

## **ASX Announcement and Media Release**

14 November 2017

# GOLD MINERAL RESOURCE SIGNIFICANTLY INCREASED AT KALAMAZOO'S FLAGSHIP WA PROJECT

#### **HIGHLIGHTS:**

- Updated Mineral Resource estimate prepared by an independent expert in accordance with JORC 2012 - completed at Mixy Project has resulted in a significant 85% increase in grade and a 13% increase in tonnages for a total increase in contained metal of 63%.
- A robust interpretation has greatly improved the understanding of the mineralised zones<sup>1</sup>.
- There are now three lodes, the Main, a Footwall and a Hangingwall.
- This much-improved mineral resource provides options for a larger pit for underground development.
- The Mineral Resource (JORC 12) inventory for Snake Well has increased by 32% to 141,000 ozs.

TABLE 1: GLOBAL MINERAL RESOURCE ESTIMATE FOR MIXY LODE, NOVEMBER 2017

JORC Category	Cut Off Grade	Total Tonnages	Gold Grade	Metal
2012	(g/t Au)*		(g/t Au)	Ounces
Measured	0.5 & 2.0 g/t Au	11,000	5.3	2,000
Indicated	0.5 & 2.0 g/t Au	110,000	5.4	20,000
Inferred	0.5 & 2.0 g/t Au	350,000	3.9	44,000
Total	0.5 g/t Au	470,000	4.3	65,000

Notes: Open Pit Resource is up to 90m below surface (>200mRL) & Underground Resource is below 90m from surface (<200mRL). Tonnages reported as dry tonnes.

Rounding has been applied to appropriately reflect the precision of the estimate.



#### **DETAILS**

Gold-copper exploration company, Kalamazoo Resources Limited (ASX: KZR) ("Kalamazoo"), today announced an updated Mineral Resource estimate at its Mixy Gold Project ("Mixy") deposit – part of its flagship Snake Well Project in Western Australia - reported in accordance with the JORC Code, 2012.

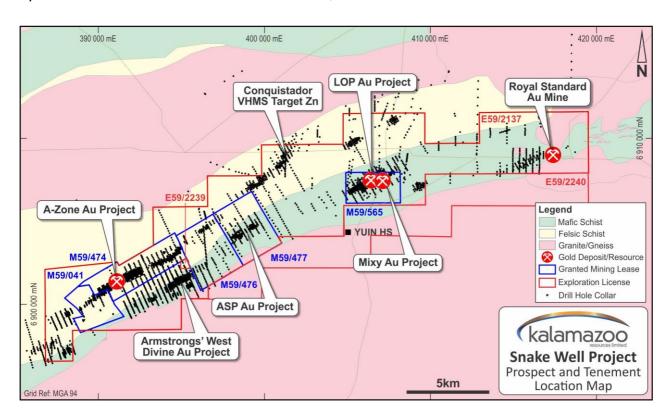


Figure 1. Location of the Snake Well Project Area.

This follows the completion of an initial drilling program at the Mixy Project followed by a comprehensive review of the historical drilling results which has led to a new and more robust interpretation of the Mixy mineralised lode.



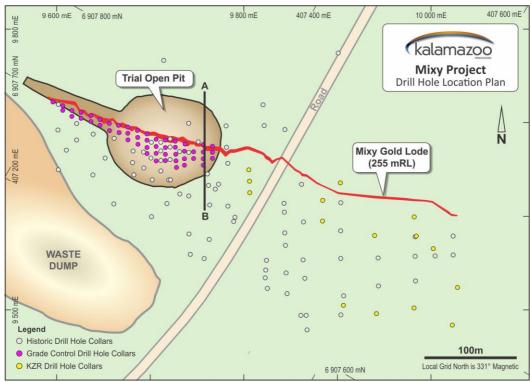


Figure 2: Location plan of Mixy trial pit, drill holes and cross section

The 15-hole drilling program totaling 2,069 metres was reported to the ASX on 5 May and 14 June 2017. The results indicated the main Mixy lode extends approximately 150 metres east of the existing trial pit. Deeper drill holes intersected the interpreted lode, at about 200 metres below surface to the east along strike of the main mineralised shoot, indicating the controlling structure persists to the east.

Kalamazoo subsequently reviewed (in conjunction with Kalamazoo's independent geologist, Ravensgate Mining Industry Consultants) all available drilling and geological database material for the Mixy prospect to enhance its understanding of the gold mineralisation.

This new interpretation, reported to the ASX on 19 October 2017, resulted in an improved and more robust interpretation of the Mixy Lode and has resulted in the single main lode zone being split into three distinct zones - the **Main Zone** and two more lower grade mineralised zones - Footwall (**FW**) and Hangingwall (**HW**).

The Main Zone is hosted within a well-defined shear zone with distinctive geological characteristics, and importantly, is open along strike to the east and west and, down dip. The gold lode appears as a shear zone within mafic rocks with a strongly developed foliation and the lode is usually expressed as two translucent quartz veins separated by a bleached and altered, silicified strongly sheared central zone with quartz stringer veins



parallel to foliation (Figure 3). This coincides with the lode appearance as was seen in the pit during previous trial mining and is evident in the current eastern pit wall (Figure 4).



Figure 3. Photo of Drill Hole RCRW219 of Mixy Main Zone lode, showing two gold mineralised veins and weakly mineralised inter-vein alteration zone.

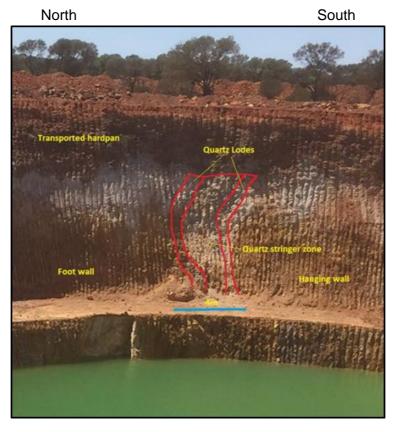


Figure 4. Photo of Eastern Wall of Mixy Trial pit and positions of the Main Zone gold veins and inter-vein alteration and quartz stringer zone. Blue bar is ~4m.

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The Main Zone lode interpretation, which is based on accumulation modelling<sup>2</sup>, is now a more cohesive zone up to 400m in strike, 250m down dip and varying in estimated true width **(ETW)** from more than 8m to <1m and plunging easterly at between 30 and 40 degrees and dipping steeply north and south. This markedly contrasts to the previous interpretation of a steeply plunging shoot at around 70 degrees and a strike length of between 50m to 150m. Significantly, the shear structure continues and mineralisation is open at depth and along strike in fresh rock, as indicated in the drilling.

As the Main Zone now has a shallower plunge and longer strike than previously interpreted, there is potential for more ounces per vertical metre - an important consideration for any development proposal. By separating out the lower grade HW and FW zones from the Main Zone resource, this has resulted in an overall increase in the average gold grade for the Main Zone. The FW and HW zones are located within 10m to 15m of the Main Zone, are poorly defined and are associated with gold grades of up to 2 g/t Au over very narrow widths, generally less than 1m.

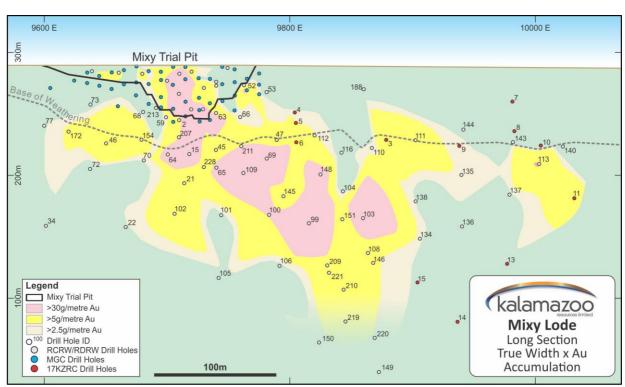


Figure 5. Contoured (Accumulation in gram/metres gold) of the Mixy Main Zone gold shoot looking north. Note: Pierce points and hole numbers are displayed.

