updated flow sheet for the 3.3Mtpa Citronen Project processing circuit involves crushing, Dense Media Separation (DMS), milling and flotation circuit. The significant changes to the previous flowsheet area aimed at improving reliability and metallurgical performance, specifically:

- Three stages of crushing (tertiary crushing added);
- The change to primary and secondary ball milling rather than ball milling and vertical mills;
- Increasing the grinding circuit product size (flotation feed size); and
- Replacing the multiple small stirred regrind mills with single mills in both lead and zinc regrind.

Crushing

The previous crushing circuit design included a primary jaw crusher and secondary cone crusher to crush ROM ore to -38mm.

As part of the 2021 BFS, Ausenco reviewed the available comminution test work results and completed simulations using software to analyse the crushing circuit. The review concluded that the jaw crusher was a suitable size for the duty while the cone crusher was at its operating limit and therefore it is recommended to investigate a larger unit. The Metso C140 (42" x 55") jaw crusher selected in the previous stage has been discontinued by the Metso Outotec Group (MO Group) so the C150 (47" x 55") unit with the same 200 kW installed power was selected for this review.

The review of the DMS circuit indicated a higher risk of operational issues when feeding the DMS circuit with larger material up to 38 mm so it was recommended to add a tertiary crushing stage to the flowsheet. Modelling of the three-stage crushing circuit indicated the secondary HP5 crusher could be retained with the addition of a second HP5 for the tertiary crusher. The secondary crusher would operate using a coarse liner setup while the tertiary crusher would operate with fine liners. The crusher sizing screen remains unchanged.

The three-stage crushing circuit was selected to produce crusher product P_{80} of 12-15 mm with the major crushing equipment selected including:

- Primary Crusher
    - Previous – C140, installed power 200kW
    - 2021 – C150, installed power 200kW
- Secondary Crusher
    - Previous – 1xHP5, installed power 370kW
    - 2021 – as above
- Tertiary Crusher
    - Previous – No Tertiary
    - 2021 – 1xHP5, installed power 370kW

Other crushing equipment such as the vibrating grizzly feeder and sizing screen remain unchanged. Additional equipment added to the primary crusher building included an overhead crane for crusher maintenance and a primary crusher area dust collection system. It is forecast that these changes will result in a more robust crushing circuit with reduced operational risk.

Dense media separation (DMS)

The DMS test work conducted prior to 2021 indicated metal recoveries in excess of 97% of lead and zinc can be recovered to the sink fraction containing approximately 75% of the feed material. This indicates the addition of the DMS circuit is likely to be beneficial to the project and was recommended to be retained in the 2021 flowsheet design.

The 2021 review of the DMS circuit indicated there might be potential operational issues with feeding the DMS circuit with larger material up to 38 mm in size. Pumping coarse material requires higher line velocities to avoid settling which leads to higher wear in the pumps, piping and dense media cyclones even with the use of silicon carbide liner parts. Due to the high frequency of changing wear liners, it was recommended to reduce the feed size to the DMS circuit to a more typical feed size.

The review of the fines DMS circuit indicated the added operational complexity of the circuit was potentially challenging and it was recommended to remove the fine DMS circuit and feed the screen undersize directly to the mill cyclone feed pump box.

The coarse DMS equipment selection has been retained while the fine DMS has been removed from the process flowsheet.

Milling

Ausenco has assessed various comminution circuit options to evaluate the most suitable design based on the available data. This design entitles a low-risk, robust flowsheet.

The previous flowsheet included a primary ball mill treating feed up to 38 mm material from the DMS sinks circuit and two secondary vertical mills. Feeding a ball mill with feed material up to 38 mm was considered to increase the risk of significant scatting and was therefore not recommended.

The two vertical mills add significant capital cost and are approximately double the price of a single ball mill with the same installed power. Typically, a SAG/Ball circuit provides a lower capital cost and a slightly higher operating cost than adding a vertical mill into the circuit.

The inclusion of three-stage crushing to feed the DMS removes the option for a SAG/Ball circuit, therefore it is recommended to continue with primary and secondary ball mills. There is the possibility of using a single ball mill to undertake this duty which will be investigated during Front End Engineering and Design (FEED).

The circuit has been designed to produce a flotation feed size P_{80} of 53 µm. Previous evaluations indicated that there was no benefit in reducing the primary grind size below a P_{80} of 53 µm. No test work was reviewed to support the P_{80} of 45 µm nominated by Metso.

Ausgrind models were used to estimate the specific energy requirements for the grinding circuits based on the information provided in the test work and Ausenco's database. The primary mill selected is a 4.5 m diameter by 7.0 m long ball mill with 2.3 MW installed motor. The primary mill is operated in closed circuit with a discharge vibrating screen and scats recycle conveyor. The secondary ball mill is 5.8 m in diameter and 8.5 m long with 4.5 MW of installed power.

The secondary mill is operated in closed circuit with hydrocyclones.

Flotation and regrind

Ausenco reviewed the 2021 flotation test work and compared the current design with the previous designs. There were some notable differences is the design methodology from that determined previously with the adjusted flotation cell sizing and selection including:

- Organic Pre-flotation – 2x70m^3 (previous) → 3x70m^3 (2021)
- Lead Rougher - 3x70m^3 → 3x70m^3
- Lead Scavenger – 2x70m^3 → 2x70m^3
- Lead Cleaner 1 – 3x5m^3 → 4x5m^3
- Lead Cleaner 2 – 2x5m^3 → 3x5m^3
- Zinc Rougher – 4x130m^3 → 4x130m^3
- Zinc Scavenger – 2x130m^3 → 2x130m^3
- Zinc Cleaner 1 – 6x130m^3 → 4x130m^3
- Zinc Cleaner 2 – 5x70m^3 → 4x70m^3 (incl internal radial launders)
- Zinc Cleaner 3 – 2x70m^3 → 3x70m^3 (incl internal radial launders)
- Flotation Blowers – 3x500-05 Multistage centrifugal blowers → 2x600A-05 Multistage centrifugal blowers

Ausenco reviewed the 2021 regrind and flotation testwork and selected a specific energy of 20 kWh/t for the lead regrind circuit and 20 kWh/t for the zinc regrind circuit given there did not appear to be any metallurgical benefit to grinding finer.

Processing circuit construction

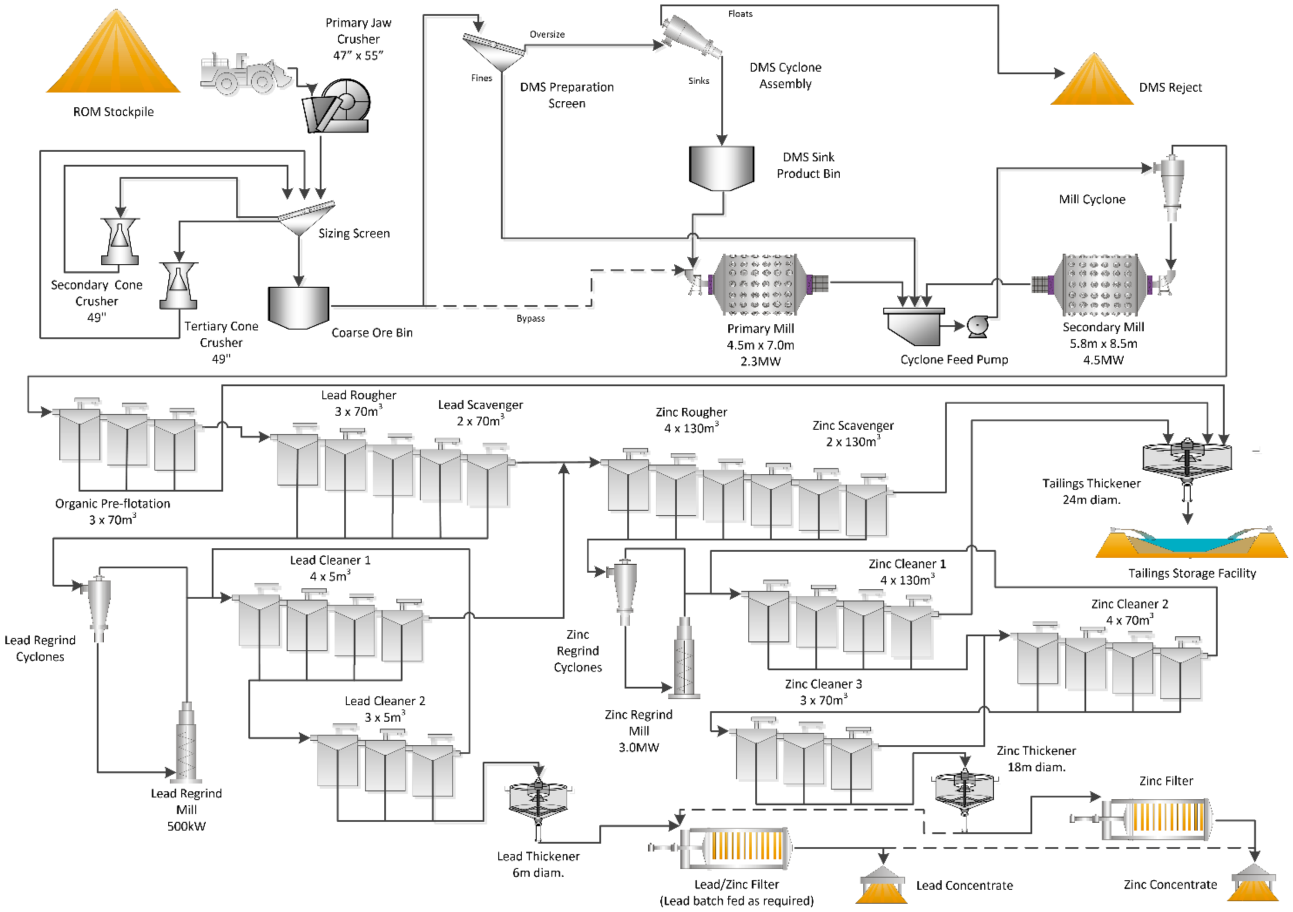
The processing circuit will be constructed on a modular basis and transported to site by sea before being secured into position on the seabed via a gravity-based system (a cellular concrete structure that is able to be floated or ballasted down as required). This will allow the circuit to be energised and tested off site and minimise the amount of construction required at Citronen.

Table 5 summarises the key processing metrics for the Project, and Figure 7 shows the new flow sheet in schematic form.

Table 5 – Citronen Project Key Processing metrics (LOM)

Zn recovery %	84% (weighted average)
Zn metal produced	2,573kt
Ave. production Yr 1-5 (run rate)	163ktpa Zn metal
Target Zn grade in concentrate	55%
Pb metal produced	152kt
Mill ramp up	Q1-50%, Q2-75%, Q3-90%, Q4-95%, Q5 onwards-100%

Figure 7 – Updated Process Flow Sheet



Test work and concentrate quality

A large body of test work has been completed on the Citronen Project since its acquisition in 2007, including some additional test work completed in the last nine months at ALS Burnie under the guidance of Mineralis Pty Ltd.

The key outcomes of this process include:

- Confirmation that Citronen metallurgy sits firmly within the stratiform of Sedimentary Exhalative (SEDEX) Deposits and the operation can be benchmarked accordingly;
- Besides zinc grade, the key driver of metallurgical performance (recovery in particular) is the level of metamorphism in the ore body, which is highest in the SE of the overall deposit (Discovery, Beach) and trends lower to the NW (Esrum);
- All locked cycle test concentrates were of high quality with normal penalty elements for zinc concentrates well below typical limits for payment; and
- Further opportunities for refinement of the processing circuit were apparent and have been incorporated in the revised process flow sheet designed by Ausenco (Figure 7).

Environmental, social and governance

Environmental and Social

As the holder of a Section 19-43 Permit issued by the Government of Greenland (see ASX announcement 7 December 2020), Ironbark is well advanced on issues relating to Environmental, Social & Governance ("ESG") in Greenland.

Furthermore, as part of the 2021 BFS update, Ironbark has been working with Environmental Resource Management ("ERM") to ensure its performance on crucial ESG criteria complies with supranational standards, including:

- Compliance with The Equator Principles ("EP4") and International Finance Corporation ("IFC") Environmental and Social Performance Standards, and establish pathways to close any gaps; and
- Conducting a Climate Risk Identification study to identify risks to the functionality of an asset from the physical effects of climate change and to understand the necessity of conducting a full climate risk assessment

Both workstreams have been initiated by Ironbark and are additional to the completed Social and Environmental Impact Assessments approved by the Government of Greenland as part of the Citronen Exploitation Licence granted in 2016.

Governance

The Exploitation Licence 2016/30 granted to Ironbark in December of 2016 gave IBG the exclusive right to extract zinc and lead ores for 30 years, which the Government of Greenland may extend for a further 20 years. All operations, including decommissioning, must occur within that period of time and while the licence is in effect, and, no other party is allowed to conduct mineral exploration on the licence.

In return, and in addition to the usual obligations applicable to all business operating in Greenland, Ironbark must pay the Government of Greenland royalties of (“Basic Royalty Amount”):

Years 1 and 2	Year 3	Year 4	Year 5+
1% of sales	1.5%	2%	2.5%

Sales are defined as received price minus freight if sold on CFR or CIF basis; the payment of these Royalties are included in the financial analysis presented in Table 1 of this announcement. The Exploitation Licence for 2016/30 also includes a Royalty offset against Corporate Tax Payable (CTP) whereby the Payable Royalty (PR) is equal to the Basic Royalty Amount minus CTP. Whereby this amount is nil or negative (ie tax due > Royalty due) then the PR will be zero for that year.

A further obligation on Ironbark is to meet specific performance criteria in terms of advancing the Project:

- Section 19-43 Approval before 31 December 2020 – achieved
- Demonstration of financial capacity to develop the asset – 31 December 2023
- Commencement of mineral exploitation – 16 December 2025

The Ironbark Board intends to meet the last two criteria by commencing activities at Citronen in accordance with the plan laid out in this 2021 BFS.

Offtake agreements and zinc pricing

Current offtake agreements

Ironbark currently has binding offtake agreements covering a minimum of 70% of production for the first decade of operations (Life of Mine in some cases) with global Tier 1 majors Glencore and Trafigura on terms summarised below in Table 6.

Table 6 – Summary of Offtake Terms

	Glencore – zinc	Glencore – lead	Nyrstar (Trafigura) – zinc	Nyrstar (Trafigura) - lead
Date	7 October 2011	12 October 2011	6 September 2011	6 September 2011
Duration	10 Years then evergreen subject to mutual agreement	Life of mine	Life of mine	Life of mine
Quantity	35% of production	35% of production	35% of production	35% of production
Treatment Charges	Years 1 ~ 3 US$145/DMT After Year 3 Reference Benchmark / Major miners (Red Dog) and Major Asian smelters (KZ)	Reference Benchmark / European settlements	Reference Benchmark / Major miners (Cannington) and Major Asian smelters (KZ)	Reference Benchmark / European settlements
Pricing & Penalties	Benchmark; standard for agreements of this nature	Benchmark; standard for agreements of this nature	Benchmark; standard for agreements of this nature	Benchmark; standard for agreements of this nature
Key Conditions Precedent	Shareholder approval as obtained at approved meeting 20 December 2011.		N/A	N/A

Zinc pricing assumptions

The Ironbark Board elected to use a study price of US$1.30/lb Zn metal in the 2021 BFS based on:

- Lower price assumption than 2017 BFS (US$1.38/lb plus nominal 2.5% price inflation);
- Discount to last six months actual trading range (US$1.30/lb low, US$1.39/lb high);
- Inside range of long-term real pricing presented by global research firm Wood Mackenzie in their "Global Zinc Long Term Outlook Q1 2021 p8" report being US$1.14/lb (Low), US$1.26/lb (Base) and US$1.37/lb (High)
    - Wood Mackenzie on p10 of the same report presented two further scenarios "A" and "B" that predicted a greater price range again, average price US$1.02/lb from 2022-2030 on the low side and US$1.56/lb on the high side;
- Expert advice from its Corporate Advisor (Bacchus Capital Advisers) and Minerals Marketing Advisor (Albert de Souza); and
- Its commercial judgement on the role zinc will play in traditional infrastructure spending plus growth from newer applications in agriculture and renewables broadly (batteries, increased galvanising on wind turbines, especially offshore, and solar installations in particular).

Other key infrastructure

Power supply and distribution

Plant power generation: electricity production and supply will comply with Greenlandic electrical regulations and will be based on European standards with 50 Hz frequency and 400/230 service voltage. The required power consumption of approximately 23 MW will be met by a total of three generator units, with two in operation and one on stand-by duty/ maintenance. The generators will be medium speed units rated for continuous operation in an arctic environment for a service life of at least 25 years.

Power will be delivered at 6.9 kV throughout the facilities. Substations are complete with step-down transformers (6.9/0.4 kV) and are rated 200 kW, 500 kW or 1,000 kW, depending on the requirements at each substation. The substations will be located centrally within areas (to be determined at the appropriate time), where practical, to minimise distribution losses.

The fuel storage area consists of two tanks each with a capacity of 25,000 m^3 fuel for arctic diesel, two tanks each with a capacity of 250 m^3 for jet fuel, hose station and lines, pipelines for both arctic diesel and jet fuel and fuel station for arctic diesel. Further fuel capacity may be considered as part of FEED.

The power station will be the primary source of heat for the operation along with a Glycol system and Arctic corridors where appropriate.

Site access including shipping, port and air operations

Shipping to and from Citronen will be conducted solely using ice class vessels including icebreakers, tugs, heavy lift construction vessels, barges and bulk carriers for both resupply and export. The annual sealift will occur in the months of July to September and the schedule has been designed such that only six weeks (of the twelve available) will be sufficient to perform all required activities.

The Citronen port design has changed from a sheet pile berth to a floating pontoon berth (of sufficient scale to allow for mobile shiploading equipment, including bulk concentrates and containers) secured to an earth-based access dike. The floating ponton will be moved and secured to the shoreline in the winter months to reduce the risk of adverse effects of sea ice.

Outside of the summer months, the operation will be air supported (including for personnel changeover) via a dedicated 1000m runway as is typical of high latitude mining operations located elsewhere in the Arctic. The airstrip and supporting infrastructure has been engineered to allow for year round all weather operations.

Waste Rock, tailings and water management

Waste materials from operations will be disposed of in a safe, environmentally acceptable and economically feasible manner. Project waste materials will include waste rock from the open pit and underground mine operations, and DMS rejects and tailings from the process plant operation. Total waste materials produced during the mine life will include:

- Waste rock totalling 11Mt of which approximately 5.5Mt will be used for project construction and 5.5Mt permanently stored in the waste rock storage facility (WRSF).
- DMS rejects totalling approximately 24.8Mt permanently stored within the DMS rejects facility;
- Tailings totalling approximately 37.7Mt, of which 26.9Mt (~71%) will be permanently stored underground as structural fill; and
- The remaining 10.8Mt of tailings will be permanently stored at surface within the tailings storage facility (TSF).

Geochemical testing indicates the waste rock and DMS rejects are non-acid generating and the potential for acid rock drainage and metal leaching is low. Tailings are likely to be acid forming after long-term exposure to oxygen and water and to limit the potential for acid rock drainage will be contained within the fully lined TSF facility or as frozen backfill underground.

Precipitation in the Citronen Project area is low. Annual runoff of the local catchment area is small and limited to June to September. Diversion drains will be constructed around the underground decline, TSF, open pit crest and waste rock storage facility to prevent water from entering these facilities. Runoff water will be diverted to the Eastern River and/or Citronen Fjord. The diversion drains at the open pit, underground mine access decline, TSF and waste dumps will remain following mine closure.

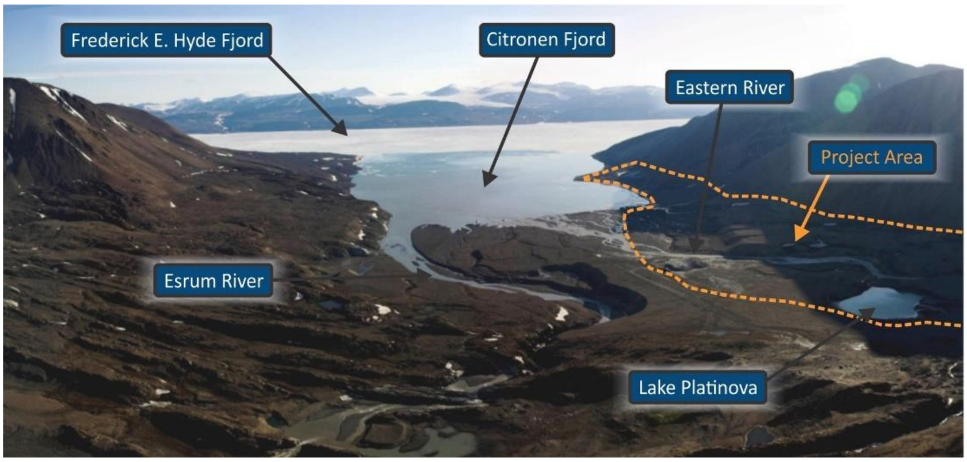
Dewatering of the underground operation will be on an as needs basis as the mine will be mostly dry apart for decant water from tailings backfill operation. Decant water and any water from local thaws will be pumped from the mine.

It should be noted that the underlying basis for the waste rock, tailings and water management remains unchanged from previous feasibility studies with no additional design work complete apart from the waste quantities being updated to be consistent with the 2021 Citronen BFS mine plan.

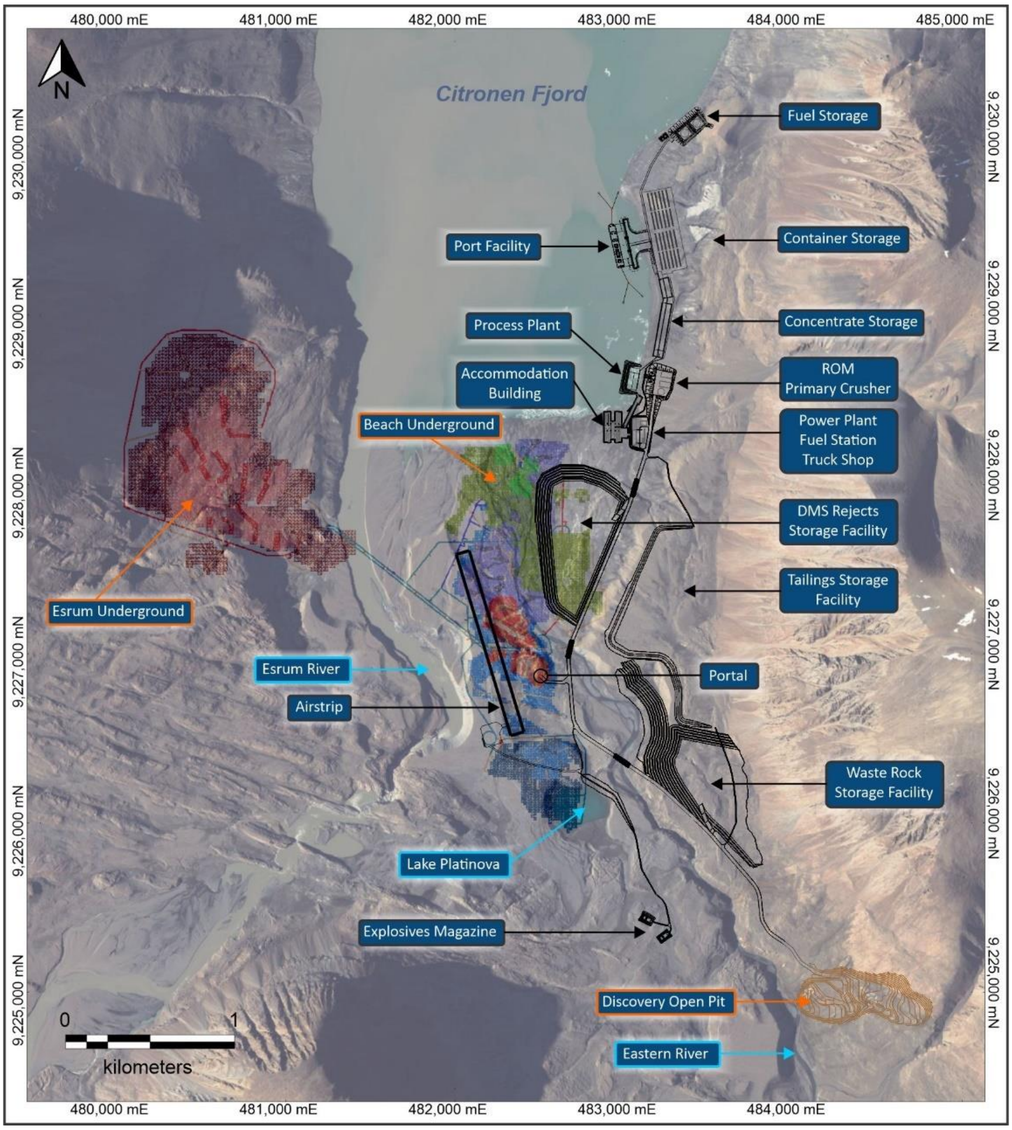
Raw water for the process plant and other project needs will be sourced from Lake Platinova and augmented when available by water from the Eastern River.

Layouts 1 and 2 show the Project area and General Layout including all mine and surface infrastructure.

Layout 1 – Overview of Project Area



Layout 2 – Detailed Layout including all Mine & Surface Infrastructure



Project financing

The 2021 BFS update has been undertaken to determine a set of technical and financial outcomes based on high confidence Proved and Probable Ore Reserves.

To achieve the outcomes contained in this announcement, Ironbark will require a funding solution that delivers no less than US$654 million combined debt and equity funding to enable the completion of construction. Ironbark is currently prioritising the pursuit of debt funding (to procure US content, both goods and services) directly with the United States Government (via its official Export Credit Agency the Export-Import Bank of the US). It intends on raising equity from public equity markets including current Ironbark shareholders.

Ironbark may also elect to target other value accretive strategies such as a partial sale of the Citronen Project and/or joint venture. This would reduce Ironbark's share of the Project from its current 100% to some lesser number (also reducing the amount of funding Ironbark is responsible for). It is also possible that Ironbark could elect to enter some form of infrastructure sharing arrangement(s) with various parties to best exploit what is a highly strategic location in northern Greenland, an increasingly contested part of the geopolitical map. Furthermore, Ironbark may also consider different operational models, such as a power purchasing agreement for the Citronen power station, that would further alter the project financing requirements.

Furthermore, in addition to construction capital, some form of working capital facility will likely need to be in place during the early years of operation at Citronen. This is primarily due to the highly seasonal nature of the operation with site resupply and concentrate export all taking place in the summer months. A range of options are being considered for addressing this issue until cash reserves are built up (see Table 1 for a summary of forecast Operational Expenditure ratios).

Ironbark is confident of sourcing a funding solution given the results of preliminary discussion held to date; strong project economics; shortage of large, development ready zinc projects worldwide at a time when new zinc production is forecast to be required and the track record of the Ironbark Board in raising the capital for, building and running new resource projects. It is possible that in the event of success, a funding solution will involve capital markets from the northern hemisphere given their affinity with Arctic mining projects relative to the ASX.

