#### MINING ACTIVITIES IN NAMIBIA

Since 2010 "Lick Hang" has engaged the investments for mining activities in Namibia. The part of ownership has been established in the following projects;

# 1. Swartmodder Copper Mine

[Under Construction]

# 2. Elbe Copper Mine

Expansion of the resource of the A Gossan by drilling to the South West (Fig 4), down plunge and into the Platform zone that has not been truly intersected on a systematic basis and shows thickening. The legacy sampling shows anomalies thicker than the grade cut offs where by inference potential exists to analyze the foot wall and hanging wall zones.

As the focus of exploration development was base metals to date, but gold has been detected at appreciable levels notably the B Gossan to the south (0.8 - 5.7 g/t), potential exists in exploring this resource as the geologies are the same as that of the Navachab gold mine.

Four other gossans remain untested on a systematic basis (Fig 3).

Furthermore, major structural features seem to be significant controls of the mineralized gossans and not been taken into account in exploration development (Fig 2).

















SRTM, Aster, aeromag, drilling



Elbe area (EPL 4232): SRTM, Landsat ETM+ (path/row 178/075) RGB = (-mnf2) –(pc2) –(mnf3)



Elbe area (EPL 4232): SRTM, Landsat ETM+ (path/row 178/075) RGB = mnf1 mnf2 mnf3

## Resource Report on the Polymetallic Elbe Prospect near Okahandja in Namibia

#### INTRODUCTION

#### (a) Issuer

This report has been compiled on behalf of On-Road Investments (Pty) Ltd in accordance with the scope of work determined for Sphynx Consulting CC. The observations and comments presented in the report represent Sphynx's opinion as of June 2016 and are based on the review of the data provided to Sphynx. Sphynx is independent of On-Road Investments (Pty) Ltd.

#### (b) Terms of reference

On-Road Investments (Pty) Ltd requested an updated resource estimation of the Elbe target after completion of an additional 90 Rotary Air Blast drill holes.

The objectives of this report are the following:

To report on completed exploration results which are currently available. To estimate and classify the mineral resources NON COMPLIANT to the JORC 2012 code.

#### (c) Sources of Information

The principal sources of information are:

Existing published information.

Data collected by On-Road Investments geologists.

#### (d) Personal Inspection

Sphynx Consulting cc did not conduct a site visit due to the preliminary nature of this report.

## **RELIANCE ON OTHER EXPERTS**

The initial orebody interpretation was done by On-Road Investments personnel onsite.

## PROPERTY DESCRIPTION AND LOCATION

The On-Road Investments Exclusive Prospecting License 4232 is located within the Okahandja District, Otjozondjupa Region, Central Namibia. The EPL is located some 30km west of Okahandja and approximately 75 km north northwest of the capital city of Windhoek (Figure 1). The EPL 4232 (project area) encompasses a total area of 19,788.70 Ha.



Figure 1. Location of study area

#### **Mineral Tenure**

Mineral tenure is held in the form of an Exclusive Prospecting License 4232. EPL 4232 was originally granted by the Ministry of Mines and Energy to Six Zone Investments (Pty) Ltd on 3 June 2009. The property was transferred to On-Road Investments (Pty) Ltd on 26 January 2010 after a successful joint venture with Gold Major Limited to supply the necessary funding for future exploration of The Elbe poly metallic project. The Ministry of Mines and Energy granted another renewal for a period of two years for EPL 4232 on 3 June 2014.

Sphynx did not conduct any additional investigations to verify the information listed above.



Figure 2. Locality plan for EPL 4232

## ACCESSIBILITY, CLIMATE, LOCAL RESOURCES and INFRASTRUCTURE

## Topography

The Elbe district is generally characterized by a flat landscape covered by sparse vegetation. The property lies at about 1 300 m asl. Drainage follows the regional south-easterly slope. Some seasonal water-courses are shown as tributaries or sub tributaries leading to Ozombanda river on both the A and C gossans.

## **Climate and Vegetation**

Rainfall is restricted to December - March and is reported as typically 480 mm annually. While summer temperatures can reach 37° C the winters are much cooler.