2: Accumulation modelling is modelling based on contouring of the gold grade of the drill intersection pierce point and the estimated true intercept width in metres (ETW), expressed in grams/metre. Modelling by Ravensgate Mining Industry Consultants using Vulcan software, contouring with no anisotropy and accumulation was grade (g/t Au sample & uncut) multiplied by true thickness (metres) and samples were length weighted



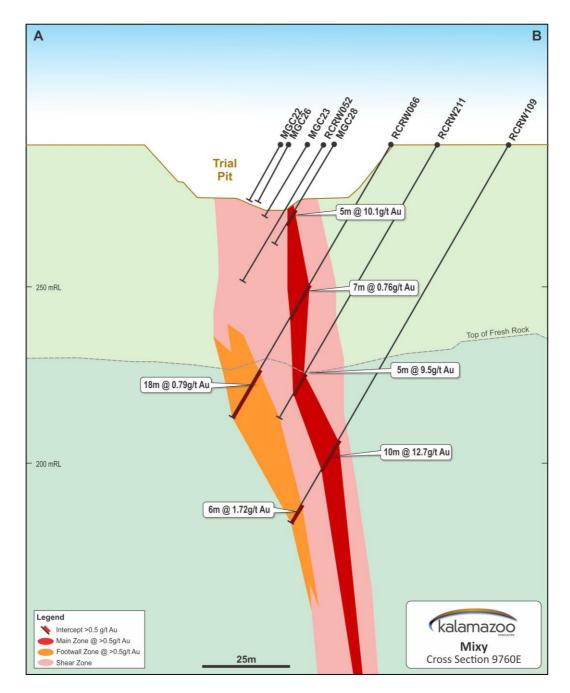


Figure 6: Mixy Cross Section A-B looking east within the resource outline (Intersections are down hole lengths of >0.5 g/t Au, and include a maximum of 2m at <0.5 g/t Au)



## **Mixy Mineral Resource Estimate**

A Mineral Resource estimate was prepared for the Mixy deposit by Ravensgate Mining Industry Consultants for the Kalamazoo Prospectus in October 2016 and was classified as Indicated and Inferred and reported in accordance with the JORC Code (2012 Edition). For details of this previous mineral resource estimation, refer to the Independent Geologist's Report by Ravensgate in Section 5 of the Company's Prospectus dated 3 October 2016.

This updated 2017 Mineral Resource estimate for the Mixy deposit has now been classified as Measured, Indicated and Inferred Mineral Resources and reported in accordance with the JORC Code (2012 Edition) as shown below in Table 2. Grade cut-off's of 0.5g/t Au and 2.0g/t Au have been used to report the Mineral Resources based on consideration of whether the resource is oxide (up to 90 metres below surface) or fresh (deeper than 90 metres) and gold is the only metal estimated. All lodes are included, Main Zone, FW and HW.

TABLE 2: MIXY DEPOSIT MINERAL RESOURCE ESTIMATE\* 0.5 g/t Au CUT-OFF (2017)

		M	easured		In	dicated		Ir	ferred			Total	
Deposit	Cut- off	Tonnage	Grade	Metal									
	(g/t Au)	(Kt)	Au (g/t)	(Koz)									
Oxide	0.5	11	5.3	2	100	5.3	18	190	2.0	12	300	3.3	32
Fresh	2.0				9	6.6	2	160	6.1	31	170	6.2	33
TOTAL		11	5.3	2	110	5.4	20	350	3.9	44	470	4.3	65

<sup>\*</sup>Rounding has been applied to appropriately reflect the precision of the estimate.

TABLE 3: MINERAL RESOURCE ESTIMATE COMPARISON FOR MIXY, NOVEMBER 2017 & OCTOBER 2016

	NOVEMBER 2017 & COTOBER 2010									
	Cut-off		2017	2017			2016			
	Cut-on	Volume	Tonnage	Au g/t	0z	Volume	Tonnage	Au g/t	Oz	
Oxide	0.5 g/t Au	116,232	302,202	3.27	31,813	130,535	339,391	2.24	24,399	
Fresh	2.0 g/t Au	64,162	166,821	6.17	33,116	28,501	74,103	4.51	10,745	
Total		180,394	469,023	4.31	64,929	159,036	413,494	2.64	35,144	

2017:2016 Change Tonnage 13% Grade 63% Metal (ozs) 85%

Notes: Open Pit = Up to 90m below surface (>200m RL), Underground = Below 90m from surface (<200mRL)

Tonnage is reported as dry tonnes (Kt)

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A comparison between the previous mineral resource and this updated mineral resource is shown in Table 3 and indicates a 13% increase in the reported tonnages, a 63% increase in the gold average grade, and an 85% increase in contained gold ounces. The tonnage increase is mainly due to the new interpretation.

#### **Resource Data**

Ravensgate was commissioned by Kalamazoo to update the Mineral Resource estimates for the Mixy Gold Deposit. This report has been prepared in accordance with the Code and Guidelines for the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves - 2012 Edition (JORC Code, 2012 Edition). Details are recorded in Sections 1, 2 and 3 of the JORC Table 1 (appended to this report).

A site visit as part of the model update was conducted by Ravensgate on 27-28 September 2017. Geological features were observed in the top benches of the trial mining pit. At the eastern end of the pit there was a good exposure of the main mineralised zone. Two main quartz veins can be seen, with highly foliated and possibly altered mafic material in between and on the margins. For 5-10m each side of the Main Zone a well-developed sub-vertical foliation was observed.

The weathered profile extends to a depth of about 80m and is dominantly saprolitic clays overlain by weakly cutaneous pisolites. A thin (up to 4m thick) veneer of transported lateritic gravels and indurated sands cover the mafic sequence. Low grade gold mineralisation is hosted in the laterite cover in the vicinity of the Mixy deposit.

Diamond drill core is stored on site and selected holes were viewed during the site visit. The appearance of the main mineralised zone in the core also contained thick quartz veining associated with strongly foliated and altered mafic rock. The similarity to the zone in the pit confirmed the continuity of the main zone at depth. A wide zone of foliation was observed either side of the main zone.

Early exploration used extensive Rotary Air Blast (RAB) drilling, however the RAB data was not used in resource estimation other than to guide mineralisation domains where appropriate.

The majority of drilling used for the resource estimation was Reverse Circulation (**RC**) drilling. Significant diamond drilling has also been undertaken with 30 holes completed for over 5,000m. Most of the drilling was undertaken in 2004. RC drilling was conducted using a 4.5 inch diameter face sampling hammer (Joyce, 2011). Diamond core sizes were of HQ and NQ and were often completed as diamond tails on RC pre-collars. A program of grade control drilling was conducted by Goldfields Technical Services in 2015 to define the gold lode for the trial pit and mine designs. In 2017 Kalamazoo conducted an RC drilling program to test depth and strike extensions to the deposit.



**Table 4 Summary of Drilling Methods** 

Drilling type	No. Holes	Metres	Assay Samples
Pre 2015 Diamond	30	5,373	4,641
Pre 2015 Reverse Circulation	83	7,878	4,041
2015 Grade control	56	1,686	973
2017 Kalamazoo	15	2,069	1,162
TOTAL	184	17,006	6,776

Collar locations were measured using differential global positioning survey. Reported accuracy is 1-5cm (Giralia, 2004). 2015 and 2017 drilling collars were located by DGPS measured by a professional surveyor.