Despite this, investors should note that there is no certainty that Ironbark will be able to conclude a successful project financing round at a time of its choosing.

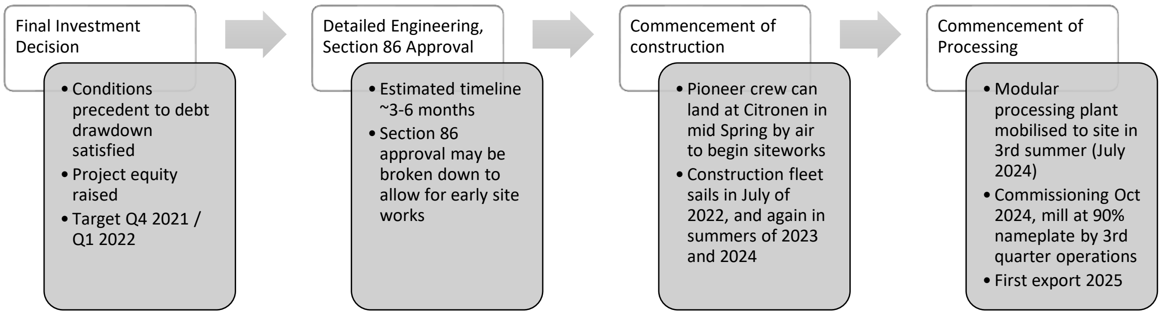
Indicative pathway to production

Subject to a successful project financing event, detailed engineering and Section 86 Approval in Greenland (see Governance section of this announcement and ASX Announcement dated 7 December 2020 for further details on the approvals process), construction would occur over a two-and-a-half-year period.

Due to the seasonality effect of operating in Greenland, the earliest this could occur is in spring 2022 subject to project financing closing by the end of 2021 (or very early in 2022). The early works crew would land by air ahead of a construction fleet with heavy equipment mobilised to the site in July 2022. If works can begin on this targeted timeline, the intended start of processing would be October 2024 (Figure 8).

If the project financing process stretches later in 2022 then the site construction process would commence in 2023 on the same timeline. The FEED component could still commence immediately.

Figure 8 – Indicative timetable to production



Note: This timetable is indicative only and is subject to change due to factors both within and outside of the Company's control

Reliance on Experts

Ironbark has relied on the following experts in completing the 2021 BFS:

- Geology: Ironbark internal
- Mining: Mining Plus, Geoff Grow Mining Services
- Engineering: Ramboll Engineering, Tetra Tech Inc., Maritime Construction Services (Luxembourg)
- Metallurgy: Mineralis Pty Ltd, ALS
- Process Engineering: Ausenco
- Shipping: Ramboll Engineering, Fednav
- Minerals Marketing: Albert de Souza, Wood Mackenzie
- Environmental: Ironbark internal, ERM
- Project Finance: Bacchus Capital Advisers

Assumptions underpinning the production target and forecast financial information

The material assumptions underpinning the post-tax NPV of US$363 million and post-tax IRR of 15.2% are described in Tables 1, 2 and 4 above. Other assumptions relating to construction, engineering & logistics, macro-economic conditions or additional factors that impact the operation are reported within the body of this document. These assumptions also extend to factors relating to marketing, legal, environmental, social and government factors.

The updated Mineral Resource Estimates and Ore Reserves for the Citronen Project are listed in Appendix A and B of this announcement. The estimated Ore Reserves underpinning the BFS (including underpinning the above production target) has been prepared by a competent person in accordance with the requirements of the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves, 2012 edition (JORC Code 2012).

Information provided in accordance with ASX Listing Rule 5.9

Material assumptions

Key Inputs	Unit	Rate
Zinc price	US$/lb	1.30
Lead price	US$/lb	0.95
Reserve grade – Zn	%	4.8
Reserve grade - Pb	%	0.5
Accumulated losses	US$M	37
Corporate tax rate (Greenland)	%	25
Site construction period	Months	28
Process plant ramp up	Quarters	Q1-50%, Q2-75%, Q3-90%, Q4- 95%, Q5 onwards-100%
Greenland Govt Royalties	%	Yr 1 and 2 1%, Yr 3 1.5%, Yr 4 2%, Yr 5+ 2.5% (see p16)
Zn recovery rate	%	84% (weighted average)
Operating costs		
Open pit mining	US$t/ore	6.66
Underground mining	US$t/ore	25.77
Processing	US$t/ore	14.93
G&A	US$t/ore	4.58

In addition to the above:

- Mine capital and operating costs were provided by Mining Plus and Geoff Grow Mining Services
- Capital cost estimates for non-process surface infrastructure were provided by Ramboll Engineering, Tetra Tech Inc. and Marine Construction Services
- Capital and operating cost estimates for the processing facility were provided by Ausenco Limited
- Flight costs have been sourced by Ironbark internal using current market providers experienced in servicing northern Greenland
- Salary costs have been assumed on industry benchmarks for the region under study
- Capital and operating costs for shipping to Citronen during construction, and for annual resupply and concentrate export, are included in the overall study results

Criteria for classification

Please see pages 6-9 of this announcement for information on the Mineral Resource and Ore Reserve categories underpinning the Production Target, and Appendices A and B (including an analysis of the different cut off grades being applied). Appendix A also includes detail on the main mining methods to be implemented at the Citronen Project.

Mining

Discovery Orebody – Surface Mining

The open pit Ore Reserve has been reported within a pit design based on pit shells from the Whittle optimisations and with appropriate design parameters applied. These have included geotechnical and other operational parameters.

Beach and Esrum Orebodies – Underground Mining

- The mining method is cut and fill with primary and secondary panels.
- No planned overbreak was included in the design.
- The mine recovery was considered to be 98% as cut and fill is a high recovery low dilution mining method. Regional pillars are considered to be partially extracted at the end of the mine life with a recovery factor of 50%. Access pillars were also assessed and factorized as 7% on top of the mine recovery.

Beach and Esrum Orebodies – Method Independent

- All mining parameters are based on geotechnical recommendations.
- Zn and Pb recoveries of respectively 84% and 50%.

Processing Method

Please see pages 9 and 10 of this announcement for information on Processing.

Cut-off grades

Cut-off grade for open pit mining is based around the Zinc modifying factors and is calculated to 1.55% Zn;

- Zn Recovery: 84%
- Zn Price: US$1.30/lb
- Process Cost: US$29.10 (inclusive of G&A)

Beach and Esrum Orebodies – Underground Mining

Cut-off grade is based on a Net Smelter Return (NSR), taking into account the net revenue from recovered Zn, Pb and the cost of mining, processing and G&A. The NSR calculation relied upon the processing recoveries shown below:

- Zn Recovery: 84%
- Pb Recovery: 50%
- Processing Costs - 18.00/tonne of ore

- G&A Costs - 7.00/tonne of ore
- Mining Costs - 38.00/tonne of ore
- Other - 4.10/tonne of ore

Material modifying factors

1. Tenure
    a. Ironbark is the 100% holder of Exploitation Licence 2016/30. The conditions to be satisfied to maintain this tenure are outlined on page 11 of this announcement. Annual holding costs are currently low at approximately US$150,000 pa although this number will likely increase as site activity increases as under Greenlandic regulations, tenement holders are required to directly pay for any administration time committed by the governing departments (or their advisors) on the Project.
2. Permitting and Approvals
    a. Key permitting status and timeline guidance can be found on page 11 of this announcement. Refer to ASX announcement dated 7 December 2020 for further information on the general permitting process in Greenland.
3. Infrastructure
    a. There is no permanent infrastructure at the Citronen Project currently other than Ironbark's exploration camp and landing strip. All infrastructure required to build and operate the project will be new, including port, off grid power station, airport, mine & process infrastructure, roads, service buildings, workshops, accommodation and other ancillary structures typically found at an operation of this nature.
    b. See Appendix C for a detailed overview of the site layout including proposed mine and surface infrastructure.

Compliance Statements

Cautionary Statements and Risk Factors

The contents of this announcement reflect various technical and economic conditions at the time of writing. Given the nature of the resources industry, these conditions can change significantly over relatively short periods of time. Consequently, actual results may vary from those detailed in this announcement.

Some statements in this announcement regarding estimates or future events are forward-looking statements. They include indications of, and guidance on, future earnings, cash flow, costs and financial performance. Forward-looking statements include, but are not limited to, statements preceded by words such as “planned”, “expected”, “projected”, “estimated”, “may”, “scheduled”, “intends”, “anticipates”, “believes”, “potential”, "predict", "foresee", "proposed", "aim", "target", "opportunity". “could”, “nominal”, “conceptual” and similar expressions.

Forward-looking statements, opinions and estimates included in this announcement are based on assumptions and contingencies which are subject to change without notice, as are statements about market and industry trends, which are based on interpretations of current market conditions. Forward-looking statements are provided as a general guide only and should not be relied on as a guarantee of future performance. Forward-looking statements may be affected by a range of variables that could cause actual results to differ from estimated results, and may cause the Company's actual performance and financial results in future periods to materially differ from any projections of future performance or results expressed or implied by such forward-looking statements. So there can be no assurance that actual outcomes will not materially differ from these forward-looking statements.

These statements are subject to significant risks and uncertainties that include but are not limited those inherent in mine development and production, geological, mining, metallurgical and processing technical problems, the inability to obtain and maintain mine licenses, permits and other regulatory approvals required in connection with mining and processing operations, competition for among other things, capital, acquisitions of reserves, undeveloped lands and skilled personnel, incorrect assessments of the value of projects and acquisitions, changes in commodity prices and exchange rate, currency and interest rate fluctuations and other adverse economic conditions, the potential inability to market and sell products, various events which could disrupt operations and/or the transportation of mineral products,

including labour stoppages and severe weather conditions, the demand for and availability of transportation services, environmental, native title, heritage, taxation and other legal problems, the potential inability to secure adequate financing and management's potential inability to anticipate and manage the foregoing factors and risks. There can be no assurance that forward-looking statements will prove to be correct.

Where the Company expresses or implies an expectation or belief as to future events or results, such expectation or belief is expressed in good faith and on a reasonable basis. No representation or warranty, express or implied, is made by the Company that the matters stated in this announcement will in fact be achieved or prove to be correct.

Except for statutory liability which cannot be excluded, the Company, its officers, employees and advisers expressly disclaim any responsibility for the accuracy or completeness of the material contained in this announcement and exclude all liability whatsoever (including in negligence) for any loss or damage which may be suffered by any person as a consequence of any information in this announcement or any error or omission there from.

This announcement does not take into account the individual investment objectives, financial or tax situation or particular needs of any person. It does not contain financial advice. You should consider seeking independent legal, financial and taxation advice in relation to the contents of this announcement.

Except as required by applicable law, the Company does not undertake any obligation to release publicly any revisions to any forward-looking statement to reflect events or circumstances after the date of this announcement, or to reflect the occurrence of unanticipated events, except as may be required under applicable securities laws.

Further details

This notice is authorised to be issued by the Board. Please contact Managing Director Mr. Michael Jardine for any further inquiries on either mjardine@ironbark.gl or +61 424 615 047.

Appendices

Appendix A: Mineral Resource Estimate*

Category	Mt	Zn (%)	Pb (%)
Open pit @ 1.5% Zn cut-off			
Measured	11,767,520	2.9	0.5
Indicated	2,159,548	2.6	0.3
M&I	**13,927,068**	**2.8**	**0.5**
Inferred	3,303,573	2.9	0.4
Open pit total	**17,230,641**	**2.8**	**0.4**
Underground @ 3.5% Zn cut-off			
Measured	22,518,764	5.2	0.5
Indicated	26,208,555	5.5	0.5
M&I	**48,727,319**	**5.4**	**0.5**
Inferred	18,744,401	4.8	0.4
Underground total	**67,471,720**	**5.2**	**0.5**
TOTAL Mineral Resource			
Measured	**34,286,284**	**4.36**	**0.51**
Indicated	**28,368,103**	**5.30**	**0.46**
Inferred	**22,047,974**	**4.55**	**0.42**
Total	**84,702,361**	**4.72**	**0.47**

**Calculated using Ordinary Kriging interpolation*

These resource figures were estimated in early 2012 by consultants Ravensgate, who estimated the resources of each category (Measured, Indicated and Inferred) for each of the three orebodies at Citronen – Beach, Esrum and Discovery Zones. Ravensgate estimated the resources using several cut-off grades from 0.1% zinc up to 6.0% zinc. The Report by Ravensgate was prepared with reference to the guidelines of the 2004 JORC Code.

Appendix B: Ore Reserve

Deposit	Category	Tonnes (Mt)	ZnEq grade (%)*	Zn grade (%)	Pb grade (%)	ZnEq metal (Mt)	Zn metal (Mt)	Pb metal (Mt)
Beach underground	Proved	19.0	5.5	5.2	0.5	1.0	1.0	0.1
	Probable	7.0	5.8	5.7	0.5	0.4	0.4	0.03
Esrum underground	Proved	-	-	-	-	-	-	-
	Probable	15.8	5.1	4.8	0.4	0.8	0.8	0.06
Discovery open pit	Proved	5.5	3.5	3.2	0.6	0.2	0.2	0.03
	Probable	1.4	2.5	2.3	0.4	0.04	0.03	0.01
Total	**Proved**	**24.6**	**5.1**	**4.6**	**0.5**	**1.2**	**1.1**	**0.13**
	Probable	**24.2**	**5.1**	**5.0**	**0.4**	**1.2**	**1.1**	**0.10**
	Total	**48.8**	**5.1**	**4.8**	**0.5**	**2.5**	**2.3**	**0.24**

**Please see page 49 of this announcement for an explanation of the calculated Zinc Equivalent grade.*

Competent Persons Statement

The information included in this report that relates to Exploration Results & Mineral Resources is based on information compiled by Ms Elizabeth Laursen (B. ESc Hons (Geol), GradDip App. Fin., MSEG, MAIG), an employee of Ironbark Zinc Limited. Ms Laursen has sufficient experience that is relevant to the style of mineralisation and type of deposit under consideration and to the activity which they are 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. Ms Laursen consents to the inclusion in the report of the matters based on this information in the form and context in which it appears.

The mining-specific information in this report, which relates to Ore Reserves, is based on information compiled by Mr Andrew Gasmier CP (Mining), who is a Member of The Australasian Institute of Mining and Metallurgy. Mr Gasmier is employed full time by Mining Plus. He has sufficient experience which is relevant to the style of mineralisation and type of deposit under consideration and to the activity which he 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'. Mr Gasmier consents to the inclusion in the report of the matters based on his information in the form and context in which it appears.

Competent Persons disclosure

Ms Laursen is an employee of Ironbark Zinc Limited and currently holds securities in the company.

Mr Gasmier does not currently hold securities in the company.

Appendix C: Citronen Mineral Resource Estimate and Ore Reserves (JORC Tables)

JORC Code, 2012 Edition – Table 1 report template

Section 1 Sampling Techniques and Data

Criteria	JORC Code explanation	Commentary
Sampling techniques	- *Nature and quality of sampling (eg cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc). These examples should not be taken as limiting the broad meaning of sampling.* - *Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.* - *Aspects of the determination of mineralisation that are Material to the Public Report.* - *In cases where 'industry standard' work has been done this would be relatively simple (eg 'reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30 g charge for fire assay'). In other cases more explanation may be required, such as where there is coarse gold that has inherent sampling problems. Unusual commodities or mineralisation types (eg submarine nodules) may warrant disclosure of detailed information.*	- All samples are from diamond core, and include a mixture of quarter, half or whole core and BQ, NQ or HQ sizes. Samples are taken from varying intervals from 40cm length to 2.5m length depending on visual differences and compositions analysed by a hand-held Niton XL3t Analyser. - Mineralised zones were analysed with a 30 second reading every 5cm along the core. These results are only used for onsite interpretation and form the basis of the samples chosen for laboratory assay. - Sampling is carried out under QAQC procedures as per industry standards. - Certified sample standards and duplicate samples are added in a ratio of 1 sample per every 10 samples. Most hole collars have been surveyed using a Trimble DGPS system which has an accuracy of <1m; the remaining holes have been surveyed by hand-held GPS with an accuracy of <5m. - Two distinct exploration drilling campaigns have been conducted at Citronen. The first was between 1993 and 1997 conducted by Platinova A/S who drilled 149 holes totalling 32,842.95m. Sample intervals varied from 0.15 - 2.5m, the average sample width was 1.0m. - The second campaign of drilling was conducted by Ironbark Zinc Limited between 2008 and 2011 who drilled 166 diamond holes totalling 34,239.93m. Sample intervals varied from 0.2 - 1.5m

Criteria	JORC Code explanation	Commentary
		and the average sample width was 0.9m. • A sampling program was conducted by Ironbark in 2007, where 2,645 samples were taken from the Platinova drill core. Samples varied from 0.2 - 1.3m and the average sample width was 0.95m. Some of these samples were from previously un-sampled drill core and other samples were quarter core samples from previously assayed intervals, used as a quality control check. • Core samples from the 1993 drilling were sent to Chemex Labs Ltd of North Vancouver B.C. Canada. Samples were crushed, spilt and a portion pulverised followed by a four-acid digest and Inductively Coupled Plasma Mass Spectrometry (ICP-MS) finish. • Core samples from the 1994 drilling were sent to Bondar Clegg Inchcape Testing Services of Ottawa, Ontario, Canada. These samples were crushed split, and a portion pulverised to minus 200 mesh. A four-acid digest was used followed by ICP-MS and also AAS for samples greater than 20% Fe and 15% Zn. • Core samples from the 1995 drilling were sent to Chemex Labs Ltd of Vancouver, B.C., Canada. Samples were crushed, split and a portion pulverised to minus 150 mesh followed by reverse Aqua-Regia digest finished by Atomic Absorption Spectrometry (AAS). • Core samples from the 1996 and 1997 drilling were sent to Cominco Ltd. Laboratory in Rexdale, Ontario, Canada. Samples were crushed, split and a portion pulverized to minus 150 mesh followed by reverse Aqua-Regia digest finished by AAS. • The core samples taken in 2007 by Ironbark were sent to ALS Chemex in Vancouver, B.C., Canada. The samples were crushed, split and a portion pulverised to 75µm, followed by a four acid digest and an AAS technique. • The core samples taken in 2008 - 2011 by Ironbark were sent to ALS Chemex in

Criteria	JORC Code explanation	Commentary
		Ojebyn, Sweden. The samples were crushed, split and a portion pulverised to 75µm, followed by a four acid digest and an Inductively Coupled Plasma Atomic Emission Spectroscopy (ICP-AES) finish.
Drilling techniques	• *Drill type (eg core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc) and details (eg core diameter, triple or standard tube, depth of diamond tails, face-sampling bit or other type, whether core is oriented and if so, by what method, etc).*	• All drilling at the Citronen Project has been standard tube diamond drilling, of either BQ, NQ or HQ diameter. In areas with overburden (glacial till) either a tri-cone roller bit or shoe bit was used to drill down to competent rock. Overburden material was discarded. • Most holes were vertical and therefore not oriented. The few drilled at an angle were oriented using a Reflex tool.
Drill sample recovery	• *Method of recording and assessing core and chip sample recoveries and results assessed.* • *Measures taken to maximise sample recovery and ensure representative nature of the samples.* • *Whether a relationship exists between sample recovery and grade and whether sample bias may have occurred due to preferential loss/gain of fine/coarse material.*	• Recovered drill core was measured every 3m run and any core loss was recorded. • Core recoveries were excellent throughout the project and the need for triple tube drilling was not required. All core was checked & measured by a geologist and rod counts carried out by drillers. • Information from the diamond drilling does not suggest that there is a correlation between recoveries and grade. Diamond drill core from the Citronen deposit has a very high recovery.
Logging	• *Whether core and chip samples have been geologically and geotechnically logged to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies.* • *Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc) photography.* • *The total length and percentage of the relevant intersections logged.*	• All drill holes were logged for a combination of geological and geotechnical attributes to a level of detail to support a Mineral Resource estimation. • Logging is both qualitative and semi-quantitative in nature; all drill core was photographed. • The total length of all recovered drill core was logged in detail.
Sub-sampling techniques and sample Preparation	• *If core, whether cut or sawn and whether quarter, half or all core taken.* • *If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry.*	• Of 7,395 samples, 6,421 are half-core (87%), 968 are quarter-core (13%) and six samples are whole core samples. All core was sawn with a core-saw. • All drilling conducted at Citronen was diamond drilling.

Criteria	JORC Code explanation	Commentary
	- *For all sample types, the nature, quality and appropriateness of the sample preparation technique.* - *Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.* - *Measures taken to ensure that the sampling is representative of the in situ material collected, including for instance results for field duplicate/second-half sampling.* - *Whether sample sizes are appropriate to the grain size of the material being sampled.*	- All samples were crushed, split and pulverised at a laboratory. The sample preparation is industry standard for the fine-grained nature of this Sedimentary-Exhalative (SEDEX) mineralisation style. - Laboratory certified standards and duplicates were used alternatively every 10 samples as a quality control measure. - One duplicate per twenty samples was taken. - The sample sizes are appropriate to the fine-grained mineralisation of this SEDEX mineralisation style.
Quality of assay data and laboratory tests	- *The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.* - *For geophysical tools, spectrometers, handheld XRF instruments, etc, the parameters used in determining the analysis including instrument make and model, reading times, calibrations factors applied and their derivation, etc.* - *Nature of quality control procedures adopted (eg standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (ie lack of bias) and precision have been established.*	- The assay methods used are considered appropriate and near total digestion. - A Niton XL3t hand-held XRF analyser was used to determine the appropriate core intervals to send for laboratory assay. Each reading was 30 seconds long, taken each 5cm along the drill core. - Duplicate samples and laboratory certified standards have been used alternatively every ten samples. All samples have returned results within an acceptable range.
Verification of sampling and assaying	- *The verification of significant intersections by either independent or alternative company personnel.* - *The use of twinned holes.* - *Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.* - *Discuss any adjustment to assay data.*	- Ravensgate Consultants conducted a verification procedure on the Citronen database during the resource estimation process. - Several drill holes have been twinned and have shown comparable results including; ○ Holes CF08-153 & CF08-153A (both vertical holes) were drilled 9m horizontally apart at surface with an elevation difference of 12cm. CF08-153 returned 9.1m @ 5.16% Zn from 14.0m and CF08-153A returned 9.0m @ 5.92% Zn from 14.0m. ○ Holes CF10-245A and CF10-245B (both vertical holes) were drilled 1 metre apart

Criteria	JORC Code explanation	Commentary
		at surface. The drill holes intersected 12.2m and 13.7m of overburden (glacial till) respectively and intersected the Hangingwall Debris Flow Unit at 175.5m and 174.5m depth respectively. • Primary data was either collected as paper logs or entered into a database program or Excel spreadsheet. Paper logs were later transferred to a digital database. Data was verified and checked by senior Ironbark staff and by external consultants Expedio, Ravensgate & Mining Plus. The Database was stored as Excel spreadsheets and a Microsoft Access Database. • There has been no adjustment to the assay data.
Location of data points	• *Accuracy and quality of surveys used to locate drill holes (collar and down-hole surveys), trenches, mine workings and other locations used in Mineral Resource estimation.* • *Specification of the grid system used.* • *Quality and adequacy of topographic control.*	• All drill holes prior to 2011 were surveyed using a DGPS which has an accuracy of <1m. 2011 holes were picked up by handheld GPS which has proven to have an accuracy of approximately 5m. Downhole surveys were conducted on all angled drill holes using REFLEX (industry standard) equipment. • The Grid System used for all location data points at Citronen is UTM WGS 84 Zone 26. • Ironbark purchased a Digital Elevation Model, produced from satellite imagery, for the Citronen Region that has an accuracy of approximately 2.5m.
Data spacing and distribution	• *Data spacing for reporting of Exploration Results.* • *Whether the data spacing and distribution is sufficient to establish the degree of geological and grade continuity appropriate for the Mineral Resource and Ore Reserve estimation procedure(s) and classifications applied.* • *Whether sample compositing has been applied.*	• Hole spacing varies across the three orebodies; in the Beach Zone and Discovery Zone 30-100m, in the Esrum Zone >150m. • The data spacing and distribution is sufficient to determine geological and grade continuity. • A composite length of 1m was selected after analysis of the raw sample lengths for use in resource calculations.
Orientation of data in relation to	• *Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.*	• The orientation of the drilling is approximately perpendicular to the strike and dip of the mineralisation and therefore should not be biased.

Criteria	JORC Code explanation	Commentary
geological structure	- *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.*	- Angled drill holes provided a check against mineralisation width in vertical holes. - There are no known biases caused by the orientation of the drill holes.
Sample security	- *The measures taken to ensure sample security.*	- Drill core was kept on site and sample dispatch was overseen by the site manager. Samples were transported by charter plane to Svalbard (Norway), then air freighted to the laboratory by a local logistics company.
Audits or reviews	- *The results of any audits or reviews of sampling techniques and data.*	- Ravensgate reviewed original laboratory assay files and compared them with the database. No errors were found.

Section 2 Reporting of Exploration Results

Criteria	JORC Code explanation	Commentary
Mineral tenement and land tenure status	• *Type, reference name/number, location and ownership including agreements or material issues with third parties such as joint ventures, partnerships, overriding royalties, native title interests, historical sites, wilderness or national park and environmental settings.* • *The security of the tenure held at the time of reporting along with any known impediments to obtaining a licence to operate in the area.*	• The Citronen Fjord Deposit is located wholly within Exploitation Licence 2016/30 which is 100% owned by Ironbark Zinc Limited. The licence lies within the Northeast Greenland National Park. • The Licence was granted in December 2016 for a period of 30 years.
Exploration done by other parties	• *Acknowledgment and appraisal of exploration by other parties.*	• The deposit was previously explored by Platinova A/S between 1993 and 1997.
Geology	• *Deposit type, geological setting and style of mineralisation.*	• The Citronen Fjord deposit lies within the Palaeozoic Franklinian Basin, a sedimentary basin which extends across Northern Greenland and into Canada. The deposit lies within Ordovician deep water argillaceous rocks, interbedded with carbonate debris flows sourced from the carbonate platform to the south. Base metal mineralisation at Citronen is primarily contained within the Amundsen Land Group mudstones. Three main stratigraphic horizons of mineralisation were identified by Platinova A/S. Known sulphide and zinc mineralisation occurs over an area of 12km in strike (identified to date). The main sulphides present are pyrite, sphalerite and galena. Three types of sulphide mineralisation are present: mound-like masses, interbedded sulphides that form laminae and beds within the mudstones and cross-cutting epigenetic mineralisation that is primarily found in the carbonate debris flows.
Drill hole Information	• *A summary of all information material to the understanding of the exploration results including a tabulation of the following information for all Material*	• Refer to Annexure 1.