Vegetation on the property is generally sparse with grass predominating all year. Larger vegetation is found as acacia and thorn trees except for the gossan area where vegetation remains light.

## Access

By road, the access is via the Okahandja - Swakopmund highway B2 for about 35 km west of the town of Okahandja to the turnoff to the south then onto the secondary road 2192 and thence some 12 km south where on the east side of the gravelled road a farm gate leads to the mine access road.

Rail service is available at a 1.067 m gauge line, is located some 21.0 km away at the Francois siding. This siding is located some 31 km west of Okahandja;

A 220 kv line exists on the Farm Elbe.

Water is restricted to boreholes drilled in the area.

## MINERAL RESOURCE ESTIMATES

## Introduction

An updated Mineral Resource estimate has been completed on the Elbe orebody. The estimate has been informed by predominately Rotary Airblast (RAB) drilling, with some diamond drilling (DD), and is confined by the interpretation of the mineralised envelope as described in Section 7.2.1 above.

Both the geological modelling and subsequent mineral resource estimation have been conducted in Datamine's Studio 3 (Version 3.23.52.0).

## **Supplied Data**

Data was supplied by On-Road Investments personnel chiefly in Microsoft Office Open XML Format Spreadsheet (xlsx) and AutoCAD Drawing Exchange Format (dxf). This data contained the drilling databases as well as structure and orebody interpretations the project.

# **Data Validation**

The drilling data was loaded into Datamine Studio and the data was validated to ensure the following:

A down-hole survey file has been specified.

Each drillhole identifier has a survey reading at the start of the hole.

Each drillhole identifier has at least one entry in the down-hole survey file.

The down-hole TO value of a log entry is greater than the down-hole FROM value for each specified log file.

The FROM/TO interval for a log entry does not overlap the FROM/TO interval of the next log entry for each specified log file.

The FROM/TO interval is not duplicated in a specified log file.

Collar coordinates exist for each drillhole identifier.

# **Combining Datasets**

As the data has been acquired using different methods at different time periods, an investigation was undertaken to determine whether it was appropriate to combine these data types to use in a resource estimate. The datasets from Falconbridge, Westport and On-Road was composited to 1m and investigated by means of histograms and QQ plots. The investigation was done for the datasets at 0.5% Cu cutoff as well as the data at 1.0% Copper cutoff.

# Datasets at 0.5% Cu cutoff

The histograms for the various datasets are listed below;







Figure 7. Westport 0.5% Cu cutoff histogram for Cu



Figure 8. On-Road 0.5% Cu cutoff histogram for Cu

## Datasets at 1.0% Cu cutoff

The histograms for the various datasets are listed below;



Figure 9. Falconbridge 1.0% Cu cutoff histogram for Cu



Figure 10. Westport 1.0% Cu cutoff histogram for Cu



Figure 11. On-Road 1.0% Cu cutoff histogram for Cu

# **Discussion and Conclusion**

The Q-Q plots for the various datasets are listed below;



Figure 12. Copper Q-Q Plot

The histograms as well as the Q-Q plots illustrate significant similarities between the datasets. Given the limited potential to introduce bias into the estimate, it was decided that the datasets could be combined for estimation purposes.

## **Data Analysis**

The combined raw data was selected by the wireframe solids representing the mineralised zone and includes assays from DD and RAB sampling programmes. The data also includes any low grade intersections that occur within the wireframe envelope.

Data was composited to 1m intervals.

Summary statistics as histograms were generated on the composited file.

Copper, Silver, Zinc and Lead were the elements studied and follow the Log-Normal distribution.

The deposit was studied as a low grade envelope incorporating a medium-grade portion. The figure below shows the locality of the various envelopes.



Figure 13. Medium and Low grade envelopes

## **Treatment of Extreme Grades**

Compositing the data into regular intervals will go some way to moderate the presence of extreme grade values in the data by combining them with adjacent data to form the composite. However, it is evidenced by the high coefficient of variation values that outlier grades remain in the composite database. These could potentially adversely influence the estimate.