Based on the assessment of QA/QC, these results suggest sample quality and assay results were of sufficient quality to support an Indicated Resource classification for the majority of the deposit and Measured Resource in the vicinity of the trial pit which contains a higher proportion of recent data with QA/QC information.

Many of the holes in the database have downhole survey records. Historical downhole surveys were conducted using an Eastman single shot camera (Giralia, 2004) and for the 2015 grade control drilling for the Trial Pit, downhole surveys were conducted using a single shot Eastman camera in the grade control drilling (Pink, 2016). For the 2017 drilling by Kalamazoo, down hole surveys were conducted using gyros.

An interpretation of the main shear/vein was used to guide the modelling of gold mineralisation domains. The interpretation wireframes were developed using a nominal grade threshold of 0.3g/t Au. Discontinuous mineralisation zones were also modelled in the footwall and hanging wall of the main zone. Ordinary kriging was used to estimate the gold grade of blocks within the mineralised domains. One metre composite samples were used, with a top cut of 60g/t Au applied. An accumulation estimate was run on the main zone and produced comparable global results to the ordinary kriged estimation. An in-situ bulk density of 2.6 was applied to the model. This is reasonable for the oxidised quartz rich mineralisation but could be too low in the fresh mineralisation.

Trial mining of the deposit has recently been completed by Kalamazoo. Comparison of the trial mine production to the part of the resource model located in the trial pit was conducted by Ravensgate. Reconciliation of the mill recovery to the resource model is excellent. Using a higher cut-off grade of 1.5g/t Au, the trial mining yielded slightly (1 %) lower tonnes and grade and resulted in 2% less gold recovery compared to the resource model prediction at a 1.5g/t Au cut-off. This demonstrates that the



assumptions, sampling, assaying, model geological interpretation and grade estimation are reasonable.

"If this trend is representative of the entire deposit then it is reasonable to expect that there is a high confidence in the remaining resource," Kalamazoo Resources Managing Director, Mr Peter Benjamin, said today.

"The Trial Pit development and production demonstrated that the geological interpretation used in the resource is robust and that the gold grade distribution is reasonably defined by the resource drilling and estimation process," he said.

The Mineral Resource estimates have been classified as Measured, Indicated and Inferred Resources and reported in accordance with the JORC Code (2012 Edition) as further described below in JORC Table 1, Sections 1 to 3. Measured Resource classification was restricted to the vicinity or the open pit with close spaced grade control drilling, Indicated classification was applied for the main Mixy zone where good geological continuity is observed between drill holes and in areas where sample support for grade estimation is good. Elsewhere an Inferred classification was applied. A grade cut-off of 0.5g/t Au has been used in the upper 90m RL of the deposit where economic open pit mining is possible. Below this depth a cut-off of 2.0g/t Au has been used as it is expected underground mining would be required to extract this deeper part of the resource.

#### **Next steps:**

- Planning and implementation of the next phase of RC/diamond drilling this quarter, which is designed to increase confidence in the resource and to test for extensions to mineralisation.
- Continue investigations for development of the open pit and underground mineral resources.

#### **About Snake Well Project**

Kalamazoo's flagship gold asset is the Snake Well Project, which is located 450km north of Perth in the Mid-West region. It consists of five granted mining leases, one granted exploration licence and two exploration licence applications. The Snake Well Project covers Archaean rocks over an area of approximately 263km2 and a 45km prospective strike length of the Tallering greenstone belt, in the western portion of the Murchison Domain that hosts a number of significant mineral deposits including Golden Grove (Cu-Zn), Big Bell (Au), Cue (Au), Deflector (Cu-Au) and Mt Magnet (Au).



## For further information, please contact:

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## **Competent Persons Statement**

The information in this release that relates to the exploration data is based on information compiled by Mr Lance Govey, a competent person who is a Member of The Australasian Institute of Mining and Metallurgy. Mr Govey is an employee of **BinEx Consulting** who is engaged as the Exploration Manager for the Company. Mr Govey has sufficient experience which is relevant to the style of mineralisation and type of deposit under consideration and to the activity which he is undertaking to qualify as a Competent Person as defined in the 2012 Edition of the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves'. Mr Govey consents to the inclusion in this document of the matters based on his information in the form and context in which it appears.

The information in this report that relates to the mineral resources of the Company is based on information compiled by Mr David Reid, a competent person who is a Member of The Australasian Institute of Mining and Metallurgy. Mr Reid is an employee of Ravensgate Mining Industry Consultants (**Ravensgate**) who is engaged as the Independent Geologist of the Company. Mr Reid has sufficient experience which is relevant to the style of mineralisation and type of deposit under consideration and to the activity which he is undertaking to qualify as a Competent Person as defined in the 2012 Edition of the 'Australasian Code for Reporting of Exploration results, Mineral Resources and Ore Reserves'. Mr Reid consents to the inclusion in this document of the matters based on his information in the form and context in which it appears.

For additional and detailed information, including the JORC 2012 Minerals Resource Estimates, please refer to the Independent Geologist's Report prepared by Ravensgate in Section 5 of the Company's Prospectus dated 3 October 2016 and Supplementary Prospectus, dated 14 November 2016.

#### **Forward Looking Statements**

Statements regarding Kalamazoo's plans with respect to its mineral properties and programmes are forward-looking statements. There can be no assurance that Kalamazoo's plans for development of its mineral properties will proceed as currently expected. There can also be no assurance that Kalamazoo will be able to confirm the presence of additional mineral resources/reserves, that any mineralisation will prove to be economic or that a mine will successfully be developed on any of Kalamazoo's mineral properties. The performance of Kalamazoo may be influenced by a number of factors which are outside the control of the Company and its Directors, staff and contractors.



**Table 5: List of Drill Hole Parameters** 

DHID	EAST	NORTH	RL	Azimuth	dip	depth	date	DTYPE
97RWRC12	9609.05	9671.6	290	180	-60	149	1/12/1997	RC
97RWRC14	9713.14	9767.53	290	360	-60	100	1/12/1997	RC
97RWRC15	9718.19	9640.29	290	360	-60	136	1/12/1997	RC
97RWRC21	9716.39	9614.69	290.17	360	-60	137	1/12/1997	RC
97RWRC22	9659.48	9614.17	290.03	360	-60	127	1/12/1997	RC
RCRW038	9750.05	9680.01	290	330	-60	156	6/12/2002	RC
RCRW045	9720.05	9640.01	290	30	-60	125	5/04/2003	RC
RCRW046	9650.52	9663.41	290.04	360	-60	150	5/04/2003	RC
RCRW047	9771.59	9635.06	290.28	30	-60	85	8/04/2003	RC
RCRW048	9720.05	9675.01	290	360	-60	35	8/12/2003	RC
RCRW049	9700	9680	290.83	360	-60	35	8/12/2003	RC
RCRW050	9679.87	9692.98	289.98	360	-60	50	8/12/2003	RC
RCRW051	9740.05	9670.01	290	360	-60	45	8/12/2003	RC
RCRW052	9762.73	9665.77	290.3	360	-60	45	8/12/2003	RC
RCRW053	9781.14	9657.56	290.23	360	-60	55	8/12/2003	RC
RCRW054	9780.05	9675.01	290	360	-60	60	9/12/2003	RC
RCRW055	9842.22	9693.8	290.41	180	-60	50	9/12/2003	RC
RCRW059	9699.2	9663.25	290.11	360	-60	80	25/01/2004	RC
RCRW060	9720.12	9683.86	290.06	360	-60	25	25/01/2004	RC
RCRW061	9719.77	9661.7	290.14	360	-60	85	25/01/2004	RC
RCRW062	9740.11	9667.58	290.26	360	-60	45	26/01/2004	RC
RCRW063	9739.71	9700.64	290.13	180	-60	75	26/01/2004	RC
RCRW064	9700.62	9640.12	290.16	360	-60	130	26/01/2004	RC
RCRW065	9740.21	9622.81	290.22	360	-60	142	27/01/2004	RC
RCRW066	9759.57	9646.5	290.26	360	-60	90	28/01/2004	RC
RCRW067	9779.45	9697.82	290.39	360	-60	30	28/01/2004	RC
RCRW068	9680.45	9670.94	290.15	360	-60	80	28/01/2004	RC
RCRW069	9781.23	9611.86	290.32	360	-60	120	29/01/2004	RC
RCRW070	9681.1	9645.32	290.12	360	-60	130	30/01/2004	RC
RCRW071	9660.66	9699.14	289.99	360	-60	45	30/01/2004	RC
RCRW072	9637.36	9645.43	290.08	360	-60	145	31/01/2004	RC
RCRW073	9637.69	9688.63	289.92	360	-60	75	1/02/2004	RC
RCRW074	9638.84	9708.41	289.94	360	-60	45	1/02/2004	RC
RCRW075	9600.08	9720.49	289.82	360	-60	60	1/02/2004	RC
RCRW076	9599.98	9695.4	289.82	360	-60	34	1/02/2004	RC
RCRW077	9600.05	9692.72	289.75	360	-60	90	2/02/2004	RC
RCRW100	9761.43	9576.11	290.18	15	-60	162	12/03/2004	RC
RCRW109	9762.2	9612.9	290.22	360	-60	124	12/03/2004	RC