Criteria	JORC Code explanation	Commentary
	drill holes: ○ *easting and northing of the drill hole collar* ○ *elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar* ○ *dip and azimuth of the hole* ○ *down hole length and interception depth* ○ *hole length.* • *If the exclusion of this information is justified on the basis that the information is not Material and this exclusion does not detract from the understanding of the report, the Competent Person should clearly explain why this is the case.*	
Data aggregation methods	• *In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (eg cutting of high grades) and cut-off grades are usually Material and should be stated.* • *Where aggregate intercepts incorporate short lengths of high grade results and longer lengths of low grade results, the procedure used for such aggregation should be stated and some typical examples of such aggregations should be shown in detail.* • *The assumptions used for any reporting of metal equivalent values should be clearly stated.*	• All reported assays have been length weighted. • No metal equivalents have been reported.
Relationship between mineralisation widths and intercept lengths	• *These relationships are particularly important in the reporting of Exploration Results.* • *If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.* • *If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (eg 'down hole length, true width not known').*	• The mineralisation is interpreted to be flat-lying to gently dipping and drill holes have been angled (either vertical or at 60 degrees) to intercept the mineralisation as close to perpendicular as possible, therefore resulting in true widths of mineralisation.
Diagrams	• *Appropriate maps and sections (with scales) and tabulations of intercepts*	• Refer to Figures 1A to 1D.

Criteria	JORC Code explanation	Commentary
	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.	
Balanced reporting	- *Where comprehensive reporting of all Exploration Results is not practicable, representative reporting of both low and high grades and/or widths should be practiced to avoid misleading reporting of Exploration Results.*	- All results have been reported.
Other substantive exploration data	- *Other exploration data, if meaningful and material, should be reported including (but not limited to): geological observations; geophysical survey results; geochemical survey results; bulk samples – size and method of treatment; metallurgical test results; bulk density, groundwater, geotechnical and rock characteristics; potential deleterious or contaminating substances.*	- Geological mapping, geotechnical and metallurgical studies have been conducted and are included in the Feasibility Study for the Project. The Feasibility Study Updated was released on 12 September 2017.
Further work	- *The nature and scale of planned further work (eg tests for lateral extensions or depth extensions or large-scale step-out drilling).* - *Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.*	- Further infill drilling in the Beach Zone is planned and will commence during Project construction.

Section 3 Estimation and Reporting of Mineral Resources

Criteria	JORC Code explanation	Commentary
Database integrity	• *Measures taken to ensure that data has not been corrupted by, for example, transcription or keying errors, between its initial collection and its use for Mineral Resource estimation purposes.* • *Data validation procedures used.*	• All drilling data has been reviewed and audited by several internal personnel and external consultants. Data validation techniques include: further assaying historic core, surveying hole collars, use of laboratory standards & duplicates, three internal cross-checks of all drill hole data by geologists and several external consultant cross-checks of all available data. • Three Resource Estimates have been calculated prior to the Ravensgate Resource 2012; ○ Wardrop Consulting, 2007 ○ Ironbark, 2008 (in-house) ○ Ravensgate, 2010 • Examination of the prior estimate reports were used as part of the data validation procedures for the Ravensgate Resource Report 2012.
Site visits	• *Comment on any site visits undertaken by the Competent Person and the outcome of those visits.* • *If no site visits have been undertaken indicate why this is the case.*	• One of the Ravensgate Resource Report 2012 authors was involved in Ironbark's exploration programmes and project development in 2007, 2008 & 2009. • The author was integral in the establishment of industry best QA/QC practices and has intimate knowledge of all procedures used on site. • The author of the Wardrop 2007 Resource Estimate Report was involved in the planning and execution of the 1990's drilling. • The author of the Ironbark 2008 in-house Resource Estimate was involved in the planning and execution of the 2007 sampling, and 2008-2011 drilling programs.
Geological interpretation	• *Confidence in (or conversely, the uncertainty of) the geological interpretation of the mineral deposit.* • *Nature of the data used and of any assumptions made.* • *The effect, if any, of alternative interpretations on Mineral Resource*	• The Ravensgate Resource Report 2012 states "Interpretation of the lithological boundaries model for the mineralisation interpretation used for the resource modelling is supported by a significant amount of drill logging or surface mapping and is at an advanced

Criteria	JORC Code explanation	Commentary
	estimation. • *The use of geology in guiding and controlling Mineral Resource estimation.* • *The factors affecting continuity both of grade and geology.*	level". Ravensgate classified the Geological Interpretation as a low-moderate risk in the Resource Calculation Risk Assessment. Zinc-lead mineralised domains were initially modelled using MineSight 3-D modelling software. Interpretation was primarily done in cross-section using geological logging and the 3D geological model. Cross sections were oriented on 100m and 50m sections oriented perpendicular to the dominant strike of the domain being modelled.
Dimensions	• *The extent and variability of the Mineral Resource expressed as length (along strike or otherwise), plan width, and depth below surface to the upper and lower limits of the Mineral Resource.*	• The area containing the Citronen Resource stretches 6.5km from the north-west corner of the Esrum Zone to the south-east corner of the Discovery Zone. The deposit is exposed at surface in the Discovery Zone and reaches a depth of 575m below surface in the Esrum Zone. The deposit is open along strike and at depth.
Estimation and modelling techniques	• *The nature and appropriateness of the estimation technique(s) applied and key assumptions, including treatment of extreme grade values, domaining, interpolation parameters and maximum distance of extrapolation from data points. If a computer assisted estimation method was chosen include a description of computer software and parameters used.* • *The availability of check estimates, previous estimates and/or mine production records and whether the Mineral Resource estimate takes appropriate account of such data.* • *The assumptions made regarding recovery of by-products.* • *Estimation of deleterious elements or other non-grade variables of economic significance (eg sulphur for acid mine drainage characterisation).* • *In the case of block model interpolation, the block size in relation to the average sample spacing and the search*	• Resource estimations were generated using standard 3D 'uniform block size' modelling techniques. • The Ordinary Kriging interpolation technique was employed owing to the low coefficients of variation observed for sample composites for each domain area. • Three separate block models were created - one each for the Beach, Esrum and Discovery Zones due to the large file sizes. Variable upper high grade Zinc cut-offs were applied to the 1m down-hole composite data set prior to carrying out interpolation. • In Ravensgate's opinion a general level of cut-off at the 98th or 99th percentile level be implemented in conjunction with local domain statistics to help minimise the change of over-estimation of grades. Major, minor and down hole axis length for interpolation were obtained by using variograms. These vary depending on Zone.

Criteria	JORC Code explanation	Commentary
	employed. • *Any assumptions behind modelling of selective mining units.* • *Any assumptions about correlation between variables.* • *Description of how the geological interpretation was used to control the resource estimates.* • *Discussion of basis for using or not using grade cutting or capping.* • *The process of validation, the checking process used, the comparison of model data to drill hole data, and use of reconciliation data if available.*	• Higher Zn grade domains were restricted according to the probability statistics observed within each mineralisation domain. Generally the grade cut-off - distance restriction regime was applied to at the 98th or 99th percentile level. • A composite length of 1m was used as it was deemed this length was short enough to honour the dimensions of geological and mineralisation domains being modelled. The composite subsequent data processing and statistical analysis, were carried out in MineSight Compass Software. Wireframe development was guided using a minimum true width of 2m. • An approximate 'half of drill hole spacing' distance of influence approach was used for extrapolating. • Block size was 10m x 10m with bench height of 1m. • No assumptions behind modelling of selective mining units were made. • No assumptions about correlation between variables was made. • Zinc and Lead distribution within the defined domains is relatively predictable and mostly display low coefficients of variation (CV 0.4-1.0). • In Ravensgate's opinion, considering the relatively low coefficients of variations observed for the three main Citronen project areas that only minimal outlier treatment need be considered. Ravensgate used the 98-99th percentile level as the main starting point for the grade restriction implementation level. The restriction distance was also set as 60 to 80 metres depending on the drilling density available within any given mineralisation domain. • Wardrop Consulting completed a resource estimate in 2007 and in 2008 an in-house resource was calculated by Ironbark. Ravensgate consultants were

Criteria	JORC Code explanation	Commentary
		contracted in 2010 to calculate a resource to include the 2008, 2009 and 2010 drilling. Ravensgate were contracted again after the 2011 drilling was completed to provide a resource encompassing all drilling to date at the project. The resource estimates from 2007, 208 and 2010 were used as check estimates against the 2012 Resource. • No by-product recovery assumptions have been made. • Deleterious elements have not been considered in the Resource Calculation based on the results from metallurgical testwork to date. • The resource estimate was reviewed by two Competent Persons from Ravensgate and the block model cross-checked with the drilling data both by Ravensgate and in-house.
Moisture	• *Whether the tonnages are estimated on a dry basis or with natural moisture, and the method of determination of the moisture content.*	• Bulk densities were based on dry tonnes.
Cut-off parameters	• *The basis of the adopted cut-off grade(s) or quality parameters applied.*	• A 6.0% zinc cut off was used as the resource is being used in mine optimisation studies.
Mining factors or assumptions	• *Assumptions made regarding possible mining methods, minimum mining dimensions and internal (or, if applicable, external) mining dilution. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential mining methods, but the assumptions made regarding mining methods and parameters when estimating Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the mining assumptions made.*	• No specific assumptions were made about mining methods by Ravensgate whilst calculating the resource estimate, other than considering the use of standardised surface (Discovery Zone) and underground mining (Esrum & Beach Zones) methods. Mining Plus consultants have proposed the room and pillar underground mining method to maximise recovery. Further information on mining methods can be found in Ironbark's Feasibility Study Update released 12 September 2017.
Metallurgical factors or assumptions	• *The basis for assumptions or predictions regarding metallurgical amenability. It is always necessary as part of the process of determining reasonable prospects for eventual economic*	• Metallurgical testing has been carried out on Citronen drill core after the 2008, 2009, 2010 and 2011 drilling campaigns. The testwork has been conducted by Burnie Laboratories in

Criteria	JORC Code explanation	Commentary
	extraction to consider potential metallurgical methods, but the assumptions regarding metallurgical treatment processes and parameters made when reporting Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the metallurgical assumptions made.	Tasmania (now part of ALS Global). Ore processing will incorporate the following stages: primary & secondary crushing, dense media separation, grinding and classification, flotation and concentrate thickening and filtration. Very high zinc flotation recoveries of 85% have been achieved. • Further information on metallurgical and process testwork can be found in the Ironbark Feasibility Study Update released 12 September 2017.
Environmental factors or assumptions	• *Assumptions made regarding possible waste and process residue disposal options. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider the potential environmental impacts of the mining and processing operation. While at this stage the determination of potential environmental impacts, particularly for a greenfields project, may not always be well advanced, the status of early consideration of these potential environmental impacts should be reported. Where these aspects have not been considered this should be reported with an explanation of the environmental assumptions made.*	• A full Environmental Impact Assessment has been completed and submitted to the Government of Greenland. Environmental factors and management solutions are outlined in the Feasibility Study Report for Citronen released on the ASX on 29 April 2013. • Tailings from the mine will be used as backfill underground or stored in an on-ground Tailings Storage Facility. Waste rock will be stored in a waste dump on surface. Environmental studies concluded that mine wastes will not significantly increase the levels of metals in the aquatic or terrestrial environment of the area.
Bulk density	• *Whether assumed or determined. If assumed, the basis for the assumptions. If determined, the method used, whether wet or dry, the frequency of the measurements, the nature, size and representativeness of the samples.* • *The bulk density for bulk material must have been measured by methods that adequately account for void spaces (vugs, porosity, etc), moisture and differences between rock and alteration zones within the deposit.* • *Discuss assumptions for bulk density estimates used in the evaluation process of the different materials.*	• Ironbark conducted numerous empirical Specific Gravity (SG) measurements of drill core from a large range of different rock types and mineralisation styles from the deposit. Ironbark also examined statistical methods to calculate bulk density based on element assay and stoichiometric density. To calculate the bulk density in the deposit, Ironbark produced a theoretical density for each block in the model based upon the interpolated value of Fe, Pb and Zn and rock type coding. This approach is thought to be more accurate than using a constant density value for each domain. The interpolated densities for each block were calculated using a

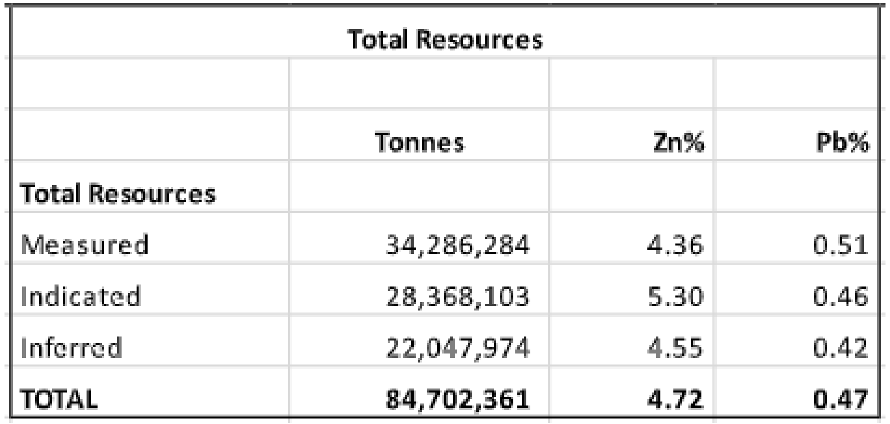
Criteria	JORC Code explanation	Commentary
		formula that utilised the Ordinary Kriged Fe, Pb and Zn values for that block. The formula assumes that all Zn is reporting to sphalerite (SG of 4.05), Pb to galena (SG of 7.4) and Fe to pyrite (SG of 5.01), with the remainder consisting of mudstone gangue (SG of 2.78).
Classification	• *The basis for the classification of the Mineral Resources into varying confidence categories.* • *Whether appropriate account has been taken of all relevant factors (ie relative confidence in tonnage/grade estimations, reliability of input data, confidence in continuity of geology and metal values, quality, quantity and distribution of the data).* • *Whether the result appropriately reflects the Competent Person's view of the deposit.*	• The Citronen Resource was classified into Measured, Indicated & Inferred categories using a mathematical calculation based on distance to the nearest composite and the number of composites used in each ore domain. The resource estimate calculated by a Competent Person of Ravensgate Consultants has adhered to the JORC (2004) guidelines and the resource estimate and all its working has been verified by another Competent Person. Both Competent Persons signed off on the resource calculation. The Resource calculation has not been recalculated since 2011 as no further drilling has been completed.
Audits or reviews	• *The results of any audits or reviews of Mineral Resource estimates.*	• A JORC compliant resource for Citronen was initially calculated in 2007 by Wardrop Consulting. In 2008 a JORC compliant in-house resource was calculated by Ironbark, then Ravensgate calculated a JORC compliant estimate in 2010 and 2011 to include the latest drilling. Each of these Resource Estimates and Reports have been extensively reviewed inhouse and the latest resource was reviewed by Mining Plus Consultants to ensure its suitability for underground mining optimisation.
Discussion of relative accuracy/ confidence	• *Where appropriate a statement of the relative accuracy and confidence level in the Mineral Resource estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the resource within stated confidence*	• Ravensgate have categorised the relative accuracy/confidence of the Citronen Resource as low risk and stated "The Citronen Project Area continues to be deemed to have potential for economic merit and possible larger scaled development. Further development work should be continued if possible in order to try to

Criteria	JORC Code explanation	Commentary
	limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors that could affect the relative accuracy and confidence of the estimate. - *The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonnages, which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the procedures used.* - *These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.*	extend or increase the underlying resource base".

JORC 2012 Table 1 – Section 4 Estimation and Reporting of Ore Reserves

<table>
<tr><th>Criteria</th><th>Explanation</th><th>Summary Comments for JORC Table 1</th></tr>
<tr><td>Mineral Resource Estimate for Conversion to Ore Reserves</td><td>Description of the Mineral Resource estimate used as a basis for the conversion to an Ore Reserve</td><td>
The current JORC 2012 compliant resource as released on 19 July 2021 for Citronen

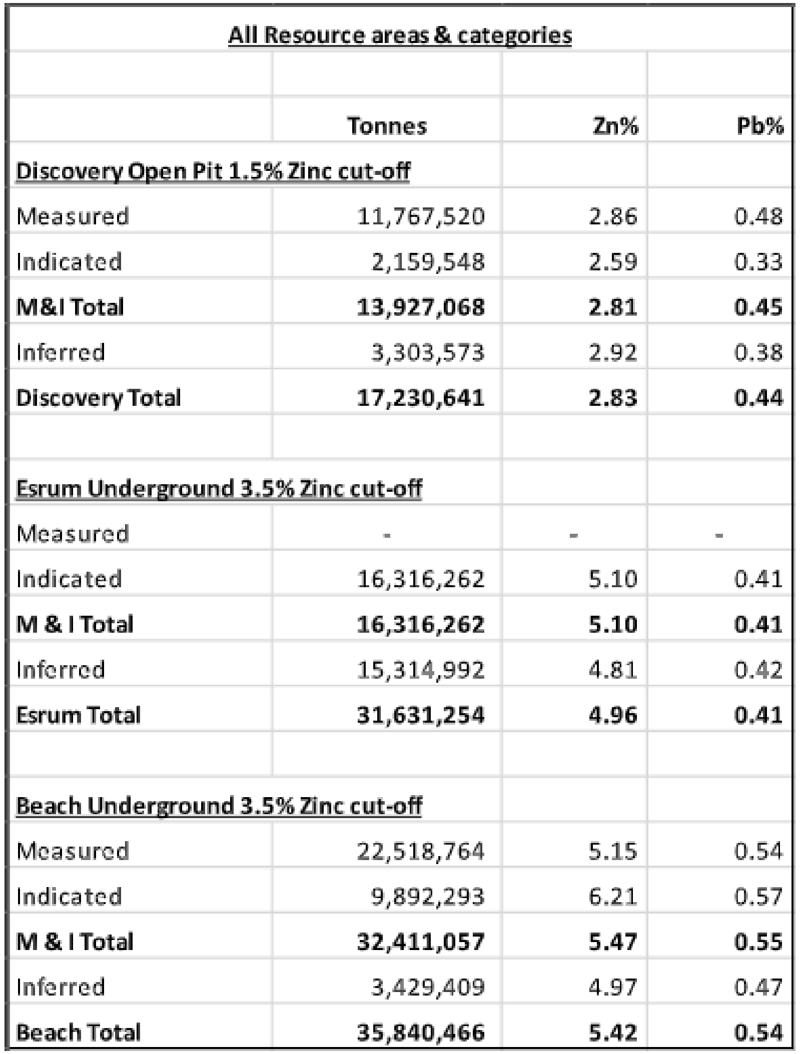
Table 1 – 84.7 million tonnes at 4.72% Zn & 0.47% Pb



<table>
<tr><th colspan="4">Total Resources</th></tr>
<tr><td></td><td></td><td></td><td></td></tr>
<tr><td></td><td>Tonnes</td><td>Zn%</td><td>Pb%</td></tr>
<tr><td>Total Resources</td><td></td><td></td><td></td></tr>
<tr><td>Measured</td><td>34,286,284</td><td>4.36</td><td>0.51</td></tr>
<tr><td>Indicated</td><td>28,368,103</td><td>5.30</td><td>0.46</td></tr>
<tr><td>Inferred</td><td>22,047,974</td><td>4.55</td><td>0.42</td></tr>
<tr><td>TOTAL</td><td>84,702,361</td><td>4.72</td><td>0.47</td></tr>
</table>

Table 2 shows a breakdown of the resource by cut-off, mining method and deposit.
</td></tr>
</table>

Table 2 – Citronen Fjord Resource by cut-off, mining method and deposit



All Resource areas & categories

	Tonnes	Zn%	Pb%
Discovery Open Pit 1.5% Zinc cut-off			
Measured	11,767,520	2.86	0.48
Indicated	2,159,548	2.59	0.33
M&I Total	**13,927,068**	**2.81**	**0.45**
Inferred	3,303,573	2.92	0.38
Discovery Total	**17,230,641**	**2.83**	**0.44**
Esrum Underground 3.5% Zinc cut-off			
Measured	-	-	-
Indicated	16,316,262	5.10	0.41
M & I Total	**16,316,262**	**5.10**	**0.41**
Inferred	15,314,992	4.81	0.42
Esrum Total	**31,631,254**	**4.96**	**0.41**
Beach Underground 3.5% Zinc cut-off			
Measured	22,518,764	5.15	0.54
Indicated	9,892,293	6.21	0.57
M & I Total	**32,411,057**	**5.47**	**0.55**
Inferred	3,429,409	4.97	0.47
Beach Total	**35,840,466**	**5.42**	**0.54**

JORC Table 1 included in an announcement to the ASX released on 19 July 2021. Ironbark confirms that it is not aware of any new information or data that materially affects the information included in this announcement and

Criteria	Explanation	Summary Comments for JORC Table 1
		that all material assumptions and technical parameters underpinning the estimates continue to apply and have not materially changed. The Company confirms that the form and context in which the Competent Person's findings are presented have not been materially modified from the original market announcement.
	Clear statements as to whether the Mineral Resources are reported additional to, or inclusive of, the Ore Reserves	The estimated Ore Reserve is inclusive of Measured and Indicated Mineral Resources.
Site Visits	Comment on any site visits undertaken by the Competent Person and the outcome of those visits	• One of the Ravensgate Resource Report 2012 authors was involved in the drilling and project development at an early stage and visited the site. The author was integral in the establishment of industry best QA/QC practices and has an intimate knowledge of all procedures used on site. • The author of the Wardrop 2007 Resource Estimate Report was involved in the planning and execution of the 1990's drilling. • The author of the Ironbark 2008 in-house Resource Estimate was involved in the planning and execution of the 2007 sampling and 2008 drilling programs. • The Competent Person for the reporting of the Ore Reserve has not undertaken a site visit.
	If no site visits have been undertaken indicate why this is the case	• The project is currently in the Pre-development stage and there are no facilities or establishments on site • COVID-19 international travel restrictions prevent a site visit from being undertaken at this stage

Criteria	Explanation	Summary Comments for JORC Table 1
Study Status	The type and level of study undertaken to enable Mineral Resources to be converted to Ore Reserves	The mine designs and schedules that were used to estimate this Ore Reserve form part of Ironbark Zinc Limited's 2021 Bankable Feasibility Study.
	The code requires that a study to at least Pre-feasibility Study level has been undertaken to convert Mineral Resource to Ore Reserves. Such studies will have been carried out and will have determined a mine plan that is technically achievable and economically viable, and that material modifying factors have been considered	• (2011) A Feasibility study conducted by Wardrop in 2011 deemed the project technically and economically viable. • (2017) An update of the 2011 Wardrop Feasibility Study was carried out by Ironbark in 2017. • (2020) Turner Mining and Geotechnical Pty Ltd (TMG) undertook a geotechnical review of the 2011 Wardrop study. TMG reassessed local and regional pillar sizes, ground support and outlined further work to be undertaken by Ironbark for a higher confidence on the deposit geotechnical parameters. • (2020) As part of the 2020 Citronen Mine Study, a mine plan was developed that was technically achievable and EBITDA positive. This mine plan considered material modifying factors such as mining, processing, and metallurgy. • (2021) Ironbark Zinc Limited, Citronen Fjord Project Bankable Feasibility Study

<table>
<tr><th>Criteria</th><th>Explanation</th><th>Summary Comments for JORC Table 1</th></tr>
<tr><td>Cut-off Parameters</td><td>The basis of the cut-off grade(s) or quality parameters applied</td><td>
<p>Discovery Orebody – Surface Mining</p>
<p>Cut-off grade for open pit mining is based around the Zinc modifying factors and is calculated to 1.55% Zn;</p>

Zn Recovery: 84%
Zn Price: US$1.30 /lb
Process Cost: US$29.10 (inclusive of G&A)

<p>Beach and Esrum Orebodies – Underground Mining</p>
<p>Cut-off grade is based on a Net Smelter Return (NSR), taking into account the net revenue from recovered Zn, Pb and the cost of mining, processing and G&A. The NSR calculation relied upon the processing recoveries shown below:</p>

Zn Recovery: 84%
Pb Recovery: 50%
Costs:

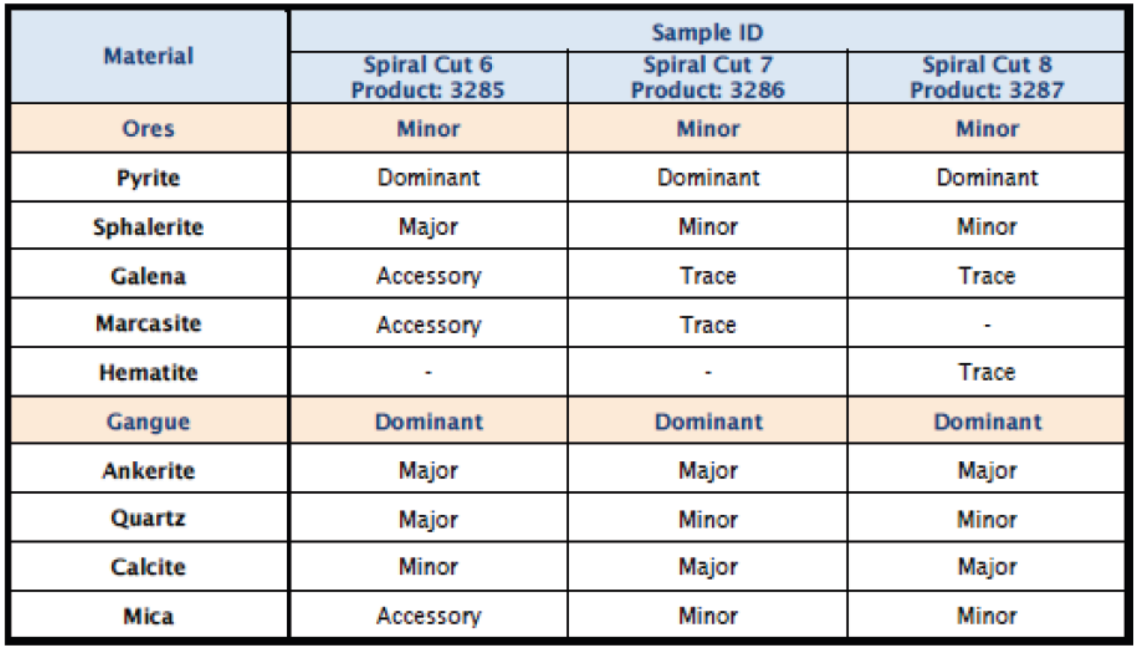
<table>
<tr><th>Item</th><th>Cost (US$)</th></tr>
<tr><td>Processing Costs</td><td>18.00/tonne of ore</td></tr>
<tr><td>G&A Costs</td><td>7.00/tonne of ore</td></tr>
<tr><td>Mining Costs</td><td>38.00/tonne of ore</td></tr>
<tr><td>Other</td><td>4.10/tonne of ore</td></tr>
</table>
<p>The Citronen project is a multi-material and recovery project. Thus, it is not possible to set the cut-off value based on the contained metal. To overcome this limitation, an NSR value calculation was undertaken, taking into consideration the recoveries and smelter terms for Zn and Pb. With the NSR value, a ZnEq grade was back calculated and resulted in the approximate value of 3.57% ZnEq.</p>
<p>The formula for the ZnEq calculation is as stated below:</p>
<p>$ZnEq=Zn+0.58\times Pb$</p>
</td></tr>
</table>

Criteria	Explanation	Summary Comments for JORC Table 1
Mining Factors or Assumptions	The method and assumptions used as reported in the Pre-Feasibility or Feasibility Study to convert the Mineral Resource to an Ore Reserve (i.e. either by application of appropriate factors by optimisation or by preliminary or detailed design)	**<u>Discovery Orebody – Surface Mining</u>** • The Open Pit Ore Reserve has been reported within a pit design based on pit shells from the Whittle optimisations and with appropriate design parameters applied. These have included geotechnical and other operational parameters. **<u>Beach and Esrum Orebodies – Underground Mining</u>** • The mining method is cut and fill with primary and secondary panels. • No planned overbreak was included in the design. • The mine recovery was considered to be 98% as cut and fill is a high recovery low dilution mining method. Regional pillars are considered to be partially extracted at the end of the mine life with a recovery factor of 50%. Access pillars were also assessed and factorized as 7% on top of the mine recovery. **<u>Beach and Esrum Orebodies – Method Independent</u>** • The Ore Reserve estimate is based on the Mineral Resource released in 2012, by Ravensgate, with the competent person being Ravengate's Stephen Hyland. • All mining parameters are based on geotechnical recommendations. • Zn and Pb recoveries of respectively 84% and 50%.
	The choice, nature and appropriateness of the selected mining method (s) and other mining parameters including associated design issues such as pre-strip, access, etc.	**<u>Discovery Orebody – Surface Mining</u>** • The mining method is conventional truck and excavator open pit mining. **<u>Beach and Esrum Orebodies – Underground Mining</u>** • The current mining method (cut and fill) is an optimisation of the previously selected method (room and pillar). Furthermore, it takes into consideration the current geotechnical parameters and mining practicalities. • The key driver of the mining method selection was to maximise the recovery under the geotechnical assumption that all panels need to have the top (backs) supported. The presumption excludes options for longhole drilling methods, as the height of the production areas is relatively small (average of 6m), which excludes the possibility of developing a bottom drive for a panel. • The mining method was optimised to follow the contours of the orebody mineralisation increasing recovery and reducing dilution. The new design will also help with mining productivity, as it reduces development issues and makes the backfill process easier.