It is considered that restricting the influence of the extreme grades is more appropriate than removing the outliers from the database as these values have been accepted as not erroneous. However, the effect of low probability values on the resource estimate can result in over or under estimation, which has a high impact on local estimates and may result in the smearing of high grade values in particular into areas that are expected to be lower grade.

The Coefficient of Variation (CoV) was calculated for each element to study the effect of outliers.

The principle applied is that, elements with CoV values > 1.3 must be cut back until a CoV value of less than 1.3 is achieved.

The histogram below for Diamond and Rotary Air Blast (RAB) indicate a CoV of 1.85 and a mean Cu grade of 0.346%.



Figure 14. Raw histogram for Cu - Lowgrade envelope

The top outliers were then reduced to 2% to yield a CoV of 1.101. The resultant Cu mean decreased to 0.312% as illustrated in the figure below;



Figure 15. Final histogram for Cu - Lowgrade envelope

The histogram below indicates a CoV of 1.084 and an Ag mean of 12.546 g/t. No top cut was applied.



Figure 16. Final histogram for Silver - Lowgrade envelope

The histogram below indicate a CoV of 1.647 and a mean Pb grade of 0.038%.



Figure 17. Raw histogram for Pb - Lowgrade envelope

The top outliers were then reduced to 0.5% to yield a CoV of 1.199. The resultant Pb mean decreased to 0.037% as illustrated in the figure below;

ELBE LOV	N GRAE	E TOP-	CUT Histo	gram for F	PB%	
Missing Values Values > Trace Minimum Maximum Variance Coeff.Variation	:	231 1163 0.001 0.500 0.002 1.199				
Mean	:	0.037				
50th Percentile	:	0.026				
600 500 400 - 200 - 100 - 0 0 0.1	 0	2	0.3 PB%	0.4	0.5	0.6

Figure 18. Final histogram for Pb – Lowgrade envelope

The raw data histogram for Zinc shown below indicates a CoV of 2.427 and a mean Zn grade of 0.253%.



ELBE LOW GRADE Histogram for ZN%

Figure 19. Raw histogram for Zn - Lowgrade envelope

The top outliers were then reduced to 2.0% to yield a CoV of 1.797. The resultant Zn mean decreased to 0.216% as illustrated in the figure below.

	E	ELBE	E LO	WG	RAI	ОЕ ТО	P-Cl	JT His	stogra	m for	ZN%	Ď	
Val Min Max Var	sing ues > imum imum iance ff.Va	Tra	ice			89 1305 0.003 2.000 0.150 1.797							
Mea	n			:		0.216							
50t	h Per	cent	ile	:		0.081							
	1000												
	800-												
Frequency	600-												
Free	400-												_
	200-												_
	0		, ,	4	0.6	0.8	1	1.2	1.4	1.6	1.8	2	2.2
	, in the second s						ZN					-	

Figure 20. Final histogram for Zn - Lowgrade envelope

There was no need to do any top-cut exercises on copper and lead in the medium-grade envelope. ELBE MEDIUM GRADE Histogram for CU%

Missing Values Values > Trace Minimum Maximum Variance Coeff.Variation	: : : : : : : : : : : : : : : : : : : :	134 946 0.005 6.940 0.912 1.087			
Mean	:	0.879			
50th Percentile	:	0.609			
250 200 50 150 - 100 - 50 - 0 -		<b>b</b>	4	6	8
			CU%		_

Figure 21. Final histogram for Cu - medium grade envelope



Figure 22. Final histogram for Silver - medium grade envelope

ELBE	MEDIUM GR	ADE Histogra	m for PB%	
Missing Values Values > Trace Minimum Maximum Variance Coeff.Variation	: 28 : 79 : 0.0002 : 0.66 : 0.00 : 1.31	5 3 8 2		
Mean	: 0.03	7		
50th Percentile	: 0.02	3		
	0.2	0,4	0.6	0.8
Ū	0.2	PB%	0.0	0.0

