SARACEN MINERAL HOLDINGS LIMITED

ACN: 009 215 347

Mineral Resources grow by ~11% to 7.6 million ounces

Corporate Details:

15th October 2015

ASX code: SAR

Corporate Structure:

Ordinary shares on issue: 792.8m

Unvested employee performance rights: 7.1m

Market Capitalisation: A$436m
(share price A$0.55)

Cash & Bullion (30 September): A$44.9m

Debt: Nil

Directors:

Mr Geoff Clifford
Non-Executive Chairman

Mr Raleigh Finlayson
Managing Director

Mr Mark Connelly
Non-Executive

Mr Barrie Parker
Non-Executive

Mr Martin Reed
Non-Executive

Ms Samantha Tough
Non-Executive

Substantial Shareholders:

Wroxby Pty Ltd 8.2%

Paradice Investment Management 7.9%

Karara Capital Pty Ltd 6.2%

Van Eck 5.1%

Registered Office:

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Key Points

- Total Gold Mineral Resources of 7.6Moz at 30 June 2015 (6.9Moz at 30 June 2014)
- Total Gold Ore Reserves of 1.5Moz at 30 June 2015 (1.7Moz at 30 June 2014)
- Gold Mineral Resources have increased by 11% relative to last year after accounting for mining depletion
- Significant Mineral Resource additions include more than doubling the Karari Mineral Resource from 311koz to 633koz and a 24% increase in the Thunderbox Mineral Resource from 1.6Moz to 2.0Moz, on the back of the FY15 exploration program ($15m)
- The inclusion of the recently acquired King of the Hills and Kailis gold projects* adds 312koz of high grade Mineral Resources
- Key additions to Ore Reserves are the inclusion of the maiden Karari underground of 98koz and the Kailis* open pit of 95koz
- Overall improvement in the Ore Reserve quality with the removal of 146,000 higher cost ounces from Carosue Dam (including Monty's/Elliot's, Porphyry and Safari Bore)

Saracen Mineral Holdings **(ASX: SAR)** is pleased to advise the updated Mineral Resources and Ore Reserves Statements at 30 June 2015 that underpin Saracen's five-year outlook.

Mineral Resources

Table 1 – Saracen Group Mineral Resources

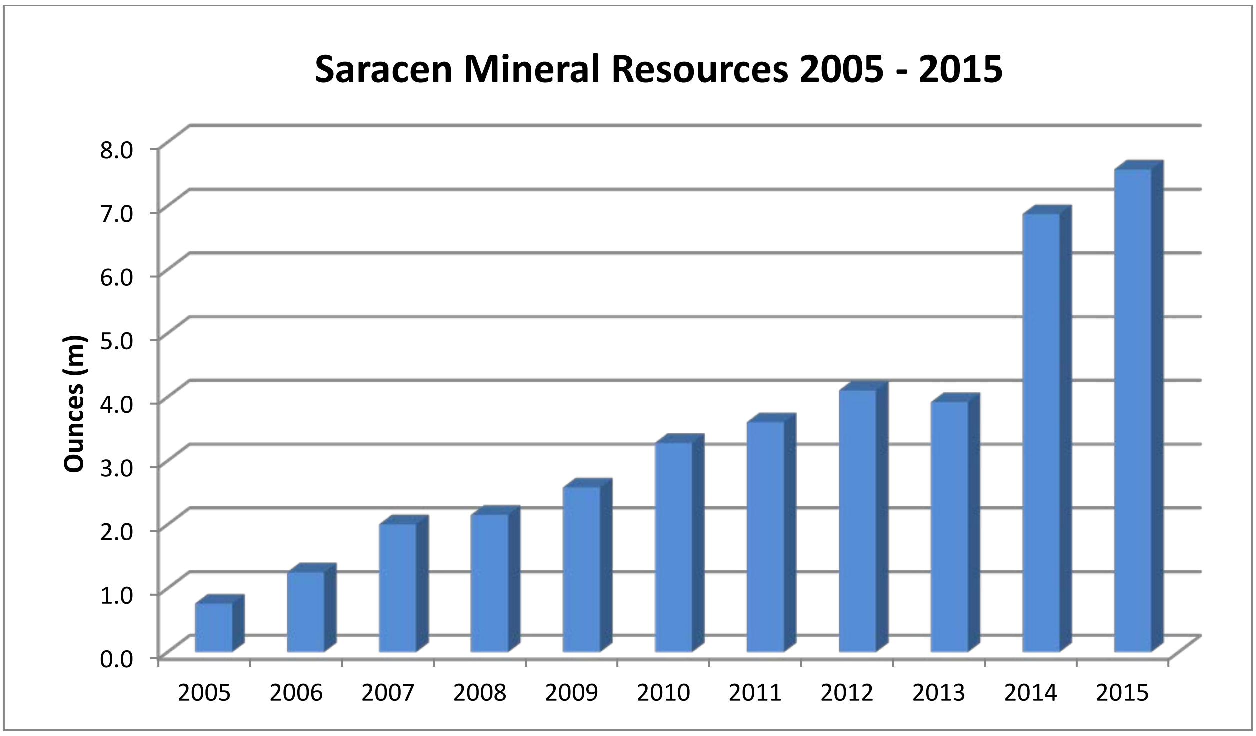
Category	Gold			Nickel		
	tonnes	g/t	oz	tonnes	%Ni	Ni t
Measured	9,166,000	1.1	311,000			
Indicated	92,273,000	1.8	5,218,000			
Inferred	39,244,000	1.7	2,097,000	688,000	2.2	15,000
Total	**140,683,000**	**1.7**	**7,626,000**	**688,000**	**2.2**	**15,000**

The Mineral Resources Statement is reported according to the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves (the 'JORC Code') 2012 edition.