Criteria	Explanation	Summary Comments for JORC Table 1
	The assumptions made regarding geotechnical parameters (e.g. pit slopes, stope sizes, etc.), grade control and pre-production drilling	**<u>Discovery Orebody – Surface Mining</u>** The indicative slope configuration for the Discovery open pit design were provided by the 2009 geotechnical assessments produced for Ironbark, these assessments included batter angles of between 60° and 80° for fresh rock and 34° to 40° for the overlying sediments, with safety berms between 5m and 6m for each 10m vertical depth. **<u>Beach and Esrum Orebodies – Underground Mining</u>** Geotechnical parameters and advice were supplied by the TMG's review: • Recommended drive dimensions • Local pillar sizes • Regional pillar sizes • Mining method • Panel sequence • Recommended ground support standards • Risk of surface subsidence in shallow mine areas The information was used to generate the mine design.
	The major assumptions made and the Mineral Resource model used for pit and stope optimisation (if appropriate)	Not Applicable
	The mining dilution factors used	**<u>Discovery Orebody – Surface Mining</u>** • SMU modelling estimated a dilution of 9% and an ore loss of 8% **<u>Beach and Esrum Orebodies – Underground Mining</u>** • Mining Recovery Factors ○ Development, 100% ○ Stopes, 90% • Mining Dilution – 0%
	The mining recovery factors used	
	Any mining widths used	

Criteria	Explanation	Summary Comments for JORC Table 1
	The manner in which Inferred Mineral Resources are utilised in mining studies and the sensitivity of the outcome to their inclusion	The mining method planned for the extraction of the underground resource is highly selective and it is reasonable to expect that the ore can be extracted cleanly with no dilution. There is a portion of the Citronen Inferred Mineral Resource that is included in the life of mine mill feed but is not part of the Ore Reserves. The material represents 25% of the overall life of mine mill feed and was removed from the economics of the project. The project is highly sensitive to variations in recovered zinc metal.
	The infrastructure requirements of the selected mining methods	Sufficient infrastructure will be established by the mining contractor for the mine to operate, including, but not limited to, surface access roads, waste storage facilities, surface explosive magazine, declines, ventilation fans and return airways, sumps and pump stations.
Metallurgical Factors or Assumptions	The metallurgical process proposed and the appropriateness of that process to the style of the mineralisation	Ore processing will incorporate the following stages: primary secondary and tertiary crushing, dense media separation, grinding and classification, flotation and concentrate thickening and filtration. The process method chosen is considered standard for the commodity and style of mineralisation. Zinc flotation recoveries of 85% have been achieved in test work. Further information on metallurgical and process test work can be found in the Ironbark Feasibility Report released 29 April 2013.
	Whether the metallurgical	The metallurgical process is well-tested in the industry.

Criteria	Explanation	Summary Comments for JORC Table 1
	process is well-tested technology or novel in nature	
	The nature, amount and representativeness of metallurgical test work undertaken, the nature of the metallurgical domaining applied and the corresponding metallurgical recovery factors applied	Samples were prepared for mineralogical test work in ALS Ammtec and then sent for Qualitative Optical Mineralogical Examination via Roger Townend and Associates. For the test programme, ALS Ammtec was supplied with three spiral separation test work tail samples from the Ironbark Citronen Project in Greenland: • Sample # 1: Spiral Cut 6 Product: 3285 • Sample # 2: Spiral Cut 7 Product: 3286 • Sample # 3: Spiral Cut 8 Product: 3287 Final results can be seen in the mineralogical exam result table below:

<table>
<tr><th>Criteria</th><th>Explanation</th><th>Summary Comments for JORC Table 1</th></tr>
<tr><td></td><td></td><td>

<table>
<tr><th rowspan="2">Material</th><th colspan="3">Sample ID</th></tr>
<tr><th>Spiral Cut 6
Product: 3285</th><th>Spiral Cut 7
Product: 3286</th><th>Spiral Cut 8
Product: 3287</th></tr>
<tr><td>Ores</td><td>Minor</td><td>Minor</td><td>Minor</td></tr>
<tr><td>Pyrite</td><td>Dominant</td><td>Dominant</td><td>Dominant</td></tr>
<tr><td>Sphalerite</td><td>Major</td><td>Minor</td><td>Minor</td></tr>
<tr><td>Galena</td><td>Accessory</td><td>Trace</td><td>Trace</td></tr>
<tr><td>Marcasite</td><td>Accessory</td><td>Trace</td><td>-</td></tr>
<tr><td>Hematite</td><td>-</td><td>-</td><td>Trace</td></tr>
<tr><td>Gangue</td><td>Dominant</td><td>Dominant</td><td>Dominant</td></tr>
<tr><td>Ankerite</td><td>Major</td><td>Major</td><td>Major</td></tr>
<tr><td>Quartz</td><td>Major</td><td>Minor</td><td>Minor</td></tr>
<tr><td>Calcite</td><td>Minor</td><td>Major</td><td>Major</td></tr>
<tr><td>Mica</td><td>Accessory</td><td>Minor</td><td>Minor</td></tr>
</table>
</td></tr>
<tr><td></td><td>Any assumptions or allowances made for deleterious elements</td><td>No deleterious elements have been identified through the sampling and assaying of the mineralisation.</td></tr>
<tr><td></td><td>The existence of any bulk sample or pilot scale test work and the degree to which such samples are considered representative of</td><td>Metallurgical testing has been carried out on Citronen drill core after the 2008, 2009, 2010 and 2011 drilling campaigns. Composite samples were created for each of the three deposits – Beach, Esrum and Discovery. The test work has been conducted by Burnie Laboratories in Tasmania (now part of ALS Global).</td></tr>
</table>

Criteria	Explanation	Summary Comments for JORC Table 1
	the orebody as a whole	
	For minerals that are defined by the specification, has the ore reserve estimation been based on the appropriate mineralogy to meet the specifications?	Not Applicable
Environmental	The status of studies of potential environmental impacts of the mining and processing operation. Details of waste rock characterisation and the consideration of potential sites, status of design options considered and, where	An Environmental Impact Assessment has been completed and submitted to the Government of Greenland. Environmental factors and management solutions are outlined in the Feasibility Study Report for Citronen released to the ASX on 29 April 2013. Tailings from the mine will be used as backfill underground or stored in an on-ground tailings storage facility. Waste rock will be stored in a waste-dump on surface. Waste Rock and Dense media separation (DMS) rejects are non acid forming. Potentially acid forming tailings will be stored and managed using appropriately designed tailings storage facilities. Environmental studies concluded that mine wastes will not significantly increase the levels of metals in the aquatic or terrestrial environment of the area.

Criteria	Explanation	Summary Comments for JORC Table 1
	applicable, the status of approvals for process residue storage and waste dumps should be reported.	
Infrastructure	The existence of appropriate infrastructure: availability of land for plant development, power, water, transportation (particularly for bulk commodities), labour, accommodation; or the ease with which the infrastructure can be provided or accessed.	• The Citronen Zinc Project is located in north-eastern Greenland approximately 2,100 km north of the capital of Greenland, Nuuk. It is located at 83°05’N, 28°16’W. • There is no existing infrastructure at the site and consequently all infrastructure and ancillary facilities need to be developed as part of the project. The facilities and infrastructure to be developed are based on the original 2010 studies.
Costs	The derivation of, or assumptions made, regarding projected capital costs in the study	Capital costs were derived on the following basis: • The overall plant layout and equipment sizing estimation sourced from the 2017 Citronen Feasibility Study Update. • The cost model was set up to have a mining contractor develop the declines, level accesses and ore drives and extract the ore. The mining contractor costs for equipment provision and maintenance, labour provision and mobilization/demobilisation are based on the current experience of Mining Plus (MP) with similar sized and located projects. • Mining capital estimates have been made using, wherever possible, pricing obtained from the Citronen 2017 study or the Mining Plus knowledge base by benchmarking of similar cut and fill/ room and pillar operations. • Mining capital costs include:

Criteria	Explanation	Summary Comments for JORC Table 1
		○ Mine establishment activities ○ Primary ventilation fans ○ fixed plant ○ Mine air compressor ○ High voltage electrical distribution network ○ Water tanks for mine water supply ○ Radio Communication system ○ Pumping system ○ Survey equipment ○ Mine rescue equipment • Contingency has been applied to account for the accuracy of the estimate.
	The methodology used to estimate operating costs	• The contractors' development equipment includes jumbos, loaders, charge-up units, ITs and a service truck. The operating hours of the development equipment have been determined from first principles based on mobile equipment productivity rates provided by MP (based on experience with similar-sized projects). • Personnel requirements were sourced in three ways: ○ Principal management and technical staff positions numbers were sourced from the 2017 Citronen FS update. ○ Services positions were based on MPs experience and the requirements calculated to achieve the mine plan. ○ Operations personnel were linked to equipment requirements and determined from the equipment schedule. • The consumables costs were calculated from first principles and the quantities determined using the physicals schedule, mine profiles and input assumptions. The unit costs were sourced from the input assumptions worksheet. A freight cost of 3% was applied to the consumable costs. • Service costs calculated for ventilation and pumping services based on BCM project database. The secondary ventilation and mobile pumping were assumed to be provided by the mining contractor. A monthly ownership cost was calculated from first principles and was applied in the Auxiliary Equipment worksheet in the cost model. • The mobilisation cost assumptions were based on MPs experience with similar projects. • Contractor mark-up has been applied to contractor personnel, equipment, consumables and mobilisation and demobilisation costs. Contractor mark-up is applied at 10% with a further corporate mark-up of 3%. These rates are based on MPs experience with similar projects and Australian rates. • An allowance was made within the cost model for the following miscellaneous works; ○ Raise boring ○ Box cut excavation

Criteria	Explanation	Summary Comments for JORC Table 1
		○ Surface trucking ○ Shaft sinking • General and administration costs sourced from the 2017 Citronen Feasibility Study Update • Processing plant operating costs sourced from the 2017 Citronen Feasibility Study Update • Open pit operating costs sourced from the 2017 Citronen Feasibility Study Update
	Allowances made for the content of deleterious elements	No allowances were made for deleterious elements
	The source of exchange rates used in the study	The cost model provides a first principles estimate, in USD.
	Derivation of transport charges	Two solutions were considered for the transport of concentrate from Citronen Fjord: An icebreaking tug with barge versus two ice-class bulk carriers. The solution with the ice-class bulk carriers was chosen due to the greater load capacity, resulting in fewer required trips per year, ease of operation and greater economic benefit. Shipping to and from Citronen will utilise two high ice class mine re-supply vessels. • One Polar Class 3 (PC3), 65,000 Deadweight Cargo Capacity (DWCC) vessel designed to carry zinc and lead concentrates, arctic diesel and TEUs (Class & Non-Class) without ice breaker escort. • One Polar Class 4 (PC4), 55,000 DWCC vessel designed to carry zinc and lead concentrates, arctic diesel and TEUs (Class & Non-Class) without ice breaker escort. Concentrate production will be approximately 300,000 tonnes per annum (peaking at 320,000). Based on the selected ships capacity, this corresponds to a requirement for approximately 3 return trips per year.

Criteria	Explanation	Summary Comments for JORC Table 1
	The basis for forecasting or source of treatment and refining charges, penalties for failure to meet specification, etc.	Not Applicable
	The allowances made for royalties payable, both Government and private	The Citronen deposits are located wholly within Exploitation Licence 2016/30 which is held in the name of Ironbark A/S a wholly owned subsidiary of Ironbark Zinc Limited. EL2016/30 lies within the Northeast Greenland National Park. A 2.5% royalty is payable to vendors.
Revenue Factors	The derivation of, or assumptions made regarding revenue factors including head grade, metal or commodity price(s) exchange rates, transportation and treatment charges, penalties, net smelter returns etc.	• Zn price - US$ 2,867/t • Pb price - US$ 2,094/t • Smelting losses ○ 0.25% • Maximum payable prices: ○ Zn – 85% ○ Pb – 85% • Head grade is determined as a result of initial strategic planning in Mine shape optimisation (MSO) and then further detailed mine scheduling using Enhanced Production Scheduler (EPS) with mine physical data then provided to calculate revenue, etc. in models.
	The derivation of assumptions made of metal or commodity price(s), for the principal	• Metal prices derived from long term averages • Currency exchange rates • Royalties

Criteria	Explanation	Summary Comments for JORC Table 1
	metals, minerals and co-products.	
Market Assessment	The demand, supply and stock situation for the particular commodity, consumption trends and factors likely to affect supply and demand into the future.	The Zinc market is mature and highly liquid, with the metal freely traded on several exchanges, including the LME. A rising price trend seen over the last ~12 months is indicative of a tightening supply-demand dynamic with several short to medium term catalysts likely to provide further support. These include supply constraints at some operating zinc mines, combined with an expected upswing in demand due to broad based stimulus measures being implemented by a number of macroeconomic actors globally.
	A customer and competitor analysis along with the identification of likely market windows for the product	The Citronen Project has pre-committed 70% of its metal production on binding take or pay agreements with the two largest base metal trading groups in the world, Glencore and Trafigura. It is anticipated that the balance of production (30%) will also be pre-sold prior to the commencement of mining.
	Price and volume forecasts and the basis for these forecasts	It is anticipated that the Zinc price will move moderately higher in the coming years as demand continues to exceed available supply. This is based on an analysis of a range of freely available 3rd party market forecasts.
	For industrial minerals the customer specification, testing	Not Applicable

Criteria	Explanation	Summary Comments for JORC Table 1
	and acceptance requirements prior to a supply contract	
Economic	The inputs to the economic analysis to produce the net present value (NPV), the source and confidence of these economic inputs estimated inflation, discount rate, etc.	The Financial model combined inputs from the 2017 and the cost model generated on the 2021 Citronen Underground Mining Study. The portion of costs estimated as part of the Citronen optimization Study have an accuracy of ±25%. A summary of the costs is stated below: Capital Costs: • Mining US$ 81.4M • Process and infrastructure ○ Surface Capital Infrastructure US$ 411.6M ○ Surface Sustaining Capital US$ 65.1M Operating costs: • Underground Mining US$ 36.25/t of ore • Open Pit Mining US$ 7.5/t of ore • Processing US$ 14.9/t of ore • G&A US$ 6.1/t of ore The financial model is based on the following key criteria: • Discount rate of 8% • No allowance for inflation The Open Pit costs, tonnes and grade were sourced from the 2021 Citronen Underground Study Update.

Criteria	Explanation	Summary Comments for JORC Table 1
	NPV ranges and sensitivity to variations in the significant assumptions and inputs	A sensitivity analyses was conducted within the financial model to identify the impact of the metal price on the forecasted project returns. The analysis showed that the project is very sensitive to metal price variations. The project also showed to be highly sensitive to the addition of the Discovery open pit to the end of the mine life.
Social	The status of agreements with key stakeholders and matters leading to social licence to operate.	Relationships with stakeholders are in good standing and there are no known social impediments to the project. A full Social Impact Assessment has been submitted to, and accepted by, the Government of Greenland.
Other	To the extent relevant, the impacts of the following on the project and/or on the estimation and classification of the Ore reserves:	Mining Plus identified risks associated with assumptions made in the current study and recommends further analysis around the following items: • Mining on the Permafrost Zone • The following up to date data should be gathered before mining commencement: • Daily and mean monthly air temperatures. • The amplitude of ground temperature variation in the active layer (layer of rock or soil above the permafrost zone). • Stable permafrost temperature distribution at depth. • Snow cover and precipitation measurements. • Hydrogeological study ○ In regions of continuous permafrost, the frost table location can have a large impact on the water regime. Intact permafrost is an impenetrable water boundary. ○ The Citronen site is in an area of continuous permafrost where the ground stays frozen all year to an ultimate depth of 400m, as projected by literature using measured geothermal gradient.
	Any identified material naturally occurring risks.	

Criteria	Explanation	Summary Comments for JORC Table 1
		○ Citronen is considered to be a dry mine based on the above mentioned and experience from drilling on site. However, an underground hydrogeological study to pre-feasibility level needs to be undertaken to assess the potential (if existing) sources of underground water inflow and risks associated with it. ○ • Frozen backfill ○ The understanding of the properties and behaviours of the frozen backfill is fundamental for a successful application of the studied mining method. ○ Further tests should be conducted around the processing plant slurry for a better understanding of its behaviour when frozen and exposed to heat. This will be the environment that the frozen backfill will be subjected to in studied mining method. • Production rate ○ Mining Plus recommends a production rate optimization investigation in light of the potential reserves outlined in the study. A lower production rate could reduce costs and improve the financials of the project. • Geotechnical Numeric Modelling ○ A geotechnical analysis and modelling should be undertaken in the next phases of the study around pillar sizes and ground support. The recommended work to be carried out is outlined below: ○ Re-log Core data - Logging of RQD at least for 20m into the HW of each ore intersection. ○ Underground stress analysis using 3DEC (Hangingwall) – the stress analysis will produce information about deformations around the seams hanging wall. The model will generate reliable information that will back up a 3d stress analysis. ○ 3D stress strain analysis (Map3D modelling) – the 3D stress-strain analysis will test ground support, pillar sizes, spans, regional pillars, subsidence of the frozen sedimentary rock when exposed.
	The status of material legal agreements and marketing arrangements	Not Applicable

Criteria	Explanation	Summary Comments for JORC Table 1
	The status of governmental agreements and approvals critical to the viability of the project, such as mineral tenement status, and government and statutory approvals. There must be reasonable grounds to expect that all necessary government regulations will be received within the timeframes anticipated in the Pre-feasibility or Feasibility study. Highlight and discuss the materiality of any unresolved matter that is dependent on a third party on which extraction of the reserve is contingent.	The Citronen Project lies within a granted Exploitation Licence which is owned 100% by Ironbark.

Criteria	Explanation	Summary Comments for JORC Table 1
Classification	The basis for the classification of the Ore Reserves into varying confidence categories.	• Part of the Measured and Indicated Resources has been classified as Proved and Probable Reserves. • The Ore Reserve consist of 50% Proved Reserve and 50% Probable Reserve. • The Competent Person, is satisfied that the stated Ore Reserves accurately reflect the outcome of mine planning and the input of economic parameters into optimisation studies.
	Whether the result appropriately reflects the Competent Person's view of the deposit	
	The proportion of Probable Ore Reserves that have been derived from Measured Mineral Resources (if any)	
Audits or reviews	The results of any audits or reviews of Ore Reserve estimates	Mining Plus has undertaken an internal peer review of the Ore Reserve in accordance with its consulting guidelines
Discussion of relative accuracy/confidence	Where appropriate a statement of the relative accuracy and confidence level in the Ore Reserve estimate using and approach or procedure deemed appropriate by the	• The Mining component of the PFS has been completed with a relative accuracy of +/-25%. • All mining estimates are based on relevant costs in US$ or factored estimates from similar mining method and scale projects. • Where practical and possible, current industry practices have been used to quantify estimations made. • To mitigate risks associated with the project it is recommended that the following work be undertaken: ○ hydrogeological study

Criteria	Explanation	Summary Comments for JORC Table 1
	Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the reserve within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors which could affect the relative accuracy and confidence of the estimate	○ Frozen backfill analysis ○ Geotechnical Numeric Modelling

Criteria	Explanation	Summary Comments for JORC Table 1
	The statement should specify whether it relates to global or local estimates, and if local, state the relevant tonnages, which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the procedures used	
	Accuracy and confidence discussions should extend to specific discussions of any applied Modifying factors that may have a material impact on Ore Reserve viability, or for which there are remaining areas of uncertainty at the current study stage It is recognised that	

Criteria	Explanation	Summary Comments for JORC Table 1
	this may not be possible or appropriate in all circumstances. These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.	
	Overall economic statement	The economics of the Citronen Project were evaluated based on earnings before interest, taxes, depreciation and amortisation (EBITDA) model. Production, revenues, operating costs, capital costs, and corporate income tax were considered in the financial model. All dollar figures are presented in US dollars (‘US$’). The main economic assumptions are a US$ 3,042/t zinc price, US$ 2,315/t lead price.

Appendix A4: Citronen Project Drill Hole Collar Locations & Significant Intercepts

HoleID	Zone	Easting	Northing	RL	Azi	Dip	EOH (m)	From (m)	To (m)	Width (m)	Zn%	Pb%
CF93-01	D	484447	9225037	161.40	360	-90	9.10	5.18	7.92	2.74	3.96	0.22
CF93-01A	D	484447	9225037	161.40	360	-90	78.30	4.90	30.60	25.70	3.49	0.73
								57.80	68.10	10.30	3.42	0.66
CF93-02	D	484124	9225070	101.40	360	-90	78.00	6.70	32.10	25.40	2.07	0.40
CF93-03	D	484180	9224900	80.92	22	-60	100.30	11.90	35.20	23.30	4.01	0.85
	including							***12.40***	***15.93***	***3.53***	***7.62***	***2.55***
CF93-04	D	484260	9224788	87.26	360	-90	75.90	28.80	30.40	1.60	2.50	0.80
CF93-05	D	484009	9225466	145.98	360	-90	91.40	55.57	63.95	8.38	4.28	0.35
CF93-06	D	483881	9225332	115.30	360	-90	91.10	52.30	53.40	1.10	5.40	0.23
CF93-07	D	484658	9224970	200.88	360	-90	91.10	9.44	30.52	21.08	2.75	0.43
CF93-08	D	484341	9225218	170.20	360	-90	91.10	3.62	14.00	10.38	4.65	1.47
	including							***3.62***	***6.92***	***3.30***	***9.49***	***3.81***
CF93-08A	D	484341	9225218	170.20	360	-90	18.50	Ineffective depth				
CF93-09	XX	483240	9225629	90.31	360	-90	101.40	Ineffective depth				
CF93-10B	B	482519	9227127	9.68	360	-90	227.70	80.43	88.51	8.08	5.07	0.29
	including							***83.57***	***86.23***	***2.66***	***10.93***	***0.46***
CF93-11	B	482319	9227206	12.68	360	-90	166.80	92.13	97.18	5.05	3.19	0.29
CF94-09	XX	483240	9225629	90.31	360	-90	116.00	56.00	57.00	1.00	1.11	0.08
CF94-12	NE	483170	9229870	8.14	360	-90	200.00	NSI				
CF94-13	NE	483100	9229690	5.78	360	-90	182.30	67.00	69.00	2.00	2.00	0.02
CF94-14	NE	483940	9231740	10.00	360	-90	140.00	NSI				
CF94-15	B	482376	9226832	28.81	360	-90	149.00	99.20	110.80	11.60	2.13	0.22

HoleID	Zone	Easting	Northing	RL	Azi	Dip	EOH (m)	From (m)	To (m)	Width (m)	Zn%	Pb%
CF94-15B	B	482376	9226832	28.89	360	-90	221.00	103.60	111.30	7.70	2.03	0.21
CF94-16	NW	480580	9231840	122.50	360	-90	191.00	67.00	68.00	1.00	0.80	0.04
CF94-17	B	481803	9227808	3.06	360	-90	284.00	166.00	168.50	2.50	2.32	0.16
CF94-18	B	482176	9227044	44.89	360	-90	194.00	**178.20**	**178.80**	**0.60**	**9.70**	**0.24**
CF94-19	B	482050	9227299	25.12	360	-90	215.00	201.10	205.10	4.00	1.80	0.13
CF94-20	D	484450	9225477	278.85	360	-90	106.00	55.00	59.60	4.60	2.26	0.38
CF94-21	B	482226	9227502	6.95	360	-90	194.00	109.00	118.60	9.60	3.07	0.33
CF94-22	D	484662	9225249	267.76	360	-90	191.00	103.50	105.40	1.90	1.95	0.12
CF94-23	B	482533	9227447	7.99	360	-90	206.00	99.00	114.85	15.85	5.07	0.56
	including							***112.05***	***114.85***	***2.80***	***17.91***	***1.22***
CF94-24	D	484881	9225045	268.85	360	-90	178.00	130.00	133.00	3.00	1.68	0.23
CF94-25	D	484536	9224767	134.18	360	-90	86.00	NSI				
CF94-26	B	482789	9227309	18.53	360	-90	209.00	163.00	174.85	11.85	1.93	0.16
CF94-27	BS	483271	9226053	61.28	360	-90	212.00	173.00	176.00	3.00	1.60	0.39
CF94-28	B	482774	9227579	15.60	360	-90	179.00	137.00	138.00	1.00	0.62	0.04
CF94-29	D	483604	9225688	81.36	360	-90	122.00	58.00	65.00	7.00	2.26	0.09
CF94-30	E	481098	9228520	91.99	360	-90	212.00	210.00	211.00	1.00	1.12	0.07
CF94-31	B	482400	9227704	5.32	360	-90	221.00	124.80	134.05	9.25	5.37	0.51
								196.20	202.20	6.00	4.40	0.56
CF94-32	B	482641	9226883	14.82	360	-90	222.40	88.40	91.00	2.60	3.77	0.14
CF94-33	B	482118	9227802	6.23	360	-90	220.00	181.60	204.00	22.40	1.97	0.21
CF94-34	BS	482542	9226601	31.20	360	-90	308.00	215.00	216.80	1.80	2.50	0.47
CF94-35	B	482654	9227828	4.47	360	-90	272.00	230.00	234.55	4.55	4.41	0.35
CF94-36	BS	482553	9226327	51.01	360	-90	401.00	284.00	293.10	9.10	3.40	0.42