Figure 23. Final histogram for Pb - Medium grade envelope

#### Missing Values 132 Values > Trace 948 0.006 Minimum Maximum 3.000 Variance 0.520 Coeff.Variation 1.317 Mean : 0.548 50th Percentile : 0.199 600 500 400 Frequency 300 200 100 0. 2.2 2.4 2.6 2.8 2 0.2 0.4 0.6 1.2 1.4 1.6 Ó 0.8 1 1.8 ZN%

ELBE MEDIUM GRADE TOP-CUT Histogram for ZN%

Figure 24. Final histogram Zn - Medium grade envelope

# Variography

Experimental variograms were calculated in the average plane of the target ore bodies in order to assess the degree of spatial continuity exhibited by the grade of the mineralised zones. Datamine Studio 3 was used to calculate and analyse the variography derived from the 1.0m composite and capped grade values.

A semivariogram for Cu% was obtained for the Low-grade envelope.

A Down-the-Hole semivariogram was first generated to determine the nugget-effect.

An Omni-directional semivariogram was then generated. This semivariogram shows pure nugget effect and although there is continuity down the hole, the between hole continuity is not shown by the current drill spacing.

The table below summarizes the Normalized semivariogram parameters.

	C0	C1	C <sub>2</sub>	C3	al	a2	a3
Low grade	0.2	0.6	0.2	-	50	100	-

Table 2: Semi Variogram parameters

No semivariograms could be developed for silver, lead and zinc and the Cu semivariogram parameters were used to interpolate the ordinary kriging values for these elements as well.

The table below summarizes the Search ellipsoid parameters.

## North-North East limb

SearchX	SearchY	SearchZ	Angle1	Angle2	Angle3	Axis1	Axis2	Axis3
50	100	20	30	-90	0	3	2	1
Min Samples	Max	Factor	Min	Max	Factor	Min	Max	
_	Samples		Samples	Samples		Samples	Samples	
5	30	2	5	30	4	5	30	

#### West-East limb

SearchX	SearchY	SearchZ	Angle1	Angle2	Angle3	Axis1	Axis2	Axis3
50	100	20	90	-90	0	3	2	1
Min Samples	Max	Factor	Min	Max	Factor	Min	Max	
_	Samples		Samples	Samples		Samples	Samples	
5	30	2	5	30	4	5	30	

# Table 3: Search ellipsoid parameters



Figure 25. Search Ellipsoid orientations

Orientation of the search ellipsoids in the different limbs of the ELBE orebody. These orientations were also used in the semivariogram parameter files.



Figure 26. Down the hole Semivariogram



Figure 27. Omni-Directional Semivariogram

## **Grade Interpolation**

Ordinary kriging was used in the interpolation process. The number of Dicretisation points is 4\*4\*4 in the X, Y, Z directions respectively. The Datamine Studio 3 software package was used for geological and grade modeling. The low and medium grade areas were evaluated separately and then combined to form a single orebody.

Estimation was conducted in multiple passes with successive relaxation of search neighbourhood parameters to reflect the decreasing confidence in the estimate as the distance between the block estimate and the informing data increases.

## Density

The method employed to determine densities has not been provided by the client. Previous reports quote a value of 2.86g/cm3.

### **Block Model Validation**

Comparing the block models to the raw data is essential to ensure that the block model is representative and realistic.

A swath analyses was done to compare Borehole input against the predicted Block model value. A 50m corridor along the X-axis of the deposit through the borehole file and the same corridor through the block model was compared to assess if the same trend is present i.e. is the kriging interpolation following the borehole values. The figure below shows the comparison. The same trend is evident.



Figure 28. Cu Swath Analysis for Elbe

#### **Mineral Resource Classification**

The Mineral Resources are classified under the categories of Indicated and Inferred Mineral Resources according to the guidelines set out in the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves (the 'JORC Code' 2012 edition).

The resources have been classified as Indicated and Inferred based primarily on sample spacing as indicated by drilling density and proximity to informing data.

## **Mineral Resource Statement**

Sphynx considers the mineralisation contained within the Elbe project to fulfil the criteria of "reasonable prospects for eventual economic extraction" to be reported as a resource as stipulated in the JORC Code. The resource has been reported at a cut-off grade of 1.0% Cu and should be considered as in situ since no recovery or dilution factors have been applied.

