

ASX ANNOUNCEMENT

Wednesday 2nd March 2016

Hot Chili Delivers PFS and Near Doubles Reserves at Productora

Fundamentals Pave Way for Development of New Chilean Coastal Copper Development

New Global Copper Development

- Pre-feasibility study confirms Productora as a new global copper development with strong potential to add further mine life and scale
- Benchmarking demonstrates competitive financial metrics for return on investment and capital intensity
- Positioned as one of the best low-altitude and infrastructure-rich copper developments in Chile. Access and easements to establish key infrastructure already secured

10 Year Mine Life Secured Against Growing Resource and Reserve Base

- Mineral Resource expanded to 1.47Mt contained copper and 0.98Moz gold and growing
- Ore Reserve tonnage near-doubled to 166.9Mt. Contained metal now stands at 0.72Mt of contained copper and 0.47Moz of gold
- 10 year mine life with first 8 years production averaging 66kt copper and 25koz gold annually

Financially Competitive to Global Peers

- Pre-production capital cost of US\$725 million (incl US\$82M contingency)
- Project revenue of US\$4.3 billion, based on long term price deck
- Very competitive C1 cash cost of US\$1.47/lb paid metal (including credits)
- Highly leveraged to copper price, resource growth and operating cost improvements

ASX CODE

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Hot Chili Limited (ASX Code: HCH) is pleased to announce the completion of the Pre-feasibility Study (PFS) for its flagship Productora copper project, located along the coastal range 600km north of Santiago, Chile.

In addition, the Company is pleased to announce that Productora's Mineral Resources and Ore Reserves have reached a critical mass, with strong potential for continued growth and thus increased mine life and scale of production.

Ore Reserve tonnage at Productora has near doubled to 166.9Mt. Payable metal now stands at 562,900t copper (61% increase), 191,900oz gold (26% increase) and 11,200t molybdenum (24% increase).

Mineral Resources have been significantly expanded through the addition of the newly discovered Alice porphyry, a new "low grade" resource estimate and a revision of the Productora Main Zone. Productora's Resource base now stands at 1.47Mt copper (43% increase), 0.98Moz gold (45% increase) and 45kt molybdenum (55% increase).

The PFS demonstrates a robust blueprint to develop one of Chile's next large-scale coastal copper mines. Financial benchmarking against some of the world's leading copper developments indicates Productora is a stand-out for capital intensity, with competitive return on investment and cash costs when compared with existing long-life, large-scale global copper producers.

Studies centred on open-pit mining of Productora via two large sulphide open pits and five smaller oxide open pits. Processing utilised conventional technology for a 14Mtpa sulphide concentrator and a 3.3Mtpa heap leach and Solvent Exchange and Electro-Winning (SX-EW) circuit.

Productora project definition benefits significantly from:

- Sea water processing advantages Environmentally and economically preferable with increased recoveries in oxide ore, and significant capital cost savings associated with low-cost water pipeline (62km long pipeline and one pump station)
- Ease of connection to grid power Only 25km of 220Kv transmission lines required to connect to the Maintencillo power substation.
- Nearby port capacity Las Losas port facility just 40km directly west of Productora. Environmental approval already received to upgrade to a copper export terminal with PFS study scheduled to commence in co-operation with Puerto Las Losas - a Joint Venture





between CAP S.A. (51%) and Agrocomercial A.S. Ltda. (49%) (see ASX announcement dated 17th February 2015).

The above advantages have positioned Productora as a low-risk development option with significant infrastructure advantages already secured through completion of the Joint Infrastructure Agreement with the Company's 17.5% Joint Venture (JV) project partner Compañía Minera del Pacífico S.A (CMP) (see ASX announcement dated 1st May 2015).

At this stage of development, Productora is underpinned by 10 years of mine life with production over the first 8 years averaging 66kt copper and 25koz gold annually. Pre-production capital of US\$725 million equates to one of the lowest capital intensity projects (US\$11,490/t annual copper production) in the global copper development pipeline.

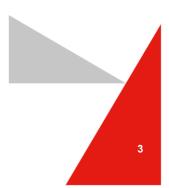
Financially, Productora achieves a US\$220 million post-tax Net Present Value (NPV) and Internal Rate of Return (IRR) of 15% assuming a long-term price deck of US\$3.00/lb copper, US\$1,250/oz gold and US\$14.00/lb molybdenum at a real discount rate of 7%.

Cost-wise, the project is considered very competitive when compared to global copper producers with C1 cash costs of US\$1.47/lb paid metal (including credits) and C3 cash costs of US\$2.28/lb paid metal (including credits).

With project revenue of US\$4.3 billion and a pay-back period of 3.9 years (from start of production), the project is highly leveraged to any increase in copper price, mine life extension and operating cost improvements.

The Company is now assessing various leverage opportunities in advance of planning the commencement of a Definitive Feasibility Study (DFS). These include:

- 1. **Mine life extension** Exploration of identified large-scale copper porphyry potential adjacent to the planned central pit. The discovery of Alice and the commencement of porphyry resource growth have the potential to rapidly grow Mineral Resources and Ore Reserves.
- 2. **Operating cost improvements** Study of an Owner-operator mining scenario (to take advantage of globally depressed mining equipment prices and lower mining costs) including low-cost mine re-handle strategies.





Productora is now positioned with a very strong Ore Reserve and Mineral Resource base at the beginning of an exciting phase of new growth for the project.

The detection of several potential large-scale copper porphyries has transformed Productora's growth outlook and cemented Hot Chili's place as one of the ASX's largest emerging copper producers.

CMP have confirmed receipt of the independently prepared PFS and are currently reviewing the study results and key assumptions.

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Pre-Feasibility Study Parameters- Cautionary Statement

The PFS referred to in this announcement is based on a Probable Ore Reserve derived from Indicated Resources. No Inferred Resource material has been included in the estimation of Reserves. The Company advises that Probable Ore Reserve provides 99% of the total tonnage underpinning the forecast production target and financial projections.

The additional life-of-mine plan material derived from non-Ore Reserve material comprises 1% of the total tonnage, and is material classified as Inferred Mineral Resource. There is no dependence of the outcomes of the PFS and the guidance provided in this announcement on the non-Ore Reserve material.

Unless otherwise stated, all cash flows are in US dollars, are undiscounted and are not subject to inflation/escalation factors, and all years are calendar years. The PFS has been prepared to an overall level of accuracy of approximately -25% to +25%.

The Company has concluded that it has a reasonable basis for providing forward looking statements included in this announcement. The detailed reasons for this conclusion are outlined throughout this announcement and in particular in Appendix 2: Forward Looking and Cautionary Statements.





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Introduction

The Productora Project is located on the coastal range in Region III Chile, at low altitude (~800m elevation), just 17 kilometres south of the regional township of Vallenar. The Project enjoys the unique advantage of being surrounded by existing infrastructure, including the Maintencillo power substation, Las Losas Port facility, Pan-American Highway, railway network, and aerodrome, among other facilities. Figure 1 below displays the Productora Project location.

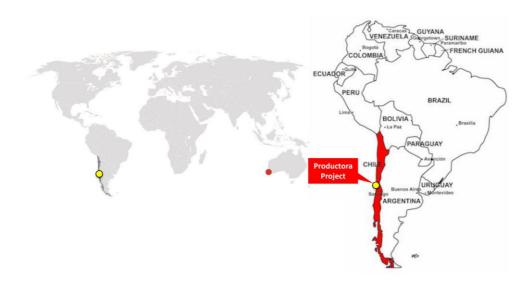


Figure 1. Productora Project location, on the coastal range in Region III, Chile

The Productora Project is 100% owned by a Chilean incorporated company named Sociedad Minera El Aguila SpA (SMEA). SMEA is a Joint Venture company, 82.5% owned by Sociedad Minera El Corazón Limitada (a 100% subsidiary of Hot Chili Limited), and 17.5% owned by CMP Productora (a 100% subsidiary of Compañía Minera del Pacífico S.A (CMP).

The Joint Venture agreement provides access to key infrastructure as well as securing an experienced major Chilean partner with substantial operational, financial and development capability to jointly develop Productora towards production. CMP also have an option to increase its stake in Productora to 50.1% following completion of the Definitive Feasibility Study (DFS).

Study Basis & Team

The Productora Project PFS is based on the following key parameters:

Productora Mineral Resource update¹ of:



¹ Refer to Appendix 3- Productora Project Mineral Resource Estimate

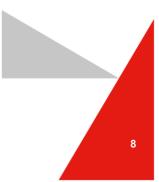


- Higher Grade Mineral Resource- 236.6Mt@ 0.48% Cu, 0.10g/t Au, 135ppm Mo for contained metal of 1.13Mt copper, 0.73Moz gold and 32kt molybdenum (*reported at or above 0.25% Cu*)
- Low Grade Mineral Resource- 218.0Mt@ 0.16% Cu, 0.04g/t Au, 58ppm Mo for contained metal of 0.34Mt copper, 0.25Moz gold and 13kt molybdenum (reported at or above 0.1% Cu and below 0.25 % Cu)
- Productora Ore Reserve update of 166.9Mt@ 0.43% Cu, 0.09g/t Au, 138ppm Mo for contained metal of 0.72Mt copper, 0.47Moz gold and 23kt molybdenum (based upon an optimised pit shell using price assumptions of Cu US\$3.00/lb, Au US\$1200oz, Mo US\$14.00/lb)¹
- Open-pit earthmoving mining operations conducted by contractors
- Infrastructure to produce copper-gold concentrate, molybdenum concentrate and copper cathode
- Processing plant and infrastructure built under a combination of Engineering, Procurement, Construction and Management (EPCM) and EPC contracts and managed by Hot Chili Owner's Team (Owner's Team)

Key project physical metrics are tabled below.

		Sulphide Concentrator	Heap Leach	
Mining Method		Open pit, contract n	niner (11 years)	
Peak Mining Rates (Mtp	a)	89 (total material), 21.6 (sulphide ore) and 6.4 (oxide ore)		
Project Construction		2 years (Yea	rs 1 & 2)	
First Production		Year	3	
Average Annual Process	s Rate	14.7 ²	3.3	
Average Annual product	ion	211kt concentrate (25% Cu content)	6.2kt cathode	
Average Metallurgical	Cu	86%	54%	
recoveries ³	Au	53%	0%	
	Мо		0%	
Metal Produced (LOM)	Copper (kt)	527	62	
	Gold (koz)	212	-	
	Molybdenum (kt)	11	-	

Table 1. Key Productora Project metrics



¹Refer to appendix 4- Productora Ore Reserve Statement

² Average annual throughput over 8 years (excluding ramp up and ramp down)

³ Average recoveries over 10 years (LOM)



The PFS was managed by Hot Chili's Owner's Team, with contribution from the following consultants:

- Mintrex Process plant and associated infrastructure, and assistance with compilation of the PFS Report
- NCL Ingeniería y Construcción SpA (NCL) Mine planning and optimisation
- MineSmith Strategic mine scheduling and Ore Reserve statement
- Artois Hydrogeological and water management studies
- Ingeniería de Rocas Ltda (Ingeroc) Geotechnical engineering studies
- ALS Metallurgy- Metallurgical testwork
- DMCC- Comminution circuit option study
- HydroGeoSense oxide heap leach pad stacking testwork
- Knight Piesold Tailings Storage Facility (TSF) and Heap Leach dump
- AMEC Foster Wheeler (AMEC FW)- Financial modelling
- AMC Consultants (AMC) Peer review and audit of Mineral Resource

Key Outcomes of the Pre-feasibility Study

Key PFS Outcomes for the Project are included in Table 2 below. The estimated Ore Reserve, which comprises 99% of the production target, has been prepared by competent persons in accordance with JORC Code 2012.¹

Project Life	12 years
Stripping Ratio (waste:ore) (including pre-strip)	2.7:1
Project Construction	2 years
First Production	Year 3
Grind Size P80 (µm)	150 (Productora)
	180 (Alice)
C1 Cost ² (US\$/lb paid metal)	\$1.47
C2 Cost ³ (US\$/lb paid metal)	\$2.25
C3 Cost ⁴ (US\$/lb paid metal)	\$2.28
Pre-production Capital Expenditure	US\$725M
Project NPV (7% real discount rate)	US\$220M
Project After-tax IRR (real)	15%
Payback Period (from start of production)	3.9 years

¹ Refer to Appendix 6: JORC Code 2012 Table 1

² C1 = Paid metal, adjusted to exclude deferred waste stripping, includes gold and molybdenum credits

 $^{^{3}}$ C2 = C1 plus depreciation

⁴ C3 = C2 plus interest and indirect costs



Table 2. Productora Project key metrics

Mineral Resources

The Company is very pleased with the strong resource growth at the Project, with the new Mineral Resource estimate now updated to include:

- 1. Resource revision for Productora Main Zone
- 2. The newly discovered Alice porphyry resource
- 3. A new "low grade" resource for the Project

Significant increases¹ in the Project's Mineral Resource inventory have been achieved, with the new combined "higher grade" and "low grade" resource increasing by 43% contained copper, 45% contained gold and 55% contained molybdenum metal.

The new "low grade" resource until now, had not previously been considered, but has now been added to the Project's Mineral Resource inventory to reflect its likelihood of eventual economic extraction- which is supported by metallurgical testwork and mine studies as part of the PFS. Importantly, the "low grade" resource has allowed the optimisation of Ore Reserve estimates to account for accurate dilution studies to be undertaken.

The Mineral Resource estimate for the Productora project is presented in Tables 3 and 4. Mineral Resource estimates are reported inclusive of those Mineral Resources converted to Ore Reserves.

			Grad	le		Contained Metal			
Deposit	Classification	Tonnage (Mt)	Cu (%)	Au (g/t)	Mo (ppm)	Copper (tonnes)	Gold (ounces)	Molybdenum (tonnes)	
	Indicated	166.8	0.50	0.11	151	841,000	572,000	25,000	
Productora	Inferred	51.9	0.42	0.08	113	219,000	136,000	6,000	
	Sub-total	218.7	0.48	0.10	142	1,059,000	708,000	31,000	
	Indicated	15.3	0.41	0.04	42	63,000	20,000	600	
Alice	Inferred	2.6	0.37	0.03	22	10,000	2,000	100	
	Sub-total	17.9	0.41	0.04	39	73,000	23,000	700	
	Indicated	182.0	0.50	0.10	142	903,000	592,000	26,000	
Combined	Inferred	54.5	0.42	0.08	109	228,000	138,000	6,000	
	Total	236.6	0.48	0.10	135	1,132,000	730,000	32,000	

Reported at or above 0.25 % Cu. Figures in the above table are rounded, reported to two significant figures, and classified in accordance with the Australian JORC Code 2012 guidance on Mineral Resource and Ore Reserve reporting. Metal rounded to nearest thousand, or if less, to the nearest hundred.

Table 3. Productora Project Higher Grade Mineral Resource, March 2016

¹ As compared to previous Mineral Resource estimate, refer to ASX announcement, dated 31 March 2014



			Grad	le		Contained Metal			
		Tonnage	Cu	Au	Mo	Copper	Gold	Molybdenum	
Deposit	Classification	(Mt)	(%)	(g/t)	(ppm)	(tonnes)	(ounces)	(tonnes)	
	Indicated	150.9	0.15	0.03	66	233,000	170,000	10,000	
Productora	Inferred	50.7	0.17	0.04	44	86,000	72,000	2,000	
	Sub-total	201.6	0.16	0.04	60	320,000	241,000	12,000	
	Indicated	12.3	0.14	0.02	29	17,000	7,000	400	
Alice	Inferred	4.1	0.12	0.01	20	5,000	2,000	100	
	Sub-total	16.4	0.13	0.02	27	22,000	9,000	400	
	Indicated	163.2	0.15	0.03	63	250,000	176,000	10,000	
Combined	Inferred	54.8	0.17	0.04	43	91,000	74,000	2,000	
	Total	218.0	0.16	0.04	58	341,000	250,000	13,000	

Reported at or above 0.1% Cu and below 0.25 % Cu. Figures in the above table are rounded, reported to two significant figures, and classified in accordance with the Australian JORC Code 2012 guidance on Mineral Resource and Ore Reserve reporting. Metal rounded to nearest thousand, or if less, to the nearest hundred. Metal rounded to nearest thousand, or if less, to the nearest hundred.