HoleID	Zone	Easting	Northing	RL	Azi	Dip	EOH (m)	From (m)	To (m)	Width (m)	Zn%	Pb%
CF94-37	B	482326	9227953	3.04	360	-90	257.00	191.00	210.00	19.00	3.12	0.62
CF94-38	BS	482176	9226461	48.61	360	-90	365.00	337.00	340.00	3.00	2.45	0.23
CF94-39	BS	483057	9225948	46.26	360	-90	275.00	122.00	123.00	1.00	1.14	0.05
CF94-40	B	482589	9227640	6.07	360	-90	240.50	207.50	221.00	13.50	3.09	0.31
CF94-41	XX	483113	9225600	66.44	360	-90	230.00	165.00	166.00	1.00	2.78	0.09
CF94-42	B	482466	9227907	3.77	360	-90	272.00	141.00	146.00	5.00	7.77	0.39
								184.00	198.00	14.00	4.90	0.75
	including							***186.50***	***193.50***	***7.00***	***7.31***	***1.27***
CF94-43	XX	483514	9225427	92.82	360	-90	227.00	93.25	103.00	9.75	7.69	0.18
CF94-44	B	482091	9228025	1.83	360	-90	245.00	176.00	185.00	9.00	3.80	0.31
	including							***180.50***	***183.75***	***3.25***	***8.17***	***0.60***
CF94-45	XX	483303	9225435	91.41	360	-90	287.00	NSI				
CF94-46	XX	483538	9225309	90.85	109	-61	197.00	NSI				
CF94-47	B	482234	9227685	5.82	360	-90	220.00	102.50	106.10	3.60	4.53	0.52
CF94-48	XX	483426	9225608	102.57	360	-90	158.00	70.80	74.60	3.80	2.23	0.22
CF94-49	B	482400	9227546	6.34	360	-90	218.00	105.00	126.15	21.15	4.95	0.47
	including							***116.90***	***124.15***	***7.25***	***9.10***	***1.02***
								177.85	189.00	11.15	4.25	0.21
CF94-50	B	482247	9228178	1.00	360	-90	245.00	172.55	195.20	22.65	2.63	0.17
	including							*174.05*	*178.12*	*4.07*	*6.69*	*0.28*
								210.00	223.00	13.00	2.45	0.61
CF94-51	B	482566	9228172	1.00	360	-90	286.00	153.00	157.30	4.30	4.99	0.30
CF94-52	B	481853	9228254	-0.72	360	-90	141.00	Ineffective depth				
CF94-53	B	481713	9227240	11.33	360	-90	263.00	239.50	240.60	1.10	2.00	0.09
CF95-52	B	481853	9228254	-0.69	360	-90	258.00	192.10	192.66	0.56	3.72	1.25
CF95-54	E	481660	9228610	0.00	360	-90	413.00	288.80	291.25	2.45	5.13	0.38
CF95-55	B	482477	9228519	0.00	360	-90	416.00	345.65	345.90	0.25	1.28	0.14

HoleID	Zone	Easting	Northing	RL	Azi	Dip	EOH (m)	From (m)	To (m)	Width (m)	Zn%	Pb%
CF95-56	E	481400	9228270	1.00	360	-90	326.00	183.35	186.00	2.65	2.45	0.56
CF95-57	B	482125	9228428	1.00	360	-90	365.00	260.15	261.35	1.20	2.80	0.19
CF95-58	E	481480	9228970	1.00	360	-90	356.00	253.90	254.75	0.85	1.55	0.14
CF95-59	NW	480990	9229700	30.37	360	-90	338.00	274.10	274.65	0.55	2.00	0.16
CF95-60	E	481217	9227909	28.00	360	-90	238.00	173.00	181.30	8.30	1.51	0.24
CF95-61	B	482836	9228340	0.98	360	-90	356.00	248.52	249.27	0.75	7.60	0.47
CF95-62	E	481278	9227676	4.83	360	-90	233.00	177.00	183.50	6.50	4.12	0.58
CF95-63	B	481554	9228000	2.11	360	-90	188.00	128.80	131.00	2.20	3.97	0.47
CF95-64	B	481825	9228016	0.71	360	-90	223.00	172.80	174.00	1.20	2.51	0.39
CF95-65	B	481585	9227771	0.93	360	-90	212.00	168.00	168.00	1.00	0.99	0.12
CF95-66	E	480868	9228322	112.32	360	-90	393.50	263.62	267.02	3.40	2.68	0.53
CF95-67	E	481101	9228529	92.33	360	-90	437.00	278.00	306.60	28.60	2.95	0.63
CF95-68	E	480819	9228882	171.76	360	-90	467.00	426.22	426.85	0.63	3.94	0.15
CF95-69	E	481103	9228528	92.01	112	-57	384.50	302.90	321.50	18.60	1.85	0.51
CF95-70	E	480887	9228541	132.29	360	-90	390.00	293.00	298.90	5.90	2.63	0.62
CF95-71	E	480630	9229005	232.95	360	-90	317.00	Ineffective depth				
CF95-71B	E	480630	9229005	232.95	360	-90	469.50	NSI				
CF95-72	E	480678	9228524	156.42	360	-90	425.00	355.30	366.80	11.50	4.82	0.44
CF95-73	E	480564	9227688	131.96	360	-90	507.50	443.00	476.17	33.17	2.01	0.40
CF95-74	NW	480233	9230269	231.63	360	-90	513.50	466.00	467.00	1.00	0.77	0.05
CF95-75	E	480537	9228146	152.72	360	-90	442.00	383.00	399.05	16.05	5.19	0.55
	including							*390.00*	*395.15*	*5.15*	*7.59*	*0.61*
CF95-76	E	480488	9228379	187.25	360	-90	449.50	404.80	424.60	19.80	3.74	0.49

HoleID	Zone	Easting	Northing	RL	Azi	Dip	EOH (m)	From (m)	To (m)	Width (m)	Zn%	Pb%
CF95-77	WG	478640	9232940	165.69	360	-90	201.00	145.00	148.00	3.00	1.28	0.10
CF95-78	E	480311	9228067	188.29	360	-90	494.00	451.90	462.54	10.64	4.34	0.29
CF95-79	WG	477640	9232530	326.11	360	-90	437.00	250.92	253.15	2.23	2.06	0.08
CF95-80	E	480786	9227897	77.47	360	-90	329.00	280.57	285.20	4.63	3.97	0.45
CF95-81	E	480401	9228652	219.49	360	-90	509.00	459.00	460.13	1.13	2.59	0.25
CF95-82	WG	478900	9233070	120.01	360	-90	288.00	184.50	186.50	2.00	4.43	0.03
CF95-83	E	480782	9228143	116.21	360	-90	379.00	261.20	270.00	8.80	3.44	0.86
								333.98	340.45	6.47	4.08	0.26
CF95-84	WG	478470	9233220	140.00	360	-90	258.00	226.00	227.00	1.00	2.36	0.10
CF95-85	B	482456	9227318	8.72	360	-90	203.00	85.15	100.75	15.60	3.19	0.33
	including							***108.00***	***111.00***	***3.00***	***12.58***	***1.28***
CF95-86	B	482597	9227321	9.90	360	-90	320.00	152.50	165.75	13.25	2.20	0.27
CF96-87	B	482450	9227628	5.60	360	-90	219.00	128.46	137.10	8.64	6.57	0.56
	including							***128.46***	***131.26***	***2.80***	***13.90***	***1.12***
								177.97	192.00	14.03	3.38	0.27
CF96-88	B	482434	9227809	4.40	360	-90	259.00	131.60	137.22	5.62	6.76	1.62
								178.28	195.00	16.72	4.00	0.84
	including							*185.07*	*189.74*	*4.67*	*5.66*	*0.58*
								219.00	229.00	10.00	1.94	0.74
CF96-89	D	483910	9224933	67.93	360	-90	219.60	218.00	218.50	0.50	7.47	0.28
CF96-90	D	484318	9224948	123.16	360	-90	230.00	31.00	53.60	22.60	3.24	0.72
								37.80	44.00	6.20	5.35	1.18
CF96-91	D	484280	9225048	125.87	360	-90	92.00	16.00	20.00	4.00	2.52	4.31
CF96-92	D	484264	9225274	159.40	360	-90	65.30	NSI				
CF96-93	D	484073	9225199	113.29	360	-90	100.00	**18.20**	**38.00**	**19.80**	**9.58**	**0.04**
								82.00	87.00	5.00	7.18	0.02
CF96-94	D	484193	9224993	105.87	360	-90	93.00	5.50	39.00	33.50	2.87	0.54
CF96-95	SE	484593	9223985	96.82	360	-90	250.00	**95.55**	**97.30**	**1.75**	**14.00**	**0.30**
	XX	483435	9225501	81.18	360	-90	155.00	**57.95**	**90.00**	**32.05**	**8.87**	**0.12**

HoleID	Zone	Easting	Northing	RL	Azi	Dip	EOH (m)	From (m)	To (m)	Width (m)	Zn%	Pb%
CF96-96	*including*							***68.20***	***76.75***	***8.55***	***19.02***	***0.05***
CF96-97	XX	483732	9225321	119.61	360	-90	125.00	**67.00**	**77.65**	**10.65**	**10.50**	**1.10**
								74.29	**75.79**	**1.50**	**24.00**	**0.18**
CF96-98	D	483880	9225286	107.41	360	-90	141.00	**40.00**	**43.02**	**3.02**	**9.55**	**0.33**
CF96-99	XX	483613	9225422	48.08	360	-90	103.50	NSI				
CF96-100	B	482436	9227419	7.57	360	-90	179.00	93.95	103.90	9.95	5.09	0.68
	including							*101.65*	*103.90*	*2.25*	*14.93*	*1.14*
								105.70	114.80	9.10	3.13	0.51
								159.00	179.00	20.00	2.52	0.30
	including							*172.00*	*174.00*	*2.00*	*4.63*	*0.39*
CF96-101	B	482505	9227529	7.07	360	-90	212.70	108.00	115.00	7.00	3.52	0.53
								119.00	**126.00**	**7.00**	**10.22**	**0.53**
	including							***121.65***	***125.00***	***3.35***	***19.17***	***0.95***
								181.00	191.37	10.37	5.26	0.28
CF96-102	XX	483352	9225584	104.50	360	-90	119.00	96.00	98.00	2.00	5.09	0.07
CF96-103	XX	483332	9225508	76.39	360	-90	131.00	NSI				
CF96-104	XX	483557	9225399	92.33	115	-60	131.00	NSI				
CF96-105	B	482420	9227222	10.03	360	-90	99.00	71.80	86.02	14.22	4.29	0.38
	including							*74.28*	*79.25*	*4.97*	*6.65*	*0.43*
CF96-106	XX	483496	9225351	92.90	360	-90	170.00	NSI				
CF96-107	XX	483505	9225500	82.46	360	-90	119.00	48.80	50.15	1.35	2.20	0.06
CF96-108	B	482340	9227304	9.59	360	-90	125.00	**80.65**	**102.55**	**21.90**	**6.68**	**2.81**
	including							***90.52***	***98.85***	***8.33***	***10.66***	***4.01***
CF96-109	XX	483503	9225498	82.77	230	-62	146.00	138.00	139.00	1.00	4.71	0.16
CF96-110	XX	483437	9225426	84.90	40	-60	137.00	110.00	118.33	8.33	4.51	2.12
CF96-111	B	482244	9227337	9.21	360	-90	173.00	92.15	109.90	17.75	2.11	0.33
CF96-112	XX	483437	9225426	115.35	40	-45	130.00	101.00	102.00	1.00	3.11	0.05
CF96-113	B	482342	9227409	8.57	360	-90	134.00	94.05	117.00	22.95	3.86	0.65
	including							***98.68***	***101.32***	***2.64***	***10.79***	***0.99***

HoleID	Zone	Easting	Northing	RL	Azi	Dip	EOH (m)	From (m)	To (m)	Width (m)	Zn%	Pb%
CF96-114	XX	483557	9225394	91.92	198	-77	143.00	NSI				
CF96-115	XX	483388	9225517	78.92	18	-73	127.00	87.45	93.10	5.65	5.63	0.02
CF96-116	XX	483388	9225516	78.81	360	-90	125.00	86.28	95.45	9.17	4.42	0.16
CF96-117	B	482322	9227123	22.04	360	-90	110.00	**84.00**	**88.28**	**4.28**	**7.91**	**0.64**
CF96-118	B	482342	9227623	6.68	360	-90	233.00	**113.73**	**117.70**	**3.97**	**9.18**	**1.11**
CF96-119	D	484051	9225207	110.92	360	-90	77.00	26.25	43.05	16.80	6.23	0.02
	including							***35.52***	***38.95***	***3.43***	***14.04***	***0.03***
CF96-120	D	484051	9225207	110.83	360	-90	146.00	28.08	46.00	17.92	4.97	0.03
	including							*35.39*	*39.55*	*4.16*	*8.36*	*0.03*
								105.10	**106.60**	**1.50**	**6.45**	**14.00**
CF96-121	D	484136	9225183	118.28	360	-90	125.00	108.28	111.80	3.52	6.25	0.49
CF96-122	B	482537	9227840	4.07	360	-90	278.00	143.00	151.06	8.06	6.75	0.34
								197.16	212.00	14.84	3.19	0.43
	including							***208.77***	***211.33***	***2.56***	***10.14***	***1.00***
CF96-123	D	483933	9225268	140.44	195	-75	150.00	71.00	75.00	4.00	4.58	0.37
CF96-124	XX	483637	9225369	52.34	360	-90	109.00	NSI				
CF96-125	B	482565	9228015	2.70	360	-90	260.00	**160.82**	**162.02**	**1.20**	**8.80**	**0.36**
CF96-126	B	482409	9227064	24.69	360	-90	89.00	76.85	81.95	5.10	4.55	0.89
CF96-127	B	482317	9227016	44.35	360	-90	155.00	136.14	139.24	3.10	7.50	0.58
CF96-128	B	482505	9227732	4.93	360	-90	227.00	**133.00**	**140.80**	**7.80**	**9.37**	**0.50**
	including							***139.13***	***140.80***	***1.67***	***22.72***	***0.92***
CF97-129	B	482246	9226963	44.61	360	-90	179.00	151.08	156.1	5.02	4.83	0.68
								160.72	**162.90**	**2.18**	**10.50**	**3.87**
CF97-130	B	482206	9227138	41.80	60	-75	158.00	125.00	130.20	5.20	4.02	0.25
CF97-131	B	482262	9226862	45.73	360	-90	236.00	144.82	149.45	4.63	2.77	0.49
CF97-132	B	482597	9227515	7.24	360	-90	170.00	169.00	170.00	1.00	4.24	0.98
CF97-133	B	482167	9226901	47.33	360	-90	215.00	172.00	176.00	4.00	3.78	0.18
	B	482546	9227927	3.53	360	-90	264.00	149.00	157.13	8.13	5.23	0.27

HoleID	Zone	Easting	Northing	RL	Azi	Dip	EOH (m)	From (m)	To (m)	Width (m)	Zn%	Pb%
CF97-134	***including***							***153.65***	***156.31***	***2.66***	***11.06***	***0.55***
								210.13	217.81	7.68	4.42	0.84
CF97-135	B	482180	9226790	47.07	85	-85	203.00	154.66	158.00	3.34	3.02	0.25
CF97-136	B	482453	9228045	2.71	360	-90	279.00	148.50	153.74	5.24	7.73	0.35
CF97-137	B	482261	9227248	14.11	264	-75	149.00	98.30	104.32	6.02	7.38	0.39
	including							***99.24***	***101.00***	***1.76***	***15.61***	***0.73***
CF97-138	B	482179	9227414	9.55	360	-90	130.00	92.15	99.66	7.51	5.57	0.88
	including							***93.80***	***95.80***	***2.00***	***11.96***	***1.52***
								102.25	108.81	6.56	5.83	0.39
CF97-139	B	482475	9228174	1.51	360	-90	179.00	147.60	158.30	10.70	7.29	0.33
	including							***147.60***	***150.10***	***2.50***	***17.10***	***0.67***
CF97-140	B	482125	9227519	8.38	360	-90	229.30	185.50	193.00	7.50	2.63	0.35
CF97-141	B	482253	9227592	6.54	360	-90	213.65	98.00	104.44	6.44	4.84	0.96
CF97-142	B	482337	9227775	4.60	360	-90	245.00	**131.90**	**133.05**	**1.15**	**21.50**	**2.60**
CF97-143	B	482470	9228283	1.00	360	-90	266.00	235.68	237.11	1.43	4.00	0.10
CF08-144	BS	483044	9226369	20.30	360	-90	251.00	206.25	208.20	1.95	3.18	0.21
CF08-144A	BS	483043	9226366	20.30	360	-90	47.50	Ineffective depth				
CF08-145	NE	483282	9229486	13.87	360	-90	459.00	373.72	375.70	1.98	6.95	0.38
CF08-146	NW	481150	9231550	16.52	360	-90	359.00	108.00	109.20	1.20	4.37	0.40
CF08-147	BS	482459	9226119	54.97	360	-90	422.30	276.05	286.45	10.40	3.61	0.59
CF08-148	BS	482501	9225770	61.12	60	-60	404.00	296.00	303.80	7.80	2.13	0.20
CF08-149	NE	483464	9228605	44.04	360	-90	468.00	317.35	323.90	6.55	7.67	0.39
	including							***317.35***	***320.80***	***3.45***	***10.78***	***0.40***
CF08-150	BS	482353	9226324	50.65	360	-90	451.00	334.60	342.20	7.60	4.56	0.59
CF08-151	NE	483663	9228919	83.40	360	-90	351.00	22.75	23.45	0.70	2.39	0.01
CF08-152	NE	483548	9228388	48.69	360	-90	338.00	306.00	308.00	2.00	3.56	0.43
CF08-153	D	483928	9225742	123.81	360	-90	116.40	14.00	23.10	9.10	5.16	0.12

HoleID	Zone	Easting	Northing	RL	Azi	Dip	EOH (m)	From (m)	To (m)	Width (m)	Zn%	Pb%
CF08-153A	D	483930	9225733	123.93	360	-90	194.40	14.00	23.00	9.00	5.92	0.03
	including							***15.00***	***18.00***	***3.00***	***8.97***	***0.04***
CF08-154	D	483702	9226240	95.96	360	-90	262.70	110.00	113.00	3.00	1.32	0.08
CF08-155	B	483403	9227135	77.48	360	-90	267.00	117.00	123.00	6.00	2.83	0.10
CF08-156	D	484272	9224692	80.29	360	-90	257.40	24.00	29.60	5.60	1.16	0.18
CF08-157	E	480907	9227444	37.09	360	-90	365.00	338.90	341.40	2.50	2.15	0.27
CF08-158	D	484165	9224735	65.45	360	-90	53.00	26.20	29.30	3.10	1.71	0.17
CF08-159	D	484082	9224828	58.47	360	-90	48.40	29.00	32.00	3.00	2.29	0.18
CF08-160	D	484079	9224937	63.40	360	-90	44.00	4.90	24.45	19.55	3.47	0.70
	including							*11.70*	*16.00*	*4.30*	*7.51*	*0.53*
CF08-161	E	480598	9227423	132.85	360	-90	332.00	Ineffective depth				
CF08-161A	E	480598	9227423	132.86	360	-90	449.00	430.70	431.30	0.60	5.63	0.07
CF08-162	D	484006	9225010	60.12	360	-90	44.40	29.35	40.10	10.75	4.50	0.52
CF08-163	D	484211	9224835	81.02	360	-90	47.40	22.00	31.00	9.00	2.02	0.36
CF08-164	D	484387	9224854	117.63	360	-90	45.10	38.80	39.80	1.00	3.11	0.27
CF08-165	D	484413	9224960	147.61	360	-90	46.00	**2.50**	**10.40**	**7.90**	**5.63**	**3.46**
	including							***2.50***	***4.30***	***1.80***	***8.82***	***11.85***
CF08-166	BS	482348	9226689	31.55	360	-90	228.60	NSI				
CF08-166A	BS	482354	9226689	31.55	360	-90	80.00	NSI				
CF08-167	E	480455	9227901	148.32	360	-90	440.00	394.60	409.25	14.65	3.81	0.27
CF08-168	D	484222	9225154	128.47	360	-90	109.50	70.07	71.72	1.65	3.28	0.02
CF08-169	E	480290	9227792	168.37	360	-90	485.00	483.35	485.00	1.65	3.56	1.23
CF08-170	D	484553	9225008	175.67	360	-90	18.00	Ineffective depth				
CF08-170A	D	484553	9225008	175.73	360	-90	97.00	17.90	37.00	19.10	4.35	0.84
CF08-171	E	480351	9227590	148.41	360	-90	579.40	528.40	548.55	20.15	1.87	0.30

HoleID	Zone	Easting	Northing	RL	Azi	Dip	EOH (m)	From (m)	To (m)	Width (m)	Zn%	Pb%
CF08-172	D	484827	9224833	205.21	360	-90	209.90	205.05	207.50	2.45	0.91	0.10
CF08-173	E	480178	9227644	175.93	360	-90	605.00	546.85	554.50	7.65	2.25	0.58
CF08-174	SE	484905	9223940	105.00	20	-89	236.00	98.20	98.70	0.50	0.96	0.02
CF08-175	BS	482468	9226119	55.12	90	-60	423.63	267.52	281.81	14.29	3.64	0.45
	including							*272.50*	*280.03*	*7.53*	*4.63*	*0.40*
CF08-176	B	482467	9226974	38.97	90	-65	92.00	88.60	92.00	3.40	7.49	0.83
CF08-177	B	482465	9226973	38.96	90	-80	128.00	89.35	102.28	12.93	4.49	0.55
CF08-178	BS	482424	9225931	57.43	360	-90	409.00	376.30	380.00	3.70	7.21	0.79
CF08-179	BS	482400	9226413	48.68	15	-75	310.55	293.00	299.37	6.37	3.71	0.68
CF08-180	BS	482461	9225774	60.05	360	-90	255.00	Ineffective depth				
CF08-181	BS	482289	9226147	52.63	360	-90	396.00	391.00	394.00	3.00	4.02	0.09
CF09-182	B	482441	9226925	39.83	360	-90	114.00	**93.75**	**98.00**	**4.25**	**11.07**	**0.86**
CF09-183	B	482439	9226923	40.10	100	-70	117.00	**94.55**	**99.00**	**4.45**	**11.29**	**1.17**
CF09-184	B	482402	9226915	39.13	360	-90	117.00	102.00	105.00	3.00	6.60	0.51
CF09-185	B	482421	9226908	39.55	180	-70	120.00	**98.30**	**105.00**	**6.70**	**8.27**	**0.92**
CF09-186	B	482418	9226981	38.66	360	-90	120.00	99.00	113.00	14.00	4.48	0.61
CF09-187	B	482440	9226985	38.81	30	-70	129.00	111.00	117.00	6.00	7.46	0.67
CF09-188	B	482371	9226972	36.76	360	-90	129.00	102.50	109.00	6.50	4.46	0.32
CF09-189	B	482429	9226822	28.43	360	-90	105.00	89.50	96.50	7.00	3.46	0.33
CF09-190	B	482482	9226776	28.40	360	-90	117.00	89.20	99.00	9.80	2.28	0.32
CF09-191	B	482476	9226849	27.57	360	-90	105.00	76.50	82.80	6.30	7.66	0.76
CF09-192	B	482508	9226853	26.56	30	-70	84.00	66.50	71.00	4.50	5.70	0.63
CF09-193	B	482521	9226827	27.20	360	-90	78.00	58.40	71.00	12.60	4.95	0.73

HoleID	Zone	Easting	Northing	RL	Azi	Dip	EOH (m)	From (m)	To (m)	Width (m)	Zn%	Pb%
CF09-194	B	482581	9226900	16.58	360	-90	61.50	42.00	47.00	5.00	3.69	0.33
CF09-195	B	482577	9226945	15.77	270	-70	72.00	43.00	49.00	6.00	3.84	0.42
CF09-196	B	482553	9227018	11.13	360	-90	66.50	22.10	26.00	3.90	2.92	0.22
CF09-197	B	482470	9227058	23.01	360	-90	87.00	49.50	57.00	7.50	4.20	0.58
CF09-198	B	482378	9227102	21.82	360	-90	99.00	77.00	80.10	3.10	7.87	0.63
CF09-199	B	482402	9227150	15.30	360	-90	102.00	75.00	81.50	6.50	3.70	0.20
CF09-200	B	482357	9227167	15.10	360	-90	102.00	82.85	85.85	3.00	7.66	0.51
CF09-201	B	482290	9227203	14.50	180	-70	114.00	**89.00**	**93.00**	**4.00**	**9.38**	**0.59**
CF09-202	B	482272	9227216	14.06	220	-70	117.00	96.00	102.00	6.00	7.57	0.41
	including							***96.00***	***99.00***	***3.00***	***12.10***	***0.65***
CF09-203	B	482455	9227175	10.23	360	-90	90.00	59.10	61.40	2.30	5.32	0.38
CF09-204	B	482425	9227221	9.83	360	-90	99.00	76.05	77.70	1.65	4.20	0.21
CF10-205	B	481991	9228098	0.25	360	-90	198.00	165.50	167.50	2.00	3.27	0.21
CF10-206	B	482530	9228100	1.95	360	-90	240.00	157.00	164.00	7.00	5.40	0.27
CF10-207	B	482625	9227890	3.78	360	-90	195.25	NSI				
CF10-208	NE	483435	9228730	26.56	360	-90	339.70	NSI				
CF10-209	B	482595	9227780	4.98	360	-90	171.00	NSI				
CF10-210	B	482475	9227750	4.98	360	-90	159.00	**130.00**	**135.00**	**5.00**	**11.67**	**0.53**
CF10-211	B	482500	9227675	5.62	360	-90	228.00	**132.00**	**137.50**	**5.50**	**14.05**	**0.70**
								192.00	201.00	9.00	5.74	0.36
CF10-212	B	482530	9227600	6.81	360	-90	231.00	198.00	203.00	5.00	4.02	2.62
CF10-213	B	482500	9227645	6.00	360	-90	219.00	**130.50**	**137.50**	**7.00**	**11.56**	**0.55**
	including							***133.50***	***137.00***	***3.50***	***18.97***	***0.85***
								191.50	199.00	7.50	5.51	0.42
CF10-214	B	482520	9227370	8.00	360	-90	125.05	96.00	109.00	13.00	6.63	0.70
	including							***102.00***	***105.00***	***3.00***	***18.83***	***1.58***

