

#### 30 April 2020

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# **Sorby Hills Optimised PFS Progress Update**

Pacifico Minerals Limited (ASX: PMY) ('Pacifico' or the 'Company') is pleased to report on the significant progress being made on its Sorby Hills Joint Venture Project Optimised Pre-Feasibility Study ('PFS').

#### **HIGHLIGHTS**

- Resource Upgrade justifies 50% increase in plant throughput from 1.0Mtpa to 1.5Mtpa.
- Metallurgical testwork confirms improved lead (Pb) recovery estimates.
- Excellent results from Heavy Liquid Separation ('HLS') testwork on low-grade ore.
- Open pit optimisation and mine scheduling completed.
- Simple process plant design completed with engineering and cost estimation progressing.
- Optimised PFS on track to be completed in June.
- Resource Update underway with increased confidence gained from Phase III drilling.

#### **BACKGROUND**

The Sorby Hills Joint Venture Project ('Sorby Hills' or the 'Project') is located approximately 50 km northeast of Kununurra. There are existing sealed roads to transport concentrate from site to the facilities at Wyndham Port (150 km from the Project). Established infrastructure and existing permitting allow for fast tracked production. A previous Pre-Feasibility Study ('PFS') produced compelling economics (ASX Announcement 26 March 2019).

Following on from a significant Resource upgrade in Q4 2019 which resulted in a Global Resource estimate of 36 Mt at 4.9% Pb equivalent<sup>1</sup> (3.7% Pb, 39g/t Ag) and 0.5% Zn lying just 20 m below surface and open along strike and down dip (ASX Announcement 31 October 2019), Pacifico is completing an Optimised PFS. The Optimised PFS targets an increased mining rate and greater processing capacity and will further de-risk the project with additional testwork.

Managing Director Mr Simon Noon commented that the Company had made significant progress since the Project's updated PFS was released in March 2019. Mr Noon stated, "We reported a very significant upgrade to the project's Resource in October last year and this has underpinned the increase in plant throughput and processing capacity."

The 50% increase in plant throughput still allows for a project life of at least 8 years.

"Pacifico looks forward to providing further information when we release the Optimised PFS, currently scheduled for June," Mr Noon said.

<sup>&</sup>lt;sup>1</sup> See Appendix 1 for lead equivalent calculation.



#### **PROJECT METRICS**

The Optimised PFS will increase the Process Plant throughput by 50% from 1.0Mtpa to 1.5Mtpa. Two options are being assessed within the study:

- 'Whole Ore' option, which treats mined ore directly by flotation at 1.5Mtpa; and
- 2. 'DMS' option, which beneficiates low-grade ore by Dense Media Separation ('**DMS**') and blends the upgraded product with high-grade ore to feed the flotation plant at 1.5Mtpa.

Key project metrics are presented in table 1 below.

Table 1 Key Project Metrics

	Whole Ore Option				DMS Option		
			0	irade		G	rade
Parameter	Unit	Quantity	%Pb	Ag g/t	Quantity	%Pb	Ag g/t
Total Material Mined	Mt	93.4			123.4		
Ore Mined	Mt	12.0	4.0	42	16.8	3.5	36
Strip Ratio		7.8			7.4		
DMS Ore Feed	Mt	NA	NA	NA	6.2	1.8	17
DMS Product	Mt	NA	NA	NA	1.9	4.8	42
Direct Flotation Ore	Mt	12.0	4.0	42	10.6	4.5	46
Total Flotation Feed	Mt	12.00	4.0	42	12.5	4.6	46
Concentrate Production	t	718,753	62.0	590	847,975	62.0	570
Contained Pb	t	445,627			525,744		
Contained Ag	Moz	13.7			15.5		
Project Life	Yrs	8.0			8.4		

#### **METALLURGICAL TESTWORK**

#### **Comminution**

Comminution (crushing and grinding) tests have been performed on four composite samples to add to the existing data base for Optimised PFS level process design calculations. The testwork included SMC (drop weight), bond rod and ball mill and abrasion index testing. The testwork shows that Sorby Hills ore is amenable to semi-autogenous grinding having medium coarse competency and has a medium hardness ball mill work index in the range 9-12kWhr/t. Key material properties are presented in Table 2.