Table 4. Productora Project Low Grade Resource, March 2016

Mining

It is proposed that a mining contractor will conduct the mining activities at Productora with technical and managerial direction provided by Hot Chili. The mine is planned to be an open pit operation incorporating drill and blast, load and haul, and ore and waste management.

NCL conducted the mine studies for the Project, including pit optimisation and design, waste dump and stockpile design and mine cost modelling (based upon transport route modelling). Mine operating costs were prepared with the assistance of mining contractor Stracon GyM, who provided a pricing estimate for the Productora Project LOM.

Final pit designs were based on a Lerchs-Grossmann Whittle[™] shell using a copper price of US\$3.00/lb, gold price of US\$1,200/oz and molybdenum price of US\$14/lb. The final pit designs include the Main Productora pit, the Alice pit, and five minor oxide pits to the north and south of Productora. The pits are designed to be mined in four phases, as depicted in Figure 2.





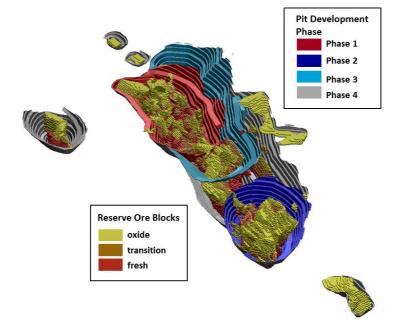


Figure 2. Productora Project Final Pits (note: two northern oxide pits are not displayed in this view)

The mining schedule adopts the following key parameters and assumptions:

- Mining equipment selected for bulk mining and flexibility in smaller pits:
 - 220t and 100t trucks, face shovel for loading waste
- 12m benches double stacked to 24m (Ore benches loaded from 6m flitch)
- The production schedule assumes variable process throughput rates ranging from 12.9Mtpa for harder (higher Bond Work Index -BWi), to 15.2Mtpa for softer (lower BWi) sulphide ore, and varying comminution grind sizes
- The maximum process plant annual throughput rate is set at 15.4 Mtpa (sulphide) and 3.3Mtpa (oxide) for a maximum combined total throughput of 18.7Mtpa
- A cut-off strategy was employed and transport cost modelling completed to optimise early copper production and material movements

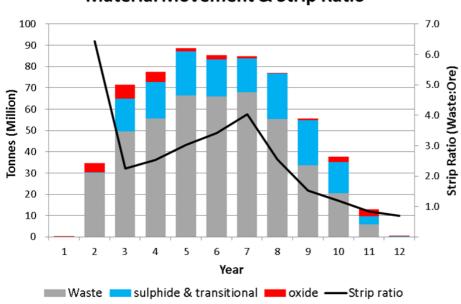
The variable cut-off grade was determined as a function of metal revenue, operating costs, process throughput, process recovery, transport and refining costs, general and administrative costs, royalty costs and sustaining capital costs.

The mining schedule extracts a total of 626 Mt of material over the LOM, with total ore mined and processed of 169 Mt, which includes 2 Mt¹ of mineralised material derived from Inferred resources. An overall strip ratio (including pre-strip) of 2.7:1 (waste:ore) has been achieved, with total mining rate peaking at 89 Mtpa in Year 4. Figure 3 illustrates annual production and

¹ Equivalent to 1% of tonnes used for forecast production target and financial projections. This ore material is deferred for processing at the end of project and does not have any impact on the Project's NPV.



associated strip ratio.



Material Movement & Strip Ratio

Figure 3. Mine production (excluding stockpile rehandle)

A comprehensive geotechnical study was undertaken including slope stability analysis of the Productora and Alice pits and study of the maximum waste dump capacity for the Project. Data assessed as part of the geotechnical study comprised ten dedicated geotechnical diamond drillholes for 1,629m, a substantial campaign of downhole televiewer surveying (optical and acoustic), as well as detailed surface and downhole litho-structural mapping.

Geotechnical cross-sections and selected Overall Slope Angles (OSA) for the Productora and Alice Pits are illustrated below in Figure 4.

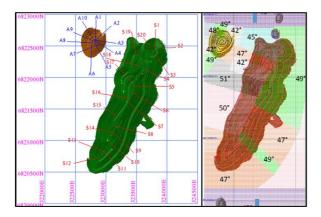


Figure 4. Geotechnical Cross-Sections and determined overall Pit Slope Angles



Ore Reserves

The Company is pleased to announce the Productora Ore Reserve update, as featured in Table 5 below. Significant growth at the Project has been achieved, with contained metal now standing at 0.72Mt copper and 0.47Moz of gold- nearly double that of the previously announced Productora Ore Reserve¹.

Ore Reserve Parameters

A component of the Mineral Resource was converted to an Ore Reserve in consideration of the level of confidence in the Mineral Resource estimate and to reflect modifying factors.

The Probable Ore Reserve estimate is based on Mineral Resource classified as Indicated, No Inferred material has been used for Ore Reserve estimation.

	- T ours	Toppago	Grade			Contained Metal			Payable Metal		
Ore Type	Reserve Category	Tonnage	Cu	Au	Мо	Copper	Gold	Molybdenum	Copper	Gold	Molybdenum
	category	(Mt)	(%)	(g/t)	(ppm)	(tonnes)	(ounces)	(tonnes)	(tonnes)	(ounces)	(tonnes)
Oxide		24.1	0.43	0.08	49	103,000	59,600	1,200	55,600		
Transitional	Probable	20.5	0.45	0.08	92	91,300	54,700	1,900	61,500	24,400	800
Fresh		122.4	0.43	0.09	163	522,500	356,400	20,000	445,800	167,500	10,400
Total	Probable	166.9	0.43	0.09	138	716,800	470,700	23,100	562,900	191,900	11,200

Note 1: Figures in the above table are rounded, reported to two significant figures, and classified in accordance with the Australian JORC Code 2012 guidance on Mineral Resource and Ore Reserve reporting. Note 2: Price assumptions: Cu price - US\$3.00/lb; Au price US\$1200/oz; Mo price US\$14.00/lb. Note 3: Mill average recovery for fresh Cu - 89%, Au - 52%, Mo - 53%. Mill average recovery for transitional; Cu 70%, Au - 50%, Mo - 46%. Heap Leach average recovery for oxide; Cu - 54%. Note 4: Payability factors for metal contained in concentrate: Cu - 96%; Au - 90%; Mo - 98%. Payability factor for Cu cathode - 100%.

Table 5. Productora Project Ore Reserve Statement, March 2016

Key Ore Reserve highlights include:

- 84% increase² in Ore Reserve tonnage
- 61% increase in payable copper
- 26% increase in payable gold
- 24% increase in payable molybdenum

Substantial Ore Reserve growth has been achieved through the capture of several opportunities which were identified on completion of the previous Ore Reserve estimate, as follows.

Improved metallurgical recoveries for copper, gold and molybdenum in sulphide ore were achieved through an expanded programme of metallurgical testwork aimed at improving recoveries through optimising grind size, residence time, reagent types and addition rates.

 $^{^{\}rm 2}$ As compared to the previously published Ore Reserve statement, refer to ASX Announcement, dated 31 March 2014



¹ Refer to ASX Announcement, dated 31 March 2014



Consideration of oxide Mineral Resources in the Ore Reserve through further technical and economic studies of the Productora oxide project, as part of the PFS.

Capture of the new "low grade" Mineral Resource, by allowing this new component of resources to be considered for pit optimisation, and ore loss and dilution studies.

Substantial improvements/ reductions to operating costs have been realised through further technical and economic studies of operating cost parameters as part of the Productora PFS, which in turn has had a positive impact on the Ore Reserve.

Ore Processing & Production

The sulphide treatment plant is designed to process 14 Mtpa of sulphide ore via a conventional bulk flotation copper sulphide concentrator producing a copper concentrate grade of 25%, and a molybdenum concentrate grading 50% molybdenum. Gold will report to the copper concentrate.

The Project will also process up to 3.3 Mtpa of oxide ore via a conventional crushing/ agglomeration/ heap leach circuit coupled with a Solvent Exchange – Electro Winning (SX-EW) plant producing up to 10,000 tpa of copper cathode.

A summary of sulphide and oxide ore processed is outlined in Tables 6 and 7 below.

Sulphide Concentrator	Comment
Mining Method	Open Pit – 11 years
Peak Mining Rates	Total 89 Mtpa & Sulphide Ore 21.6 Mtpa
Project Construction	Years 1 - 2
First Production	Year 3 Ramp up, Year 4 Full Production
Processing Rate*	14.4 Mtpa – 10 years
Metallurgical Recovery Average	Cu = 86%
	Au = 53%
	Mo = 53%
Average Annual Concentrate Production	211 ktpa
(25% Cu Content)	(Max 306 kt Year 4, Min 72 kt Year 12)
Sulphide Copper Produced (LOM)	527 kt – 1.2 Blb
Sulphide Gold Produced (LOM)	212 koz
Sulphide Molybdenum Produced (LOM)	11 kt – 25 Mlb

*The throughput rate is variable.

Table 6. Productora sulphide ore summary



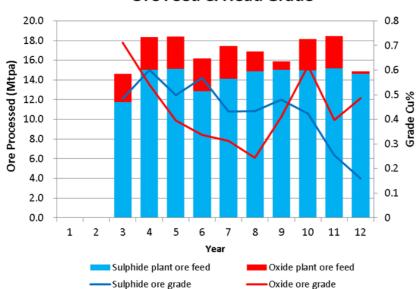
Heap Leach	Comment
Mining Method	Open Pit – 11 years
Peak Mining Rate	Total 89 Mtpa & Oxide Ore 6.4 Mtpa
Project Construction	Years 1 & 2 (2 year construction period)
First Production	Year 3 Ramp up, Year 4 Full Production
Nominal Processing Rate*	3.3 Mt/a – 10 years
Metallurgical Recovery Average	Cu = 54%
Average Annual Cathode Production	6.2 ktpa
	(Max 10 kt in Year 2, Min 1.9 kt in Year 9)
Payable Oxide Copper Production (LOM)	62 kt – 140 Mlb

Table 7. Productora oxide ore summary

An average sulphide processing throughput of 14.7 Mtpa is achieved over a 8 year period, with resulting average annual copper production of 66.2 kt (59.6 kt of concentrate and 6.6 kt of cathode) achieved over the first eight years of production.

Peak copper and gold metal production occurs in year 4, where 87 kt of copper metal is produced (combined Cu in concentrate and Cu cathode).

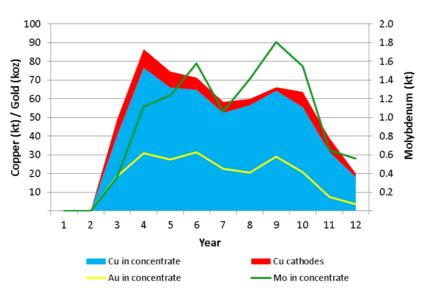
Figures 5 and 6 respectively illustrate the annual ore feed tonnage and grade, and annual metal production.



Ore Feed & Head Grade

Figure 5. Sulphide and oxide ore feed annual tonnages and copper grades





Metal Production

Figure 6. Productora Project annual metal production of copper, gold and molybdenum

Geometallurgy Modelling

A predictive proxy correlation model for the sulphide and oxide mineral processing plants was developed utilising results from mineralogical, metallurgical and comminution testwork. This correlation model was used to code key metallurgical parameters to over 158,000 samples from the resource drilling multi-element database. This extensive database was then used to directly estimate these metallurgical parameters into the resource block model (see Figure 7) which in turn was used as a parameter used for the development of optimising pit shells.

The Bond Ball Mill Work Index (BWi) is a key output from traditional metallurgical comminution testing, and is a standard industry test for determining the resistance of material to grinding. For Productora sulphide ores, the BWi is a strong indicator of plant throughput, power consumption and mill grinding media consumption. A strong correlation between BWi and the elements potassium (K) and aluminium (AI) was identified from the multi-element resource database. Subsequently, sulphide plant behaviour can be predicted, utilising BWi as a proxy, modelled from K and AI values (158,000 samples).





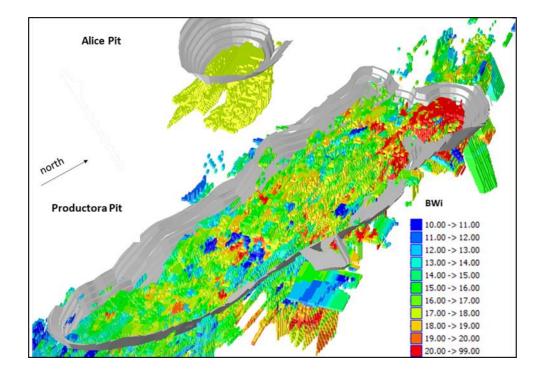


Figure 7. Modelled variable BWi of Sulphide Ore, as coded to the Productora resource model

Bottle roll and leaching tests were conducted to determine the potential leachability and acid consumption of the oxide material. One of the key tests was for acid consumption, which calculated kilograms of acid (per tonne of ore) required to leach material to achieve a possible or desired copper metal recovery. A strong correlation between acid consumption and calcium (Ca) was identified. Hence, oxide plant behaviour can be predicted, utilising acid consumption as a proxy, which can be estimated from Ca values in the multi-element resource drillhole database.

The geometallurgy proxy development has enabled an extensive multi-element database of over 158,000 downhole assay values to be utilised, in turn providing a significant opportunity and risk mitigation for the project.

Infrastructure & Implementation

The Productora Project has the benefit of being able to utilise existing infrastructure and services in the Vallenar/ Huasco region. The township of Vallenar (17 km from the mine site) will provide accommodation and services to support the Project. Other general infrastructure around Vallenar/ Huasco includes the following:

- Aerodrome (3 km south of Vallenar)
- Pan American Highway (5 km east of the mine site)
- Access roads from the Pan American Highway and from Maintencillo sub-station will





provide partial access to the minesite

- Main road from Vallenar to Huasco
- Maintencillo 220 kV electrical substation
- 23 kV power supply in Huasco
- Existing Las Losas port facility in Huasco Bay near the city of Huasco

Figure 8 shows the Productora Project location, and surrounding infrastructure (both existing and proposed).



Figure 8. Productora Project location, and its proximity to surrounding infrastructure

Power

The electrical supply for the Productora project will originate at the Maintencillo substation for the main processing facilities, with the maximum demand for the Project estimated at 57 MVA.

A single circuit 220kV transmission line of approximately 25 km in length will be used to transmit electricity from the Maintencillo substation to the Productora substation at the sulphide processing facilities.





Seawater Pipeline

A seawater transfer system is designed to transfer up to 368 l/s of seawater from the coast to the storage pond at the sulphide plant. The pipeline from coast to mine site is approximately 62 km in length rising from sea level to 640 masl. The system will consist of one intake pump station at the coast, and a single seawater transfer pump station, with the pipeline being a 600 mm steel buried transfer pipeline.

Tailings Storage Facility

The tailings storage facility (TSF) is located approximately 6 kilometres southwest of the plant site. The initial embankment height is 61 metres rising to 117 m at the end of the current mine life. The TSF has capacity for up to 250 Mt, or 18 years of production, of which only \sim 60% is being utilised for the current production target which forms a basis to the Productora PFS.