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DHID	EAST	NORTH	RL	Azimuth	dip	depth	date	DTYPE
RCRW110	9862.35	9594.89	290.62	360	-60	98	19/03/2004	RC
RCRW111	9902.37	9585.31	290.9	360	-60	112	19/03/2004	RC
RCRW112	9820.17	9697.77	290.5	180	-60	100	20/03/2004	RC
RCRW113	10002.92	9558.65	290.91	360	-60	106	20/03/2004	RC
RCRW115	9789	9599.9	290.3	10	-60	106	20/03/2004	RC
RCRW116	9842.06	9614.86	290.33	360	-60	88	20/03/2004	RC
RCRW134	9904.95	9515.96	290.6	360	-60	140	8/05/2004	RC
RCRW135	9941.9	9556.44	290.81	360	-60	88	29/07/2004	RC
RCRW136	9942.42	9526.74	290.72	360	-60	88	30/07/2004	RC
RCRW137	9982.13	9532.19	290.94	360	-60	99	1/08/2004	RC
RCRW138	9902.41	9556.01	290.67	360	-60	86	2/08/2004	RC
RCRW139	10062.33	9529.46	291.06	360	-60	128	3/08/2004	RC
RCRW140	10022.39	9559.73	290.99	360	-60	100	4/08/2004	RC
RCRW141	10022.15	9580	291	360	-60	100	5/08/2004	RC
RCRW142	9981.7	9558.16	290.9	360	-60	79	6/08/2004	RC
RCRW143	9981.75	9579.12	291.03	360	-60	87	7/08/2004	RC
RCRW144	9941.34	9587.03	290.93	360	-60	100	7/08/2004	RC
RCRW145	9788	9595.9	290.3	360	-60	58	8/08/2004	RC
RCRW146	9865.43	9495.02	290.48	360	-60	108	9/08/2004	RC
RCRW147	9902.36	9496.18	290.62	360	-60	112	10/08/2004	RC
RCRW148	9841.62	9604.85	290.36	340	-60	120	24/09/2004	RC
RCRW149	9866.25	9479.67	290.47	360	-63	150	24/09/2004	RC
RCRW150	9823.74	9523.91	290.29	360	-63	150	25/09/2004	RC
RCRW151	9842.65	9570.06	290.27	360	-60	160	26/09/2004	RC
RCRW154	9679.24	9658.4	290.05	360	-60	86	27/09/2004	RC
RCRW172	9620	9682.5	290	360	-60	90	7/10/2004	RC
RCRW188	9860.17	9635.17	290.42	360	-60	100	25/02/2005	RC
RCRW189	9902.38	9615.31	290.79	360	-60	86	25/02/2005	RC
RCRW190	9940.77	9617.74	290.86	360	-60	92	26/02/2005	RC
RCRW191	9620	9700	290	360	-60	56	26/02/2005	RC
RCRW206	9709.67	9670.72	290.14	360	-60	42	23/05/2005	RC
RCRW207	9709.98	9649.94	290.1	360	-60	78	23/05/2005	RC
RCRW208	9659.97	9684.33	289.99	360	-60	60	23/05/2005	RC
RCRW209	9822.15	9543.2	290.2	360	-60	91.4	24/05/2005	RC
RCRW210	9843.83	9540.48	290.31	360	-60	199.3	25/05/2005	RC
RCRW211	9760.48	9633.61	290.21	360	-60	90	28/05/2005	RC
RCRW212	9729.34	9661.28	290.18	360	-60	50	28/05/2005	RC
RCRW213	9691.05	9670.37	290.02	360	-60	54	28/05/2005	RC
RCRW214	9691.68	9653.05	290.11	360	-60	90	28/05/2005	RC
RCRW219	9844.83	9518.49	290.19	360	-60	89.1	8/12/2005	RC
RCRW220	9859.7	9495.08	290.25	360	-59	113	8/12/2005	RC

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DHID	EAST	NORTH	RL	Azimuth	dip	depth	date	DTYPE
RCRW221	9821.75	9535.51	290.18	360	-59	98.5	9/12/2005	RC
RCRW228	9730	9625	290	360	-60	107	19/06/2006	RC
RCRW229	9900	9775	290	180	-55	71.5	19/06/2006	RC
RDRW001	9730	9670	290	360	-60	34.6	10/11/2005	DD HQ
RDRW002	9710	9660	290	360	-60	60	4/11/2005	DD HQ
RDRW003	9710	9680	290	360	-60	21.7	7/11/2005	DD HQ
RDRW004	9690	9682.5	290	360	-60	25.8	3/11/2005	DD HQ
RDRW022	9659.48	9614.17	290.03	360	-60	186	6/10/2004	DD
RDRW034	9600.38	9650.26	289.78	360	-60	171.3	29/11/2002	DDH
RDRW041	9716.48	9614.97	290.1	354.5	-60	184.7	27/03/2003	DDH
RDRW099	9819.02	9719.77	290.57	180	-60	173.06	14/03/2004	DDH
RDRW101	9739.76	9581.93	290.2	360	-60	196.95	11/03/2004	DDH
RDRW102	9699.76	9601.08	290.13	360	-60	185.9	17/03/2004	DDH
RDRW103	9862.05	9554.21	290.5	360	-60	191	19/03/2004	DDH
RDRW104	9842.54	9583.06	290.33	360	-60	148	22/03/2004	DDH
RDRW105	9741.18	9560.47	290.14	360	-60	219.6	20/04/2004	DDH
RDRW106	9756.15	9555.96	290.08	15	-60	213.08	20/04/2004	DDH
RDRW107	9822.96	9553.58	290.26	360	-60	184.9	20/04/2004	DDH
RDRW108	9863.62	9534.75	290.44	360	-60	203.8	20/04/2004	DDH
RDRW110	9862.35	9594.89	290.62	360	-60	141.2	31/07/2004	DD
RDRW134	9904.95	9515.96	290.6	360	-60	219.2	8/05/2004	RC
RDRW135	9941.9	9556.44	290.81	360	-60	149.9	29/07/2004	DD
RDRW136	9942.42	9526.74	290.72	360	-60	234.2	30/07/2004	DD
RDRW137	9982.13	9532.19	290.94	360	-60	150.4	1/08/2004	DD
RDRW138	9902.41	9556.01	290.67	360	-60	159.3	2/08/2004	DD
RDRW145	9788	9595.9	290.3	360	-60	129.4	8/08/2004	DD
RDRW146	9865.43	9495.02	290.48	360	-60	227.8	9/08/2004	DD
RDRW149	9866.25	9479.67	290.47	360	-63	298.56	24/09/2004	DD
RDRW150	9823.74	9523.91	290.29	360	-63	275.8	25/09/2004	DD
RDRW209	9822.15	9543.2	290.2	360	-60	232.7	25/10/2005	DD NQ TAIL DD NQ
RDRW210	9843.83	9540.48	290.31	360	-60	228.7	31/11/05	TAIL
RDRW219	9844.83	9518.49	290.19	360	-60	258	2/02/2006	DD
RDRW220	9859.7	9495.08	290.25	360	-59	273.3	12/02/2006	DD
RDRW221	9821.75	9535.51	290.18	360	-59	213.3	8/02/2006	DD
17KZRC001	9882.595	9618.22	290.13	361	-60.01	90	17/03/2017	RC
17KZRC002	9901.676	9637.046	290.52	361	-60.86	75	17/03/2017	RC
17KZRC003	9882.789	9595.995	290.58	350	-59.31	120	18/03/2017	RC
17KZRC004	9804.072	9650.819	290.43	361	-59.91	70	19/03/2017	RC
17KZRC005	9804.632	9638.881	290.29	361	-59.69	70	19/03/2017	RC
17KZRC006	9804.856	9626.189	290.54	361	-60.79	90	20/03/2017	RC