HoleID	Zone	Easting	Northing	RL	Azi	Dip	EOH (m)	From (m)	To (m)	Width (m)	Zn%	Pb%
CF10-215	B	482400	9227600	6.16	360	-90	222.00	121.50	132.00	10.50	8.86	0.65
	including							***122.00***	***127.00***	***5.00***	***13.49***	***0.74***
CF10-216	B	482430	9227365	8.18	265	-77	194.70	89.00	102.00	13.00	4.80	0.47
	including							***96.00***	***99.00***	***4.00***	***13.41***	***0.74***
CF10-217	B	482430	9227490	6.82	360	-90	147.00	107.00	121.50	14.50	6.12	0.66
	including							***113.00***	***116.00***	***3.00***	***11.52***	***1.20***
CF10-218A	B	482468	9227852	4.15	360	-90	69.00	Ineffective depth				
CF10-218B	B	482466	9227846	4.19	360	-90	261.00	134.50	142.00	7.50	4.67	0.31
	including							***134.50***	***137.50***	***3.00***	***8.08***	***0.43***
								184.00	194.00	10.00	4.28	0.56
CF10-219	B	482480	9227568	6.00	270	-72	59.00	Ineffective depth				
CF10-220A	B	482590	9227380	7.57	270	-80	33.00	Ineffective depth				
CF10-220B	B	482594	9227386	8.56	270	-80	218.10	169.25	172.85	3.60	4.05	0.29
CF10-221	B	482420	9227960	3.09	360	-90	258.00	131.00	139.00	8.00	5.12	0.25
	including							***137.00***	***139.00***	***2.00***	***12.39***	***0.56***
								184.00	196.50	12.50	5.41	0.81
								233.00	249.50	16.50	2.93	0.35
CF10-222	B	482470	9228110	2.00	360	-90	279.00	**155.00**	**158.00**	**3.00**	**10.14**	**0.42**
								260.60	264.70	4.10	6.17	0.29
CF10-223	B	482505	9227980	3.00	360	-90	272.40	145.00	153.00	8.00	5.64	0.22
	including							***151.00***	***153.00***	***2.00***	***12.33***	***0.37***
CF10-224	B	482631	9227022	11.22	360	-90	59.00	Ineffective depth				
CF10-225	B	482390	9228015	2.74	360	-90	258.00	186.55	195.00	8.45	4.05	0.55
								237.00	243.00	6.00	4.25	0.30
CF10-226	B	482380	9228100	1.90	360	-90	162.80	Ineffective depth				
CF10-227	B	482597	9227957	3.35	360	-90	276.00	225.40	230.50	5.10	6.78	0.90
CF10-228	B	482510	9228046	2.70	360	-90	246.00	**149.00**	**157.00**	**8.00**	**7.56**	**2.72**
	including							***154.50***	***157.00***	***2.50***	***13.99***	***0.52***
CF10-229	B	482352	9227354	9.14	360	-90	184.20	97.00	115.50	18.50	4.73	0.69
CF10-230	D	484013	9224943	56.79	360	-90	57.00	21.40	24.50	3.10	3.33	0.61
CF10-231	D	483951	9225113	60.88	90	-70	65.00	NSI				

HoleID	Zone	Easting	Northing	RL	Azi	Dip	EOH (m)	From (m)	To (m)	Width (m)	Zn%	Pb%
CF10-232	XX	483811	9225347	102.64	180	-70	122.00	NSI				
CF10-233	D	484105	9225309	135.87	360	-90	128.00	NSI				
CF10-234	D	484307	9225252	167.13	360	-90	71.00	NSI				
CF10-235	D	484307	9225252	167.09	45	-70	65.00	NSI				
CF10-236	D	484171	9225111	114.20	10	-70	89.15	NSI				
CF10-237	D	484226	9225017	113.78	360	-90	44.00	7.00	24.00	17.00	1.99	0.48
								28.00	40.00	12.00	2.56	0.65
CF10-238	D	484349	9225160	156.45	304	-70.8	47.00	10.20	11.20	1.00	3.16	1.81
CF10-239	D	484348	9225160	156.46	350	-70	44.00	6.00	7.00	1.00	3.23	0.47
CF10-240	D	484632	9224904	188.53	360	-90	71.00	2.70	13.00	10.30	4.42	0.79
								4.30	8.00	3.70	7.49	0.85
CF10-241	D	484632	9224904	188.55	135	-70	92.00	3.70	19.00	15.30	3.72	0.63
CF10-242A	D	484690	9224952	207.81	44	-70	50.65	10.50	29.00	18.50	4.11	1.22
CF10-243	D	484690	9224952	207.74	360	-90	39.70	11.20	31.00	19.80	4.04	0.73
CF10-244	D	484674	9225115	246.83	360	-90	63.00	Ineffective depth				
CF10-245A	E	480944	9227833	56.31	360	-90	188.00	Ineffective depth				
CF10-245B	E	480951	9227829	55.78	360	-90	302.00	241.00	243.00	2.00	7.41	0.44
CF10-246	E	480561	9227844	140.50	360	-90	440.00	378.00	405.50	27.50	2.82	0.77
	including							***400.50***	***402.50***	***2.00***	***10.37***	***2.80***
CF10-247	SE	485246	9224288	167.96	225	-70	285.00	241.50	242.00	0.50	5.39	-
CF10-248	XX	483418	9225510	79.72	360	-90	122.00	92.00	97.00	5.00	5.06	0.16
CF10-249	XX	483418	9225510	79.75	45	-70	122.40	**58.30**	**60.30**	**2.00**	**20.71**	**0.10**
								69.50	**98.00**	**28.50**	**12.84**	**0.07**
	including							***69.50***	***84.50***	***15.00***	***20.23***	***0.03***
CF10-250	B	482349	9227356	8.99	360	-90	126.00	87.30	106.00	18.70	4.36	0.97
	including							***98.30***	***103.15***	***4.85***	***6.76***	***2.23***
CF10-251	B	482284	9227415	8.38	360	-90	165.00	90.00	112.00	22.00	3.21	0.33
	including							*93.50*	*67.00*	*3.50*	*6.12*	*0.55*

HoleID	Zone	Easting	Northing	RL	Azi	Dip	EOH (m)	From (m)	To (m)	Width (m)	Zn%	Pb%
CF10-252	B	482272	9227379	8.31	360	-90	198.20	91.50	115.50	24.00	2.84	0.30
CF10-253	B	482323	9227530	7.70	360	-90	240.00	103.20	109.00	5.80	7.49	0.55
								166.00	179.00	13.00	3.07	0.22
	including							*169.50*	*175.00*	*5.50*	*5.27*	*0.71*
CF10-254	B	482370	9227251	9.88	360	-90	165.00	70.00	92.00	22.00	3.45	0.80
	including							*71.00*	*74.00*	*3.00*	*5.38*	*1.17*
	and							87.00	92.00	4.00	4.64	1.62
CF10-255	B	482370	9227251	9.90	216	-70	180.00	77.40	90.00	12.60	5.35	0.58
	including							***84.00***	***88.00***	***4.00***	***9.67***	***1.07***
CF10-256	B	482375	9227317	9.48	360	-90	165.00	80.00	104.50	24.50	6.44	2.00
	B	***including***						***94.00***	***104.00***	***10.00***	***10.80***	***3.41***
CF10-257	B	482253	9227230	14.12	240	-70	185.00	101.00	107.00	6.00	6.17	0.29
CF10-258	B	482167	9227242	26.22	360	-90	211.50	119.85	123.35	3.50	3.84	0.23
CF10-259	B	482001	9227346	23.54	360	-90	51.00	Ineffective depth				
CF10-260	BS	482375	9226053	54.56	360	-90	362.00	347.00	350.00	3.00	4.38	0.30
CF10-261	BS	482526	9226443	49.12	360	-90	326.00	313.30	318.00	4.70	5.28	0.26
CF10-262	B	481668	9227519	5.78	360	-90	27.00	Ineffective depth				
CF10-263A	BS	482410	9226405	49.15	360	-90	52.00	Ineffective depth				
CF10-263B	BS	482410	9226405	49.16	360	-90	336.00	303.50	314.00	10.50	3.68	0.83
CF10-264	BS	482417	9226239	52.53	360	-90	372.00	312.40	320.00	7.60	4.72	1.05
CF10-265	BS	482487	9226285	51.67	360	-90	373.20	307.00	312.50	5.50	6.89	1.04
CF10-266	BS	482673	9226392	49.56	360	-90	297.00	259.50	260.25	12.10	4.38	0.61
CF10-267A	BS	482659	9226292	51.42	360	-90	55.00	Ineffective depth				
CF10-267B	BS	482662	9226293	51.35	360	-90	282.00	NSI				
CF10-268	BS	482621	9226472	48.38	360	-90	63.00	Ineffective depth				
CF10-269	BS	482455	9226349	50.54	360	-90	327.00	296.00	308.00	12.00	2.50	0.61

HoleID	Zone	Easting	Northing	RL	Azi	Dip	EOH (m)	From (m)	To (m)	Width (m)	Zn%	Pb%
CF10-270	XX	483406	9225468	81.69	52	-70	134.00	100.50	105.60	5.10	3.82	0.23
CF10-271	XX	483454	9225527	78.98	225	-70	39.00	Ineffective depth				
CF10-271A	XX	483454	9225527	78.98	225	-75	137.00	**61.00**	**95.00**	**34.00**	**9.09**	**0.39**
	including							***61.00***	***81.00***	***20.00***	***14.10***	***0.24***
CF10-272	XX	483338	9225562	74.40	200	-75	152.00	119.50	121.00	1.50	3.69	0.14
CF10-273	BS	482640	9225864	50.94	360	-90	358.25	266.00	267.50	1.50	5.74	0.46
CF10-274	BS	482541	9225943	49.59	360	-90	326.00	300.00	303.00	3.00	3.48	0.20
CF10-275	D	484451	9224906	146.92	360	-90	90.00	55.60	59.60	4.00	1.94	0.82
CF10-276	D	484748	9224863	201.00	360	-90	104.00	3.80	19.00	15.20	2.21	0.35
CF10-277	SE	485192	9224749	288.01	360	-90	260.00	237.00	252.50	15.50	2.23	0.40
CF10-278	SE	484966	9224528	180.22	360	-90	278.00	222.00	225.00	3.00	1.91	0.17
CF10-279	SE	484806	9224258	115.19	360	-90	24.00	Ineffective depth				
CF10-280	SE	484829	9224251	118.32	360	-90	300.00	160.75	163.00	2.25	2.73	0.61
CF10-281	BS	482342	9226231	52.30	360	-90	282.00	Ineffective depth				
CF10-282	BS	482476	9226038	54.99	360	-90	242.00	158.00	159.00	1.00	1.89	0.13
CF10-283	BS	482509	9226202	53.26	360	-90	170.00	Ineffective depth				
CF10-283B	BS	482510	9226205	53.24	360	-90	279.00	245.00	255.55	10.55	4.13	0.57
CF10-284	BS	482467	9226050	55.35	360	-90	323.00	297.00	304.50	7.50	3.10	0.51
CF10-285	BS	482383	9226139	53.76	360	-90	330.00	304.20	309.00	4.80	5.20	0.45
CF10-286	BS	482396	9225986	56.52	360	-90	397.70	369.00	370.00	1.00	5.39	0.49
CF10-287	BS	482289	9226230	51.24	360	-90	385.00	356.50	359.00	2.50	3.40	1.45
CF10-288	BS	482500	9225855	62.00	360	-90	347.50	327.50	340.50	13.00	1.51	0.11
CF10-289	BS	482632	9226526	33.46	225	-80	295.60	258.65	266.50	7.85	2.40	0.41

HoleID	Zone	Easting	Northing	RL	Azi	Dip	EOH (m)	From (m)	To (m)	Width (m)	Zn%	Pb%
CF11-290	BS	482460	9225774	47.00	85.7	-80.3	383.30	338.50	343.50	5.00	3.23	0.23
CF11-291	BS	482333	9226524	49.00	360	-90	303.00	283.50	288.05	4.55	7.10	0.59
	including							***283.50***	***285.00***	***1.50***	***16.39***	***1.22***
CF11-292	B	482147	9227342	43.00	360	-90	140.00	114.00	121.70	7.70	7.01	0.51
CF11-293	E	480361	9228317	206.27	360	-90	497.00	448.00	460.10	12.10	2.87	0.20
CF11-294	E	480702	9228292	138.25	290	-84.2	401.00	349.30	358.80	9.50	5.27	0.90
		including						***349.30***	***353.00***	***3.70***	***10.26***	-
CF11-295	BS	482275	9226610	51.00	54.2	-72.7	314.00	297.00	304.75	7.75	3.05	0.19
CF11-296	E	480566	9228662	178.78	187	-89	460.00	404.35	416.70	12.35	3.08	0.27
CF11-297	E	480542	9228966	231.25	360	-90	545.00	503.90	504.55	0.65	5.42	0.25

Co-ordinates: UTM Zone 26N WGS84

Hole Prefix		**Zone**	
CF93-	Holes drilled in 1993	E	Esrum
CF94-	Holes drilled in 1994	B	Beach
CF95-	Holes drilled in 1995	BS	Beach South
CF96-	Holes drilled in 1996	D	Discovery
CF97-	Holes drilled in 1997	XX	XX Zone
CF08-	Holes drilled in 2008	SE	Southeast
CF09-	Holes drilled in 2009	NE	Northeast
CF10-	Holes drilled in 2010	WG	Western Gossans
CF-11	Holes drilled in 2011		
NSI	No Significant Intercept		

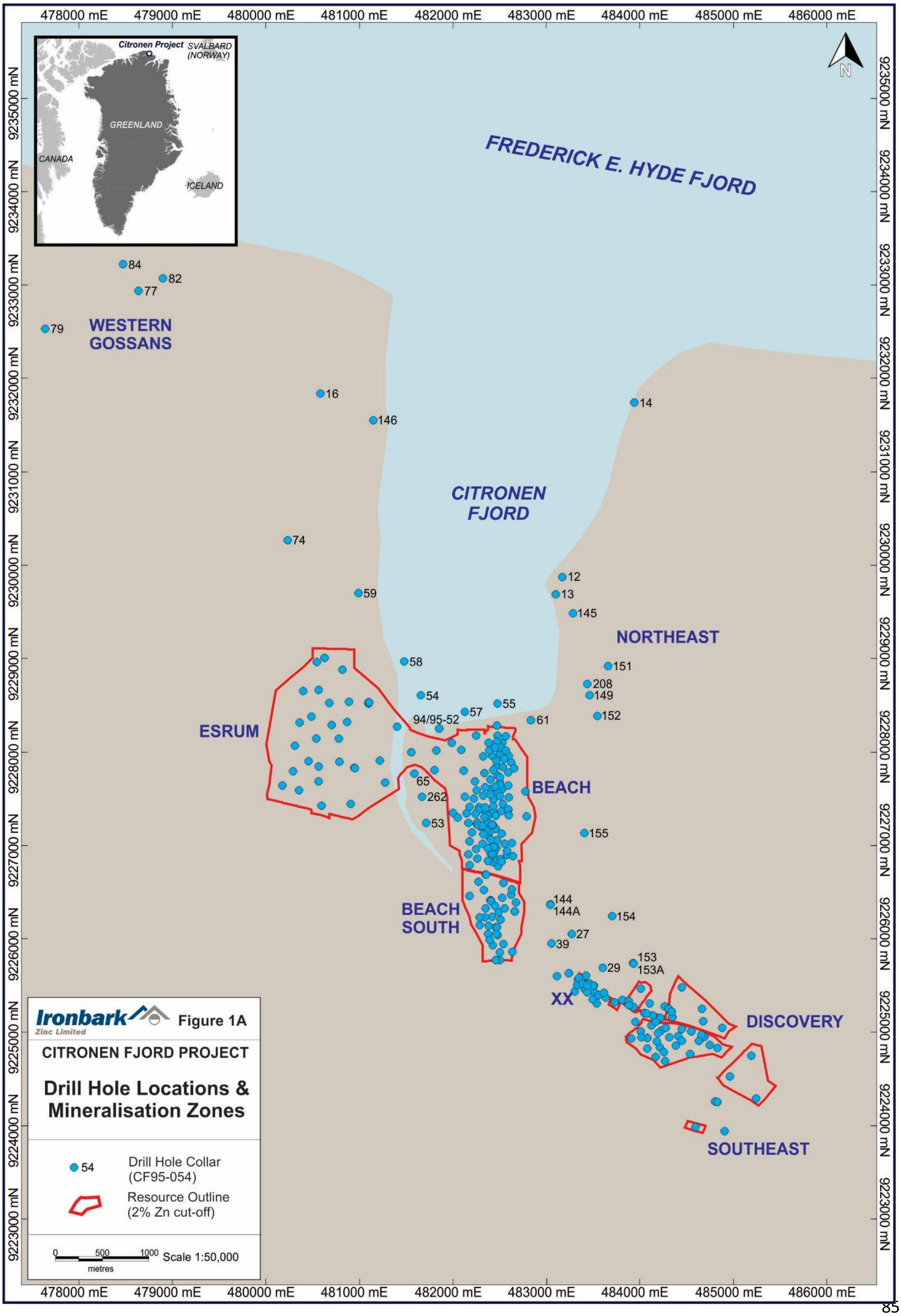
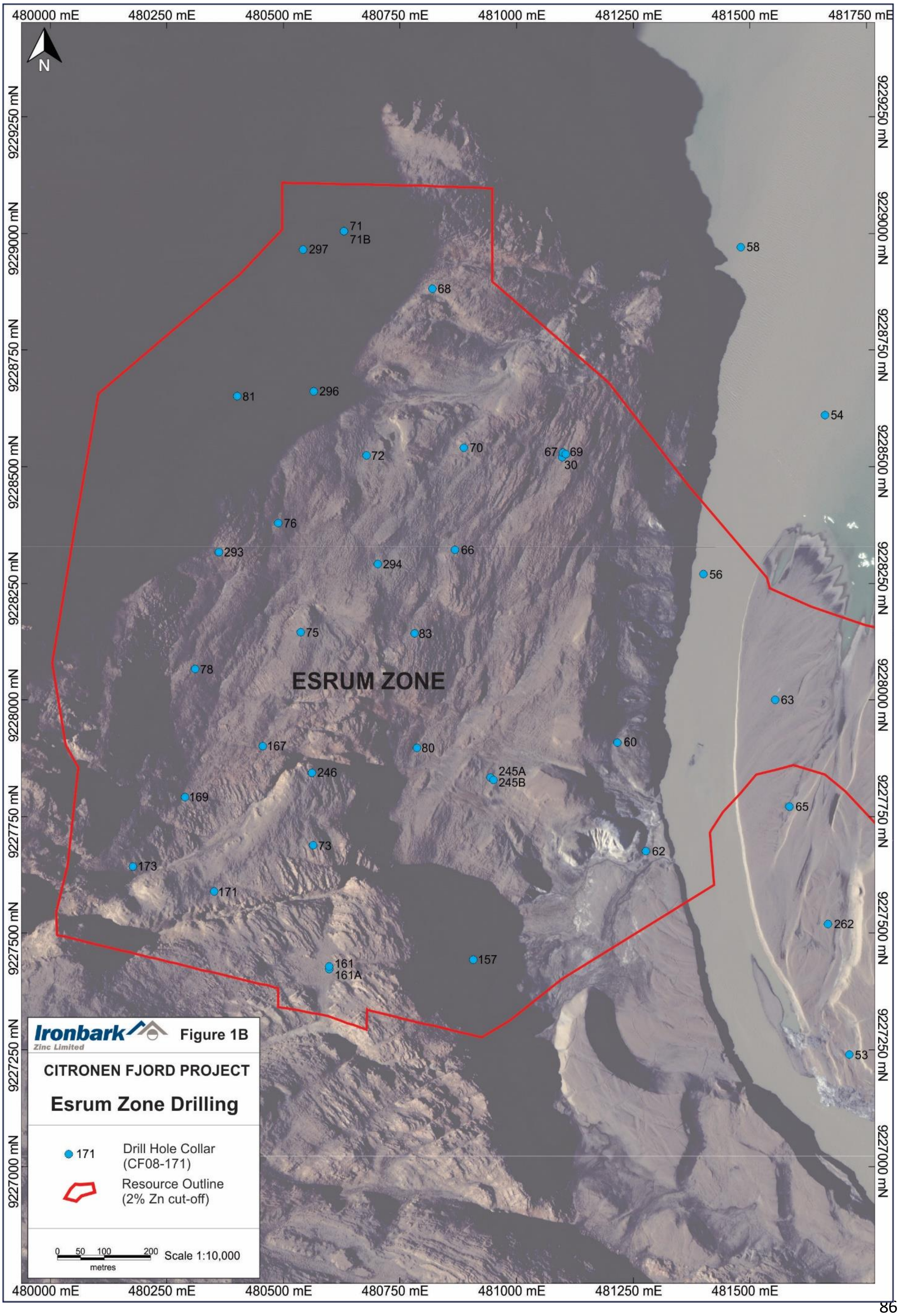
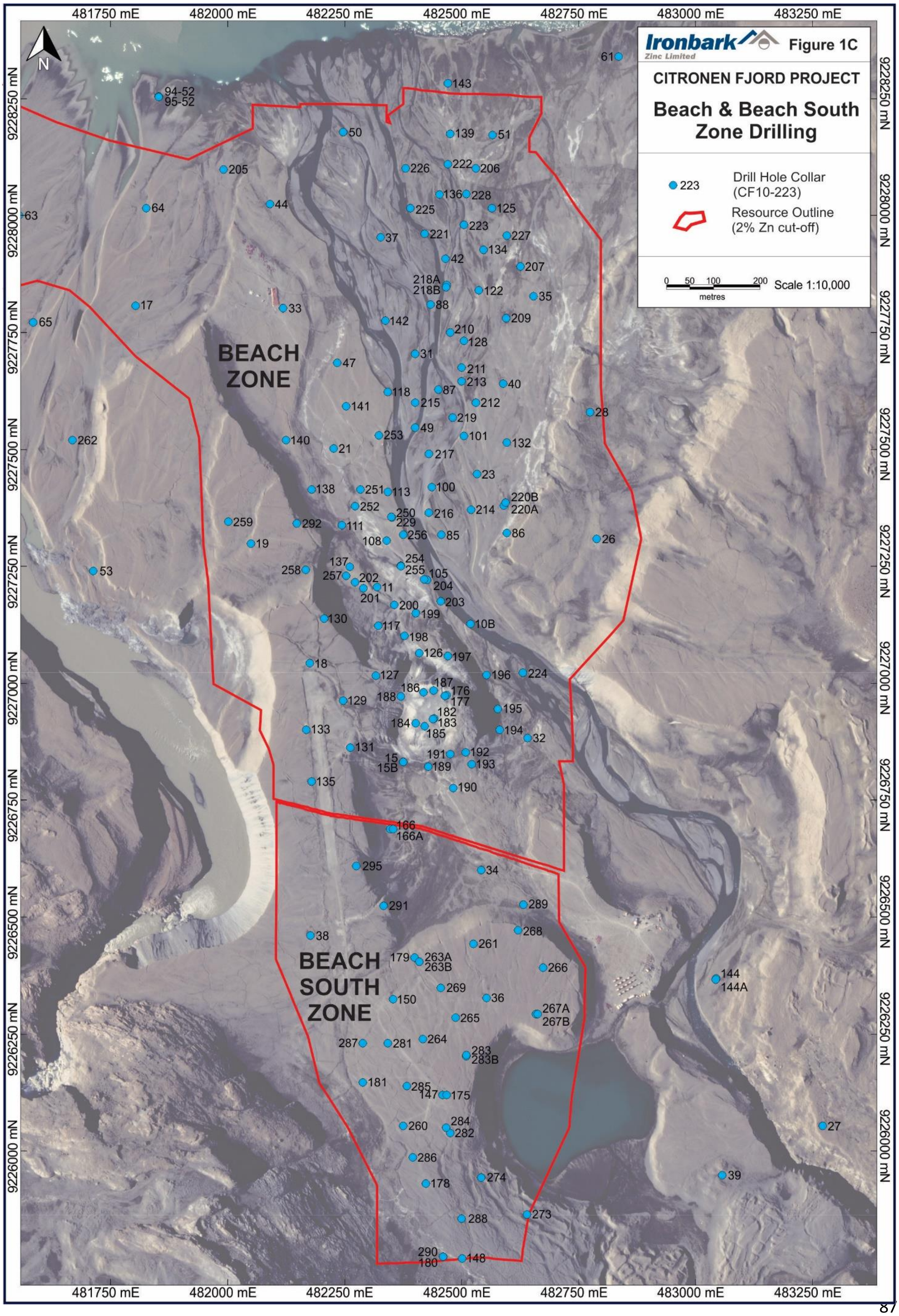


Figure 1A
CITRONEN FJORD PROJECT
Drill Hole Locations & Mineralisation Zones
54 Drill Hole Collar (CF95-054)
Resource Outline (2% Zn cut-off)
0 500 1000 metres
Scale 1:50,000
Citronen Project
SVALBARD (NORWAY)
GREENLAND
CANADA
ICELAND
N
FREDERICK E. HYDE FJORD
CITRONEN FJORD
WESTERN GOSSANS
ESRUM
BEACH
BEACH SOUTH
NORTHEAST
XX
DISCOVERY
SOUTHEAST
84
82
77
79
16
146
14
74
59
12
13
145
58
151
208
149
54
55
57
94/95-52
61
152
65
262
53
155
144
144A
154
27
39
153
153A
29
478000 mE
479000 mE
480000 mE
481000 mE
482000 mE
483000 mE
484000 mE
485000 mE
486000 mE
9235000 mN
9234000 mN
9233000 mN
9232000 mN
9231000 mN
9230000 mN
9229000 mN
9228000 mN
9227000 mN
9226000 mN
9225000 mN
9224000 mN
9223000 mN


480000 mE
480250 mE
480500 mE
480750 mE
481000 mE
481250 mE
481500 mE
481750 mE
9229250 mN
9229000 mN
9228750 mN
9228500 mN
9228250 mN
9228000 mN
9227750 mN
9227500 mN
9227250 mN
9227000 mN
N
71
71B
297
58
68
81
296
54
70
72
67
69
30
76
293
66
294
56
75
83
78
ESRUM ZONE
63
167
80
60
246
245A
245B
169
65
73
62
173
171
262
161
161A
157
53
Ironbark Zinc Limited
Figure 1B
CITRONEN FJORD PROJECT
Esrum Zone Drilling
171 Drill Hole Collar (CF08-171)
Resource Outline (2% Zn cut-off)
0 50 100 200
metres
Scale 1:10,000