Accommodation

Accommodation of temporary personnel during the construction phase and permanent mine site personnel during the operations phase will be provided in Vallenar and La Serena. This means that no on site accommodation will be required at the Project, nearly halving the General and Administration (G&A) costs associated with the Project.

Port Facility

The existing Las Losas port facility will be utilised for receipt, storage, reclaim and shiploading of copper concentrate. The existing facility has environmental approval to upgrade to a copper terminal, with the PFS study to be completed. The Las Losas port will require upgrades to handle the volume of concentrate to be stored and shipped. At this stage, it is expected that the port facility will be available as required by Productora on a tariff basis.

Development Schedule

The construction and procurement period post-completion of the DFS, Environmental Impact Assessment (EIA) and approvals is estimated to be 24 months in duration until the commencement of production.

The development schedule consists of the following sequential stages:

•	Definitive/ Bankable Feasibility Study and approvals (DFS)	18 months
•	Project design and construction	22 months
•	Commissioning	2 months

Ramp-up 3-4 months

Open pit mining and the construction of site infrastructure and processing plant facilities will overlap and in most part progress simultaneously.

Environment & Sustainability

The Environmental Impact Assessment (EIA) of the Productora Project will be submitted for



approval using the Environmental Impact Assessment System (EIA System) that is currently being applied in Chile.

The environmental baselines describe the condition of relevant environmental components that may be affected by the project. Baselines for the project included the following activities:

- Multiple baseline campaigns (covering the Productora project area and all associated infrastructure areas) of around 11,000 hectares have been covered. Seasonal campaign baseline studies of flora and fauna have now been conducted over all four seasons over all required Project areas, and are considered complete.
- Baseline studies have also been completed for 19 other components, such as archaeology, landscape, palaeontology, human environment, geomorphology, natural risks etc.
- Main findings in the project area refer to flora and fauna species under conservation status, archaeology findings with high value and the presence of some families (two permanent) living at the project that will require relocation/ resettlement.

It is estimated that there is an additional 6 months' work before EIA completion. Importantly all seasonal baseline studies have been completed, so the remaining work is not season (ie. time) dependent.

Pre-Production Capital Cost

The pre-production capital cost estimate has been prepared to a level equivalent to that required for a Pre-feasibility Study and is presented in US dollars as of the fourth quarter 2015 (Q4 2015) to an accuracy level of +/- 25%. The capital cost includes a contingency amount of US\$82M.

Direct Costs	\$USM
Bulk Earthworks and Drainage	31
Site Services	2
Sulphide Process	200
Oxide Process	68
Molybdenum Process	9
Infrastructure	132
Mining	22
Mining (Pre-strip)	68
Indirect Costs	
EPCM Costs	78
Owners Costs	67
Working Capital	50
TOTAL PROJECT COSTS	725

The capital cost estimate for the project is summarised in Table 8.

Table 8. Capital cost estimate for the Productora Project, developed using USdollars (Q4 2015), accuracy level +/- 25%.



Operating Cost

Operating costs have been estimated for mining, sulphide and oxide plant processing, administration, concentrate transport and seawater supply areas. All costs are presented in US dollars and are based on prices for the fourth quarter of 2015.

Financial analysis utilised a power cost of \$0.065/kWh and a diesel cost of \$0.50/litre in line with independent recommendations and current long-term forecasts, respectively.

Pit optimisation, cut-off grade definition and associated Ore Reserve estimate utilised a power cost of \$0.095/kWh and a diesel cost of \$0.64/litre to ensure a more robust definition of ore and waste.

C1 cash costs have been calculated pro rata (no credits), with Productora being competitive across individual cost areas and in total cost, as compared to world copper producers. The Project's C1 cash costs against the world copper producers median cash costs are summarised below in Table 9.

	Operating Cost	US\$	Units	C1 \$/lb Cu (r	o credits)
	Estimate			Productora	Global Median
	Open Pit Mining (mining & rehandled)	1.80	/t material moved	0.69	0.48
Sulphide	Sulphide Ore Variable Cost	3.79	/t milled ore	0.54	0.41
	Sulphide Ore Fixed Cost	17	US\$M/a		
	G&A	11	/t milled ore		
	Gold RC	5	/oz		
Oxide	Leaching	2	/t leached ore	0.93	
	SXEW	0	/lb copper		
	Oxide Ore Fixed Costs	5	US\$M/a		
Subtotal				0.58	0.41
Sulphide	Transport/Port Loading	58	/t concentrate	0.31	0.32
	Total Copper Selling Costs (Transport, TC/RC)	0.40	/lb copper		
Oxide	Transport/Port Loading	88	/t cathode		
	Total Copper Selling Costs (Transport, TC/RC)	0.04	/lb copper		
	General & Administration (inc. royalties)	11	US\$M/a	0.07	0.17
Global P	roduction Total Cost			1.65	1.46

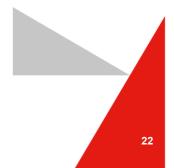
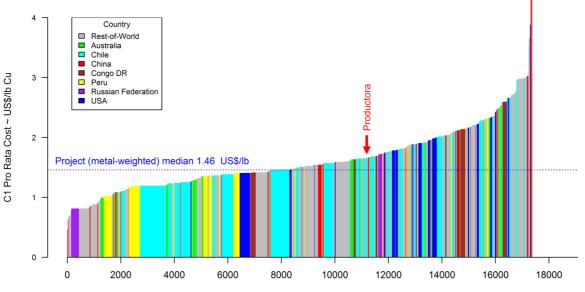




Table 9. Productora C1 Cash Costs (Pro Rata- no credits), as compared to global copper producers (Source: Wood Mackenzie, 2015)



297 World Copper Projects ~ Cumulative Annual Production ~ Copper Tonnes (000s)

Figure 9. Productora Project C1 cost (pro rata) benchmarked against world copper projects

The cash costs for Productora to produce paid metal are shown in Table 10 below. Pro rata cash costs have been developed by AMEC FW for operation benchmarking purposes.

PFS Financial Valuation	Normal Cost (US\$/Ib)	Comments
C1 Cost	1.47	/lb paid metal, adjusted to exclude deferred waste
(Normal)		stripping, includes gold and molybdenum credits.
C1 Cost	1.65	/lb produced, adjusted to exclude deferred waste
(Pro Rata)		stripping, excludes gold and molybdenum credits,
		costs apportioned according to net value.
C2 Cash Cost	2.25	/lb paid metal, includes C1 plus depreciation of pre-
(Normal)		production capital costs.
C3 Cash Cost	2.28	/lb paid metal, includes C2 plus production royalties.
(Normal)		

Table 10. Cash costs for the Productora Project (Normal- incl credits and Pro-Rata- no credits)



Sustaining capital and TC/RC costs are itemised in Tables 11 and 12 below.

Sustaining Capital Item	US\$ M
Concentrator	2.6 US\$M/y
Heap Leach	1.19 US\$/t oxide ore
Tailings Storage Facility	0.46 US\$/t sulphide ore
Mining	Contractor

Table 11. Sustaining capital estimate for the Productora Project

Metal	Metal Contract Term	Wood N	Financial Model	
		2019	2020- 2030	
Copper	Realised Treatment Cost (US\$/t)	90	100	100
	Base Refining Cost (US\$/lb)	9	10	10
Molybdenum	Upgrade Cost (US\$/lb)	1.40	1.40	1.40
Gold	Base Refining Cost (US\$/oz)	5	5	5

Table 12. Productora Project TC/RC costs for copper, gold and molybdenum

Financial Analysis

Financial analysis key assumptions are listed in Table 13 below.

Metal Prices	Units	Wood	Mackenzie	Financial Model	
		2019	2020-2030		
Copper price	US\$/lb	2.80	3.50	3.00	
Molybdenum price	US\$/lb	14	14	14	
Gold price	US\$/oz	1,025	1,000	1,250	
Key Assumptions	Units	Rate	Sour	ce	
Corporate Tax (FCT)	%	27	2020 Chilean tax r	ate	
Inflation Rate	%	2.5	Hot Chili		
Discount Rate	%	7.0	Hot Chili		
Payability in concentrate	Cu	96%	Wood Mackenzie		
	Au	90%	Wood Mackenzie		
	Mo	98%	MolyMet estimate		
CLP:US\$		690	3 month average		
US\$:A\$		0.72	3 month average		
Energy Price	US\$/Kwh	0.065	Forecast 0.04 - 0.	10	
Diesel Price	US\$/I	0.50	ENAP/ World Ban	k	





Table 13. Financial analysis key assumptions

The project key financial outcomes across a range of metal price inputs are provided in the following table.

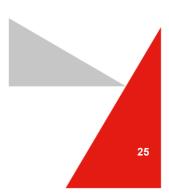
PFS Financial Valuation (US\$M)	Co	opper price so	cenario
	Base		Wood Mackenzie
			(2020 - 2030
Copper price applied (US\$/lb)	3.00	3.25	3.50
Project Revenue	4,300	4,600	5,000
Operating costs	2,500	2,500	2,500
Royalties (CCHEN and SMT)	82	99	120
Sustaining capital (including capitalised	270	270	270
waste)			
Project Operating Cash Flow (pre-tax)	1,800	2,200	2,500
Pre-production capital expenditure	725	725	725
Corporate Tax	190	270	350
Project Cash flow (pre-tax)	850	1,200	1,500
Project Free Cash Flow	610	820	1,000
Pre-tax Project NPV (7% discount)	360	560	760
Project NPV (7% discount)	220	360	500
Project Pre-tax IRR (real)	18%	24%	28%
Project After-tax IRR (real)	15%	19%	23%
Payback Period (from Year 0)	5.9 years	5.3 years	4.9 years
Payback Period (from start of production)	3.9 years	3.3 years	2.9 years

*Results shown to 2 significant figures

Table 14. PFS financial analysis, base case (US\$3.00/lb), (US\$3.25/lb) and Wood Mackenzie 2020-2030 long-term case (US\$3.50/lb)

Next Steps/ Path Forward

The Productora DFS will be developed in 18 months including completion of metallurgical testwork. A high level schedule is shown in Figure 10.





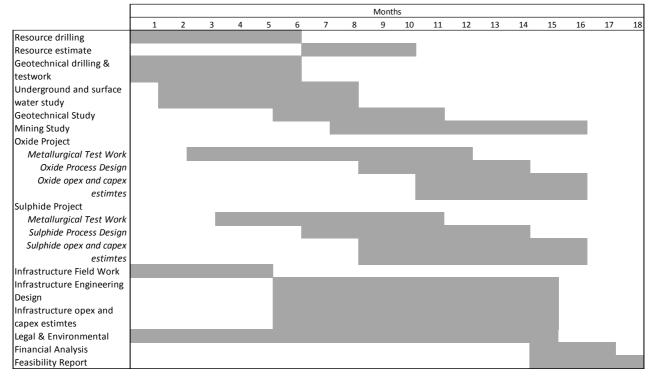


Figure 10. Productora Feasibility Study Schedule





Appendix 1. Competent Persons Statement

Exploration Results

Exploration information in this Announcement is based upon work undertaken by Mr Christian Easterday, the Managing Director and a full-time employee of Hot Chili Limited whom is a Member of the Australasian Institute of Geoscientists (AIG). Mr Easterday has sufficient experience that 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' (JORC Code). Mr Easterday consents to the inclusion in the report of the matters based on their information in the form and context in which it appears.

Mineral Resources

The information in this Announcement that relates to the Productora Project Mineral Resources, is based on information compiled by Mr J Lachlan Macdonald and Mr N Ingvar Kirchner. Mr Macdonald is a fulltime employee of Hot Chili Ltd and is a Member of the Australasian Institute of Mining and Metallurgy (AusIMM). Mr Kirchner is employed by AMC Consultants (AMC). AMC has been engaged on a fee for service basis to provide independent technical advice and final audit for the Productora Project Mineral Resource estimates. Mr Kirchner is a Fellow of the Australasian Institute of Mining and Metallurgy (AusIMM) and is a Member of the Australian Institute of Geoscientists (AIG). Both Mr Macdonald and Mr Kirchner have sufficient experience that is relevant to the style of mineralisation and type of deposit under consideration and to the activity being undertaken 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' (the JORC Code 2012). Both Mr Macdonald and Mr Kirchner consent to the inclusion in the report of the matters based on their information in the form and context in which it appears.

Ore Reserves

The information in this Announcement that relates to Productora Project Ore Reserves, is based on information compiled by Mr Carlos Guzmán, Mr Boris Caro, Mr Leon Lorenzen and Mr Grant King. Mr Guzmán is a Fellow of the Australasian Institute of Mining and Metallurgy (AusIMM), a Registered Member of the Chilean Mining Commission (RM- a 'Recognised Professional Organisation' within the meaning of the JORC Code 2012) and a full time employee of NCL Ingeniería y Construcción SpA (NCL). Mr Caro is a full-time employee of Hot Chili Ltd and is a Member of the Australasian Institute of Mining and Metallurgy (AusIMM) and a Registered Member of the Chilean Mining Commission. Mr Lorenzen is employed by Mintrex Pty Ltd and is a Chartered Professional Engineer, Fellow of Engineers Australia, and is a Fellow of the Australasian Institute of Mining and Metallurgy (AusIMM). Mr King is employed by AMEC Foster Wheeler (AMEC FW) and is a Member of the Australasian Institute of Mining and Metallurgy (AusIMM). NCL, Mintrex and AMEC FW have been engaged on a fee for service basis to provide independent technical advice and final audit for the Productora Project Ore Reserve estimate. Mr. Guzmán, Mr Caro, Mr Lorenzen and Mr King have sufficient experience which 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'. Mr Guzmán, Mr Caro, Mr Lorenzen and Mr King consent to the inclusion in the report of the matters based on their information in the form and context in which it appears.



Appendix 2. Forward-Looking and Cautionary Statements

This Announcement is provided on the basis that neither the Company nor its representatives make any warranty (express or implied) as to the accuracy, reliability, relevance or completeness of the material contained in the Announcement and nothing contained in the Announcement is, or may be relied upon as a promise, representation or warranty, whether as to the past or the future. The Company hereby excludes all warranties that can be excluded by law. The Announcement contains material which is predictive in nature and may be affected by inaccurate assumptions or by known and unknown risks and uncertainties, and may differ materially from results ultimately achieved.

The Announcement contains "forward-looking statements". All statements other than those of historical facts included in the Announcement are forward-looking statements including estimates of Mineral Resources. However, forward-looking statements are subject to risks, uncertainties and other factors, which could cause actual results to differ materially from future results expressed, projected or implied by such forward-looking statements. Such risks include, but are not limited to, copper, gold and other metals price volatility, currency fluctuations, increased production costs and variances in ore grade recovery rates from those assumed in mining plans, as well as political and operational risks and governmental regulation and judicial outcomes. 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 the Announcement, or to reflect the occurrence of unanticipated events, except as may be required under applicable securities laws. All persons should consider seeking appropriate professional advice in reviewing the Announcement and all other information with respect to the Company and evaluating the business, financial performance and operations of the Company. Neither the provision of the Announcement nor any information contained in the Announcement or subsequently communicated to any person in connection with the Announcement is, or should be taken as, constituting the giving of investment advice to any person.