Table 2 Key Comminution Material Properties

Comminution Parameter	Average Value
Drop Weight index, kWh/m <sup>3</sup>	5.3
Axb	51.6
Rod mill work index, kWh/t	15.5
Ball mill work index, kWh/t	10.2
Abrasion index	0.025

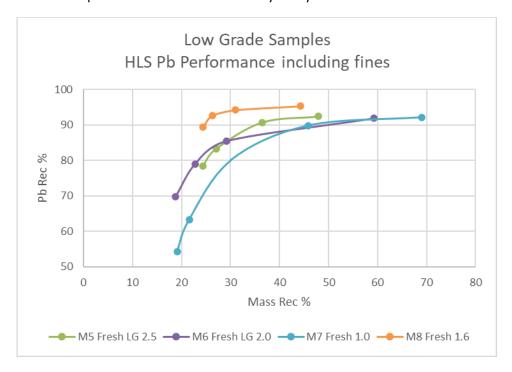
#### **Heavy Liquid Separation**

HLS beneficiation testwork was carried out on six fresh (primary) ore composites with head grades ranging from 1.0 to 5.4%Pb to confirm amenability to beneficiation. The samples were tested at -12 +1 mm size fraction over the SG range 2.7 to 3.0 in 0.1 increments.



Results from HLS testwork on low-grade samples showed a good response averaging 79.5% Pb recovery to a sinks + fines product containing 24.5% mass. **This equates to an upgrade ratio of 3.24.** 

Good upgrades were also obtained from the higher-grade samples; however, the reject grade also increases and is considered too high at this stage. The opportunity to include higher-grade in the DMS process will be explored with additional testwork as part of the Definitive Feasibility Study.



Based on these results, a flowsheet including a DMS beneficiation circuit upgrading low-grade ore in parallel with a direct feed high-grade ore stream is being assessed within the Optimised PFS.

**Final full-scale DMS performance,** corrected for fines content and DMS cyclone efficiency, is estimated to be 30% mass recovery with 81% Pb and 73% Ag recoveries giving upgrade ratios of **2.7 for Pb and 2.4 for Ag.** 

### **Flotation**

This year, new flotation testwork was conducted on four composite samples (one oxide and three fresh ore types). The flotation circuit consists of a staged sulphide and oxide rougher followed by two stages of combined rougher concentrate cleaning. A primary grind size is 106µm. No regrind is necessary. The reagent regime is simple consisting of soda ash, collector, frother, and sodium hydrosulphide for oxide ore sulphurdisation.

The testwork culminated with a locked cycle test of the prime 'life of mine' grade fresh composite which represents approximately 75% of the feed schedule.

Test results for each composite, the locked cycle test result and final Optimised PFS recovery estimates are presented in Table 3.



**Table 3 Flotation Performance Results and Estimates** 

Test	Sample	Mass %		Head Grade			Recov	ery %
			%Pb	%Fe	Ag g/t	Pb:Fe	Pb	Ag
			Test Res	ults				
CT6280 Locked Cycle	M4 (fresh)	NA	5.19	3.2	28	1.62	95.4	85.0
CT6265 Batch	M4 (fresh)	70	5.19	3.2	28	1.62	93.9	84.1
CT6277 Batch	M3 (fresh)	10	5.74	3.87	24	1.48	96.3	83.1
CT6283 Batch	M5 (fresh)	20	2.86	5.01	20	0.57	88.5	58.1
CT6281 Batch	M2 (oxide)	100	2.79	3.09	21	0.90	84.0	94.4
PFS Recovery Estimates								
Weighted Average Fresh			4.78	3.63	26	1.34	93.5	80.0
LCT Off-set Fresh ore							1.9	1.5
Final Fresh ore							95.4	81.5
Oxide			2.79	3.09	21.0	0.90	84.0	94.4
Final Oxide ore				•	•		84.0	94.4
Average LOM ore (76% Fre	sh) ¹		4.30	3.50	24.8	1.23	92.7	84.6

<sup>&</sup>lt;sup>1</sup>The grades shown represent the weighted average grades of the test samples and not the final production schedule grades.

Comparison of the new flotation recovery performance to previous studies is shown in Table 4.

Table 4 Current vs Previous Recovery Estimates

	Current PFS			Lycopodium PFS Update 2019		
Recovery	Pb	Ag	Pb	Ag	Pb	Ag
Fresh Ore	95.4	81.5	NA	NA	NA	NA
Oxide Ore	85.0	94.4	NA	NA	NA	NA
Overall	92.7	84.6	91	87	91	87

The previous two studies used the same recovery estimates and did not assess the oxide and fresh ore types separately in their recovery estimates. Importantly, they were targeting lower-tonnage higher-grade projects.