The table below gives an estimate of the in situ Mineral resources.

Mineral resources are quoted inclusive of Mineral Reserves.

Mineral Resource Classification at 1.0 % Cu Cut-off.

CATEGORY	TONNES	CU%	ZN%	AG g/t
INDICATED	306 389	1.22	0.75	17.56
INFERRED	2 904 967	1.33	0.67	11.02
TOTAL	3 211 356	1.32	0.68	11.64

Table 4: Mineral Resources estimate for Elbe.

CU CUTOFF	TONNES	CU%	ZN%	AG g/t
0.00	12 569 000	0.67	0.35	10.82
0.25	9 556 143	0.82	0.43	10.81
0.50	6 622 408	1.02	0.52	10.74
0.75	4 833 791	1.18	0.59	10.88
1.00	3 211 356	1.32	0.68	11.64
1.25	1 391 178	1.58	0.72	14.17

Table 5: Elbe Mineral Resources at different Cutoffs.

#### SUMMARY

#### Introduction

Sphynx Consulting CC were commissioned by On-Road Investments (Pty) Ltd to prepare this resource report describing the mineral resource estimation of the poly metallic deposit on the Elbe project.

#### Geology

The Elbe mineralisation lies within the Damaran aged quartzites and schists of the Kuiseb Formation. Locally the most prominent lithology is quartz-biotite schist, which is intruded by several phases of strongly foliated granitoid, and dolerite dykes.

#### **Data Verification**

Sphynx have not reviewed any quality control procedures and protocols. Data issues were identified in the drilling database.

#### **Mineral resource estimates**

Analysis of the data was undertaken for the prospect by examining histograms, maps of drilling locations, univariate statistics, lognormal probability plots, etc. in order to inform decisions on treatment of extreme grade values, compositing length, variography, block size and orientation of the resource model.

Global average density value was used based on data supplied by On-Road Investments. Where semivariogram models could be defined, Ordinary Kriging was used as the estimator. The inverse distance cubed weighting algorithm was applied during the estimate where semi-variogram models could not be defined. In both cases a three pass search strategy was utilised with either an octant search method or a limit placed on the amount of data per hole that informed the estimate so the informing data was not clustered. The resultant block models were validated against the raw input data to ensure the block model grades are both realistic and representative.

The resource was classified into Indicated and Inferred mineral resources.

#### **Mineral resource estimates**

The resource described at the Elbe project are considered to fulfil the criteria of having "reasonable prospects for eventual economic extraction" to be reported as a resource and have been reported at a cut-off grade of 1.0% Cu in the table below.

CATEGORY	TONNES	CU%	ZN%	AG g/t
INDICATED	306 389	1.22	0.75	17.56
INFERRED	2 904 967	1.33	0.67	11.02
TOTAL	3 211 356	1.32	0.68	11.64

#### **Conclusions and recommendations**

The studied orebody has the potential to produce Copper Ore at acceptable grades to the current markets. Due to data uncertainties and the lack of demonstrable QAQC procedures the current resource estimation is NON COMPLIANT to any code. The following recommendations are made:

The existing collar coordinates be certified by a suitably qualified surveyor

Create an auditable exploration database from the original documents if possible

Attempt to launch a QAQC program from the available cores and chips. This would mean re-assaying a portion of the old material and support it with QAQC samples submitted to an ISO 17025 accredited laboratory.

Should the above not be feasible it is recommended that a follow up drilling program comprising of Diamond and/or Reverse Circulation (RC) be launched. This program should be underpinned by robust logging protocols and QAQC program. All assays should be done by an ISO 17025 accredited laboratory.

## 3. Kamzwas Mine

### **Property Description**

The property is a Mining License of some 108 hectares. It is located on a fenced-off "general project area" of some 147 hectares negotiated with the landowner as per Article 52.1.a.i of the minerals and prospecting law: Act No. 33 of 1992: Minerals (Prospecting and Mining) Act, 1992.