Appendix 3. Productora Project Mineral Resource Estimate

Productora Higher Grade Resource, February 2016

Grade						Contained Metal			
Deposit	Classification	Tonnage (Mt)	Cu (%)	Au (g/t)	Mo (ppm)	Copper (tonnes)	Gold (ounces)	Molybdenum (tonnes)	
	Indicated	166.8	0.50	0.11	151	841,000	572,000	25,000	
Productora	Inferred	51.9	0.42	0.08	113	219,000	136,000	6,000	
	Sub-total	218.7	0.48	0.10	142	1,059,000	708,000	31,000	
	Indicated	15.3	0.41	0.04	42	63,000	20,000	600	
Alice	Inferred	2.6	0.37	0.03	22	10,000	2,000	100	
	Sub-total	17.9	0.41	0.04	39	73,000	23,000	700	
	Indicated	182.0	0.50	0.10	142	903,000	592,000	26,000	
Combined	Inferred	54.5	0.42	0.08	109	228,000	138,000	6,000	
	Total	236.6	0.48	0.10	135	1,132,000	730,000	32,000	

Reported at or above 0.25 % Cu. Figures in the above table are rounded, reported to two significant figures, and classified in accordance with the Australian JORC Code 2012 guidance on Mineral Resource and Ore Reserve reporting. Metal rounded to nearest thousand, or if less, to the nearest hundred.

Productora Low Grade Resource, February 2016

			Contained Metal					
		Tonnage	Cu	Au	Мо	Copper	Gold	Molybdenum
Deposit	Classification	(Mt)	(%)	(g/t)	(ppm)	(tonnes)	(ounces)	(tonnes)
	Indicated	150.9	0.15	0.03	66	233,000	170,000	10,000
Productora	Inferred	50.7	0.17	0.04	44	86,000	72,000	2,000
	Sub-total	201.6	0.16	0.04	60	320,000	241,000	12,000
	Indicated	12.3	0.14	0.02	29	17,000	7,000	400
Alice	Inferred	4.1	0.12	0.01	20	5,000	2,000	100
	Sub-total	16.4	0.13	0.02	27	22,000	9,000	400
	Indicated	163.2	0.15	0.03	63	250,000	176,000	10,000
Combined	Inferred	54.8	0.17	0.04	43	91,000	74,000	2,000
	Total	218.0	0.16	0.04	58	341,000	250,000	13,000

Reported at or above 0.1% Cu and below 0.25 % Cu. Figures in the above table are rounded, reported to two significant figures, and classified in accordance with the Australian JORC Code 2012 guidance on Mineral Resource and Ore Reserve reporting. Metal rounded to nearest thousand, or if less, to the nearest hundred. Metal rounded to nearest thousand, or if less, to the nearest hundred.

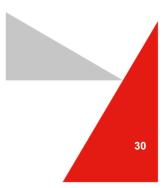




Appendix 4. Productora Project Ore Reserve Statement

			Grade			Contained Metal			Payable Metal		
Ore Type	Reserve Category	Tonnage	Cu	Au	Мо	Copper	Gold	Molybdenum	Copper	Gold	Molybdenum
	category	(Mt)	(%)	(g/t)	(ppm)	(tonnes)	(ounces)	(tonnes)	(tonnes)	(ounces)	(tonnes)
Oxide		24.1	0.43	0.08	49	103,000	59,600	1,200	55,600		
Transitional	Probable	20.5	0.45	0.08	92	91,300	54,700	1,900	61,500	24,400	800
Fresh		122.4	0.43	0.09	163	522,500	356,400	20,000	445,800	167,500	10,400
Total	Probable	166.9	0.43	0.09	138	716,800	470,700	23,100	562,900	191,900	11,200

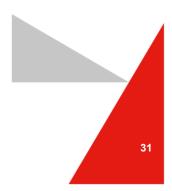
Note 1: Figures in the above table are rounded, reported to two significant figures, and classified in accordance with the Australian JORC Code 2012 guidance on Mineral Resource and Ore Reserve reporting. Note 2: Price assumptions: Cu price - US\$3.00/lb; Au price US\$1200/oz; Mo price US\$14.00/lb. Note 3: Mill average recovery for fresh Cu - 89%, Au - 52%, Mo - 53%. Mill average recovery for transitional; Cu 70%, Au - 50%, Mo - 46%. Heap Leach average recovery for oxide; Cu - 54%. Note 4: Payability factors for metal contained in concentrate: Cu - 96%; Au - 90%; Mo - 98%. Payability factor for Cu cathode - 100%.





Appendix 5. Cost Definitions

- Normal Costing in which full costs are allocated to the metal under analysis and net by-product revenue is credited against cash operating costs to give a net cash operating cost (this method is sometimes called by-product credit costing).
- Pro-rata Costing in which the total cost of each process stage is apportioned to the
 products sharing that process stage; according to their net values at that stage e.g. a
 metal that contributes 30% of net revenue is allocated 30% of the common costs.
- **Co/by-product** credits and pro-rata costing analysis are also based on metal production, not sales.
- Smelter and Refinery Charges. All costs are taken from the stand-point of the mine. Thus, for all non-integrated producers, smelter charges are treated as costs.
- Direct Costs are the cash costs for: mining, milling and concentrating, leaching, solution pumping, solvent extraction and electrowinning, on-site administration and general expenses, any off-site services which are essential to the operation, smelting (including toll smelting charges if applicable), fefining (including toll refining charges if applicable), concentrate freight costs, marketing costs, and property and severance taxes paid to state/federal agencies that are not profit related.
- Indirect Costs are the costs for: corporate overhead allocation, exploration costs incurred in lengthening mine life (excludes Greenfield corporate work), research attributable to the mining operation, royalties and "front-end" taxes (including sales tax, export tax and duties plus any other revenue-based taxes, but excluding all income and profit taxes and value-added taxes), Codelco's 10% royalty to the military (Tax Law 13,196) is treated as a C3 indirect cost, extraordinary items (e.g. strike costs, shortfalls in pension funding).
- Interest Charges are interest payable less interest receivable on overdrafts, shortterm loans and long-term loans.
- Depreciation includes depreciation and amortisation of fixed assets, and depletion
 of development expenditure (capitalised mine and leach costs). For vertically
 integrated producers it includes a share of smelter and refinery depreciation costs.
- **C1 Cost** is the direct cash cost (as defined above).
- C2 Cost is C1 cost plus depreciation.
- C3 Cost is C2 cost plus interest and indirect costs.





Appendix 6. JORC Code 2012 Table 1

The following table provides a summary of important assessment and reporting criteria used in the Productora project Preliminary Feasibility Study, and for the reporting of Mineral Resource and Ore Reserves in accordance with the Table 1 checklist in the Australasian Code for the Reporting of Exploration Results, Minerals Resources and Ore Reserves (The JORC Code, 2012 Edition).

The follow list provides the names and the sections for Competent Person responsibilities:

Section 1, 2 and 3: J.L Macdonald MAusIMM (Hot Chili Limited) and N.I Kirchner FAusIMM and M.AIG (AMC Consultants)

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Section 4: (as provided in specific areas)
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CG = C Guzman FAusIMM (NCL)

- BC = B Caro MAusIMM, (Hot Chili Limited)
- LL = L Lorenzen CPEng, CEng, PrEng, FIEAust, FAusIMM, FIChemE, FSAIMM, GAICD (Mintrex)
- HN = H Ngo CPEng, FIEAust, FAusIMM (Mintrex)
- **GK** = G King MAusIMM (AMEC Foster Wheeler)

Section 1 Sampling Techniques and Data

(Criteria in this section apply to all succeeding sections.)

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.	sample and representative 1m split samples (12.5%, or nominally 3.5kg) were collected using a cone splitter.
	Include reference to measures taken to ensure sample representivity	composite scoop samples were submitted to the laboratory for analysis. If these 4m



Criteria	JORC Code explanation	Commentary
	and the appropriate calibration of any measurement tools or systems used. Aspects of the determination of mineralisation that are Material to the Public Report.	composite samples came back with Cu grade > 0.2% the corresponding original 1m split samples were submitted to the laboratory for analysis. Diamond drilling (DD) was used to produce drill core with a 63.5mm (HQ) diameter. At the Productora deposit, diamond core was routinely whole sampled on 1m intervals. At Alice,
	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.	diamond core has half core sampled. Sampling techniques used are deemed appropriate for the style of copper-gold- molybdenum mineralisation and deposit type.
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).	Reverse Circulation drilling used 140 to 130mm diameter drill bits. RC drilling employed face sampling hammers ensuring contamination during sample extraction is minimised. Diamond drilling used HQ drill bits (96mm external and 63.5mm internal diameter). Diamond drilling was double tube. Diamond core was oriented using the Reflex ACT III core orientation tool. Diamond tails were drilled to test depth extensions of the mineralisation below depths which RC drilling could not penetrate. Diamond tails were completed on RC pre-collars, and not cored from surface.
Drill sample recovery	Method of recording and assessing core and chip sample recoveries and results assessed. Measures taken to maximise sample recovery and ensure	Drilling techniques to ensure adequate RC sample recovery and quality included the use of "booster" air pressure. Air pressure used for RC drilling was 700-800psi. Logging of all samples followed established company procedures which included recording
	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.	of qualitative fields to allow discernment of sample reliability. This included (but was not limited to) recording: sample condition, sample recovery, sample split method. Overall logging of RC and diamond sample recovery for the Productora deposit; 95.1% of samples as "good", 2.8% "moderate" and 2.1% as "poor" or not recorded. Logged



Criteria	JORC Code explanation	Commentary
		recovery for the Alice deposit; 99.7% as "good".
		RC samples weights were recorded by ALS upon sample receipt for assay.
		At the Productora deposit, a comparison between wet and dry, and moist and dry samples was undertaken to define confidence in sampling wet and to assist potential domain decisions. This comparison has highlighted some uncertainty that could relate to either natural mineral zonation within the shatter complex with elevation, or alternatively could relate to bias in wet or moist RC sampling. Future work will continue to address this uncertainty.
		Sample weights were routinely measured by ALS laboratory. An analysis of these weights and their corresponding grades did not identify any bias concern.
		At Productora there are quite a few RC intervals twinned with diamond holes. A direct comparison between nominally equivalent intervals shows there is some short-scale structural and mineralisation noise in all elements. Population comparison plots for matched twins was attempted but were not informative. A qualitative validation of mineralisation domains suggest that there is acceptable correlation with no discernable bias in the twinned mineralisation intervals and assay ranges.
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.	Photography of diamond core was routinely completed and is stored on the company's data server.
	The total length and percentage of the relevant intersections logged.	A cumulative total of 245,327m of drilling has been undertaken and utilised in the estimation of the Productora deposit.
		This includes 212,327m of RC (208,135m by HCH, 4,557m pre-HCH) and 32,636m of DD (all by HCH).
		A cumulative total of 9,593m of drilling has been undertaken and utilised in the estimation



Sub-sampling techniques preparation If core, whether cut or sawn and whether quarter, half or all core taken. of the Alice deposit. This includes 9,005m of RC and 588m of DD Every metre (100%) of HCH dilling was geologically logged. Litho-geochemical logging was undertaken using the assay results from the Me-ICP61 taken. Litho-geochemical logging was undertaken using the assay results from the Me-ICP61 taken. If core, whether cut or sawn and whether quarter, half or all core taken. Entire whole HQ diamond core was sampled at the Productora deposit If non-core, whether riffled, tube sampled, rotary split, etc and whether sample wer or dry. Entire whole HQ diamond core was sampled at the Alice deposit Splitting of RC and sample spes, the nature, quality and appropriateness of the sample preparation technique. Splitting of RC and samples occurred regardless of the sample condition (wet, moist, or dry). All resource and exploration samples were submitted to ALS Coquimbo (Chile) for multi-element analyses. Neasures taken to ensure that the sampling is representative of the in situ material collectd, including for instance results for field duplicate/second-half sampling. Samples were then split via a rifte splitter/ rotary split, to achieve -1kg split. This split was then pulverised such that a minimum of 85% passes 75um and -150g was used for the analytical pulp. Sample sample value and collection methods of RC samples are considered acceptable for estimation of this style of copper-gold-molybdenum mineralisation which is characterised by variably line to medium grained, disserninated to locally blebby c			
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data laboratory procedures used and whether the technique is considered standard methods through commercial laboratories in Chile (ALS Coquimbo):	-	• • •	All resource and exploration samples (RC chips and DD core) were assayed by industry standard methods through commercial laboratories in Chile (ALS Coquimbo):
and laboratory partial or total. 150g pulps derived from sample preparation (outlined in the previous section) were used	and laboratory	partial or total.	150g pulps derived from sample preparation (outlined in the previous section) were used



Criteria	JORC Code explanation	Commentary
tests	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.	for multi-element analysis. Samples that returned Cu grades >1,000ppm were subsequently analysed for gold by ALS Method Au-ICP21 (30g Fire Assay). Samples that returned Cu grades >10,000ppm were analysed by ALS "ore grade" method Cu-AA62. Details are below:
	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.	ALS Method ME-ICP61 involves 4-acid digestion (Hydrochloric-Nitric-Perchloric- Hydrofluoric) followed by ICP-OES determination.
		ALS Method ME-MS61 involves the same or a similar digestion, with the analytical step by ICP-MS. Mass Spectrometry achieving lower detection limits for some of the elements.
		Method Au-ICP21 is a 30-gram lead-collection Fire Assay, followed by ICP-OES to a detection limit of 0.001 ppm Au.
		Method Cu-AA62 is four-acid digestion, followed by AAS measurement to 0.001% Cu.
		Hot Chili utilised several multi-element pulp "mineralised standards" (certified reference material; "CRM") and one certified reference analytical (pulp) "blank", all supplied by Ore Research & Exploration Pty Ltd. One "mineralised standard" was chosen at random and inserted every 50th metre into each batch of samples submitted for analysis. One certified "blank" sample was also inserted every 100th sample. The material types and grade ranges for the CRMs correspond to the rock types and mineralisation grades routinely encountered within the drilling on the Productora project.
		QA/QC samples and their Insertion Rates (IR), as a percentage of the 174,476 samples from all HC Productora project drilling to date are:
		3,081 Mineralised standard "CRMs", IR 1.8%
		830 "Blank" pulp standards (OREAS 22c), IR 0.5% (note; use of these began at the beginning of 2013)
		954 Coarse Blanks, IR 0.4% (note; use of these ceased at the beginning of 2013 and restarted during the 2014 drilling campaign)
		4,860 Coarse (RC and DD) Duplicates, IR 2.8%



Criteria	JORC Code explanation	Commentary
		Routine Field Duplicates for RC samples were submitted at a rate of 1 in every 50 samples. Diamond core was whole sampled hence field duplicate samples were not able to be taken. However a split sample duplicate was taken after the initial crush stage at the laboratory, whereby the crushed sample was split in half, with one half retained as the primary sample and the second half being used a duplicate sample. This type of duplicate sample cannot test the precision of the primary sampling technique, however it can test the precision of all steps at the laboratory thereafter.
		Results from CRM (standards, blanks) and the duplicates gives confidence that acceptable relative levels of accuracy and precision of assay data returned for ALS have been obtained.
		The analytical laboratory (ALS) also provided their own routine quality controls within their own practices. The results from their own validations were provided to Hot Chili Ltd.
		Future studies will assess the insertion (and rate) of additional pulp and or coarse standards or blanks in future drilling programmes.
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.	There have been two separate periods of independent sampling at the Productora project. In November 2012 a total of 17 samples, from 4 drillholes selected at random, were taken by Coffey Mining personal during a site visit. In October 2014, Coffey Mining personal were again undertook an independent site visit and collected a total of 60 samples from approximately 18 drillholes, with samples collected for various locations, styles and levels of mineralisation. In each case, samples were taken by the independent auditor and delivered in person to the ALS analytical laboratory in Coquimbo (Chile). The results were directly sent to independent auditor in Perth (Australia) and supported the original assays.
	Discuss any adjustment to assay data.	A full pulp and coarse reject sample library is located at the Productora site, these samples are available for verification sampling if required.
		236 samples, representing 1% of the most recent drilling programme, had pulp and coarse rejects submitted to an alternative commercial laboratory (Bureau Veritas) for Umpire checks and validation against the primary laboratory. These samples, along with those tested during previous drilling programmes, show an acceptable relative correlation with