The current recovery estimates have better sample representation and the improved Pb recovery more than compensates for the small reduction in Ag recovery. The latest testwork will have a positive impact on the Project's NPV.

All flotation testwork to date has been conducted on un-beneficiated ore samples. For the purpose of the Optimised PFS, it is assumed that the flotation performance of beneficiated product is consistent with unbeneficiated ore.

#### **GEOLOGY AND RESOURCES**

The October 2019 MRE (completed following the Phase II drilling results) has been used for the Optimised PFS pit optimisation.

A high-level review of the perceived impact of Phase III drilling data in addition to ongoing refinements to the geological model on the MRE has been completed.



#### Summary

- Localised tonnage increases are likely to be seen where new drilling extends the current Mineral Resource shapes or fills gaps in the current model;
- Refined geological models for the weathering profiles and updated density dataset add greater confidence to the Mineral Resource Estimate;
- Unlikely to see a material decrease in grade within the reported Mineral Resource; and
- Possible minor increase or decrease in reported global grades due to re-domaining of drill hole samples.

As a result of the above, Pacifico has commissioned CSA Global to complete a further MRE update. This work is expected to be completed during May 2020.

#### PERMITTING AND APPROVALS

The Sorby Hills Joint Venture Project proposal is to develop a lead-silver-zinc open pit mine, associated infrastructure, and processing facilities. Sorby Hills sits on **pre-native title granted mining tenements**.

In the October 2013, the Western Australian Environmental Protection Authority ('EPA') Report (1491), concluded: 'The Project can be managed to meet the EPA's objectives, provided there is satisfactory implementation by the proponent ('Sorby Management Pty Ltd' or 'Sorby') of the EPA's recommended conditions.' Subsequently ministerial approval was granted in April 2014.

#### **Requested Changes to Conditions**

Condition 3-1 of Ministerial Statement 964 requires Sorby Management Pty Ltd to substantially commence the proposal within five years of the date of issue of the Statement (before 2 April 2019). Sorby requested an extension of the Time Limit of Authorisation (now referred to as 'Time Limit for Proposal Implementation') for substantial commencement to be extended for a further five years to 2 April 2024.

During April 2019 Pacifico received Report 1632 from the EPA (ASX Announcement 17 April 2019), recommending that it is appropriate to amend condition 3 of Ministerial Statement 964 to allow for the extension of the timeframe for substantial commencement of the Sorby Hills Joint Venture Project for a further 5 years and in May 2019, Pacifico received Ministerial confirmation that condition 3 of Ministerial Statement 96 had been amended to allow for the timeframe for substantial commencement of the Sorby Hills Joint Venture Project, to be **extended** for a further 5 years, to 2 April 2024 (ASX Announcement 29 May 2019).

Pacifico has taken a conservative approach with its pit optimisations for the Optimised PFS and has excluded the Alpha and Beta deposits. These deposits sit outside of the open pit development zone approved by the EPA. The Company is focused on fast tracking Sorby Hills to production and would therefore prefer to avoid a material change in the size of the development zone.

#### **HYDROGEOLOGICAL SITE INVESTIGATION PROGRAM**

Using Pacifico's reinterpreted geological model, together with reinterpretation of recent and historical drilling and hydraulic testing programs, Pennington Scott has developed a hydrogeological conceptual site model of the Sorby Dolomite and Webber Plane alluvial aquifers. While historic investigations had difficulty interpreting complex pump tests from the karstic aquifer using traditional analytical equations; the use of modern radial flow modelling is providing much improved and confident analysis. A regional numerical groundwater model is now being developed over the mining area and will be calibrated against wet season recharge events.



Although the model is still in progress, the results from new pump tests as well as reinterpreted historical pump tests indicate that the Sorby Dolomite is not as permeable as previously thought.

Pennington Scott is also undertaking Gold Sim water balance modelling, coupled with catchment modelling of the Keep River, to develop a seasonal stormwater harvesting and surface water management strategy for the Project.

## **OPTIMISED PFS STATUS**

The following provides an overview of the key study areas and progress to date.

#### **Geology and Resources (CSA Global and Pacifico)**

- MRE updated based on Phase II drilling results for use in PFS Pit Optimisation;
- Phase III drilling produced PFS metallurgical samples;
- Ongoing refinements to the geological model and ore SG estimates; and
- Further MRE revision incorporating the above underway.