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DHID	EAST	NORTH	RL	Azimuth	dip	depth	date	DTYPE
17KZRC007	9981.135	9600.51	290.87	361	-60.5	55	20/03/2017	RC
17KZRC008	9981.928	9579.013	290.68	361	-59.91	75	20/03/2017	RC
17KZRC009	9938.324	9580.256	290.82	361	-60	180	14/05/2017	RC
17KZRC010	10001.19	9566.524	290.75	360.03	-59.88	95	5/04/2017	RC
17KZRC011	10026.93	9525.048	290.41	360.44	-60.12	170	9/04/2017	RC
17KZRC012	10022.01	9484.554	290.71	361	-61.04	230	13/04/2017	RC
17KZRC013	9980.652	9503.383	290.52	361	-60	249	13/05/2017	RC
17KZRC014	9940.582	9497.416	290.52	361	-60	250	17/05/2017	RC
17KZRC015	9904.993	9505.8	290.36	361	-60	250	15/05/2017	RC
MGC01	9705	9683.15	289.99	2	-60.2	18	26/07/2015	RC
MGC02	9704.73	9675.57	290.01	0	-59.4	36	26/07/2015	RC
MGC03	9705	9668.33	289.92	360	-60.8	48	26/07/2015	RC
MGC04	9705.08	9660.7	289.98	2	-60.7	66	26/07/2015	RC
MGC05	9714.96	9682.17	289.87	4	-60.7	18	27/07/2015	RC
MGC06	9714.9	9674.54	289.94	2	-60.1	30	27/07/2015	RC
MGC07	9715.07	9666.9	289.98	360	-60.8	42	27/07/2015	RC
MGC08	9715.04	9659.64	290.05	354	-60.6	60	27/07/2015	RC
MGC09	9725.64	9681.48	290.16	2	-59.7	18	27/07/2015	RC
MGC10	9725.71	9675.04	290.24	0	-60	24	27/07/2015	RC
MGC11	9726.03	9667.06	290.01	358	-60.4	36	27/07/2015	RC
MGC12	9726.25	9660.04	290.13	355	-59.8	54	27/07/2015	RC
MGC13	9726.59	9652.91	290.07	358	-60.1	66	27/07/2015	RC
MGC14	9735.08	9677.73	290.15	359	-60.7	18	28/07/2015	RC
MGC15	9734.93	9670.22	290.16	1	-60.7	30	28/07/2015	RC
MGC16	9734.88	9662.64	290.11	1	-58.3	48	28/07/2015	RC
MGC17	9734.92	9655.56	290.04	358	-60.9	60	28/07/2015	RC
MGC18	9744.96	9677.53	290.04	357	-61.3	12	28/07/2015	RC
MGC19	9745.02	9670.12	290.15	1	-60.2	24	28/07/2015	RC
MGC20	9745.11	9662.43	290.02	359	-59.5	42	28/07/2015	RC
MGC22	9755.03	9677.57	290.15	1	-60.5	18	28/07/2015	RC
MGC23	9755.1	9670.11	290.09	4	-60	24	28/07/2015	RC
MGC24	9755.13	9662.7	290.16	4	-60.1	36	28/07/2015	RC
MGC25	9754.98	9655.3	290.04	2	-60.6	48	28/07/2015	RC
MGC26	9764.96	9675.59	290.16	5	-61.1	18	28/07/2015	RC
MGC27	9765.06	9669.06	290.26	6	-60.1	24	28/07/2015	RC
MGC28	9764.99	9662.64	290.25	6	-59.3	30	28/07/2015	RC
MGC30	9775.03	9674.58	290.21	4	-59.8	18	28/07/2015	RC
MGC31	9774.97	9666.91	290.34	2	-60.7	24	29/07/2015	RC
MGC32	9775.06	9660.57	290.25	2	-59.8	36	29/07/2015	RC
MGC33	9694.93	9688.52	289.98	3	-60.9	18	29/07/2015	RC
MGC34	9695.09	9682.06	289.77	5	-61.2	24	29/07/2015	RC

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DHID	EAST	NORTH	RL	Azimuth	dip	depth	date	DTYPE
MGC35	9695.04	9674.37	290.05	5	-60.3	42	29/07/2015	RC
MGC36	9694.93	9667.65	289.92	3	-58.9	54	29/07/2015	RC
MGC37	9684.98	9692.68	289.99	3	-61.1	12	29/07/2015	RC
MGC38	9685.02	9685.29	290.03	2	-61.5	30	29/07/2015	RC
MGC39	9685.07	9677.64	290.02	359	-61.6	42	29/07/2015	RC
MGC40	9675.09	9696.16	289.94	356	-61.1	12	29/07/2015	RC
MGC41	9674.92	9689.52	289.96	358	-60.3	24	30/07/2015	RC
MGC42	9674.7	9682.23	289.88	1	-61	42	30/07/2015	RC
MGC43	9664.87	9697.98	289.95	3	-61	18	30/07/2015	RC
MGC44	9664.96	9690.64	290.02	3	-60.1	30	30/07/2015	RC
MGC45	9654.99	9700.02	289.85	0	-60.5	18	30/07/2015	RC
MGC46	9654.84	9692.37	289.85	2	-60.6	30	30/07/2015	RC
MGC47	9644.86	9704.68	289.89	0	-60.6	24	30/07/2015	RC
MGC48	9644.9	9698.03	289.84	2	-60.6	36	30/07/2015	RC
MGC49	9634.92	9709.61	289.79	2	-60	12	31/07/2015	RC
MGC50	9635.07	9702.21	289.8	2	-59.5	30	31/07/2015	RC
MGC51	9625.04	9712.17	289.82	5	-60	12	31/07/2015	RC
MGC52	9624.43	9705.34	289.65	8	-59.8	24	31/07/2015	RC
MGC53	9614.91	9713.91	289.77	7	-60.3	18	31/07/2015	RC
MGC54	9614.84	9707.57	289.72	5	-60	24	31/07/2015	RC
MGC55	9604.95	9719.11	289.79	0	-60	12	31/07/2015	RC
MGC56	9604.92	9714.74	289.64	0	-60	24	31/07/2015	RC
MGC57	9594.94	9722.44	289.81	0	-60	18	31/07/2015	RC
MGC58	9594.93	9715.15	289.68	360	-60.2	30	31/07/2015	RC