Criteria	JORC Code explanation	Commentary
		primary laboratory (ALS) results.
		At the Productora deposit there are quite a few RC intervals twinned with diamond holes (and two at Alice). A direct verification comparison between nominally equivalent intervals shows there is some short-scale structural and mineralisation noise in all elements. Population comparison plots for matched twins was attempted but were not informative. This does make quantitative correlation troublesome, but visual validation of mineralisation domains suggest that there is acceptable correlation, and no apparent bias in the twinned mineralisation intervals and assay ranges.
		Hot Chili has strict procedures for data capture, flow and data storage, and validation.
		Limited adjustments were made to returned assay data for the resource estimate; values that returned lower than detection level were set to the methodology's detection level and copper values were converted from ppm to %.
		Various analytical techniques have been used for analysis of ore grade elements (including Au and Cu). Therefore a ranking has been applied to these elements ensuring the highest priority assay result is used for resource estimation. All assay values (from all analytical techniques) are stored in the database for completeness.
		Order of ranking for copper assays: ME-MS61 then ME-ICP61.
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.	Drill collars were surveyed by contract surveying company Geotopo Exploraciones Limited using a Topcon HiPer GPS, using dual frequency, Real Time, with +/- 0.1cm accuracy (N, E and RL).
	Specification of the grid system used. Quality and adequacy of topographic control.	Downhole surveys using a gyroscopic instrument were completed by contract downhole surveying company's Wellfield and North Tracer. All Hot Chili holes at Productora have gyroscopic DH survey measurements commencing at the start of hole with readings taken every 10th metre until end of hole. Gyroscopic surveys are an accurate form of downhole survey as there is no risk of magnetic interference to the measured survey reading.
		The WGS84 UTM Zone 19S coordinate system was used for all Hot Chili undertakings.
		A detailed topographic survey was supplied by Geoimage from satellite data corrected by



Criteria		JORC Code explanation	Commentary
Criteria Data spaci and distribution	ng	JORC Code explanation 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.	Commentary regional STRM points. This provided spot heights at 50cm spacing across the entire project area. Several subsampling steps were undertaken to balance file size vs. local accuracy with a final 20m x 20m grid was chosen as providing a management file size while still honouring and reproducing known local data points. The detail of topography is adequate for modelling and resource estimation purposes. Drillhole spacing at the Productora deposit is on a nominal 80m by 40m grid (40m between drilling on east-west sections and 80m north or south between sections) For Alice deposit, while the resource was drilled by a variety of drilling angled, the drilling provided a nominal 80m by 50m. This drillhole spacing has provided a sufficient level of support for geological and mineralisation modelling. Geological and grade continuity is sufficient for mineral resource estimation, with both Indicated and Inferred resources being classified at Productora. In unmineralised areas, 4 metre composite samples were taken from the RC drill holes. These 4m composite samples represent 8% for Productora deposit, and 6.6% for the Alice deposit, of all assay sample data used in resource estimation. The 1m samples comprise 91.9% and 93.3% for Productora and Alice respectively.
Orientation	- (Within higher grade mineralised areas 1m samples comprise >98% of all samples used in estimation for both Productora and Alice deposits.
Orientation data relation geological structure	of in to	Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.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.	The majority of Productora drilling has been oriented approximately perpendicular to the overall NNE structural trend of the Productora project area, with drillholes angled at -60° to -90° towards the east or west to optimize drill intersections of the moderate to steeply dipping mineralisation. A list of drillholes and orientations is appended in Explanatory Notes below. Considering the type of deposit and style of mineralisation, the drilling orientation and subsequent sampling is considered to be unbiased in its representation of reported material for estimation purposes.



Criteria	JORC Code explanation	Commentary
Sample security	The measures taken to ensure sample security.	Hot Chili has strict chain of custody procedures that are adhered to for drill samples. All samples for each batch have the sample submission number/ticket inserted into each bulk polyweave sample bag with the id number clearly visible. The sample bag is stapled together such that no sample material can spill out and no one can tamper with the sample once it leaves Hot Chili's custody.
Audits or reviews	The results of any audits or reviews of sampling techniques and data.	AMC Consultants have reviewed similar procedures for data collection methods used by Hot Chili at the Productora project.
		In October 2014, an independent consultant from Coffey Mining (now employed by AMC Consultants) was engaged on a fee basis to conduct a site visit to review site practices, QA/QC methods, data capture, site sample processing, laboratory sample preparation, and to undertake a limited amount of independent check samples for comparison with Hot Chili sample results. This review found Hot Chili practices acceptable but with areas of potential improvement. The review also determined the outcome of the check samples had very good results and repeatability noted.

Section 2 Reporting of Exploration Results

(Criteria listed in the preceding section also apply to this section.)

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	majority controlled by Hot Chili through its subsidiary company Sociedad Minera El Águila SpA (SMEA). These tenements have difference lease-arrangements;
	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.	100% controlled by SMEAA 30yr lease agreement for Uranio 1/70 with Comisión Chilena de Energia Nuclear (CCHEN).There is only 1 lease within the Productora project which is subject to a royalty payment.



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Criteria	JORC Code explanation	Commentary
		This is the URANIO 1/70 lease, and the royalty is with CCHEN. The details are as follows:
		1. After the first 5 years of the lease agreement or upon beginning of the exploitation phase if this situation happens before, the following minimum Net Smelter Royalty (NSR) shall be charged:
		a). 2% over all metals different from gold.
		b). 4% over gold.
		c). 5% over non-metallic products.
		2. All of the above are calculated over effective mineral products sold.
		3. Every 5 years the parties may re-negotiate the value of the NSR up or down to 50% of their value.
Exploration done by other parties	Acknowledgment and appraisal of exploration by other parties.	In the 1980's Comisión Chilena de Energia Nuclear (CCHEN) undertook exploration near and to the south of the Productora mines for uranium. At least 10 shallow RC holes were completed. Additional work in the area included; mapping, surface geochemical sampling, ground spectrometry, magnetometry and trenching.
		In ~1997 General Minerals Corporation (GMC) drilled 8 RC holes.
		In ~1999 General Minerals Corporation (GMC) and Teck Corporation drilled eleven RC holes targeting secondary copper enrichment zones in the southern portions of the central lease. Additional work included IP survey.
		In 2000 as MSc. Thesis was completed by Ms K.A Fox (Colorado School of Mines). This thesis is titled "Fe-oxide (Cu-U-Au-REE) Mineralization and Alteration at the Productora Prospect".
		There are two underground copper mines within the central lease (Productora 1/16). Underground mining ceased in 2013 under agreement with Hot Chili.
Geology	Deposit type, geological setting and style of mineralisation.	The majority of the mineralisation at the Productora Project is in the Productora copper- gold-molybdenum deposit, which is a structurally focused tourmaline breccia. This is



Criteria	JORC Code explanation	Commentary
		located in the Neocomian (lower Cretaceous) Bandurrias Group, a thick volcano- sedimentary sequence comprising intermediate to felsic volcanic rocks and intercalated sedimentary rocks. Dioritic dykes intrude the volcano-sedimentary sequence at Productora, typically along west- to northwest-trending late faults, and probably represent sub-volcanic feeders to an overlying andesitic sequence not represented in the resource area.
		The host sequence dips gently (15-30°) west to west-northwest and is transected by several major north- to northeast-trending faults zones, including the Productora fault zone which coincides with the main mineralised trend. These major fault zones are associated with extensive tectonic breccia (damage zones) that host copper-gold-molybdenum mineralisation. Later faults cross-cut and offset the volcano-sedimentary sequence together with the Productora (and sub-parallel) major faults. Late faults generally show a west to north-westerly strike and while generally narrow, are locally up to 20m wide.
		The volcano-sedimentary sequence at Productora is extensively altered, particularly along major faults and associated damage zones, and a distinctive alteration zonation is evident. The distribution of alteration mineral assemblages and spatial zonation suggest a gentle northerly plunge for the Productora mineral system, disrupted locally via vertical and strike-slip movements across late faults.
		The Alice copper-gold-molybdenum deposit is a mineralised porphyry hosted in the same broad lithological sequence as the Productora deposit.
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 drill holes: easting and northing of the drill hole collar	Significant intercepts at the Productora project have been released periodically to the Australian Stock Exchange, and are available in public statement / press releases at either www.hotchili.net.au or www.asx.com.au (company code = HCH)
	elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar	
	dip and azimuth of the hole	



Criteria	JORC Code explanation	Commentary
	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.	No new exploration results are being reported for the Mineral Resource area.
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 majority of drilling at the Productora Project is oriented -60 to -80° toward 090°azimuth, but there were numerous scissor drill holes which are oriented at -60 to -80° degrees towards an azimuth of 270° to ensure geological representivity and to also preferentially target east dipping mineralisation. Drilling off section or plunging in or out of sections was required on an ad hoc basis due to limitations on drill position availability or to preferentially test specific structural orientations. Mineralisation in the Productora deposit comprises two contrasting styles. The predominant style is characterised by narrow, N to NE trending tourmaline-cemented breccia bodies. Sub-vertical feeder stocks, of 2-5m width at depth, increase with elevation, to wider high-grade mineralisation zones. These wider brecciated zones vary in orientation with central lodes tending to be sub-vertical with an upper flex in wider mineralised zones to dip approximately 70° towards the west, also flanking shallower eastern and western lodes dip moderately west and east respectively. There are also



Criteria	JORC Code explanation	Commentary
		some locally steeply east dipping lodes. In likely structurally conducive dilation zones, these discrete breccia zones hydraulically propagate outward and can commonly coalesce to become larger zones of hydrothermal damage. These larger damage zones are most probably defined by a combination of structural and intra-lithological controls. Drilling at deeper levels at Productora has demonstrated thinning breccia lodes, with some ductile features, that continue to a greater depth.
		The Alice mineralisation has a single porphyry body in close proximity to a lithocap. Within the mineralisation, there appears to be a distinct difference between chalcopyrite-dominant and pyrite-dominant areas. Zones within the chalcopyrite dominant domains (i.e. low pyrite: chalcopyrite ratio) correlate with intense A-veins and B-veins, and also higher copper grades. Copper mineralisation appears both within veining and also disseminated within the groundmass proximal to veining. Late albite (+/- epidote +/-sericite) appears to have overprinted / removed chalcopyrite (Cu, S).
		Considering the types of deposit and style of mineralisation, the drilling orientation and subsequent sampling is considered to be unbiased in its representation of reported material for estimation purposes.
Diagrams	Appropriate maps and sections (with scales) and tabulations of intercepts should be included for any significant discovery being reported These should include, but not be limited to a plan view of drill hole collar locations and appropriate sectional views.	No new exploration results are being reported for the Mineral Resource Area. Diagrams of all significant intercepts at Productora have been previously released to the Australian Stock Exchange, and are available in public statement / press releases at either www.hotchili.net.au or www.asx.com.au (company code = HCH)
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.	No new exploration results are being reported for the Mineral Resource Area.
Other	Other exploration data, if meaningful and material, should be reported	Other exploration data available:
substantive exploration data	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,	Surface geological mapping conducted on behalf of Hot Chili in several mapping campaigns.
	groundwater, geotechnical and rock characteristics; potential	Geophysical, radiometric, Induced Polarisation surveys (airborne) and ground Induced



Criteria	JORC Code explanation	Commentary
	deleterious or contaminating substances.	Polarisation and Magnetotelluric (IP/MT) surveys
		Bulk density is completed on every 5th metre of diamond core and pycnometer analysis is performed on every 25th RC metre.
		Limited historical underground mining data contributed to an understanding of geology, grades and structural continuity.
Further work	The nature and scale of planned further work (eg tests for lateral extensions or depth extensions or large-scale step-out drilling).	Infill, extensional and near-mine mine exploration drilling is planned for the Productora Project.
	Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.	Dedicated studies are required to test the reliability and representivity of RC samples, where the relationship of wet or deeper RC samples on Cu-Au-Mo grade needs to be defined.
		Dedicated studies are required to further assess potential sub-domains of the oxide and transitional domains in reference to spatial variations in potential recoverable resources.

Section 3 Estimation and Reporting of Mineral Resources

(Criteria listed in section 1, and where relevant in section 2, also apply to this section.)

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.	
		Data validation steps included, but were not limited to the following: Validation through constraints and libraries set in the database by Database Manager e.g. overlapping/missing intervals, intervals exceeding maximum depth, valid geology codes,



Criteria	JORC Code explanation	Commentary
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.	 missing assays, prioritised assay protocol. Validation through 3D visualisation in 3D software to check for any obvious collar, downhole survey, or assay import errors. Mr Macdonald (Hot Chili) has undertaken several site visits to the project area, the most recent being July 2015. Mr Macdonald has also undertaken several audits of the ALS preparation laboratory facilities in Coquimbo (Chile), and also ALS analytical laboratory facilities in Lima (Peru). Mr Kirchner (AMC Consultants) visited the Productora Project and the ALS (Coquimbo,
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 estimation. The use of geology in guiding and controlling Mineral Resource estimation. The factors affecting continuity both of grade and geology.	Chile) preparation laboratory facilities in October 2014.
		 Confidence in the weathering boundaries (oxide, transitional and resh) is high to moderate; the limits of the 'fresh', 'transitional' or 'oxide' mineralisation adequately defined for resource estimation by a combination of geological logging, multi-element geochemistry and available metallurgical test work. There are subtle changes in mineralisation orientation across the deposit. Zones of similar orientation were modelled for statistical analysis and use in defining estimation parameters.



Criteria	JORC Code explanation	Commentary
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 mineralisation at Productora deposit currently extends approximately 8,000m along strike, a maximum across strike extent of 900m, and has a maximum depth of 700m from the surface. Mineralisation occurs from surface. The mineralisation at the Alice deposit currently extend approximately 670m along strike, with a maximum across strike extent of 230m, and has a maximum depth of 430m from the surface. Mineralisation occurs from surface. The combined Productora project block model extents are in co-ordinate system WGS84 Zone 19 and are as follows: Northing 6819200mN to 6827520mN Easting 321000mE to 325322mE Elevation 200mRI to 1352mRI
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 employed.	Extreme high grade values that materially deviated from the main domain populations of data were top cut based on statistical analysis of the composites (1m for Productora deposit, 2m for Alice deposit) for copper, gold and molybdenum within each major orientation domain. Search parameters were based on variography carried out on the composites and supported by geological knowledge gained from surface geological mapping, drillhole data and modelling analysis. The parent cell size, and estimation search parameters, was based on the drillhole spacing and the nature of the mineralisation style at Productora.



0 *		N limited
Criteria	JORC Code explanation	Commentary
	Any assumptions behind modelling of selective mining units.	Validation of the resource estimate has been conducted in several ways:
	Any assumptions about correlation between variables.	Visual drillhole section and plan data comparisons with the block model,
	Description of how the geological interpretation was used to control	Statistical comparison by domain,
	the resource estimates.	Swathe plots in appropriate orientations.
	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.	
Moisture	Whether the tonnages are estimated on a dry basis or with natural	Tonnages are estimated on a dry basis.
	moisture, and the method of determination of the moisture content.	
Cut-off parameters	The basis of the adopted cut-off grade(s) or quality parameters applied.	Reporting cut-off grades were chosen to reflect reasonable prospect for economic extraction at an appropriate grade population. For the Productora Project, all deposits used the same reporting grades. In addition to previous cut-off reports, this updated resource now includes a 'low grade' component due to ongoing economic and metallurgical studies which provide support potential for a 'low grade' mineralisation. This 'low grade' component is reported separately to the 'high grade' component for clarity and ease of comparison with previous resource reporting.
		The 'high grade' material used a cut-off at greater than or equal to (>=) 0.25% copper. This is cut-off is unchanged from previous reporting.
		The 'low grade' material used a cut-off at greater than or equal to (>=) 0.1% copper, but less than but not equal to (<) 0.25% copper.
Mining factors	Assumptions made regarding possible mining methods, minimum	The mining method assumed is bulk tonnage conventional open pit mining, as is common
or assumptions	mining dimensions and internal (or, if applicable, external) mining dilution. It is always necessary as part of the process of determining	for this type of deposit. This assumption has been supported by Hot Chili's mining engineers and benchmarking exercises with similar deposits.
-	reasonable prospects for eventual economic extraction to consider potential mining methods, but the assumptions made regarding mining methods and parameters when estimating Mineral Resources	Mining factors such as dilution or ore loss have not been incorporated into the resource estimate.