## Mining (Entech)

- Geotechnical site investigations complete;
- Hydrogeological site investigations complete;
- Two process plant configurations are being investigated in mine optimisation studies:
  - Whole ore flotation; and
  - o Low-grade beneficiation by DMS and direct feed of high-grade;
- Pit optimisations completed for both options;
- Preliminary scheduling completed for both options;
- Mining contract cost estimation in progress;
- Preliminary designs commencing; and
- Surface water drainage and pit dewatering studies commenced.

#### **Metallurgical Testwork (DRA and Pacifico)**

- Comminution testwork complete for crushing and milling circuit design;
- HLS testwork complete for DMS circuit design; and
- Flotation testwork complete
  - Metallurgical testwork and final PFS recovery performance estimates complete;
  - o Reagent scheme improved with low operating cost; and
  - Simplified circuit design.

#### **Process Plant and Infrastructure Engineering (DRA)**

- Option studies completed covering the following selections:
  - Grinding circuit design single stage SAG mill selected;
  - o DMS has been identified as being a viable option to upgrade low-grade ore; and
  - Power supply site diesel power station selected.
- Project throughput increased to 1.5Mtpa;
- Two flowsheet options being developed to PFS level of detail for consideration:
  - o Whole ore direct milling and flotation without beneficiation; and
  - Low grade beneficiation by DMS with high grade feed direct to flotation:
    - DMS feed capacity 750,000tpa producing 225,000tpa mill feed; and
    - 1.275Mtpa high grade flotation feed.



- Process engineering is complete;
- Discipline engineering nearing completion;
- Tailings storage facility design complete (Coffey); and
- Concentrate transport study completed (Minerals to Market).

The Board of Pacifico Minerals Limited has authorised the release of this announcement.

#### FOR FURTHER INFORMATION PLEASE CONTACT:

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#### **ABOUT PACIFICO MINERALS LIMITED**

Pacifico Minerals Ltd ('Pacifico') (ASX: PMY) is a Western Australian based exploration company with interests in Australia and Colombia. In Australia, the company is currently focused on advancing the Sorby Hills Joint Venture Project in WA. Pacifico owns a 75% interest in the Joint Venture with the remaining 25% (contributing) interest held by Henan Yuguang Gold & Lead Co. Ltd.

#### ABOUT HENAN YUGUANG GOLD AND LEAD CO LTD

Henan Yuguang Gold and Lead Co., Ltd ('HYG') was established in 1957 by the government of Jiyuan City which is in Henan Province in North China. In July 2002, HYG (exchange code: 600531) was listed on the Shanghai Stock Exchange (SSX). Current ownership is approximately 29.61% by Jiyuan City. HYG is the largest lead smelting company and silver producer in China and has been among the Top 500 Chinese enterprises and Top 500 China manufacturing enterprises for the last five consecutive years. The main products produced by HYG are electrolytic lead, gold, silver and copper which are all registered at LME and LBMA respectively. In 2017, HYG produced 415,100 tonnes of electrolytic lead, 110,000 tonnes of copper, 958 tonnes of silver, 7,383 kg of gold and achieved sales of about US\$2,684 million. HYG's plants are largely modern, focussed on development of industrial technology and are environmentally friendly. Its recently refurbished lead smelting plant has achieved full automation. More information can be found on the HYG website; <a href="http://www.yggf.com.cn/en/">http://www.yggf.com.cn/en/</a>.

#### FORWARD LOOKING STATEMENTS

Certain statements in this document are, or may be, 'forward-looking statements' and represent Pacifico's intentions, projections, expectations or beliefs concerning among other things, future exploration activities. The projections, estimates and beliefs contained in such forward-looking statements necessarily involve known and unknown risks, uncertainties and other factors, many of which are beyond the control of Pacifico, and which may cause Pacifico's actual performance in future periods to differ materially from any express or implied estimates or projections. Nothing in this document is a promise or representation as to the future. Statements or assumptions in this document as to future matters may prove to be incorrect and differences may be material. Pacifico does not make any representation or warranty as to the accuracy of such statements or assumptions.

#### COMPETENT PERSON STATEMENT

Please refer to the below letter from DRA Pacifico Pty Ltd.





// DRA Pacific Pty Ltd

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29 April 2020

#### CERTIFICATE OF AUTHOR

I, John Fleay B.Eng(Mineral Processing), do hereby certify that:

- I am currently employed as Manager Metallurgy with DRA Pacific Pty Ltd, 256 Adelaide Terrace, Perth, 6000.
- This certificate applies to the specific metallurgy sections contained in the ASX Release "Sorby Hills PFS Progress Update", 30 April 2020 prepared by Pacifico Minerals Ltd.
- 3. My technical qualifications are Bachelor of Engineering (Mineral Processing) and I am a Fellow member of the Australian Institute of Metallurgy (AusIMM No:320872).
  - I am a graduate of WA School Of Mines (WASM). I have appropriate experience in these matters, by way of my qualifications and 25 years of experience in the mining and resource sector.
- I have not visited the Sorby Hills Project site.
- I am responsible for the metallurgy sections of the Sorby Hills Prefeasibility Study (PFS)
  which is currently in progress. This ASX release includes metallurgical information from
  this PFS.
- 6. I am independent of the Issuer and related companies.