# Table 1. JORC Code, 2012 Edition

# **Section 1 Sampling Techniques and Data**

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

Part	Criteria	Explanation	Comment
1-1	Sampling Techniques	Nature and quality of sampling (eg cut channels, random chips, or specialised industry standard measurement tools	The Mixy gold deposit was sampled from reverse circulation (RC) and diamond core (DDH) drill holes. Early exploration used rotary air blast (RAB) drilling, these were not used in the resource estimation. A total of 184 holes (17,006m) defines the Mixy gold deposit resource:
		appropriate to the minerals under	Historic: 30 DDH holes for 5,373m and 83 RC hole for 7,878m (4,641 assays)
		investigation, such as down-hole gamma sondes, or handheld XRF instruments etc).	2015 Grade Control: 56 RC holes for 1,686m (973 assays)
		These examples should not be taken as	2017 Kalamazoo: 15 RC holes for 2,069m (1,165 assays)
		limiting the broad meaning of sampling.	The database contains a total of 6,779 gold assays.
			Mineralised RC drilling was riffle, rotary or cone split on 1m intervals.
			Diamond core was half core sampled.
			Visibly unmineralised sections of RC and DD holes were either sampled as composites (2m or more commonly 4m), or in some cases not at all.
		Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement	From January 2005 field duplicate samples were collected for RC drilling every 20 samples to assess the representivity of the RC sample split submitted for analysis, particularly across zones of expected mineralisation.
		tools or systems used.	Diamond core was marked and sampled on the RHS of the hole to ensure consistency of the core sample.
		Aspects of the determination of mineralisation that are Material to the Public Report.	Sampling practice is appropriate to the geology and mineralisation of the deposit.
1-2	Drilling Techniques	Drill type (eg core, reverse circulation, open- hole hammer, rotary air blast, auger, Bangka, sonic, etc) and details (eg core	Most of the diamond holes are recorded as being NQ or HQ size core. Some holes did not have the core size specified in the drill hole database. No details of core orientation are supplied for pre 2005 drilling however Giralia holes were cut along an orientation line.
		diameter, triple or standard tube, depth of diamond tails, face-sampling bit or other type, whether core is oriented and if so, by	2015 grade control RC drilling was conducted by VM Drilling using an Atlas Copco L8 rig using a 4.5 inch diameter face sampling hammer.
		what method, etc).	2017 RC drilling was conducted by Westdrill (UDR-RC250 rig with 140mm face sampling hammer) and Challenge Drilling (KWL350 rig with 140mm face sampling hammer).
1-3	Drill Sample Recovery	Method of recording and assessing core and chip sample recoveries and results assessed.	No information on the RC or core recovery was recorded in the digital drill hole database for historic and grade control holes. 2017 holes contained logged assessment of dry samples and comments on occasional samples with less than expected recovery.

Part	Criteria	Explanation	Comment				
		Measures taken to maximise sample recovery and ensure representative nature of the samples.	Use of high air pressure RC rigs maximises sample recovery.				
		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.	No assessment of core recovery and grade was conducted. Quantitative measure of sample recovery was not available or not recorded for the majority of the pre 2017 drilling.  Bulk one metre sample bag weights were recorded for the 2017 RC drilling across intervals of expected mineralisation.				
1-4	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.	Core and RC chips were geologically logged. Lithology, mineralogy, alteration, veining and weather are recorded in the geology tables of the drill hole database. Logging is appropriate to the style deposit and potential mine plan.				
		Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc)	Logging is qualitative and descriptive in nature. Chip samples have been preserved for portion of historic RC holes, and 100% of grade control and 2017 RC holes.				
		photography.	Photography is available for a high percentage of the historic core.				
		The total length and percentage of the relevant intersections logged.	11,800m of the total 13,251m of historic drilling was logged which represents 90% of the drilling interval. 100% of 2015 and 2017 RC holes are logged.				
1-5	Sub-Sampling Techniques and	If core, whether cut or sawn and whether quarter, half or all core taken.	Half core sampling was conducted. The method used to halve the core was not specified but remaining historic core at site has been sawn.				
	Sample Preparation	If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or	RC samples for Historic mineralised zones were riffle split. For unmineralised zones four metre spear sampled composite samples were collected.				
		dry.	2015: RC samples were rotary split on one metre basis;				
			2017: RC samples were cone split. Most samples were dryNumber of 1m split samples 861 -Number of spear composite samples 304				
		For all sample types, the nature, quality and appropriateness of the sample preparation	2017 RC: samples were prepared and assayed at NATA accredited MinAnalytical Laboratory Services Pty Ltd in Perth.				
		technique.	RC samples were weighed, dried, and pulverized in total to nominal 85% passing 75 micron (Method SP3000).				
		Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.	Sub-sampling QC procedures were not documented for pre 2005 historic drilling 2017 RC:  Number of field duplicates 70  Number of lab duplicates 55  Number of field inserted blanks 24  Number of lab blanks 30				

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Part	Criteria	Explanation	Comment
			Number of field inserted standards 23
			• Number of lab standards 66
			This equates to a total of 23% QAQC samples for the 2017 drilling.
		Measures taken to ensure that the sampling is representative of the in situ material	From January 2005 field duplicate samples were collected for RC drilling every 20 samples. Results of this sampling were not supplied in the drill hole database.
		collected, including for instance results for field duplicate/second-half sampling.	For 2015 grade control RC holes no field duplicates were taken.
		ficia disprecise secona nay sampung.	For 2017 holes field duplicates were taken every 20 samples across expected mineralised zones and sent for assay. Duplicate assays are acceptable when considering the high nugget effect determined from variography.
		Whether sample sizes are appropriate to the grain size of the material being sampled.	Sample size was not well documented for historic drilling, however for 2015 & 2017 drilling RC samples split for despatch to laboratories averaged industry standard weights of 2-3kg.
1-6	Quality of Assay Data and Laboratory Tests	The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.	Assay technique used is generally fire assay (FA) on 50g pulps and in some instances ore grade fire assay, Bulk Cyanide Leach or screen fire assay (SFA) for gold were completed as checks. SFA was used where coarse gold was expected. Historic aqua-regia partial digest analyses were repeated with SFA or FA which are total digest methods.
			2015 grade control RC was assayed by 50g fire assay at ALS Laboratory (Kalgoorlie/Perth)
			2017 RC: samples were assayed for gold using a 50g pulp sub sample by fire assay with an AAS finish (Method FA50AAS) to 0.005ppm DL.
			Composite samples were assayed by aqua regia digest/AAS finish (Method AR25MS) to 0.001 DL.
			In addition to the Company QAQC samples included within the batches the laboratory included its own CRM's, blanks and duplicates with every batch.
			Fire assaying is considered a total digest while aqua regia digest is partial.
		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.	No field instrument based analyses were conducted.
		Nature of quality control procedures adopted (eg standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (ie lack of bias) and	Historic drilling post 2005: 256 laboratory standards, 67 external (Giralia) standards and 213 laboratory duplicates are reported to have been analysed along with the 4,641 analyses in the drill database. This represents respectively 5.5%, 1.4% and 4.5% of samples submitted. This is lower than the current industry standard practice. No significant bias issues were identified in the reported standards.
		precision have been established.	2015 Grade Control holes: 1 external certified gold standard per hole (total 56) – 98% fell within 2 standard deviations.
			2017 RC holes: Certified standards and blanks were inserted at a rate of 1 every 20 samples, an industry accepted practice.