Criteria	JORC Code explanation	Commentary	
	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.		
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 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.	Ongoing metallurgical testwork studies have progressed at the Productora Project. This data has been used in conjunction with geological logging and multi-element analysis in the creation of weathering domains. No metallurgical factors or assumptions are incorporated into the resource estimate beyond those observations above. The stated resources include oxide, transitional and sulphide material. Metallurgical testing will continue in future mining studies and will be reviewed for any future resource updates.	
Environmen- tal 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.	No assumptions have been made regarding possible waste and process residue disposal options or environmental surveys in the Resource Reporting.	
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	A significant bulk density and pycnometer database exists. Within mineralisation this comprises 2,164 bulk density results (from diamond drilling) for the Productora deposit, and 74 for the Alice deposit. There were 4,966 pycnometer measurements (from RC pulp residues) from the Productora deposit, and 334 for the Alice deposit. Both sets of measurements were completed by ALS. The correlation between bulk density and the pycnometer density samples, within mineralised domains, was not a fixed factor / discount, but changed with increasing density. Domain population comparisons between the data types enable the fitting of	



Criteria	JORC Code explanation	Commentary
	deposit. Discuss assumptions for bulk density estimates used in the evaluation process of the different materials.	experimental correlation slopes appropriate at key ranges from zero density to the maximum density values. These formulae were then applied to the pycnometer values, validated back against the original population comparisons. These formulae are directly appended to this document.
		This enabled both pycnometer (as a calculated bulk density) and the original bulk density data to be considered in the estimation of density across the Productora deposit.
		The estimation of density was undertaken within all mineralised domains in the Productora deposit was via Inverse Distance estimation method.
		The density for the Alice deposit was assigned from domain average values.
Classification	The basis for the classification of the Mineral Resources into varying confidence categories.	Mineral Resources have been classified in the Indicated and Inferred categories in accordance with the JORC Code 2012 guidelines.
	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.	A range of criteria was considered in determining the classification, including: Drill data density, sample / assay confidence, geological confidence in the interpretations and, similarly geological continuity, grade continuity of the mineralisation, estimation method and resulting estimation output variables (e.g. number of informing data, distance to data), estimation performance through validation, and prospect for eventual economic extraction.
		The Competent Persons endorse the final results and classification for the Productora deposit.
		The reporting of gold and molybdenum grade at the Alice deposit, although low, has been included due to assumed potential economic recovery during mining with the Productora deposit.
Audits or reviews	The results of any audits or reviews of Mineral Resource estimates.	Resource audits or reviews include;
IEVIEWS		Mr Kirchner of AMC Consultants has undertaken a peer review, audit and joint CP sign-off of the Productora resource estimate.
		Several internal company reviews.



Criteria	JORC Code explanation	Commentary
		There are no outstanding issues arising from these reviews that are not being addressed within the resource report's recommendations.
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 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.	The historic production data from the underground mining is limited and currently not suitable for detailed comparisons. Relative accuracy and confidence has been assessed through validation of the model as outlined above. The resource estimate comprises material categorised as Indicated and Inferred Resource. The resource categories reflect the assumed accuracy and confidence as a global estimate.

Section 4 Estimation and Reporting of Ore Reserves

(Criteria listed in section 1, and where relevant in sections 2 and 3, also apply to this section.)

Criteria	JORC Code explanation	Commentary	Responsible CP
Mineral Resource estimate for conversion to	estimate used as a basis for the	The Mineral Resource estimates for Productora and Alice were used as a basis for the conversion to an Ore Reserve is detailed in the preceding sections of this table. Further detail is included in Hot Chili's internal Mineral Report " <i>Productora Project – Productora Deposit – Resource Revision 3, Alice Deposit – Resource Revision 0</i> " and	



Criteria	JORC Code explanation	Commentary	Responsible CP
Ore Reserves	Mineral Resources are reported additional to, or inclusive of, the Ore Reserves.	also in the "Productora Project Pre-Feasibility Study, Date 19 th February 2016". The ordinary kriged block estimated Mineral Resource was produced in Surpac Software v6.5.1 by Hot Chili and audited by AMC Consultant. The model was provided to NCL in the form of a Surpac block model file and csv export. Subsequently, NCL created a block model containing relevant parameters for the definition of ore and waste. This model was utilized by MineSmith to run a mining schedule. The Mineral Resources are reported inclusive of the Ore Reserves.	
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.		CG/BC/LL
Study status	The type and level of study undertaken to enable Mineral Resources to be converted to Ore Reserves. The Code requires that a study to at least Pre-Feasibility Study level has been undertaken to convert Mineral Resources to Ore Reserves. Such studies will have	Project. This study provided sufficient technical support to back up the Ore Reserve estimate.	CG/BC/GK



			Iimited
Criteria	JORC Code explanation	Commentary	Responsible CP
	been carried out and will have	social and governmental.	
	determined a mine plan that is technically achievable and economically viable, and that material Modifying Factors have been considered.	A financial model for the Productora Project was developed by AMEC Foster Wheeler (on behalf of HCH) during the Pre-Feasibility Study. This model ran sensitivities on a broad range of key inputs. Project Net Present Value (NVP) was assessed using probability analysis and identified a robust project with a very low likelihood of negative NPV considering the variability of inputs.	
Cut-off parameters	The basis of the cut-off grade(s) or quality parameters applied.	A variable cut-off grade was used for Ore Reserve delineation. This approach includes the scheduling of the mine design and analysis of cash flows to optimise net present value.	BC
		The variable cut-off grade is calculated in consideration of the following parameters:	
		 Metal revenue 	
		 Operating costs 	
		 Process throughput 	
		 Process recovery 	
		 Transport and refining costs 	
		 General and administrative costs 	
		 Constraints on production 	
		 Sustaining capital costs 	
Mining factors	The method and assumptions used as	This reserve is based on a completed Pre-Feasibility Study.	CG/BC
or	reported in the Pre-Feasibility or		00,20



Criteria	JORC Code explanation	Commentary	Responsible CP
assumptions	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). The choice, nature and appropriateness of the selected mining method(s) and other mining parameters including associated design issues such as pre-	The mining method was based on traditional open pit mining, utilising large hydraulic shovels and ultra-class trucks for haulage, with drill and blast practices for rock breakage and wall control. Ramps were designed for exiting and entering the pit carrying two-way traffic, to achieve Productora requirements. In very limited cases (typically at end of mine life) there are minor single traffic lanes for base of pit "good bye" mining. These methods are widely applied to Mineral Resources of similar grade, depth and geometry in Chile and are considered the most appropriate method of ore extraction.	
	strip, access, etc. The assumptions made regarding geotechnical parameters (eg pit slopes, stope sizes, etc), grade control and pre- production drilling.	Four-X) to select an economic pit shell. Detailed pit design and scheduling results were tested financially using discounted cash flow methods to confirm economic viability. Indicated fresh sulphide, transitional and oxide material was used for pit optimisation. The selected pit shell was used as the basis for detailed mine design.	
	The major assumptions made and Mineral Resource model used for pit and stope optimisation (if appropriate).	The geotechnical slope design parameters used were based on work completed by external consultants. There are various slope configurations based on the geotechnical rock domains and location in the pit.	
	The mining dilution factors used.	Mining studies have shown that the Productora deposit will likely be mined by open pit.	
	The mining recovery factors used. Any minimum mining widths used.	Open pit selective mining unit (SMU) dimensions were 4m x 10m x 6m (X,Y,Z). Mining dilution was 8.4% at 0.15% Cu cut-off.	
	The manner in which Inferred Mineral Resources are utilised in mining studies and the sensitivity of the outcome to their inclusion.	Mining ore grade recovery was calculated at 92.8% at 0.15% Cu cut-off. Mining schedule used a vertical development constraint of 8 benches per year. Detailed mine design identified an open pit mine with an average operating strip ratio	



			limited
Criteria	JORC Code explanation	Commentary	Responsible CP
	The infrastructure requirements of the selected mining methods.	of approximately 2.7:1 and an average mining cost per tonne of US\$1.87/t mined excluding ore re-handling and prestrip. The average mining cost for ore-rehandling is US\$1.19/t re-handled.	
		A minimum pushback width of 100 m was considered with the exception of the pit bottom.	
		Specific Mining Tax (i.e. state royalty) has been applied in accordance with the prevailing legislation (this is calculated from the annual operational margin).	
		An additional lease royalties were applied at Uranio 1/70 (CCHEN lease) as it follows:	
		2% for copper	
		4% for gold	
		2% for molybdenum	
		The production rate of the mill processing plant (as determined from the Pre-Feasibility study) will be 14 Mtpa plus or minus 10% based on bond work index parameter. The production rate at heap leach plant is limited to 3.3 Mtpa and the production capacity at the solvent extraction and electro-winning plant is limited to 10 kt/a of Cu cathode.	
		Metallurgical recovery applied was based on the metallurgical results	
		Ore Reserve estimate does not include Inferred Resources.	
		There is a very minor portion of mineral coming from Inferred Resources contained within pit design boundaries, this material is only 1.4% of the total mineral inventory and the mining schedule sent this mineral to the low grade stockpiles. This mineral is available to feed the processing plants in the latest years of operations.	
		Infrastructure requirements for the open pit mining include: workshops for mobile	



Criteria	JORC Code explanation	Commentary	Responsible CP
		equipment maintenance, offices, stores, change houses, crib rooms, fuel and lubricant storage and dispensing, laboratories, water dams, electrical equipment and explosives storage.	
Metallurgical factors or assumptions	The metallurgical process proposed and the appropriateness of that process to the style of mineralisation.	The Pre-Feasibility Study prepared by Mintrex includes estimates for the capital required for construction of the processing plants (sulphide and oxide) and associate infrastructure.	LL
	Whether the metallurgical process is well- tested technology or novel in nature.Thenature,amountandrepresentativeness of metallurgical test work undertaken, the nature of the metallurgical domaining applied and the corresponding	The earlier Scoping Study metallurgical investigation assessed the performances of selected laboratories in Chile and Australia by repeating flotation testwork on a limited number of samples at three different laboratories. As a result of this process, ALS Metallurgy in Perth, WA was selected to carry out the initial scoping sulphide flotation testwork and ALS Santiago was selected to carry out most of the scoping comminution testwork and all oxide leaching testwork for the Productora Project as a function of the reliability and consistency of results.	
	factors applied. Any assumptions or allowances made for deleterious elements.	As part of the Pre-Feasibility, additional flotation and some leaching testwork were undertaken on a wider range of samples to confirm and expand upon the Scoping Study results.	
	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. For minerals that are defined by a specification, has the ore reserve	All flotation and comminution testwork on the sulphide deposit has been carried out on a suite of fresh ore samples from metallurgical diamond drill holes spatially distributed across the Mineral Resource and encompassing a range of ore head grades (both copper and molybdenum). All the flotation testwork was carried out at ALS Metallurgy in Perth, WA and the comminution testwork was shared between ALS Perth and ALS Santiago. The outcome of this work provides an estimate of the typical copper, gold and molybdenum recoveries that might be anticipated for the sulphide process plant.	
	estimation been based on the appropriate mineralogy to meet the specifications?	Oxide leaching and comminution testwork on the oxide deposit has been carried out on a suite of oxide ore samples mostly from RC drill holes spatially distributed across the Mineral Resource and encompassing a range of copper oxide ore head grades. All	



Criteria	JORC Code explanation	Commentary	Responsible
		the leaching testwork was carried out at ALS Santiago in Chile and some work at HydroGeoSense in USA and the comminution testwork at ALS Santiago The outcome of this work provides an estimate of the typical copper recoveries that might be anticipated for the oxide process plant	
		The Pre-Feasibility Study sulphide process plant metallurgical evaluation included basic mineralogical, comminution and flotation testwork on a number of samples (see PFS Study for detail) selected spatially and mineralogically from 25 metallurgical drill holes of Productora and Alice ore as well as 4 composite samples including one bulk sample taken from an existing underground mine. Results from PFS showed that the following response models should be used to estimate copper, gold and molybdenum recovery from fresh sulphide ore:	
		Copper Recovery for Productora and Alice (only fresh) - The derived curve for the line of best fit was "Copper Recovery=5.3675ln(Head Grade %Cu)+92.903" with a maximum set at 92% Cu recovery. Due to limited Alice samples the same derived curve was used for the Alice material.	
		Gold Recovery for Productora and Alice (Fresh and Transitional)- The formula derived for this line is "Gold Recovery=22.82ln(Head Grade ppm Au)+104.58". This formula was also applied to the >10% Acid Soluble samples. A maximum recovery was set at 85%.	
		Gold Recovery for Alice (Fresh and Transitional) - The formula derived is "Gold Recovery=15.686ln(Head Grade ppm Au)+97.205".	
		Gold Recovery for Habanero (Fresh and Transitional)– The formula derived is "Gold Recovery=10.041In(Head Grade ppm Au)+44.117".	
		Molybdenum Recovery for Productora (Fresh and Transitional) – "Moly Rec=16.886ln((Head Grade Moly ppm)-29.974". The same formula was therefore	



			S limited
Criteria	JORC Code explanation	Commentary	Responsible CP
		applied to the Habanero and >10% Acid Soluble samples. A maximum recovery of molybdenum was set at 70%.	
		Molybdenum Recovery for Alice (Fresh and Transitional) - Though higher recoveries were achieved for Alice samples, a maximum molybdenum recovery was still set at 70%. The formula for Alice samples was derived as "Moly Rec=12.136In(Head Grade Moly ppm))+7.2522".	
		The following response model is estimated for copper recovery from transitional sulphide ore (>20% Acid Soluble Copper):	
		Productora and Alice - The derived curve for the line of best fit was "Copper Recovery=5.3675In(Head Grade (%Cu)+74"	
		Gold and molybdenum recoveries for transition ores were similar to that of fresh samples due to process selection (see before)	
		For oxide samples the following copper recovery relationships were determined from the oxide testwork namely;	
		Where total Cu is greater than or equal to 0.2%, recovery=56% (straight line)	
		Where total Cu is less than 0.2%, recovery=3.733x%Cu-0.187	
		Metallurgical domaining has been completed for weathering domains.	
		Additional geometallurgical domaining has been undertaken relating to processing throughput (for sulphide ore) and acid consumption during leach (for oxide ore). Results from metallurgical testwork (specifically Bond Work index and acid consumption) were correlated to the multi-element chemistry in the resource drilling database to allow spatial estimation of proxies values across the ore domains.	
		The essential element of the process plant design utilises conventional flotation	



			limited
Criteria	JORC Code explanation	Commentary	Responsible CP
		technology to produce a copper-gold concentrate as well as a molybdenum concentrate.	
		The average head grade for the concentrator was: Fresh and Transitional: 0.43% Cu, 0.09g/t Au and 153 ppm Mo	
		Final copper concentrate grade will be 25% Cu and copper sulphide recovery for the average ore head grade is 90% and molybdenum recovery and concentrate grade is 50%, taking into consideration that the average pant feed will comprise a blend of fresh and transitional ore.	
		Copper oxide recovery would average 56% from an initial copper oxide head grade of 0.6% Cu	
Environmen- tal	The status of studies of potential environmental impacts of the mining and processing operation. Details of waste		BC
	rock characterisation and the consideration of potential sites, status of design options considered and, where applicable, the status of approvals for	Based on meteorological records in Vallenar - 16km north-east from the minesite - the mean annual precipitation is 31 mm/year. The potential evapo-transpiration rate far exceeds the precipitation during every month of the year.	
	process residue storage and waste dumps should be reported.	Comprehensive baseline studies for environmental characterization commenced in 2012 and are ongoing at the mine site, power line corridor, seawater pipeline corridor and the marine water intake site. Main environmental findings refer to:	
		The presence of protected flora and fauna species around the project area	
		Families living in the mine area - less than ten families	
		Archaeology findings with different value associated	
		The main impacts affecting those findings are to be addressed with management plans	



Criteria	JORC Code explanation	Commentary	Responsible CP
		that include usual mitigation, compensation or repair measures; monitoring plans have also been established to make sure the measures remain relevant over time as well as to record any change in the baselines conditions.	
		Sites for waste rock dumps have been identified on the eastern, western and northern sides of the pit and designs have confirmed that there is sufficient space on the existing leases.	
		A tailings storage site has been identified and a retaining wall was designed as part of the Pre-Feasibility Study. Additional work of PFS accuracy level has been completed by Knight Piesold. Tailings storage facilities have been designed and planned.	
		A comprehensive groundwater monitoring program is undergoing. Nine hydrogeology test bores have been drilled and the drilling of two or three additional bores is to be confirmed.	
		Dust monitoring system has been in place for more than 24 months at the mine site; additional dust data has been collected for 12 months in a site close to Vallenar, where the main population lives. This information will be included in the Environmental Impact Assessment Study.	
		All the environmental baseline work and local permits obtained up to date are in line with the Equator Principles applicable for Productora current development stage. No major environmental issues have been identified.	
Infrastructure	The existence of appropriate infrastructure: availability of land for plant development power water	The Productora project is located 16km from the mining town of Vallenar and 6km west from the Pan-American sealed highway (Route 5).	BC
	development, power, water, transportation (particularly for bulk commodities), labour, accommodation; or the ease with which the infrastructure can	The town of Vallenar has 46,207 inhabitants current at the 2012 census. The town provides accommodation for a workforce which means there is no requirement for an onsite accommodation facility.	