Effective Date: April 30, 2020

Signing Date: April 29, 2020

John Fleay Manager Metallurgy

**DRA Pacific Pty Ltd** 



## **APPENDIX 1 - CALCULATION OF Pb EQUIVALENT GRADES**

The contained metal equivalence formula is made on the following assumptions based on historical metallurgical work included in a Pre-Feasibility Study (KBL ASX Announcement, 8 April 2014) and modified by more recent metallurgical testwork results (PMY ASX Announcement 17 July 2019), and on the published London Metal Exchange closing spot metal prices of 16 April 2020.

- Lead price US\$ 1664/t;
- Silver price US\$ 0.508/g (US\$15.78/oz);
- Lead recoverable to concentrate 91%; and
- Silver recoverable to concentrate 90%.

It is Pacifico's opinion that all elements included in the metal equivalent calculation have a reasonable potential to be recovered and sold. The formula used to calculate lead equivalent grade is:

Lead equivalent grade Pb% = ((Grade % Pb x recoverable % Pb x price US\$ per tonne Pb metal / 10,000) + (grade g/t Ag x recoverable % Ag x price US\$/g)) / (Grade % Pb x recoverable % Pb x price US\$ per tonne Pb metal / 10,000)

Metal equivalents are highly dependent on the metal prices used to derive the formula. Pacifico notes that the metal equivalence method used above is a simplified approach. Only preliminary metallurgical recoveries are available. The metal prices are based on closing spot LME prices of 16 April 2020 and do not reflect the metal prices that a smelter would pay for concentrate nor are any smelter penalties or charges included in the calculation.

Owing to limited metallurgical data zinc grades are not included at this stage in the lead equivalent grade calculation.



## **APPENDIX 2 – JORC, 2012 EDITION – TABLE 1**

## **Section 1 Sampling Techniques and Data**

Criteria Sampling	JORC Code Explanation	Con	nmentary	,				
Sampling Techniques	Nature and quality of sampling		-	Samples: The commi	nution to	twork report	ad ahova	is based on four
Sampling reciniques	(e.g. cut channels, random		_					
	· -			amples representing t				
	chips, or specific specialised			posites C1, C2, C3 and				
	industry standard		•	ed on four low grade l		•	•	, , ,
	measurement tools	·						
	appropriate to the minerals							
	under investigation, such as							
	down hole gamma sondes, or		•	·			•	
	handheld XRF instruments,			I core sample from Pa				
	etc). These examples should			and distribution of	the comp	osites is sum	ımarised	in the following
	not be taken as limiting the	Tab	le.					
	broad meaning of sampling.							<u> </u>
	Include reference to measures		Sample	Description	# Drill	# Intervals	Total	Ore Zones
	taken to ensure sample				Holes		Meters	
	representivity and the		C1	Transition	11	13	13	B, Omega
	appropriate calibration of any		C2	Oxide	5	12	12	B, Omega
	measurement tools or systems		C3	Fresh	17	26	26	B, Omega
	used.		C4 M2	Waste Oxide	3	11 12	11.5	B, Omega B, Omega
	Aspects of the determination of		M3	Fresh High	5	8	9	B, Omega
	mineralisation that are		1013	Flotation Feed Grade	3	0	9	B, Offiega
	Material to the Public Report.		M4	Fresh LOM	4	10	12	B, Omega
	In cases where 'industry			Flotation Feed Grade		10		2, 0684
	standard' work has been done		M5	Fresh 2.5%Pb Grade	8	13	14	B, Omega
	this would be relatively simple		M6	Fresh 2.0%Pb Grade	5	10	12	B, Omega
	(e.g. 'reverse circulation drilling		M8	Fresh 1.5%Pb Grade	4	8	12	B, Omega
	was used to obtain 1 m samples		M7	Fresh 1.0%Pb Grade	11	12	12	B, Omega
	from which 3 kg was pulverised				•		•	<u> </u>
	to produce a 30 g charge for fire	Met	tallurgical	l samples were selecte	d with the	aim to satisf	y the follo	wing conditions:
	assay'). In other cases, more	•	Ore that	t would be mined, i.e.	within the	proposed pit	shells	
	explanation may be required,							
	such as where there is coarse	•	Reflect t	the main oxidation typ	es and litl	nologies, part	icularly th	e more oxidised
	gold that has inherent sampling	cerussite ores and the fresh galena ores  Select grades in line with the production schedule and/or life of mine grade						
	problems. Unusual							
	commodities or mineralisation							f mine grade
	types (e.g. submarine nodules)		6					
	may warrant disclosure of	Allow for spatial representivity (i.e. spread of depth and along str					strike where	
	detailed information.		possible	e)				
Drilling Techniques	Drill type (e.g. core, reverse	ΛII •	motallurg	ical sample was from I	JO diama	nd drill coro		
Drilling recliniques		All I	netanurg	icai sample was mom r	1Q diaiilo	nu uriii core		
	circulation, open-hole hammer,							
	rotary air blast, auger, Bangka,							
	sonic, etc) and details (e.g. 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).							
Drill Sample	Method of recording and			ry for diamond core v	vas accep	table with re	coveries l	better than 97%
Recovery	assessing core and chip sample	thro	ough the r	mineralised zones.				