Ironbark Zinc Limited Figure 1C

CITRONEN FJORD PROJECT

Beach & Beach South Zone Drilling

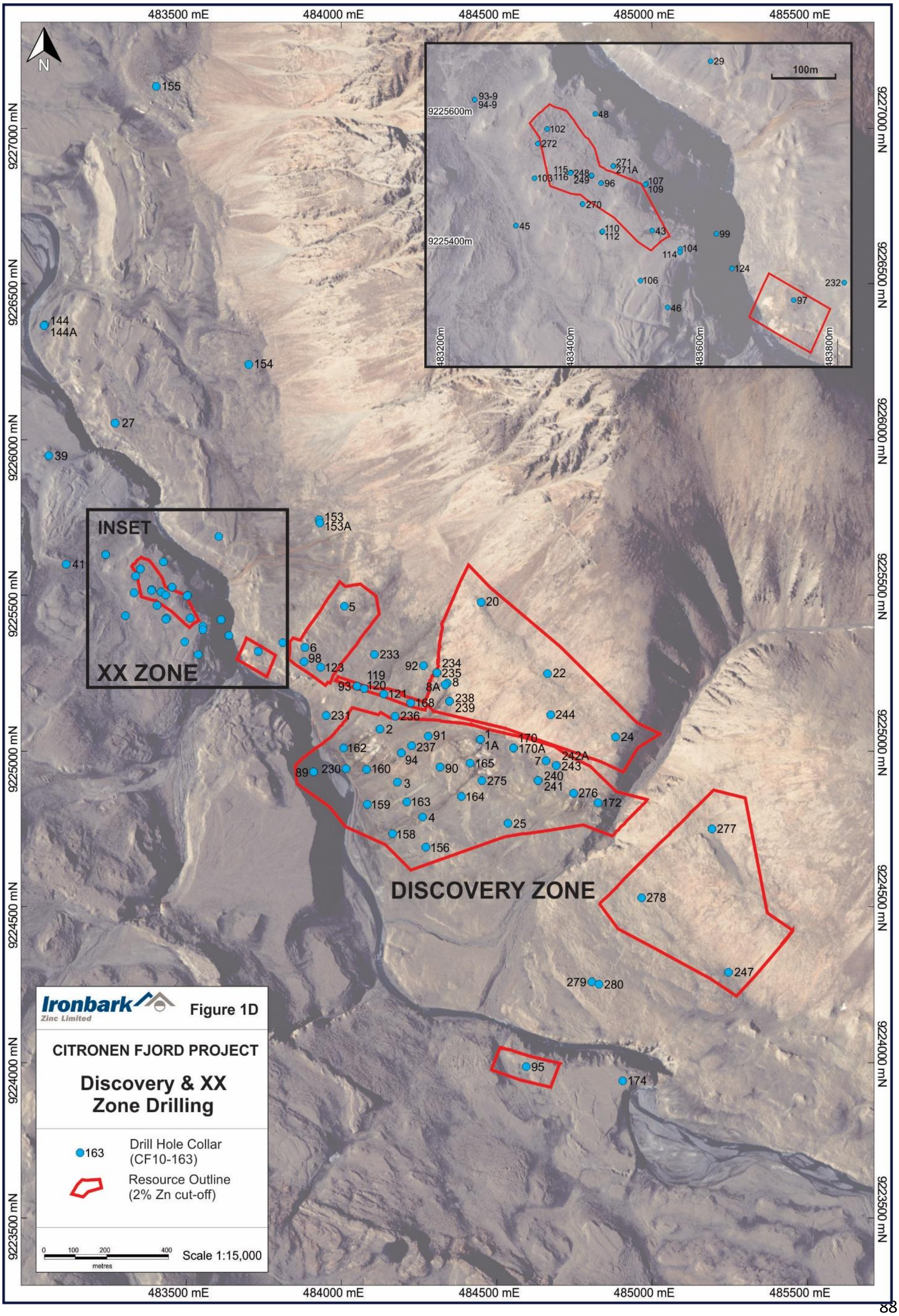


Figure 1D

CITRONEN FJORD PROJECT

Discovery & XX Zone Drilling

MINING PLUS

☎ +61 8 9213 2600
info@mining-plus.com
www.mining-plus.com

Memorandum

To: Michael Jardine (Managing director, Ironbark)

Cc:

From: Andrew Gasmier MAusIMM CP, (Principal Consultant - Underground, Mining Plus)

Date: 15th July 2021

Subject: Brief Report on JORC Ore Reserve estimate – Ironbark Zinc Limited (Ironbark) Citronen Mining Study

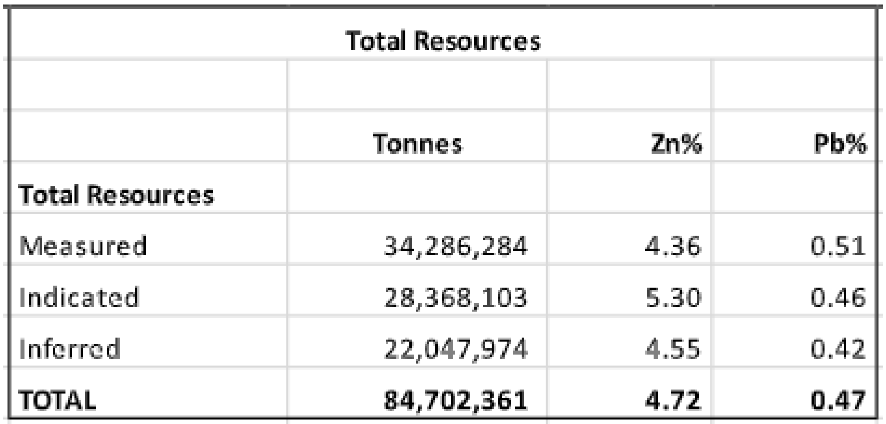
---

Mining Plus Pty Ltd (Mining Plus) has undertaken an underground and open pit mine optimisation, design and schedule to a feasibility level accuracy for the Citronen Zinc Project (Project). This work is part of Ironbark Zinc Limited's 2021 Bankable Feasibility Study (BFS) and provides the basis for declaring an update to the Project Ore Reserve, as reported in Table 3.

Mineral Resource

The current JORC 2012 compliant resource as released in July 2021 for Citronen and Shown in Table 1

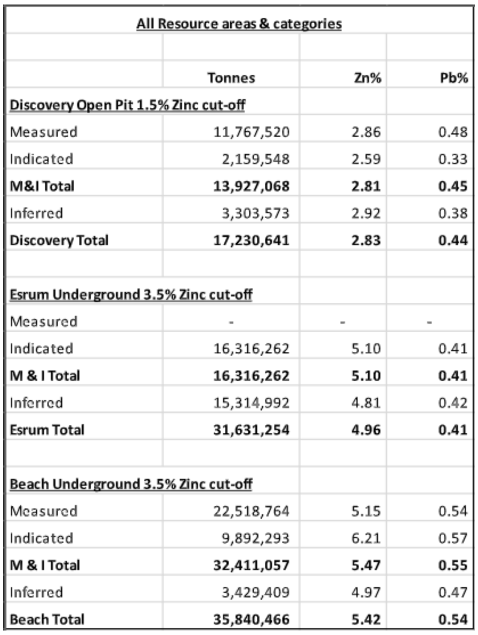
Table 1 – 84.7 million tonnes at 4.72% Zn & 0.47% Pb



Total Resources			
	Tonnes	Zn%	Pb%
Total Resources			
Measured	34,286,284	4.36	0.51
Indicated	28,368,103	5.30	0.46
Inferred	22,047,974	4.55	0.42
TOTAL	**84,702,361**	**4.72**	**0.47**

Table 2 shows a breakdown of the resource by cut-off, mining method and deposit.

Table 2 – Citronen Fjord Resource by cut-off, mining method and deposit



All Resource areas & categories			
	Tonnes	Zn%	Pb%
Discovery Open Pit 1.5% Zinc cut-off			
Measured	11,767,520	2.86	0.48
Indicated	2,159,548	2.59	0.33
M&I Total	**13,927,068**	**2.81**	**0.45**
Inferred	3,303,573	2.92	0.38
Discovery Total	**17,230,641**	**2.83**	**0.44**
Esrum Underground 3.5% Zinc cut-off			
Measured	-	-	-
Indicated	16,316,262	5.10	0.41
M & I Total	**16,316,262**	**5.10**	**0.41**
Inferred	15,314,992	4.81	0.42
Esrum Total	**31,631,254**	**4.96**	**0.41**
Beach Underground 3.5% Zinc cut-off			
Measured	22,518,764	5.15	0.54
Indicated	9,892,293	6.21	0.57
M & I Total	**32,411,057**	**5.47**	**0.55**
Inferred	3,429,409	4.97	0.47
Beach Total	**35,840,466**	**5.42**	**0.54**

JORC Table 1 included in an announcement to the ASX released on July 2021. Ironbark confirms that it is not aware of any new information or data that materially affects the information included in this announcement and that all material assumptions and technical parameters underpinning the estimates continue to apply and have not materially changed. The Company confirms that the form and context in which the Competent Person's findings are presented have not been materially modified from the original market announcement.

Citronen Ore Reserve Statement – 15th July 2021

The updated Ore Reserve for the Citronen Mine is as shown in Table 3, and is reported in accordance with the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves (the JORC Code) 2012 edition. The estimated Ore Reserve is inclusive of Measured and Indicated Mineral Resources.

Table 3 – Ore Reserve Estimate for Citronen Fjord Zinc Project

Deposit	Category	Tonnes (Mt)	ZnEq Grade (%)	Zn Grade (%)	Pb Grade (%)	ZnEq Metal (Mt)	Zn Metal (Mt)	Pb Metal (Mt)
Discovery Open Pit	Proved	5.5	3.5	3.2	0.6	0.2	0.2	0.03
	Probable	1.4	2.5	2.3	0.4	0.04	0.03	0.01
Esrum Underground	Proved	-	-	-	-	-	-	-
	Probable	15.8	5.1	4.8	0.4	0.8	0.8	0.06
Beach Underground	Proved	19.0	5.5	5.2	0.5	1.0	1.0	0.1
	Probable	7.0	5.8	5.7	0.5	0.4	0.4	0.03
Total	Proved	24.6	5.1	4.6	0.5	1.2	1.1	0.13
	Probable	24.2	5.1	5.0	0.4	1.2	1.1	0.10
	Total	**48.8**	**5.1**	**4.8**	**0.5**	**2.5**	**2.3**	**0.24**

There is an additional portion of the Citronen Mineral Resource that is included in the scheduled life of mine mill feed (Table 4). This material was excluded from the Ore Reserve as it is currently not classified as either a Measured or Indicated Mineral Resource. The additional material represents 25% of the overall life of mine material and was removed from the economics of the project in order to test the Ore Reserve economics.

Table 4 – Additional scheduled mill feed inventory for Citronen Zinc Project

Deposit	Category	Tonnes (Mt)	ZnEq Grade (%)	Zn Grade (%)	Pb Grade (%)	ZnEq Metal (Mt)	Zn Metal (Mt)	Pb Metal (Mt)
Beach Underground	Inferred	2.2	4.9	4.7	0.4	0.1	0.1	0.01
Esrum Underground	Inferred	13.3	4.8	4.5	0.4	0.6	0.6	0.05
Discovery Open Pit	Inferred	0.7	2.0	1.8	0.4	0.01	0.01	0.003
Total	Inferred	**16.3**	**4.6**	**4.4**	**0.4**	**0.7**	**0.7**	**0.07**

All figures have been rounded to appropriate significant figures and may result in minor computational discrepancies.

The additional mill feed inventory presented in Table 4, is currently classified as Inferred Resource and is excluded from the Ore Reserve. This material is of insufficient confidence to form part the Ore Reserve and may not form the basis any future Ore Reserve estimate.

Modifying Factors

The modifying factors used in this study for the Ore Reserve are listed in Table 6 – JORC 2012 Table 1 – Section 4 Estimation and Reporting of Ore Reserves.

Site visit

No site visit was conducted by Mining Plus.

Study status

Mining Plus undertook an update to the 2020 mining study which was completed in 2021 and supports this Ore Reserve estimate. The study update includes a mine plan that is technically achievable and EBITDA positive.

Cut-off parameters

Cut-off grade is based on a Net Smelter Return (NSR), taking into account the net revenue from recovered zinc , lead and the cost of mining, processing and G&A. Separate cut-off calculations were performed for the underground and surface mining operations.

Underground: Beach and Esrum orebodies

The Citronen Mineral Resource contains economically recoverable lead and Zinc metals. In order to consider the value of both commodities, an NSR value calculation was undertaken, taking into consideration the recoveries and smelter terms for zinc and lead. With the NSR value, a zinc equivalent (ZnEq) grade was back-calculated and resulted in the approximate value of 5.1% ZnEq for the Beach and Esrum orebodies.

The formula for the ZnEq calculation:

$$ZnEq = Zn + 0.58 \times Pb$$

Using this formula, a cut-off grade of 3.57% ZnEq was calculated for the Beach and Esrum orebodies which form the underground project.

Surface: Discovery orebody

The open pit cut-off grade estimation is based predominantly around the zinc modifying factors of recovery and revenue, which is then used within the optimisation process to determine the ore and waste definitions. Using these modifying factors the cut-off grade for the open pit is 1.55% zinc

Mining factors or assumptions

Underground: Beach and Esrum orebodies

No planned mining dilution was included in this design. The mining recovery was considered to be 98% as cut and fill is a high recovery low dilution mining method. Regional pillars are extracted at the end of the mine life with a recovery factor of 50%. Access pillars were also assessed and factorised as 7% on top of the mine recovery.

All mining parameters are based on geotechnical recommendations.

Surface: Discovery orebody

Open pit dilution was modelled using selective mining unit (SMU) reblocking. The selected SMU size is 10m x 10m x 5m which includes 8% ore loss and 9% dilution.

Metallurgical factors or assumptions

The metallurgical factors and assumptions were sourced from the 2017 Citronen Feasibility study.

- Zinc recovery of 84%
- Lead recovery of 50%

Permits

It is understood by Mining Plus that the Citronen Fjord Project is comprised of one Exploitation Licence, listed in Table 5.

Table 5: Citronen Fjord tenements

Licence	Name	Area km2	Granted Date
2016/30	Tasarneq	120	December 16, 2016

Infrastructure

The deposit is located in the northeast of Greenland, it is accessible by air or ship. No infrastructure exists at the Project site, other than a temporary camp and a gravel airstrip. All required infrastructure will have to be established.

Project capital

Mining capital estimates have been made using, wherever possible, prices obtained by quotations undertaken for the 2017 Citronen Feasibility study, or the Mining Plus knowledge base by benchmarking of similar operations.

Operating costs

All mining operating costs have been built up from first principles based on inputs from Ironbark or from estimates sourced from suppliers.

Revenue factors

Max payable zinc is 85% and max payable lead is 85% in concentrate.

Commodity prices as per discussions with Ironbark are detailed below:

- Zinc price of US$2,867/t
- Lead price of US$2,094/t

Market Assessment

The zinc market is mature and highly liquid, with the metal freely traded on several exchanges, including the LME.

A rising price trend seen over the past ~12 months is indicative of a tightening supply-demand dynamic with several short to medium term catalysts likely to provide further support. These include supply constraints at some operating zinc mines, combined with an expected upswing in demand due to broad based stimulus measures being implemented by a number of macroeconomic actors globally.

It is anticipated that the zinc price will move moderately higher in the coming years as demand continues to exceed supply. This is based on an analysis of a range of freely available 3rd party market forecasts.

Economic factors

The Project, given the above factors, returns a positive EBITDA of US$837.8M as estimated by the financial model built under assumptions provided by Ironbark.

The Project is most sensitive to the following in order of impacts:

- Zinc grade, price and metal recovery
- Upfront capital

Environmental

An Environmental Impact Assessment has been completed and submitted to the Government of Greenland. Environmental factors and management solutions are outlined in the Feasibility Study Report for Citronen released to the ASX on 29 April 2013. Tailings from the process plant will be used as backfill underground or stored in an on-ground tailings storage facility. Waste rock will be stored in a waste-dump on surface. Waste Rock and Dense media separation (DMS) rejects are non acid forming. Potentially acid forming tailings will be stored and managed using appropriately designed tailings storage facilities. Environmental studies concluded that run-off from mine wastes will not significantly increase the levels of metals in the aquatic or terrestrial environment of the area.

Social

Relationships with stakeholders are in good standing and there are no known social impediments to the Project. A Social Impact Assessment has been submitted to, and accepted by, the Government of Greenland.

Other

There are risks associated with assumptions made in the current study. Further analysis is recommended in relation to the following items:

- Mining in the permafrost zone
- Hydrogeological study
- Frozen backfill
- Geotechnical numeric modelling
- Production rate
- Process plant and surface infrastructure

Mining on the permafrost zone

The following data should be gathered before the commencement of mining.

- Daily and mean monthly air temperatures
- The amplitude of ground temperature variation in the active layer (layer of rock or soil above the permafrost zone)
- Stable permafrost temperature distribution at depth
- Snow cover and precipitation measurements

Hydrogeological study

In regions of permafrost, the frost table location can have a large impact on the hydrology. Intact permafrost is an impenetrable water boundary.

The Project site is in an area of permafrost where the ground stays frozen all year to an ultimate depth of 400m.

The Project is considered to be a dry mine based on the above mentioned and experience from drilling on site. However, an underground hydrogeological study to pre-feasibility level needs to be undertaken to assess the potential (if existing) sources of underground water inflow and risks associated with it.

Frozen backfill

The understanding of the properties and behaviours of the frozen backfill is fundamental to a successful application of the studied mining method.

Further tests should be conducted around the processing plant tailings for a better understanding of its behaviour in the mining environment.

Production rate

The mine production rate is based on a processing throughput of 3.3Mtpa.

Geotechnical numeric modelling

A geotechnical analysis and modelling should be undertaken in the next phases of the study around pillar sizes and ground support. The recommended work to be carried out is outlined below:

- **Re-log core data** - logging of rock quality designation (RQD) at least for 20m into the hanging wall (HW) of each ore intersection
- **Underground stress analysis using 3DEC (hanging wall)** – the stress analysis will produce information about potential deformations in the orebody hanging wall. The model will generate reliable information that will back up a 3D stress analysis
- **3D stress strain analysis (Map3D modelling)** – the 3D stress-strain analysis will test ground support, pillar sizes, spans, regional pillars, subsidence of the frozen sedimentary rock when exposed.

Processing plant and surface infrastructure.

A review of the processing plant and surface infrastructure (capital and sustaining) costs should to be carried to provide further support for the financial model. Ironbark indicates that work will be undertaken on the course of the near future.

Audits or reviews

Mining Plus has undertaken an internal peer review on the study and Ore Reserve Statement. No external audit has been conducted. .

Discussion of relative accuracy/ confidence

Mining Plus has ranked the accuracy of key cost items in the mining cost model and produced a weighted average accuracy for the study cost estimate. The portion of costs estimated as part of the Citronen optimisation Study has an accuracy of ±25%.

Competent Persons Statement

The information included in this report that relates to Exploration Results & Mineral Resources is based on information compiled by Ms Elizabeth Laursen (B. ESc Hons (Geol), GradDip App. Fin., MSEG, MAIG), an employee of Ironbark Zinc Limited. Ms Laursen has sufficient experience that is relevant to the style of mineralisation and type of deposit under consideration and to the activity which they are 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. Ms Laursen consents to the inclusion in the report of the matters based on this information in the form and context in which it appears.

The mining-specific information in this report, which relates to Ore Reserves, is based on information compiled by Mr Andrew Gasmier CP (Mining), who is a Member of The Australasian Institute of Mining and Metallurgy. Mr Gasmier is employed full time by Mining Plus. He has sufficient experience which is relevant to the style of mineralisation and type of deposit under consideration and to the activity which he 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'. Mr Gasmier consents to the inclusion in the report of the matters based on his information in the form and context in which it appears.

Competent Persons Disclosure

Ms Laursen is an employee of Ironbark Zinc Limited and currently holds securities in the company.

Table 6 – JORC 2012 Table 1 – Section 4 Estimation and Reporting of Ore Reserves

<table>
<tr><th>Criteria</th><th>Explanation</th><th>Summary Comments for JORC Table 1</th></tr>
<tr><td>Mineral Resource Estimate for Conversion to Ore Reserves</td><td>Description of the Mineral Resource estimate used as a basis for the conversion to an Ore Reserve</td><td>The current JORC 2012 compliant resource as released in July 2021 for Citronen and Shown in

Table 7 – 84.7 million tonnes at 4.72% Zn & 0.47% Pb

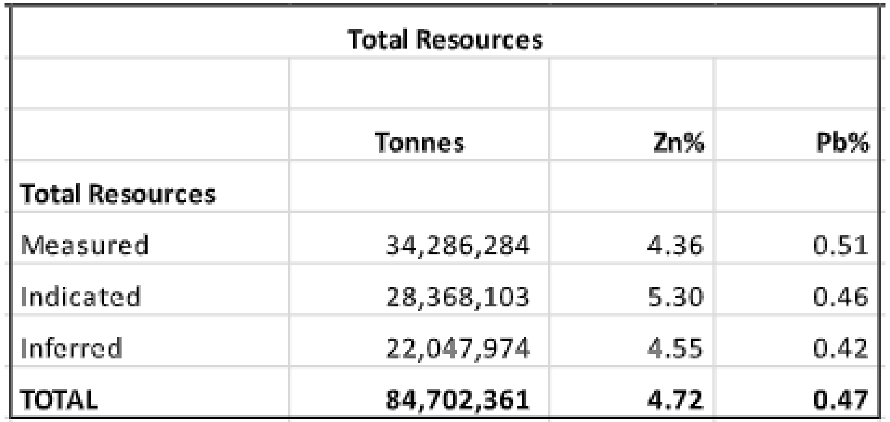
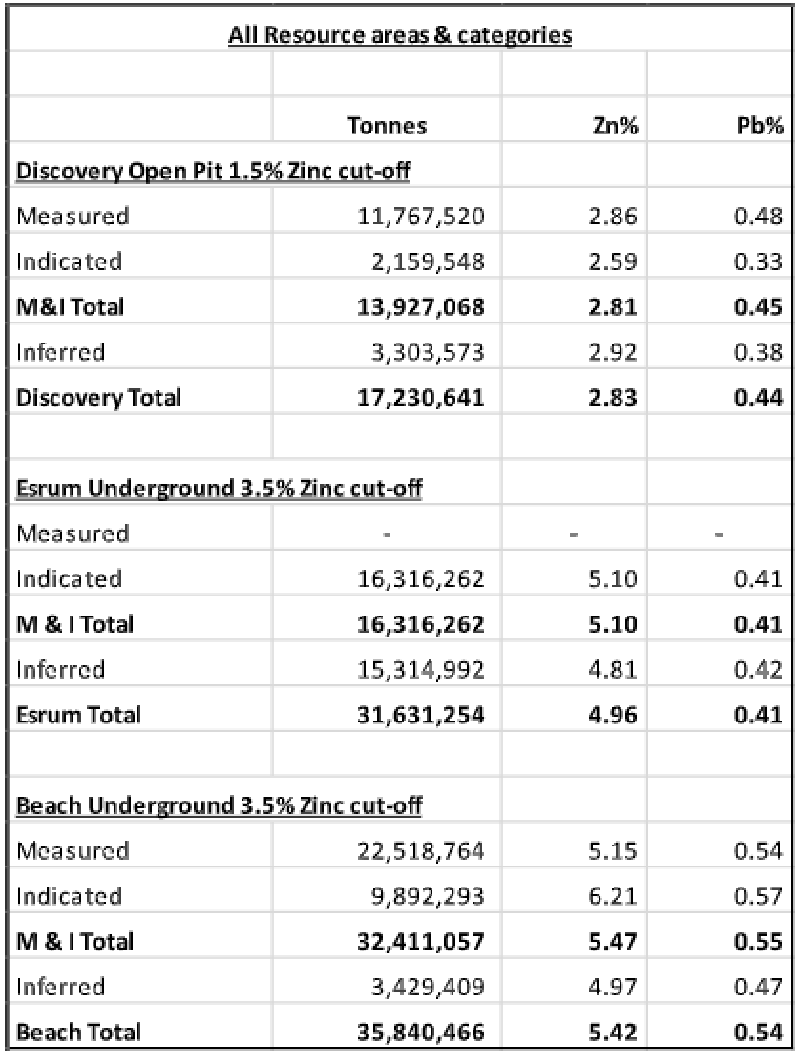

<table>
<tr><th colspan="4">Total Resources</th></tr>
<tr><td></td><td></td><td></td><td></td></tr>
<tr><td></td><td>Tonnes</td><td>Zn%</td><td>Pb%</td></tr>
<tr><td>Total Resources</td><td></td><td></td><td></td></tr>
<tr><td>Measured</td><td>34,286,284</td><td>4.36</td><td>0.51</td></tr>
<tr><td>Indicated</td><td>28,368,103</td><td>5.30</td><td>0.46</td></tr>
<tr><td>Inferred</td><td>22,047,974</td><td>4.55</td><td>0.42</td></tr>
<tr><td>TOTAL</td><td>84,702,361</td><td>4.72</td><td>0.47</td></tr>
</table>
shows a breakdown of the resource by cut-off, mining method and deposit.</td></tr>
</table>

Table 8 – Citronen Fjord Resource by cut-off, mining method and deposit



All Resource areas & categories			
	Tonnes	**Zn%**	**Pb%**
Discovery Open Pit 1.5% Zinc cut-off			
Measured	11,767,520	2.86	0.48
Indicated	2,159,548	2.59	0.33
M&I Total	**13,927,068**	**2.81**	**0.45**
Inferred	3,303,573	2.92	0.38
Discovery Total	**17,230,641**	**2.83**	**0.44**
Esrum Underground 3.5% Zinc cut-off			
Measured	-	-	-
Indicated	16,316,262	5.10	0.41
M & I Total	**16,316,262**	**5.10**	**0.41**
Inferred	15,314,992	4.81	0.42
Esrum Total	**31,631,254**	**4.96**	**0.41**
Beach Underground 3.5% Zinc cut-off			
Measured	22,518,764	5.15	0.54
Indicated	9,892,293	6.21	0.57
M & I Total	**32,411,057**	**5.47**	**0.55**
Inferred	3,429,409	4.97	0.47
Beach Total	**35,840,466**	**5.42**	**0.54**

Criteria	Explanation	Summary Comments for JORC Table 1
		JORC Table 1 included in an announcement to the ASX released on July 2021. Ironbark confirms that it is not aware of any new information or data that materially affects the information included in this announcement and that all material assumptions and technical parameters underpinning the estimates continue to apply and have not materially changed. The Company confirms that the form and context in which the Competent Person's findings are presented have not been materially modified from the original market announcement.
	Clear statements as to whether the Mineral Resources are reported additional to, or inclusive of, the Ore Reserves	The estimated Ore Reserve is inclusive of Measured and Indicated Mineral Resources.
Site Visits	Comment on any site visits undertaken by the Competent Person and the outcome of those visits	• One of the Ravensgate Resource Report 2012 authors was involved in the drilling and project development at an early stage and visited the site. The author was integral in the establishment of industry best QA/QC practices and has an intimate knowledge of all procedures used on site. • The author of the Wardrop 2007 Resource Estimate Report was involved in the planning and execution of the 1990's drilling. • The author of the Ironbark 2008 in-house Resource Estimate was involved in the planning and execution of the 2007 sampling and 2008 drilling programs. • The Competent Person for the reporting of the Ore Reserve has not undertaken a site visit.
	If no site visits have been undertaken indicate why this is the case	• The project is currently in the Pre-development stage and there are no facilities or establishments on site • COVID-19 international travel restrictions prevent a site visit from being undertaken at this stage