Criteria	JORC Code explanation	Commentary	Responsible CP
	be provided, or accessed.	The site has access to a major node of the Chilean Central Power Grid located at the Maitencillo village. The construction of a 26km power transmission line between the mine site and the node at Maitencillo is proposed as part of the PFS. The power requirement initially estimated for Productora will be supplied at 220kV	
		The Productora PFS considers the construction of a 68.7 km seawater pipeline to supply a total seawater intake of 368 L/s. A fraction of seawater will undergo desalination at a reverse osmosis plant on site that will supply fresh water for concentrate washing water and for human consumption. The transport of final concentrates is considered to be via road trucks to the Las Losas port facility at Huasco Bay, which is within 70km of the site.	
Costs	 The derivation of, or assumptions made, regarding projected capital costs in the study. The methodology used to estimate operating costs. Allowances made for the content of deleterious elements. The source of exchange rates used in the study. Derivation of transportation charges. The basis for forecasting or source of treatment and refining charges, penalties for failure to meet specification, etc. 	 Mintrex calculated capital costs for the Productora Project Pre-Feasibility Study. The infrastructure items include pre-strip, concentrator, tailings storage facility, electrical transmission and control, water pipeline and pumps, services and Engineering, Procurement, Construction and Management (EPCM). Contractor Mining has been used for mining and fleet operating costs. These are based on a contract mining quote supplied by Stracon GyM S.A and a cost model created to introduce variable haul distances. Processing costs were supplied by Mintrex to HCH and were applied to the economic input for mine design parameters and cost models. This cost base includes the operating cost for the concentrator, the water pipeline and pumping system; additional ore mining costs, Run of Mine (ROM) rehandle cost and General & Administration costs No allowances were made for deleterious elements - metallurgical test work has shown that they are unlikely to exist in any significant way. No penalties were assumed 	HN/LL/BC/G K



Criteria	JORC Code explanation	Commentary	Responsible CP
	The allowances made for royalties	The base rate exchange rate used in the study was US\$1.00 : AU\$0.718 : CLP 689.7	
	payable, both Government and private.	Concentrate transport, shipping and insurance cost were estimated based on forward estimates and also as per commercial terms used in similar recent projects. Costs to store and load were based on benchmarked handling costs for ports in northern Chile.	
		Specific Mining Tax (i.e. state royalty) has been applied in accordance with prevailing legislation.	
		CCHEN Lease royalties were applied at:	
		2% for copper	
		4% for gold	
		2% for molybdenum	
Revenue factors	The derivation of, or assumptions made regarding revenue factors including head grade, metal or commodity price(s)	The average head grade for the concentrator was: Fresh: 0.43%Cu, 0.09g/t Au and 163 ppm Mo	BC/GK
	exchange rates, transportation and	Transitional: 0.45% Cu, 0.08 g/t Au and 92 ppm Mo	
	treatment charges, penalties, net smelter returns, etc. The derivation of assumptions made of metal or commodity price(s), for the	Smelter treatment and refining costs used US\$100/tonne of concentrate and US\$0.10/lb Cu; US\$5/oz Au. These figures were defined from commercial terms used in similar recent projects.	
	principal metals, minerals and co- products.	Commodity prices used for reserve estimation were US\$3.00/lb for copper, US\$1,200/oz for gold and US\$14.00/lb of molybdenum.	
		Assumptions made on commodity prices were conservatively based on commodity forecasts supplied by Wood Mackenzie.	
		A total concentrate freight charge of US\$58/tonne, comprising US\$11/tonne for local	



			limited
Criteria	JORC Code explanation	Commentary	Responsible CP
		transport; US\$11/tonne for local port storage and handling and US\$36/tonne shipping and insurance, assuming the destination to be Japan. These figures were defined by based on forward estimates and also as per commercial terms used in similar recent projects.	
		A total concentrate freight charge of \$130/tonnes of molybdenum concentrate freight to the nearest Chilean processing facility. Smelter treatment and refining costs used US\$1.40/lb. These figures were defined from commercial terms used in similar recent projects.	
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.A customer and competitor analysis along with the identification of likely market windows for the product.Price and volume forecasts and the basis for these forecasts.For industrial minerals the customer specification, testing and acceptance requirements prior to a supply contract.	HCH has actively engaged and been provided with documentation on the supply demand metrics for copper, gold and molybdenum ore by several investment institutions.	GK
Economic	The inputs to the economic analysis to produce the net present value (NPV) in the study, the source and confidence of these economic inputs including estimated inflation, discount rate, etc.	The estimate inputs (capital and operating costs) are at +/-25% as is standard for Pre- feasibility studies. Appropriate discount rates were applied considering the Weighted Average Cost of Capital (WACC) and nature of financing assumptions.	GK



Criteria	JORC Code explanation	Commentary	Responsible CP
	NPV ranges and sensitivity to variations in the significant assumptions and inputs.	AMEC Foster Wheeler (on behalf of HCH) developed the financial model for Productora during the Pre-Feasibility Study and ran sensitivities on a broad range of key inputs. Project Net Present Value was assessed using probability analysis and this identified a robust project with a very low likelihood of negative NPV considering the variability of inputs (Pre-feasibility Study level).	
Social	<i>in the significant assumptions and inputs.</i> Productora during the Pre-Feasibility Study and ran sensitivities on a broad range of key inputs. Project Net Present Value was assessed using probability analysis and this identified a robust project with a very low likelihood of negative NPV considering the		BC
Other	To the extent relevant, the impact of the	The surface rights for the project are controlled by SMEA (a joint company between	BC



			limited
Criteria	JORC Code explanation	Commentary	Responsible CP
	following on the project and/or on the	Hot Chili 82.5% and CMP, Hot Chili's project partner at Productora 17.5%). The project	
	estimation and classification of the Ore	joint agreement also considers such items as easement corridors to facilitate the	
	Reserves:	projects water pipeline.	
	Any identified material naturally occurring		
	risks.		
	The status of material level armania		
	The status of material legal agreements		
	and marketing arrangements.		
	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		
	approvals 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.		
Classification	The basis for the classification of the Ore	Based on the geological information provided and no increased risk to the modifying	CG
	Reserves into varying confidence	factors identified, Mineral Resource classification was converted to an Ore Reserve	
	categories.	classification, providing it was deemed economic by the Discounted Cashflow (DCF)	
		analysis, as follows:	
	Whether the result appropriately reflects		
	the Competent Person's view of the	Indicated Mineral Resource was classified as Probable Ore Reserve.	



Criteria	JORC Code explanation deposit.	Commentary Inferred Mineral Resource was not classified or considered during the development of	Responsible CP
	The proportion of Probable Ore Reserves that have been derived from Measured Mineral Resources (if any).	the mine design The Ore Reserve estimate provided appropriately reflects the Competent Person's view of the deposit based on the modifying factors used derived from the scoping study and ongoing Pre-feasibility Study work and the updated Mineral Resource model.	
Audits or reviews	The results of any audits or reviews of Ore Reserve estimates.	External audits of the mine design audits were undertaken. These provided feedback on the design which was incorporated in the final mine design. NCL completed an internal audit as part of the Ore Reserve derivation process.	CG
Discussion of relative accuracy/ confidence	Where appropriate a statement of the relative accuracy and confidence level in the Ore Reserve 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 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. 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	All mining estimates were based on Chilean costs, and relevant cost reports have been benchmarked against existing operations. There were no unforeseen modifying factors at the time of this statement that will have any material impact on the Ore Reserve estimate. Where practical and possible, current industry practices have been used to quantify estimations made.	CG



		· · · · · · · · · · · · · · · · · · ·	limited
Criteria	JORC Code explanation	Commentary	Responsible CP
			CP
	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 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.		



Explanatory Notes on Productora Project Resource

This mineral resource was audited by independent consultant AMC Consulting and includes all drilling completed at Productora as of the 17th of August, 2015.

Location

The Productora project is located 16km south of the regional mining centre of Vallenar in Region III of Chile, approximately half way between La Serena and Copiapo, and lies within the low altitude coastal range belt.

The project lies 5km off the main sealed Pan-American Highway connecting Vallenar to La Serena in the south. It is adjacent to a power line and rail corridor which connects the project to the Huasco Port (controlled by CAP/ CMP, Hot Chili's project partner), which is 40km to the west.

Ownership

Hot Chili (through its subsidiary company SMEA) controls an area measuring approximately 12.5km north-south by 5km east-west at the project through various agreements with private land holders, CMP (Chile's largest iron ore producer) and government organisations.

Geology

The Productora Project is hosted in the (lower Cretaceous) Bandurrias Group, a thick volcano-sedimentary sequence comprising intermediate to felsic volcanic rocks and intercalated sedimentary rocks. Dioritic dykes intrude the volcano-sedimentary sequence at Productora, typically along west- to northwest-trending late faults, and probably represent sub-volcanic feeders to an overlying andesitic sequence not represented in the project area.

The host volcanic and sedimentary sequence dips gently (15-30°) west to west-northwest and is transected by several major north- to northeast-trending faults zones, including the Productora fault zone, which coincides with the main mineralised trend. These faults are likely sympathetic to the nominally parallel but distal Atacama fault system. In the Productora deposit, these major fault zones are commonly associated with extensive tectonic breccia (damage zones) that host copper-gold-molybdenum mineralisation. Later faults cross-cut and offset the volcano-sedimentary sequence together with the Productora (and sub-parallel) major faults. Late faults generally show a west to north-westerly strike and while generally narrow, are locally up to 20m wide.

The volcano-sedimentary sequence at Productora is extensively altered, particularly along major faults and associated damage zones, and a distinctive alteration zonation is evident. The distribution of alteration mineral assemblages and spatial zonation suggest a gentle northerly plunge for the Productora mineral system, disrupted locally via vertical and strike-slip movements across late faults. These late faults appear to be trans-tensional and nominally normal to the distal Atacama fault system.

Mineralisation – Productora deposit

Mineralisation in the Productora deposit comprises two contrasting styles. The predominant style is characterised by narrow, N to NE trending tourmaline-cemented breccia bodies. Sub-vertical feeder stocks, of 2-5m width at depth, increase with elevation, to wider high-grade mineralisation zones. These wider brecciated zones vary in orientation with central lodes tending to be sub-vertical with an upper flex in wider mineralised zones to dip approximately 70° towards the west, also flanking shallower eastern and western lodes dip moderately west and east respectively. There are also some locally steeply east dipping lodes e.g., Habanero. In likely structurally conducive dilation zones, these discrete breccia zones hydraulically propagate outward and can commonly coalesce to become larger zones of hydrothermal damage. These larger damage zones are most probably defined by a combination of structural and intra-lithological controls. Drilling at deeper levels at Productora have demonstrated thinning breccia lodes, with some ductile features, that continue to a greater depth.

Mineralisation – Alice deposit

The Alice mineralisation is shallower than the Productora mineralisation, in terms of genetic emplacement, and has a single porphyry body in close proximity to a lithocap.



The lithocap is physically disconnected from (the assumed) coeval porphyry, by a fault. The lithocap overprints the regional volcanic stratigraphy, and is comprised of a number of advance argillic alteration types, including; quartz alunite, quartz pyrophyllite, alunite dominant and pyrophyllite dominant zones.

Within the mineralisation, there appears to be a distinct difference between chalcopyrite-dominant and pyritedominant areas. Zones within the chalcopyrite dominant domains (i.e. low pyrite: chalcopyrite ratio) correlate with intense A-veins and B-veins, and also higher copper grades. Copper mineralisation appears both within veining and also disseminated within the groundmass proximal to veining.

Late albite (+/- epidote +/-sericite) appears to have overprinted / removed chalcopyrite (Cu, S) and biotite. It also appears to locally reduce the amount of pyrite in the quartz vein network. This can also be observed in the sodium and sulphur chemistry in the Alice drilling; both correlate with domains of much lower- to no significant copper grades.

Project Status

The Productora deposit underwent a major resource drill out in 2013 which resulted in "Productora Resource Revision 2" resource estimate. Following this, a limited drilling programme in 2014 was undertaken focussed on extending or testing near-resource extensions and targets, as well as upgrading resource confidence in areas of inferred mineralisation. This programme resulted in the addition of 14,055m (12,864m of reverse circulation "RC" and 1,191m diamond drilling). The Productora deposit now contains a total drill inventory of 893 holes for a cumulative 245,327m (212,692m of RC and 32,636m of diamond drilling).

The Alice deposit was discovered during exploration drilling in 2014. Further drilling was undertaken by Hot Chili during 2014 and a resource development infill programme was completed in June, 2015. This consisted of 31 drill holes; 29 RC holes (2 with diamond tails), and also another 2 dedicated twin diamond drill holes for a cumulative 9,593m (9,005m of RC and 588m diamond drilling).

Resource Estimation

The Productora Deposit is resource update was based on:

- Additional drilling undertaken by Hot Chili since the previous Resource Report cut-off (December 2013) to 1st June, 2015. This consisted of an additional 46 new RC holes, 7 RC tail and 5 diamond tail extensions from pre-existing RC holes for a cumulative 14,055mm (12,864m of RC and 1,191m diamond drilling).
- A total drilling inventory of 893 holes for a cumulative 245,327m (212,692m RC, 32,636m diamond) available for use in resource estimation for the Productora deposit. (Note; This is a redefined count from the previous resource report, as previously this accounted for some minor non-Productora exploration drilling).
- The pre-existing nominal 40m x 80m drill coverage across the majority of the Productora resource.