	recoveries and results	
	assessed.	
	Measures taken to maximise	
	sample recovery and ensure	
	representative nature of the	
	samples.	
	Whether a relationship exists	
	between sample recovery and	
	grade and whether sample bias	
	may have occurred due to	
	preferential loss/gain of	
	fine/coarse material.	
Logging	Whether core and chip samples	Diamond drill core was logged at a secure facility in Kununurra, where it is also
888	have been geologically and	stored.
	geotechnically logged to a level	
	of detail to support appropriate	All core was logged in detail. Core was processed with orientation lines and metre
	Mineral Resource estimation,	marks and RQD. Recoveries and RQD's were recorded.
	· ·	
	mining studies and	Structural measurements of stratigraphy and fault orientations were made where the ori-marks and orientation lines were of sufficient confidence.
	metallurgical studies.	the ori-marks and orientation lines were of sufficient confidence.
	Whether logging is qualitative	
	or quantitative in nature. Core	
	(or costean, channel, etc)	
	photography.	
	The total length and	
	percentage of the relevant	
	intersections logged.	
Sub-sampling	If core, whether cut or sawn	Drill hole and intercept selection for the samples was based on the core logging and
Techniques and	and whether quarter, half or all	assay data, and the material type classification based on a weathering index. Samples
Sample Preparation	core taken.	were selected to represent oxide, transition or fresh sulphide mineralogy as
	If non-core, whether riffled,	required. As required, intervals were selected to provide a target Pb grade.
	tube sampled, rotary split, etc	
	and whether sampled wet or	Drill holes and intervals were selected to offer the most representative spatial
	dry.	distribution, with a focus on B and Omega regions which are dominant in the first
	For all sample types, the	half of the ore schedule.
	nature, quality and	
	appropriateness of the sample	
	preparation technique.	
	Quality control procedures	
	adopted for all sub-sampling	
	stages to maximise	
	representivity of samples.	
	Measures taken to ensure that	
	the sampling is representative	
	of the in-situ material collected,	
	including for instance results	
	for field duplicate/second-half	
	sampling.	
	Whether sample sizes are	
	appropriate to the grain size of	
Overline Co.	the material being sampled.	All the matellianded technical and the second secon
Quality of Assay Data	The nature, quality and	All the metallurgical testwork reported was conducted by ALS Metallurgical
and Laboratory Tests	appropriateness of the assaying	laboratory in Balcatta, Perth. This laboratory is NATA accredited. All testwork
	and laboratory procedures	procedures used are industry standard.