Part	Criteria	Explanation	Comment
1-7	Verification of Sampling and Assaying	The verification of significant intersections by independent or alternative company personnel.	No verification of the drilling data was recorded.
		The use of twinned holes.	Twining of drill holes was not documented.
		Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.	Ten original assay certificates from historic drilling were compared to database values. No issues were reported.
			Kalamazoo's database is managed by industry professional group RockSolid Data Consultancy – data entry is rigorously validated prior to use in resource estimations. Assay data is entered by RockSolid from digital files supplied direct from the laboratories as part of the validation process.
		Discuss any adjustment to assay data.	No assay adjustment has been performed.
1-8	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.	Coordinates of drill collar locations are recorded into the drill database with high precision. DGPS was used to survey collar locations with an accuracy of (1-5cm). Downhole surveys were conducted using a single shot Eastman camera in historic holes and the grade control drilling. 2017 drilling collars were located by DGPS measured by a professional surveyor and down hole surveys were conducted using gyros.
		Specification of the grid system used.	Historic hole collar locations were originally recorded in local mine grid (north = 331 magnetic). Collars were surveyed by DGPS in MGA94 and successfully validated against the original collar locations. Grade control holes (2015) and 2017 infill holes were all surveyed prior to and after drilling by DGPS in MGA94.
		Quality and adequacy of topographic control.	Topography relief is relatively flat. All drill hole collar elevations from DGPS have been used to create the topography surface.
1-9	Data Spacing and Distribution	Data spacing for reporting of Exploration Results.	Drill spacing is 20m x 20m in the western part of the Mixy deposit and 10 x 8m in the area that was trial mined; to the east and at depth the spacing is 40m x 40m, or wider.
		Whether the data spacing and distribution is sufficient to establish the degree of	This spacing is sufficient to confirm the continuity and thickness of the quartz lode to a high level of confidence.
		geological and grade continuity appropriate for the Mineral Resource and Ore Reserve estimation procedure(s) and classifications applied.	High nugget proportion 0.35 and short down hole variogram range of 5m confirms that the gold grade distribution is highly variable and there is low confidence in the local grade estimation at this spacing, this is reflected in the resource classification.
		Whether sample compositing has been applied.	Samples were composited to one metre intervals.
1-10	Orientation of Data in Relation to Geological Structure	Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.	The majority of drilling is inclined to the north to intersect the steeply south dipping mineralised lode at the highest possible angle and give the most representative sample of the mineralisation.
		If the relationship between the drilling orientation and the orientation of key	The majority of drilling cross-cuts the mineralised structures and should not have introduced any material sample bias.

Part	Criteria	Explanation	Comment
		mineralised structures is considered to have introduced a sampling bias, this should be assessed and reported if material.	
1-11	Sample Security	The measures taken to ensure sample security.	No documentation on sample security for historic drilling.
			2017 samples were bagged on site and hand delivered to transport contractors for direct delivery to the laboratory in Perth.
1-12	Audits or Reviews	The results of any audits or reviews of sampling techniques and data.	No documentation of audits on sampling or data.

# **Section 2 Reporting of Exploration Results**

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

Part	Criteria	Explanation	Comment
2-1	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 Snake Well project consists of five granted mining leases and three granted exploration licences. The Mixy gold deposit is located on granted Mining Lease M59/565.
			Heritage agreements and a Mining Agreement are in place with three local Native Title claim groups.
			No environmental concerns are apparent.
		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.	Ravensgate has not confirmed tenure status for these mineral tenements.
			In 2015 the DMP granted Kalamazoo all clearances to conduct trial mining activities on the Mixy deposit. This gives a strong indication that there are no impediments to obtaining a licence to operate full scale open cut mining activities.
2-2	Exploration Done by Other Parties	Acknowledgment and appraisal of exploration by other parties.	Previous exploration work was completed by Roebuck Resources, CRAE, Giralia Resources and Goldfields Technical Services, prior to Kalamazoo.
2-3	Geology	Deposit type, geological setting and style of mineralisation.	Gold mineralisation at the Mixy deposit is located in a shear zone hosted in mafic rocks. The shear zone contains sub parallel quartz veining which is associated with the gold mineralisation. Weathering has oxidised non-quartz rocks to clay in the upper sections of the deposit to a depth of approximately 80m below surface.
2-4	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:	Exploration results are not reported. List of drill holes used in the resource estimation is provided in the Appendix 1 of the modelling report.
2-5	Data Aggregation Methods	In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (eg cutting of high	Exploration results are not reported. Resource estimation parameters are stated in Section 3.

Part	Criteria	Explanation	Comment
		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.	Exploration results with drill intercept information is not reported. Resource estimation parameters are stated in Section 3.
		The assumptions used for any reporting of metal equivalent values should be clearly stated.	No metal equivalent was used.
2-6	Relationship Between Mineralisation Widths and Intercept Lengths	These relationships are particularly important in the reporting of Exploration Results.	Mineralisation is sub-vertical and drill holes are angled to cross-cut the mineralised domain at the highest possible angle. Downhole intervals do not represent the true thickness but should give a reasonably representation of the grade of the quartz lode.
		If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.	Drill angle and local lode orientation are variable.
		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').	Downhole intervals are not true mineralisation widths.
2-7	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.	Plans and maps are provided in this resource modelling report.
2-8	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.	Exploration results are not reported.

Part	Criteria	Explanation	Comment
2-9	Other Substantive Exploration Data	Other exploration data, if meaningful and material, should be reported including (but not limited to): geological observations; geophysical survey results; geochemical survey results; bulk samples – size and method of treatment; metallurgical test results; bulk density, groundwater, geotechnical and rock characteristics; potential deleterious or contaminating substances.	Metallurgical testwork conducted by AAMTEC and ConSep Pty Ltd showed that excellent gold recovery either by using conventional cyanide leach or gravity recovery. Gravitational recovery is reported to be 95.4%.  Mill recovery from the trial pit was reported to be 98.5%.
2-10	Further Work	The nature and scale of planned further work (eg tests for lateral extensions or depth extensions or large-scale step-out drilling).	Plans for future work include infill and extension drilling.
		Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.	Future drill planning is yet to be finalised.

# **Section 3 Estimation and Reporting of Mineral Resources**

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

Part	Criteria	Explanation	Comment
3-1	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.	As part of the initial resource model estimation drilling data was visually checked on screen after loading into Vulcan software.
			Ten original assay laboratory results certificates were cross referenced to the values in the drill database.
		Data validation procedures used.	Visual check of collar location and hole orientation.
3-2	Site Visits	Comment on any site visits undertaken by the Competent Person and the outcome of those visits.	The Competent Person for data, Lance Govey, visited site on several occasions during drilling programs completed Mar-May 2017 to check on drilling performance, sample recovery, and sampling and logging procedures.
			The Competent Person for mineral resources, David Reid visited site on 27-28 September 2017. Mineralisation was observed in the trial pit and diamond core.
		If no site visits have been undertaken indicate why this is the case.	Site visit has been completed.
3-3	Geological Interpretation	Confidence in (or conversely, the uncertainty of) the geological interpretation of the mineral deposit.	Trial mining has confirmed the geological and grade continuity of the Mixy gold deposit shear and quartz vein mineralisation in the vicinity of the trial pit. Drill holes in other areas have intercepted the quartz structure and infer the continuity of the lode.
		Nature of the data used and of any assumptions made.	The geological interpretation of the main quartz lode was interpreted as a continuous triangulation model. It was assumed that this was the primary control on gold mineralisation and used to guide the grade estimation domain interpretation.
		The effect, if any, of alternative estimation interpretations on Mineral Resource estimation	Observations of the geological controls in the trial pit give high confidence in the interpretation. Poor continuity and tenor of the drill intersections on sub-parallel mineralised zones could alter the resource to a minor degree.
		The use of geology in guiding and controlling Mineral Resource estimation.	Estimation of the resource tonnage and grade was restricted to the interpreted zone of mineralisation. Only samples which were located within the interpreted mineralisation zone were used for grade estimation of the mineralisation.
		The factors affecting continuity both of grade and geology.	Gold distribution is highly variable as demonstrated by the large nugget proportion (~35%) and very short range (5m) in the downhole variograms. The geological continuity of the main quartz lode is well defined by open pit mining and close spaced drilling. Less continuity is observed in the footwall and hanging wall mineralisation.
3-4	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 main load extends over a strike length of 400m and is 2-4m in width. It is open at depth and has been well tested to a depth of 200m but has been intersected at depths of 300m.