Criteria	Explanation	Summary Comments for JORC Table 1
Study Status	The type and level of study undertaken to enable Mineral Resources to be converted to Ore Reserves	The mine designs and schedules that were used to estimate this Ore Reserve form part of Ironbark Zinc Limited's 2021 Bankable Feasibility Study.
	The code requires that a study to at least Pre-feasibility Study level has been undertaken to convert Mineral Resource to Ore Reserves. Such studies will have been carried out and will have determined a mine plan that is technically achievable and economically viable, and that material modifying factors have been considered	• (2011) A Feasibility study conducted by Wardrop in 2011 deemed the project technically and economically viable. • (2017) An update of the 2011 Wardrop Feasibility Study was carried out by Ironbark in 2017. • (2020) Turner Mining and Geotechnical Pty Ltd (TMG) undertook a geotechnical review of the 2011 Wardrop study. TMG reassessed local and regional pillar sizes, ground support and outlined further work to be undertaken by Ironbark for a higher confidence on the deposit geotechnical parameters. • (2020) As part of the 2020 Citronen Mine Study, a mine plan was developed that was technically achievable and EBITDA positive. This mine plan considered material modifying factors such as mining, processing, and metallurgy. • (2021) Ironbark Zinc Limited, Citronen Fjord Project Bankable Feasibility Study
Cut-off Parameters	The basis of the cut-off grade(s) or quality parameters applied	**Discovery Orebody – Surface Mining** Cut-off grade for open pit mining is based around the Zinc modifying factors and is calculated to 1.55% Zn; • Zn Recovery: 84% • Zn Price: US$1.38 /lb • Process Cost: US$29.10 (inclusive of G&A) **Beach and Esrum Orebodies – Underground Mining** Cut-off grade is based on a Net Smelter Return (NSR), taking into account the net revenue from recovered Zn, Pb and the cost of mining, processing and G&A. The NSR calculation relied upon the processing recoveries shown below:

<table>
<tr><th>Criteria</th><th>Explanation</th><th>Summary Comments for JORC Table 1</th></tr>
<tr><td></td><td></td><td>

Zn Recovery: 84%
Pb Recovery: 50%
Costs:

<table>
<tr><th>Item</th><th>Cost (US$)</th></tr>
<tr><td>Processing Costs</td><td>18.00/tonne of ore</td></tr>
<tr><td>G&A Costs</td><td>7.00/tonne of ore</td></tr>
<tr><td>Mining Costs</td><td>38.00/tonne of ore</td></tr>
<tr><td>Other</td><td>4.10/tonne of ore</td></tr>
</table>
<p>The Citronen project is a multi-material and recovery project. Thus, it is not possible to set the cut-off value based on the contained metal. To overcome this limitation, an NSR value calculation was undertaken, taking into consideration the recoveries and smelter terms for Zn and Pb. With the NSR value, a ZnEq grade was back calculated and resulted in the approximate value of 3.57% ZnEq.
The formula for the ZnEq calculation is as stated below:</p>
<p>$$ZnEq=Zn+0.58\times Pb$$</p>
</td></tr>
</table>

Criteria	Explanation	Summary Comments for JORC Table 1
Mining Factors or Assumptions	The method and assumptions used as reported in the Pre-Feasibility or Feasibility Study to convert the Mineral Resource to an Ore Reserve (i.e. either by application of appropriate factors by optimisation or by preliminary or detailed design)	**Discovery Orebody – Surface Mining** • The Open Pit Ore Reserve has been reported within a pit design based on pit shells from the Whittle optimisations and with appropriate design parameters applied. These have included geotechnical and other operational parameters. **Beach and Esrum Orebodies – Underground Mining** • The mining method is cut and fill with primary and secondary panels. • No planned overbreak was included in the design. • The mine recovery was considered to be 98% as cut and fill is a high recovery low dilution mining method. Regional pillars are considered to be partially extracted at the end of the mine life with a recovery factor of 50%. Access pillars were also assessed and factorized as 7% on top of the mine recovery. **Beach and Esrum Orebodies – Method Independent** • The Ore Reserve estimate is based on the Mineral Resource released in 2012, by Ravensgate, with the competent person being Ravengate's Stephen Hyland. • All mining parameters are based on geotechnical recommendations. • Zn and Pb recoveries of respectively 84% and 50%.
	The choice, nature and appropriateness of the selected mining method (s) and other mining parameters including associated design issues such as pre-strip, access, etc.	**Discovery Orebody – Surface Mining** • The mining method is conventional truck and excavator open pit mining. **Beach and Esrum Orebodies – Underground Mining** • The current mining method (cut and fill) is an optimisation of the previously selected method (room and pillar). Furthermore, it takes into consideration the current geotechnical parameters and mining practicalities. • The key driver of the mining method selection was to maximise the recovery under the geotechnical assumption that all panels need to have the top (backs) supported. The presumption excludes options for longhole drilling

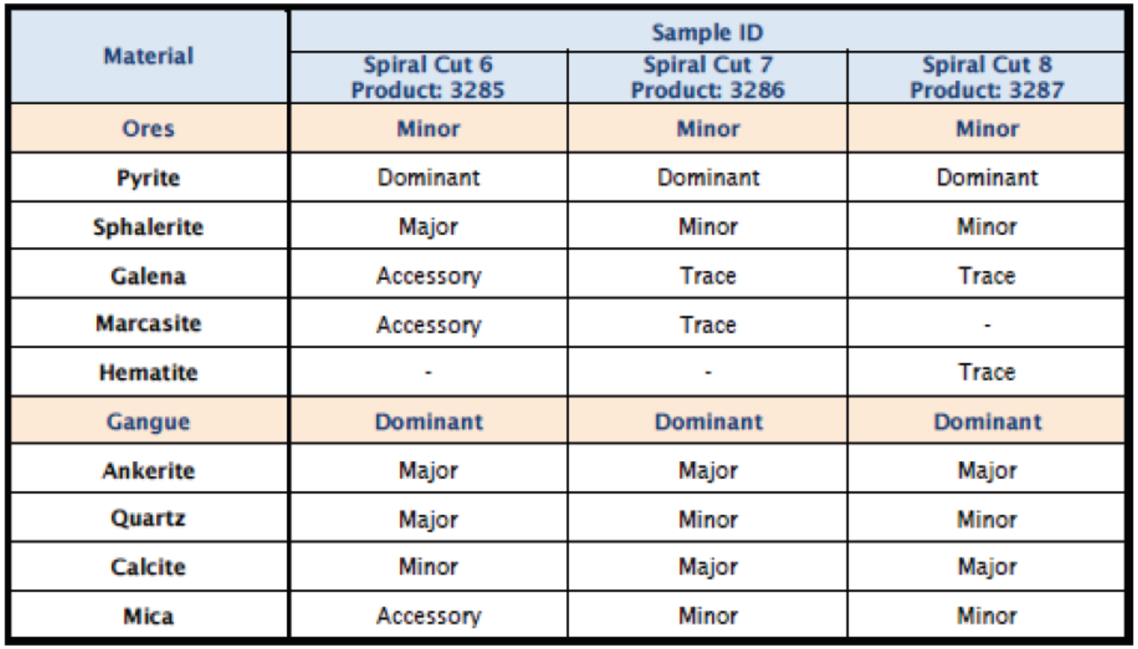
Criteria	Explanation	Summary Comments for JORC Table 1
		methods, as the height of the production areas is relatively small (average of 6m), which excludes the possibility of developing a bottom drive for a panel. • The mining method was optimised to follow the contours of the orebody mineralisation increasing recovery and reducing dilution. The new design will also help with mining productivity, as it reduces development issues and makes the backfill process easier.
	The assumptions made regarding geotechnical parameters (e.g. pit slopes, stope sizes, etc.), grade control and pre-production drilling	**Discovery Orebody – Surface Mining** The indicative slope configuration for the Discovery open pit design were provided by the 2009 geotechnical assessments produced for Ironbark, these assessments included batter angles of between 60^o and 80^o for fresh rock and 34^o to 40^o for the overlying sediments, with safety berms between 5m and 6m for each 10m vertical depth. **Beach and Esrum Orebodies – Underground Mining** Geotechnical parameters and advice were supplied by the TMG's review: • Recommended drive dimensions • Local pillar sizes • Regional pillar sizes • Mining method • Panel sequence • Recommended ground support standards • Risk of surface subsidence in shallow mine areas The information was used to generate the mine design.

Criteria	Explanation	Summary Comments for JORC Table 1
	The major assumptions made and the Mineral Resource model used for pit and stope optimisation (if appropriate)	Not Applicable
	The mining dilution factors used	**Discovery Orebody – Surface Mining** • SMU modelling estimated a dilution of 9% and an ore loss of 8% **Beach and Esrum Orebodies – Underground Mining** • Mining Recovery Factors ○ Development, 100% ○ Stopes, 90% • Mining Dilution – 0% The mining method planned for the extraction of the underground resource is highly selective and it is reasonable to expect that the ore can be extracted cleanly with no dilution. There is a portion of the Citronen Inferred Mineral Resource that is included in the life of mine mill feed but is not part of the Ore Reserves. The material represents 25% of the overall life of mine mill feed and was removed from the economics of the project. The project is highly sensitive to variations in recovered zinc metal.
	The mining recovery factors used	
	Any mining widths used	
	The manner in which Inferred Mineral Resources are utilised in mining studies and the sensitivity of the outcome to their inclusion	
	The infrastructure requirements of the selected mining methods	Sufficient infrastructure will be established by the mining contractor for the mine to operate, including, but not limited to, surface access roads, waste storage facilities, surface explosive magazine, declines, ventilation fans and return airways, sumps and pump stations.

Criteria	Explanation	Summary Comments for JORC Table 1
Metallurgical Factors or Assumptions	The metallurgical process proposed and the appropriateness of that process to the style of the mineralisation	Ore processing will incorporate the following stages: primary secondary and tertiary crushing, dense media separation, grinding and classification, flotation and concentrate thickening and filtration. The process method chosen is considered standard for the commodity and style of mineralisation. Zinc flotation recoveries of 85% have been achieved in test work. Further information on metallurgical and process test work can be found in the Ironbark Feasibility Report released 29 April 2013.
	Whether the metallurgical process is well-tested technology or novel in nature	The metallurgical process is well-tested in the industry.

<table>
<tr><th>Criteria</th><th>Explanation</th><th>Summary Comments for JORC Table 1</th></tr>
<tr>
<td></td>
<td>The nature, amount and representativeness of metallurgical test work undertaken, the nature of the metallurgical domaining applied and the corresponding metallurgical recovery factors applied</td>
<td>
<p>Samples were prepared for mineralogical test work in ALS Ammtec and then sent for Qualitative Optical Mineralogical Examination via Roger Townend and Associates.</p>
<p>For the test programme, ALS Ammtec was supplied with three spiral separation test work tail samples from the Ironbark Citronen Project in Greenland:</p>

Sample # 1: Spiral Cut 6 Product: 3285
Sample # 2: Spiral Cut 7 Product: 3286
Sample # 3: Spiral Cut 8 Product: 3287

<p>Final results can be seen in the mineralogical exam result table below:</p>

<table>
<tr><th rowspan="2">Material</th><th colspan="3">Sample ID</th></tr>
<tr><th>Spiral Cut 6 Product: 3285</th><th>Spiral Cut 7 Product: 3286</th><th>Spiral Cut 8 Product: 3287</th></tr>
<tr><td>Ores</td><td>Minor</td><td>Minor</td><td>Minor</td></tr>
<tr><td>Pyrite</td><td>Dominant</td><td>Dominant</td><td>Dominant</td></tr>
<tr><td>Sphalerite</td><td>Major</td><td>Minor</td><td>Minor</td></tr>
<tr><td>Galena</td><td>Accessory</td><td>Trace</td><td>Trace</td></tr>
<tr><td>Marcasite</td><td>Accessory</td><td>Trace</td><td>-</td></tr>
<tr><td>Hematite</td><td>-</td><td>-</td><td>Trace</td></tr>
<tr><td>Gangue</td><td>Dominant</td><td>Dominant</td><td>Dominant</td></tr>
<tr><td>Ankerite</td><td>Major</td><td>Major</td><td>Major</td></tr>
<tr><td>Quartz</td><td>Major</td><td>Minor</td><td>Minor</td></tr>
<tr><td>Calcite</td><td>Minor</td><td>Major</td><td>Major</td></tr>
<tr><td>Mica</td><td>Accessory</td><td>Minor</td><td>Minor</td></tr>
</table>
</td>
</tr>
</table>

Criteria	Explanation	Summary Comments for JORC Table 1
	Any assumptions or allowances made for deleterious elements	No deleterious elements have been identified through the sampling and assaying of the mineralisation.
	The existence of any bulk sample or pilot scale test work and the degree to which such samples are considered representative of the orebody as a whole	Metallurgical testing has been carried out on Citronen drill core after the 2008, 2009, 2010 and 2011 drilling campaigns. Composite samples were created for each of the three deposits – Beach, Esrum and Discovery. The test work has been conducted by Burnie Laboratories in Tasmania (now part of ALS Global).
	For minerals that are defined by the specification, has the ore reserve estimation been based on the appropriate mineralogy to meet the specifications?	Not Applicable
Environmental	The status of studies of potential environmental impacts of the mining and processing operation. Details of waste rock characterisation and the consideration of potential sites, status of design options	An Environmental Impact Assessment has been completed and submitted to the Government of Greenland. Environmental factors and management solutions are outlined in the Feasibility Study Report for Citronen released to the ASX on 29 April 2013. Tailings from the mine will be used as backfill underground or stored in an on-ground tailings storage facility. Waste rock will be stored in a waste-dump on surface. Waste Rock and Dense media separation (DMS) rejects are non acid forming. Potentially acid forming tailings will be stored and managed using appropriately designed tailings storage facilities. Environmental studies concluded that mine wastes will not significantly increase the levels of metals in the aquatic or terrestrial environment of the area.

Criteria	Explanation	Summary Comments for JORC Table 1
	considered and, where applicable, the status of approvals for process residue storage and waste dumps should be reported.	
Infrastructure	The existence of appropriate infrastructure: availability of land for plant development, power, water, transportation (particularly for bulk commodities), labour, accommodation; or the ease with which the infrastructure can be provided or accessed.	• The Citronen Zinc Project is located in north-eastern Greenland approximately 2,100 km north of the capital of Greenland, Nuuk. It is located at 83°05'N, 28°16'W. • There is no existing infrastructure at the site and consequently all infrastructure and ancillary facilities need to be developed as part of the project. The facilities and infrastructure to be developed are based on the original 2010 studies.
Costs	The derivation of, or assumptions made, regarding projected capital costs in the study	Capital costs were derived on the following basis: • The overall plant layout and equipment sizing estimation sourced from the 2017 Citronen Feasibility Study Update. • The cost model was set up to have a mining contractor develop the declines, level accesses and ore drives and extract the ore. The mining contractor costs for equipment provision and maintenance, labour provision and mobilization/demobilisation are based on the current experience of Mining Plus (MP) with similar sized and located projects. • Mining capital estimates have been made using, wherever possible, pricing obtained from the Citronen 2017 study or the Mining Plus knowledge base by benchmarking of similar cut and fill/ room and pillar operations. • Mining capital costs include: ○ Mine establishment activities

Criteria	Explanation	Summary Comments for JORC Table 1
		○ Primary ventilation fans ○ fixed plant ○ Mine air compressor ○ High voltage electrical distribution network ○ Water tanks for mine water supply ○ Radio Communication system ○ Pumping system ○ Survey equipment ○ Mine rescue equipment • Contingency has been applied to account for the accuracy of the estimate.
	The methodology used to estimate operating costs	• The contractors' development equipment includes jumbos, loaders, charge-up units, ITs and a service truck. The operating hours of the development equipment have been determined from first principles based on mobile equipment productivity rates provided by MP (based on experience with similar-sized projects). • Personnel requirements were sourced in three ways: ○ Principal management and technical staff positions numbers were sourced from the 2017 Citronen FS update. ○ Services positions were based on MPs experience and the requirements calculated to achieve the mine plan. ○ Operations personnel were linked to equipment requirements and determined from the equipment schedule. • The consumables costs were calculated from first principles and the quantities determined using the physicals schedule, mine profiles and input assumptions. The unit costs were sourced from the input assumptions worksheet. A freight cost of 3% was applied to the consumable costs. • Service costs calculated for ventilation and pumping services based on BCM project database. The secondary ventilation and mobile pumping were assumed to be provided by the mining contractor. A monthly ownership cost was calculated from first principles and was applied in the Auxiliary Equipment worksheet in the cost model. • The mobilisation cost assumptions were based on MPs experience with similar projects. • Contractor mark-up has been applied to contractor personnel, equipment, consumables and mobilisation and demobilisation costs. Contractor mark-up is applied at 10% with a further corporate mark-up of 3%. These rates are based on MPs experience with similar projects and Australian rates. • An allowance was made within the cost model for the following miscellaneous works; ○ Raise boring

Criteria	Explanation	Summary Comments for JORC Table 1
		○ Box cut excavation ○ Surface trucking ○ Shaft sinking • General and administration costs sourced from the 2017 Citronen Feasibility Study Update • Processing plant operating costs sourced from the 2017 Citronen Feasibility Study Update • Open pit operating costs sourced from the 2017 Citronen Feasibility Study Update
	Allowances made for the content of deleterious elements	No allowances were made for deleterious elements
	The source of exchange rates used in the study	The cost model provides a first principles estimate, in USD.
	Derivation of transport charges	Two solutions were considered for the transport of concentrate from Citronen Fjord: An icebreaking tug with barge versus two ice-class bulk carriers. The solution with the ice-class bulk carriers was chosen due to the greater load capacity, resulting in fewer required trips per year, ease of operation and greater economic benefit. Shipping to and from Citronen will utilise two high ice class mine re-supply vessels. • One Polar Class 3 (PC3), 65,000 Deadweight Cargo Capacity (DWCC) vessel designed to carry zinc and lead concentrates, arctic diesel and TEUs (Class & Non-Class) without ice breaker escort. • One Polar Class 4 (PC4), 55,000 DWCC vessel designed to carry zinc and lead concentrates, arctic diesel and TEUs (Class & Non-Class) without ice breaker escort. Concentrate production will be approximately 300,000 tonnes per annum (peaking at 320,000). Based on the selected ships capacity, this corresponds to a requirement for approximately 3 return trips per year.

Criteria	Explanation	Summary Comments for JORC Table 1
	The basis for forecasting or source of treatment and refining charges, penalties for failure to meet specification, etc.	Not Applicable
	The allowances made for royalties payable, both Government and private	The Citronen deposits are located wholly within Exploitation Licence 2016/30 which is held in the name of Ironbark A/S a wholly owned subsidiary of Ironbark Zinc Limited. EL2016/30 lies within the Northeast Greenland National Park. A 2.5% royalty is payable to vendors.
Revenue Factors	The derivation of, or assumptions made regarding revenue factors including head grade, metal or commodity price(s) exchange rates, transportation and treatment charges, penalties, net smelter returns etc.	• Zn price - US$ 2,867/t • Pb price - US$ 2,094/t • Smelting losses ○ 0.25% • Maximum payable prices: ○ Zn – 85% ○ Pb – 85% • Head grade is determined as a result of initial strategic planning in Mine shape optimisation (MSO) and then further detailed mine scheduling using Enhanced Production Scheduler (EPS) with mine physical data then provided to calculate revenue, etc. in models.
	The derivation of assumptions made of metal or commodity price(s), for the principal metals, minerals and co-products.	• Metal prices derived from long term averages • Currency exchange rates • Royalties

Criteria	Explanation	Summary Comments for JORC Table 1
Market Assessment	The demand, supply and stock situation for the particular commodity, consumption trends and factors likely to affect supply and demand into the future.	The Zinc market is mature and highly liquid, with the metal freely traded on several exchanges, including the LME. A rising price trend seen over the last ~12 months is indicative of a tightening supply-demand dynamic with several short to medium term catalysts likely to provide further support. These include supply constraints at some operating zinc mines, combined with an expected upswing in demand due to broad based stimulus measures being implemented by a number of macroeconomic actors globally.
	A customer and competitor analysis along with the identification of likely market windows for the product	The Citronen Project has pre-committed 70% of its metal production on binding take or pay agreements with the two largest base metal trading groups in the world, Glencore and Trafigura. It is anticipated that the balance of production (30%) will also be pre-sold prior to the commencement of mining.
	Price and volume forecasts and the basis for these forecasts	It is anticipated that the Zinc price will move moderately higher in the coming years as demand continues to exceed available supply. This is based on an analysis of a range of freely available 3rd party market forecasts.
	For industrial minerals the customer specification, testing and acceptance requirements prior to a supply contract	Not Applicable

Criteria	Explanation	Summary Comments for JORC Table 1
Economic	The inputs to the economic analysis to produce the net present value (NPV), the source and confidence of these economic inputs estimated inflation, discount rate, etc.	The Financial model combined inputs from the 2017 and the cost model generated on the 2021 Citronen Underground Mining Study. The portion of costs estimated as part of the Citronen optimization Study have an accuracy of ±25%. A summary of the costs is stated below: Capital Costs: • Mining US$ 81.4M • Process and infrastructure ○ Surface Capital Infrastructure US$ 411.6M ○ Surface Sustaining Capital US$ 65.1M Operating costs: • Underground Mining US$ 36.25/t of ore • Open Pit Mining US$ 7.5/t of ore • Processing US$ 14.9/t of ore • G&A US$ 6.1/t of ore The financial model is based on the following key criteria: • Discount rate of 8% • No allowance for inflation The Open Pit costs, tonnes and grade were sourced from the 2021 Citronen Underground Study Update.
	NPV ranges and sensitivity to variations in the significant assumptions and inputs	A sensitivity analyses was conducted within the financial model to identify the impact of the metal price on the forecasted project returns. The analysis showed that the project is very sensitive to metal price variations. The project also showed to be highly sensitive to the addition of the Discovery open pit to the end of the mine life.

Criteria	Explanation	Summary Comments for JORC Table 1
Social	The status of agreements with key stakeholders and matters leading to social licence to operate.	Relationships with stakeholders are in good standing and there are no known social impediments to the project. A full Social Impact Assessment has been submitted to, and accepted by, the Government of Greenland.
Other	To the extent relevant, the impacts of the following on the project and/or on the estimation and classification of the Ore reserves:	Mining Plus identified risks associated with assumptions made in the current study and recommends further analysis around the following items: • Mining on the Permafrost Zone • The following up to date data should be gathered before mining commencement: • Daily and mean monthly air temperatures. • The amplitude of ground temperature variation in the active layer (layer of rock or soil above the permafrost zone). • Stable permafrost temperature distribution at depth. • Snow cover and precipitation measurements. • Hydrogeological study ○ In regions of continuous permafrost, the frost table location can have a large impact on the water regime. Intact permafrost is an impenetrable water boundary. ○ The Citronen site is in an area of continuous permafrost where the ground stays frozen all year to an ultimate depth of 400m, as projected by literature using measured geothermal gradient. ○ Citronen is considered to be a dry mine based on the above mentioned and experience from drilling on site. However, an underground hydrogeological study to pre-feasibility level needs to be undertaken to assess the potential (if existing) sources of underground water inflow and risks associated with it. ○ • Frozen backfill ○ The understanding of the properties and behaviours of the frozen backfill is fundamental for a successful application of the studied mining method.
	Any identified material naturally occurring risks.	

Criteria	Explanation	Summary Comments for JORC Table 1
		○ Further tests should be conducted around the processing plant slurry for a better understanding of its behaviour when frozen and exposed to heat. This will be the environment that the frozen backfill will be subjected to in studied mining method. • Production rate ○ Mining Plus recommends a production rate optimization investigation in light of the potential reserves outlined in the study. A lower production rate could reduce costs and improve the financials of the project. • Geotechnical Numeric Modelling ○ A geotechnical analysis and modelling should be undertaken in the next phases of the study around pillar sizes and ground support. The recommended work to be carried out is outlined below: ○ Re-log Core data - Logging of RQD at least for 20m into the HW of each ore intersection. ○ Underground stress analysis using 3DEC (Hangingwall) – the stress analysis will produce information about deformations around the seams hanging wall. The model will generate reliable information that will back up a 3d stress analysis. ○ 3D stress strain analysis (Map3D modelling) – the 3D stress-strain analysis will test ground support, pillar sizes, spans, regional pillars, subsidence of the frozen sedimentary rock when exposed.
	The status of material legal agreements and marketing arrangements	Not Applicable

Criteria	Explanation	Summary Comments for JORC Table 1
	The status of governmental agreements and approvals critical to the viability of the project, such as mineral tenement status, and government and statutory approvals. There must be reasonable grounds to expect that all necessary government regulations will be received within the timeframes anticipated in the Pre-feasibility or Feasibility study. Highlight and discuss the materiality of any unresolved matter that is dependent on a third party on which extraction of the reserve is contingent.	The Citronen Project lies within a granted Exploitation Licence which is owned 100% by Ironbark.
Classification	The basis for the classification of the Ore Reserves into varying confidence categories.	• Part of the Measured and Indicated Resources has been classified as Proved and Probable Reserves. • The Ore Reserve consist of 50% Proved Reserve and 50% Probable Reserve. • The Competent Person, is satisfied that the stated Ore Reserves accurately reflect the outcome of mine planning and the input of economic parameters into optimisation studies.

Criteria	Explanation	Summary Comments for JORC Table 1
	Whether the result appropriately reflects the Competent Person's view of the deposit	
	The proportion of Probable Ore Reserves that have been derived from Measured Mineral Resources (if any)	
Audits or reviews	The results of any audits or reviews of Ore Reserve estimates	Mining Plus has undertaken an internal peer review of the Ore Reserve in accordance with its consulting guidelines
Discussion of relative accuracy/confidence	Where appropriate a statement of the relative accuracy and confidence level in the Ore Reserve estimate using and approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the reserve within	• The Mining component of the PFS has been completed with a relative accuracy of +/-25%. • All mining estimates are based on relevant costs in US$ or factored estimates from similar mining method and scale projects. • Where practical and possible, current industry practices have been used to quantify estimations made. • To mitigate risks associated with the project it is recommended that the following work be undertaken: ○ hydrogeological study ○ Frozen backfill analysis ○ Geotechnical Numeric Modelling

Criteria	Explanation	Summary Comments for JORC Table 1
	stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors which could affect the relative accuracy and confidence of the estimate	
	The statement should specify whether it relates to global or local estimates, and if local, state the relevant tonnages, which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the procedures used	

Criteria	Explanation	Summary Comments for JORC Table 1
	Accuracy and confidence discussions should extend to specific discussions of any applied Modifying factors that may have a material impact on Ore Reserve viability, or for which there are remaining areas of uncertainty at the current study stage It is recognised that this may not be possible or appropriate in all circumstances. These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.	
	Overall economic statement	The economics of the Citronen Project were evaluated based on earnings before interest, taxes, depreciation and amortisation (EBITDA) model. Production, revenues, operating costs, capital costs, and corporate income tax were considered in the financial model. All dollar figures are presented in US dollars (‘US$’). The main economic assumptions are a US$ 3,042/t zinc price, US$ 2,315/t lead price.