	Lucad and substitute the	
	used and whether the	
	technique is considered partial	
	or total.	
	For geophysical tools, spectrometers, handheld XRF	
	instruments, etc, the parameters used in	
	parameters used in determining the analysis	
	·	
	including instrument make and model, reading times,	
	calibrations factors applied and	
	their derivation, etc.	
	Nature of quality control	
	procedures adopted (e.g.	
	standards, blanks, duplicates,	
	external laboratory checks) and	
	whether acceptable levels of	
	accuracy (i.e. lack of bias) and	
	precision have been	
	established.	
Verification of	The verification of significant	Metallurgical samples and testwork: Technical representatives of both Pacifico and
Sampling and	intersections by either	DRA Pacific have been involved with the selection of the samples and have had a
Assaying	independent or alternative	collaborative involvement in designing the testwork program, managing this
	company personnel.	program, reviewing the testwork results.
	The use of twinned holes.	program, continue and continue
	Documentation of primary	Calculated head grades from each test are checked against the assay head grade. Any
	data, data entry procedures,	discrepancy is followed up by re-assaying.
	data verification, data storage	
	(physical and electronic)	
	protocols.	
	Discuss any adjustment to	
	assay data.	
Location of Data	Accuracy and quality of surveys	The Pacifico Phase 1 and 2 drill hole collars were accurately surveyed using a DGPS
Points	used to locate drill holes (collar	by a registered surveyor and recorded in GDA94 Zone 52.
	and down-hole surveys),	
	trenches, mine workings and	
	other locations used in Mineral	
	Resource estimation.	
	Specification of the grid system	
	used.	
	Quality and adequacy of	
	topographic control.	
Data Spacing and	Data spacing for reporting of	NA
Distribution	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.	
Orientation of Data in	Whether the orientation of	NA
<b>Relation to Geological</b>	sampling achieves unbiased	
Structure	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.	
	·	
Sample Security	The measures taken to ensure	Drill samples were originally stored and processed at a secure facility in Kununurra
	sample security.	and a Laboratory in Darwin. All samples taken by Pacifico personnel to the truck
		depot in Kununurra and placed on a pallet and sealed for transport direct to the
		Intertek-Genalysis laboratory in Darwin. The metallurgical samples were taken from
		these two locations and have remained stored under secure premises at ALS
		Balcatta.
Audits or Reviews	The results of any audits or	Metallurgical sample: Representatives of both Pacifico and DRA have inspected the
	reviews of sampling techniques	testwork being conducted. Mr Craig Toogood of ALS managed the testwork program.
	and data.	Testwork result interpretation has been performed by both Pacifico and DRA
		personnel with review and final sign-off by Mr John Fleay of DRA Pacific.
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## **Section 2 Reporting of Exploration Results**

Criteria	JORC Code Explanation	Commentary
Mineral Tenement and Land Tenure Status	Type, reference name/number, location and ownership including agreements or material issues with third parties such as joint ventures, partnerships, overriding royalties, native title interests, historical sites, wilderness or national park and environmental settings. The security of the tenure held at the time of reporting along with any known impediments to obtaining a licence to operate in the area.	Pacifico Minerals Ltd acquired a 75% interest in the Sorby Hills lead-silver project in Western Australia on 5 October 2018. Yuguang (Australia) Pty Ltd and wholly owned subsidiary of Henar Yuguang Gold & Lead Co. Ltd (HYG) owning the remaining 25%. The Sorby Hills Project comprises five mining leases (M80/196-197 and M80/285-287), all of which are currently held jointly between Sorby Hills Pty Ltd (75%) and Yuguang (Australia) Pty Ltd (25%).  Tenement Area (km2) Granted Expiry  M80/196 9.99 22/01/1988 21/01/2030  M80/197 9.95 22/01/1988 21/01/2030  M80/285 5.57 29/03/1989 28/03/2031  M80/286 7.89 29/03/1989 28/03/2031
	M80/287 8.15 29/03/1989 28/03/2031  The Mining Leases are centred at coordinates 128°57′E, 15°27′N.  The project area is approximately 50 km north-northeast of the township of Kununurra, in the fa north of Western Australia, and covers a total area of 12,612.40 hectares (ha).  Native title has not been granted over the area. The Mining Leases were granted prior to the Higi Court acknowledging Native Title and therefore native title has been extinguished over the MLs.  The project area lies adjacent to the proposed Goomig Range Conservation Park.	