Part	Criteria	Explanation	Comment
3-5	Estimation and Modelling Techniques	11 1	Ordinary Kriging (OK) on Vulcan software was used to estimate the gold grade of blocks modelled within mineralised domain solid triangulations. Mineralised domains are extrapolated half way between drill holes on or between sections or to a maximum distance of 30-40m from drill holes.
			Composite values were cut to 60g/t Au.
		The availability of check estimates, previous estimates and/or mine production records and whether the Mineral Resource estimate takes appropriate account of such data.	Major changes in the geological interpretation since the previous estimate resulted in a large change in the resource estimate.
			Reconciliation of the resource inside the trial pit showed good agreement with production.
			An accumulation estimate for the main zone compared well globally with the OK estimate.
		The assumptions made regarding recovery of by-products.	Gold recovery is assumed to be high based on metallurgical test work and trial mining results.
		Estimation of deleterious elements or other non-grade variables of economic significance (eg sulphur for acid mine drainage characterisation).	Only gold has been estimated. There are no know deleterious or non-grade variables of economic significance.
		In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed.	Estimation block size is approximately half the closest drill spacing outside the trial pit area. Block size is $10\text{mE} \times 5\text{mN} \times 5\text{m}$ RL.
		Any assumptions behind modelling of selective mining units.	Estimation block sizes are based on drill density and are larger than the expected SMU size. Infill drilling and mining would probably require smaller SMU size and result in higher tonnages at higher grades.
		Any assumptions about correlation between variables.	Only gold grade was estimated.
		Description of how the geological interpretation was used to control the resource estimates.	The interpretation of the quartz vein structure was used to guide the orientation and shape of the main gold mineralisation domain.
		Discussion of basis for using or not using grade cutting or capping.	Ten composites greater than 60g/t Au were cut. This resulted in the CV of the data being lowered from 2.7 to 1.9. This was expected to allow the linear OK estimation to give a more representative grade estimation.
		The process of validation, the checking process used, the comparison of model data	Global comparisons of estimated grades to composite grades were made for each domain and showed that block grades were similar to the mean composite grades.
	to drill hole data, and use of reconciliation	Swath plots comparing the block and composite values over incremental Easting and RL bands showed	

Part	Criteria	Explanation	Comment
		data if available.	the block model grades were less variable than the composites but honoured the general trends in the composite grades.
			The resource contained within the trial pit volume reconciled very well with mill production figures for the mined material. Tonnages and grade were slightly (1%) higher than production.
3-6	Moisture	Whether the tonnages are estimated on a dry basis or with natural moisture, and the method of determination of the moisture content.	Tonnages are estimated on a dry basis.
3-7	Cut-off Parameters	The basis of the adopted cut-off grade(s) or quality parameters applied.	It was assumed that open pit mining would be used in the top 90m of the deposit and a low 0.5g/t Au cut-off was used. Below 90m a cut-off of 2g/t Au was used to reflect the requirements for underground mining at greater depth.
3-8	Mining Factors or Assumptions	Assumptions made regarding possible mining methods, minimum mining dimensions and internal (or, if applicable, external) mining dilution.	Open pit mining and narrow view underground mining methods are assumed which will allow al high degree of mining selectivity.
			Internal dilution of up to 2m was used in the interpretation of the mineralised domains.
3-9	Metallurgical Factors or Assumptions	The basis for assumptions or predictions regarding metallurgical amenability.	High gold recovery was predicted by metallurgical test work. This is backed up by the 98.1% recovery reported from the trial mining pit ore treatment.
3-10	Environmental Factors or Assumptions	Assumptions made regarding possible waste and process residue disposal options.	An environmental and social impact assessment on the Snake Well Project area was completed as part of the trial open pit mining of the Mixy deposit. The proposal noted that there were no endangered species in the project area and that there was negligible negative impact and marginal positive impact of the trial pit mine. No potential archaeological or ethnographic sites were identified within the project area and that there were native title agreements in place with all three of the claimant groups
3-11	determined, the method used, whether we 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	assumed, the basis for the assumptions. If determined, the method used, whether wet or dry, the frequency of the measurements,	A dry in-situ bulk density (DISBD) of 2.6 was applied to the resource. This value is derived from metallurgical test samples.
			It is possible that with further test work the DISBD used in the fresh rock resource could be higher than 2.6 which would increase the resource tonnage.
			It is not anticipated that significant void or porosity is present in the mineralised material.
		have been measured by methods that adequately account for void spaces (vugs, porosity, etc), moisture and differences between rock and alteration zones within	It is not anticipated that significant void or porosity is present in the mineralised material.
	Discuss assumptions for bulk density estimates used in the evaluation process of	estimates used in the evaluation process of	It is possible that a higher DISBD is reasonable for the fresh material at depth. Further diamond drilling and test work will be required to confirm this and could lead to an increase in the resource tonnage.
		the different materials.	Production tonnage in the trial pit was very close to the resource tonnage confirming that the bulk density used in the model is reasonable for the oxide material.

Part	Criteria	Explanation	Comment
3-12	Classification  The basis for the classification of the Mineral Resources into varying confidenc categories.  Whether appropriate account has been	Mineral Resources into varying confidence	Geological continuity and data quality were the primary consideration in classification of part of the main mineralised zone as Indicated Resource. Estimation quality parameters (slope of regression <0.4) were used to define the area of lower grade estimation confidence to assign as an Inferred Resource The small volume of the resource just outside the trial pit defined by grade control drilling was classified as Measured.
			Lack of continuity in the footwall and hanging wall zone reduced confidence in these areas and they were classified as Inferred Resource.
			Consideration of the following factors was used in assessment of the resource classification:
		taken of all relevant factors (ie relative	Survey location of drill hole
		confidence in tonnage/grade estimations, reliability of input data, confidence in	Sample and assay quality
		continuity of geology and metal values, quality, quantity and distribution of the data).	Geological continuity
			Grade distribution and estimation
			Production reconciliation
		Whether the result appropriately reflects the Competent Person's view of the deposit.	This mineral resource estimate is was completed by the Competent Person and reflects their view of the deposit.
3-13	Audits or Reviews.	The results of any audits or reviews of Mineral Resource estimates.	Ravensgate conducted an internal peer review of the resource update.
3-14	Discussion of Relative Accuracy / Confidence	T I I	No quantitative assessment of accuracy of the resource estimate has been conducted.
			Production reconciliation covering 5% of the resource show that the tonnage and grade were only 1% lower than predicted by the resource 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.	This statement relates to both global and local estimates of tonnes and grade. The parts of the deposit classified as Indicated Resource is expected to have reasonable local accuracy for use in scoping level studies.
		These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.	Excellent production reconciliation was achieved in the trial pit mining. This improves the confidence in the geological understanding and gold grade estimation.