Fig 01: ML162 and Fenced-off Project Area

#### **Property Location**

The property is located on the private farm Kamzwas 251, some 50 kilometers south of the national capital, Windhoek, and some 40 kilometers north of the capital of the immediate southern region, Rehoboth.



PROJECT LOCATION
PROJECT LOCATION

8
0
0
0
0
0
0
0
0
0
0
0
0
0
0
0
0
0
0
0
0
0
0
0
0
0
0
0
0
0
0
0
0
0
0
0
0
0
0
0
0
0
0
0
0
0
0
0
0
0
0
0
0
0
0
0
0
0
0
0
0
0
0
0
0
0
0
0
0
0
0
0
0
0
0
0
0
0
0
0
0
0
0
0
0
0
0
0
0
0
0
0
0
0
0
0
0
0
0
0
0
0
<t

Fig 02: Project Location

#### **Executive Summary**

The Kamzwas Project is located on the farm Kamzwas 251 and hosts the well-known Kamzwas Copper Deposit. It is easily accessible and located just off the main arterial road south of the capital Windhoek, and approximately in the middle between Windhoek and the regional capital, Rehoboth.

The project was previous explored by several entities, amongst them AngloVaal, Falconbridge, Kennecott and Newmont. A tremendous amount of exploration was done, inclusive of geological mapping, geochemical soil sampling, ground and airborne geophysics and drilling. None of this work could be used as the maps could not be georefenced and the borehole collars were not properly surveyed and a number were not surveyed at all.

The present drilling program was preceded by a small reconnaissance drilling program in 2015 and the positive results were the motivation for the new Phase 1 exploration drilling program of some 3660m. The new drilling program was designed, within budget constraints to (a) evaluate the geology over the length of the ML162 and (b) to determine broadly whether and where certain areas are better mineralized than others.

This drilling was crucial in proving a completely new understanding of the Kamzwas Deposit which none of the previous exploration entities ever uncovered. The crucial results from this drilling program was (a) the discovery of a set of two substantial groundwater aquifers, (b) the discovery of two separate and geologically different deposit domains - a western Pb-dominant domain and an eastern Cu-dominant domain, and (c) the realization that the observable surface geology and especially the mineralization differs from that seen and logged in the drill core.

Surface observations suggested that lithology and mineralization would be continuous over substantial distances and the expectation was that even widely spaced drilling would allow at least an Inferred Resource to be estimated.

The results of the drilling program disproved the expectations and both geological and mineralization continuity from the boreholes was dissimilar to the geological and mineralization continuity in the surface geology, with the result that a Mineral Resource, as defined in the SAMREC Code, could not be estimated. However, the visually observable outcrops are quite well mineralized and although a code-compliant Mineral Resource could not be estimated, an initial tonnage and grade could be estimated and classified under the SAMREC Code as an Exploration Target with the following Potential Resource tonnage and grade ranges:

Cu% Cutoff	Mill.Tons	Cu %	Cu% Cutoff	Mill.Tons	Cu%
0.00	34.00	0.60	0.00	443.00	0.20
0.30	15.00	1.10	0.30	101.00	0.90
0.50	11.00	1.50	0.50	68.00	1.20
1.00	7.00	1.80	1.00	52.00	1.30

Potential Cu Resource Ranges (Volume-of-Influence to KT3D)

Pb% Cutoff	Mill.Tons	Pb %
0.00	8.00	0.70
1.00	1.72	1.99
1.50	1.12	2.45
2.00	0.60	3.15

Potential Pb Resource (Volume-of-Influence)

An economic lead orebody would have to have sufficient tonnages at a grade approaching 4% Pb to make it a viable proposition, since it would effectively be a separate mine with its own concentrator/extractor plant. The potential lead orebody would require more drilling to determine reliable tonnage and grade figures.

These Cu tonnage and grade numbers, although only classified as an Exploration Target with Potential Resources would make it comparable to Tschudi Mine in size and scope but with better grades and cheaper mining. This comparison would put the Kamzwas Project in the league of bigger copper mines in Namibia.