		Tenure is in good standing until 2030 (in some cases, out to 2031). Mining Leases M80/286 & M80/197 have a current cultural clearance access agreement in place; for the remaining mining tenements normal cultural clearance plans would be required. No mining agreement has been negotiated.
Exploration Done by Other Parties	Acknowledgment and appraisal of exploration by other parties.	The Sorby Hills area has been systematically explored by numerous companies since 1971. Prominent amongst these were ELF Aquitaine (1973-1981) with various JV partners (SEREM, St Joe Bonaparte & BHP), BHP (1981-1988), in JV with Triako; and CBH/Kimberley Metals/KBL Mining. Previous work included, geologic mapping, soil geochemistry, airborne and ground geophysics and extensive drilling campaigns.
Geology	Deposit type, geological setting and style of mineralisation.	The Sorby Hills mineralisation is regarded as having many features typical of Mississippi Valley Type (MVT) deposits. Mineralisation is focussed on the contact between the Knox Sediments and the underlying Sorby Dolomite.  The Sorby Hills mineralisation consists of 13 discrete carbonate hosted Ag Pb Zn deposits (previously referred to as pods), Pods A–J, Beta Pod East, Beta Pod West and Alpha pod. The pods form a linear north-south belt extending over 7 km, sub parallel to the eastern margin of the Precambrian Pincombe Inlier and within the Carboniferous Burt Range Formation of the Bonaparte Basin.  The mineralisation is largely stratabound and hosted mainly on the contact between Knox Sediments and Sorby Dolomite, sometimes in a dolomitic breccia, which generally dips shallowly to the east.  The mineralised pods average 7–10 m in thickness, are generally less than 1 km long and 100 to 500 m wide. There is some structural control to the mineralisation, with higher grade zones associated with faulting. Some of this faulting is interpreted to be at a low angle. Mineralisation is often thicker and/or of higher grade in areas of strong brecciation.  The Sorby Hills primary mineralisation is typically silver and lead-rich with moderate to high pyrite (FeS2) content and generally low amounts of sphalerite (ZnS). Galena (PbS) occurs as massive to semi-massive crystalline lenses often found in the more argillaceous units, and as coarse to fine disseminations or as open-space fill in fractures, breccias and vughs. Sphalerite typically predates galena and occurs as colloform open-space fill. It is typically more abundant at the lateral fringes of and below the lead mineralisation. Silver values tend to increase as the lead content increases and is generally assumed to be closely associated with the galena. A discrete pyrite zone is seen to occur below the base-metal mineralisation.  The upper portions of the deposits are often oxidised and composed of a variable mix of cerussite (PbCO3) and galena. Cerussite has also bee
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  • elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar  • dip and azimuth of the hole  • down hole length and interception depth  • hole length.  If the exclusion of this information is justified on the basis that the information is not Material and this exclusion	N/A. This release relates to the results of metallurgical testwork, not an update to drilling, exploration results, resource or reserve reporting.



	does not detreet from the	
	does not detract from the	
	understanding of the report,	
	the Competent Person should	
	clearly explain why this is the case.	
Data Aggregation	In reporting Exploration	NA. No aggregated exploration data is reported here. The release relates to the results of ongoing
Methods	Results, weighting averaging	metallurgical testwork, not an update to drilling, exploration results, resource or reserve reporting.
	techniques, maximum and/or	
	minimum grade truncations	
	(e.g. 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	
Dalati and Danasa	stated.	N/A The edge of the state of th
Relationship Between	These relationships are	N/A. The release relates to the results of ongoing metallurgical testwork, not an update to drilling,
Mineralization Widths	particularly important in the	exploration results, resource or reserve reporting.
and Intercept Lengths	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	
	(e.g. 'down hole length, true	
	width not known').	
Diagrams	Appropriate maps and	N/A. The release relates to the results of ongoing metallurgical testwork, not an update to drilling,
J	sections (with scales) and	exploration results, resource or reserve reporting.
	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.	
Balanced Reporting	Where comprehensive	All of the relevant data for the metallurgical results have been accurately summarised and provided
	reporting of all Exploration	in this report.
	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.	1



Other Substantive	Other exploration data, if	N/A
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Exploration Data	,	
	should be reported including	
	(but not limited to): geological	
	observations; geophysical	
	survey results; geochemical	
	survey results; bulk samples –	
	size and method of treatment;	
	metallurgical test results; bulk	
	density, groundwater,	
	geotechnical and rock	
	characteristics; potential	
	deleterious or contaminating	
	substances.	
Further Work	The nature and scale of	The metallurgical testwork reported above is a summary of all testwork conducted for the current
	planned further work (e.g.	pre-feasibility study.
	tests for lateral extensions or	
	depth extensions or large-	Further metallurgical testwork is planned to support a definitive feasibility study in the near future.
	scale step-out drilling).	This testwork will include:
	Diagrams clearly highlighting	Additional comminution samples
	the areas of possible	Additional HLS testing of schedule composites and variability samples across all ore types
	extensions, including the main	Additional flotation testing of schedule composites and variability samples, including
	geological interpretations and	flotation testing of beneficiated low grade samples
	future drilling areas, provided	Pilot scale DMS testing
	this information is not	Thou scale Divis testing
	commercially sensitive.	
	commercially sensitive.	<u>l</u>