The Alice Deposit is resource was based on:

- Drilling undertaken by Hot Chili during 2014 and to the 1st June, 2015. This consisted of 31 RC holes, 29 RC holes, 2 with diamond tails, and also another 2 dedicated twin diamond drill holes for a cumulative 9,593m (9,005m of RC and 588m diamond drilling).
- While the resource was drilled by a variety of drilling angles, the drilling provided a nominal 50m x 80m drill coverage across the majority of the Alice resource.

Alice has low Au and Mo, but as it is likely to be processed under the same processing regime as the Productora deposit, it was considered appropriate to consider those elements as economically material for resource classification and reporting.

The verification of input data included:



- The use of company QA/QC blanks and reference material
- Field and laboratory duplicates
- Umpire laboratory checks
- Independent sample and assay verification

The resource estimation process included:

- Drilling results being composited; 1m lengths for Productora, 2m for Alice
- Statistical analysis of the composites was performed in appropriate geological domains
- Variography and top-cut analysis was performed on appropriate mineralisation, weathering and orientation domains as appropriate
- Top cuts were applied to the composites as appropriate
- The grade model was estimated via ordinary block kriging within estimation domains constrained by mineralisation, weathering and geological orientation.
- Density for Productora, was estimated via inverse distance within similar domains used for the grade estimation. Following a detailed review, appropriate density values were assigned for Alice.

A range of criteria was considered in determining the resource classification, including:

- Drill data density
- Sample / assay confidence
- · Geological confidence in the interpretations and, similarly, geological continuity
- Grade continuity of the mineralisation
- Estimation method and resulting estimation output variables
- Estimation performance through validation, and
- Prospect for eventual economic extraction

Mineral Resource Statement

The following summarises the resource inventory for the Productora project:

- A high grade resource inventory: 236.6 Mt at 0.48 % Cu, 0.10 g/t Au and 135 ppm Mo (at a cut-off of greater than 0.25 % Cu). This includes:
 - Alice: 17.9Mt at 0.41 % Cu, 0.04 g/t Au and 39 ppm Mo
 - Productora: 218.7 Mt at 0.48 % Cu, 0.10 g/t Au and 142 ppm Mo
- *A low grade resource inventory: 218.2 Mt at 0.16 % Cu, 0.04 g/t Au and 58 ppm Mo (at a cut-off of greater than 0.1% but lower than 0.25 % Cu). This includes:
 - Alice: 16.4Mt at 0.13 % Cu, 0.02 g/t Au and 27 ppm Mo
 - Productora: 201.6Mt at 0.16 % Cu, 0.04 g/t Au and 60 ppm Mo

*This resource numbers are exclusive of the high grade resource quoted above.

Highlights of this statement includes:

• A 22.3Mt (over 10%) increase, in total classified resource (from 214.3Mt to 236.6Mt) at the same



Cu and Au grade.

• A 23.5Mt (almost a 15%) increase of indicated tonnes (from 158.6Mt to 182.1Mt (Productora and Alice inclusive). Inferred reduced by 1.1Mt (less than 2%) due to resource conversion.

-									
Productora Project Resource Summary - High Grade by Classification									
			Grad	le		Contained Metal			
		Tonnes				Copper	Gold	Molybdenum	
Deposit	Classification	(Millions)	Cu %	Au g/t	Mo ppm	(tonnes)	(ounces)	(tonnes)	
	Indicated	166.8	0.50	0.11	151	841,000	572,000	25,000	
Productora	Inferred	51.9	0.42	0.08	113	219,000	136,000	6,000	
	Sub-total	218.7	0.48	0.10	142	1,059,000	708,000	31,000	
	Indicated	15.3	0.41	0.04	42	63,000	20,000	1,000	
Alice	Inferred	2.6	0.37	0.03	22	10,000	2,000	100	
	Sub-total	17.9	0.41	0.04	39	73,000	23,000	1,000	
	Indicated	182.1	0.50	0.10	142	904,000	592,000	26,000	
Combined	Inferred	54.5	0.42	0.08	109	229,000	138,000	6,000	
	Total	236.6	0.48	0.10	135	1.132.000	731.000	32.000	

Productora Project Resource Summary – High grade by classification

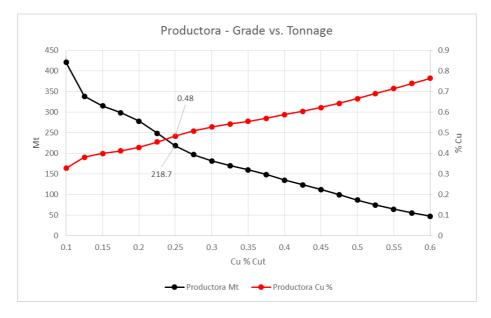
Reported at or equal to 0.25 % Cu. Metal rounded to nearest thousand, or if less, the nearest hundred.

Productora Project Resource Summary – High grade by weathering

	Productora Project Resource Summary - High Grade by Weathering							
			Grad	le		Contained Metal		
		Tonnes				Copper	Gold	Molybdenum
Deposit	Classification	(Millions)	Cu %	Au g/t	Mo ppm	(tonnes)	(ounces)	(tonnes)
	Oxide	24.6	0.49	0.09	53	121,000	71,000	1,000
Productora	Transitional	23.0	0.49	0.09	83	112,000	68,000	2,000
FIGULECOIA	Fresh	171.1	0.48	0.10	163	826,000	568,000	28,000
	Sub-total	218.7	0.48	0.10	142	1,059,000	708,000	31,000
	Oxide	3.1	0.44	0.05	21	14,000	5,000	100
Alice	Transitional	-	-	-	-	-	-	-
Ance	Fresh	14.9	0.40	0.04	42	59,000	18,000	1,000
	Sub-total	17.9	0.41	0.04	39	73,000	23,000	1,000
	Oxide	27.7	0.49	0.09	50	135,000	76,000	1,000
Combined	Transitional	23.0	0.49	0.09	83	112,000	68,000	2,000
combined	Fresh	185.9	0.48	0.10	153	885,000	586,000	29,000
	Total	236.6	0.48	0.10	135	1,132,000	731,000	32,000

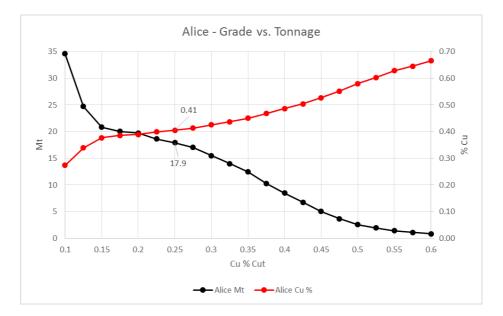
Reported at or equal to 0.25 % Cu. Metal rounded to nearest thousand, or if less, the nearest hundred.





Productora deposit classified resource Grade - Tonnage graph

Alice deposit classified resource Grade - Tonnage graph





Productora Project Resource Summary - Low Grade by Classification								
		Grade			Contained Metal			
		Tonnes				Copper	Gold	Molybdenum
Deposit	Classification	(Millions)	Cu %	Au g/t	Mo ppm	(tonnes)	(ounces)	(tonnes)
Productora	Indicated	150.9	0.15	0.03	66	233,000	170,000	10,000
	Inferred	50.7	0.17	0.04	44	86,000	72,000	2,000
	Sub-total	201.6	0.16	0.04	60	320,000	241,000	12,000
Alice	Indicated	12.3	0.14	0.02	29	17,000	7,000	400
	Inferred	4.1	0.12	0.01	20	5,000	2,000	100
	Sub-total	16.4	0.13	0.02	27	22,000	9,000	400
Combined	Indicated	163.2	0.15	0.03	63	250,000	177,000	10,000
	Inferred	55.0	0.17	0.04	43	91,000	74,000	2,000
	Total	218.2	0.16	0.04	58	342,000	250,000	13,000

Productora Project resource summary - low grade by classification

Reported at or above 0.1% Cu and below 0.25 % Cu. Metal rounded to nearest thousand, or if less, the nearest hundred.

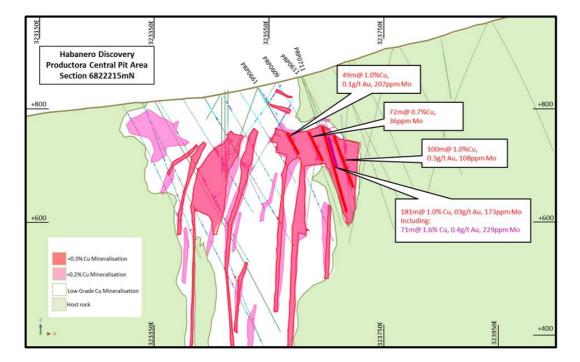
Productora Project resource summary – low grade by weathering

Productora Project Resource Summary - Low Grade by Weathering								
		Grade				Contained Metal		
		Tonnes				Copper	Gold	Molybdenum
Deposit	Classification	(Millions)	Cu %	Au g/t	Mo ppm	(tonnes)	(ounces)	(tonnes)
Productora	Oxide	44.0	0.15	0.04	28	65,000	51,000	1,000
	Transitional	31.5	0.16	0.04	36	51,000	44,000	1,000
	Fresh	126.1	0.16	0.04	78	204,000	146,000	10,000
	Sub-total	201.6	0.16	0.04	60	320,000	241,000	12,000
Alice	Oxide	3.5	0.13	0.01	15	4,000	1,000	100
	Transitional	-	-	-	-	-	-	-
	Fresh	13.0	0.13	0.02	30	17,000	7,000	400
	Sub-total	16.6	0.13	0.02	27	22,000	9,000	400
Combined	Oxide	47.7	0.15	0.03	27	70,000	52,000	1,000
	Transitional	31.5	0.16	0.04	36	51,000	44,000	1,000
	Fresh	139.0	0.16	0.03	73	221,000	153,000	10,000
	Total	218.2	0.16	0.04	58	342,000	250,000	13,000

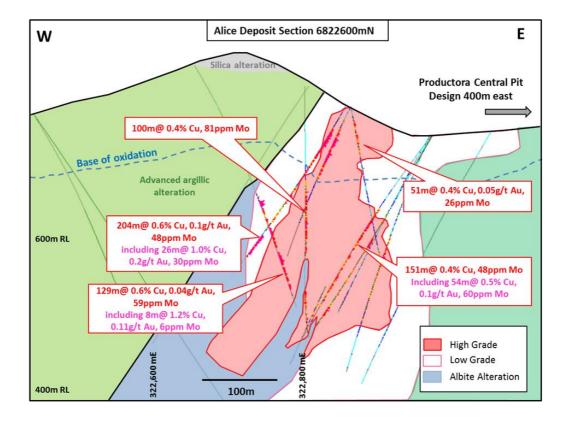
Reported at or above 0.1% Cu and below 0.25 % Cu. Metal rounded to nearest thousand, or if less, the nearest hundred.



Productora Habanero Zone type Cross-section. Selected significant intersections (previously published) highlight drilling from the Habanero zone. 6822215mN. Looking north.

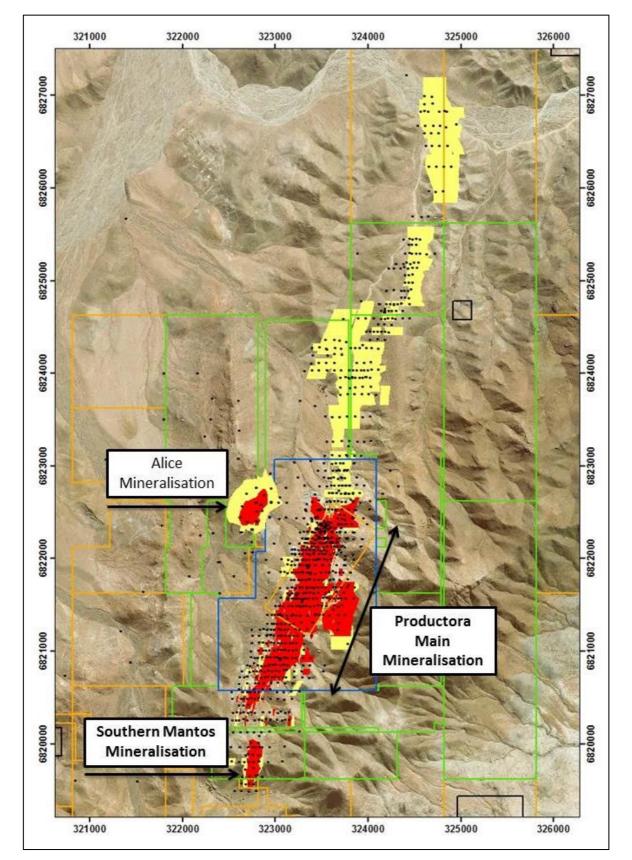


Alice type Cross-section. Selected significant intersections (previously published) highlight drilling from the Alice deposit on 6822600mN. Looking north.





Location and relationship between the Alice and Productora copper mineralisation envelopes. Plan view.

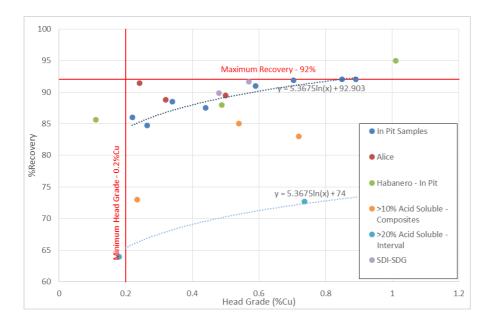




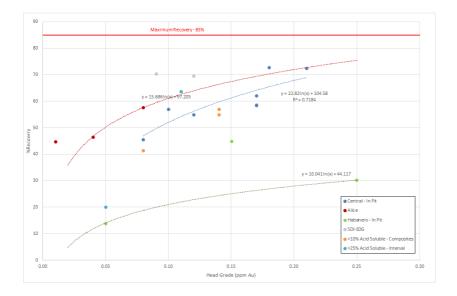
Final applied regression ranges and formulas for the conversion of pulp pycnometer density data

	pycnometer	Formula to convert
Applied to all LODE, and 'pyc' only	range	to bulk density
	0 to <=2.47	calcBD = pyc/1.1223
y >=6820000 and weath=1(trans+fresh)	>2.7 to <= 2.56	calcBD = (pyc-1.81)/0.3
	>2.56 to 999	calcBD = pyc-0.06
	0 to <=2.5	calcBD = pyc/1.1521
y >=6820000 and weath=0 (oxide)	>2.5 to <= 2.74	calcBD = (pyc-1.5356)/0.4444
	>2.74 to 999	calcBD = pyc-0.03
y <6820000	all	calcBD = pyc-0.06

Metallurgical test work - Copper Head Grade vs. Copper Recovery

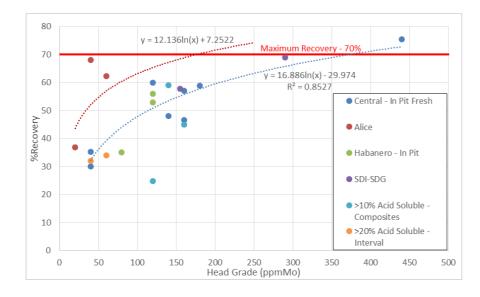




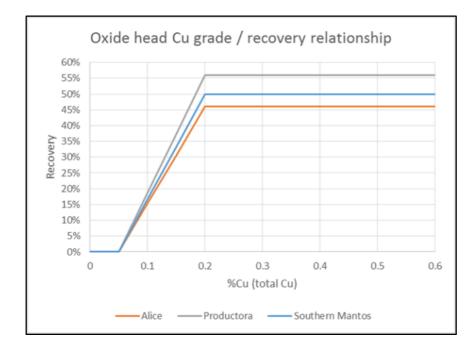


Metallurgical test work - Gold Head Grade vs. Gold Recovery

Metallurgical test work – Molybdenum Head Grade vs. Molybdenum Recovery.







Metallurgical test work – Heap leach recovery vs. Head grade.