Key changes to the Mineral Resources Statement are:

- Total gold Mineral Resources have increased by 751koz (~11%) to 7.626Moz (after accounting for mining depletion)
- Mining depletion of 241koz from the Carosue Dam project, of which 55koz remains in Ore Reserves as Stockpiles
- The Karari Mineral Resource has more than doubled from 311koz to 633koz following the FY15 exploration program ($10m)
- The Thunderbox Mineral Resource has increased by 24% from 1.6Moz to 2.0Moz following the FY15 exploration program ($5m)
- The inclusion of the recently acquired King of the Hills and Kailis gold projects* adds 312koz of high grade Mineral Resources

Figure 1 – Saracen Group Mineral Resources growth since 2005



Ore Reserves

Table 2 – Saracen Group Ore Reserves

Category	Gold		
	tonnes	g/t	oz
Proved	2,296,000	1.1	81,000
Probable	22,949,000	1.9	1,403,000
Total	**25,245,000**	**1.8**	**1,484,000**

The Ore Reserves Statement is reported according to the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves (the 'JORC Code') 2012 edition.

Key changes to the Ore Reserve Statement are:

- Total gold Ore Reserves have decreased by 169koz (~10%) to 1.484Moz (after accounting for mining depletion)
- Mining depletion of 241koz from the Carosue Dam project, of which 55koz remains in Ore Reserves as Stockpiles
- The Whirling Dervish underground Ore Reserve has decreased to 90koz (150koz at 30 June 2014) on the basis of removing some of the mining stope shapes due to economic parameters
- Open Pit Ore Reserves from Monty's/Elliot's (14koz), Porphyry (33koz) and Safari Bore (39koz) have been excluded on the basis of removing high cost ounces from the 2015 Statement
- Addition of 95koz in Ore Reserves from the recently acquired Kailis gold project*. More information on Kailis, including Pre-Feasibility Study outcomes, economic analysis and the enhancement on the Thunderbox production schedule will be provided via a separate announcement

Figure 2 – Saracen Group Ore Reserve growth since 2005

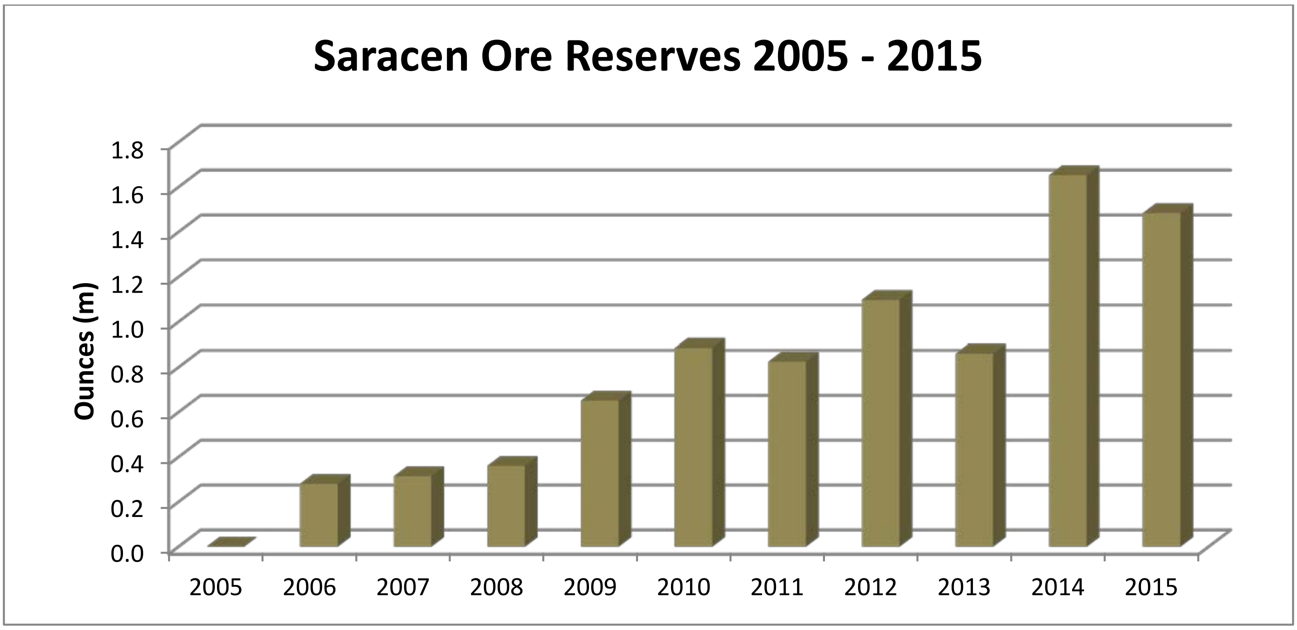
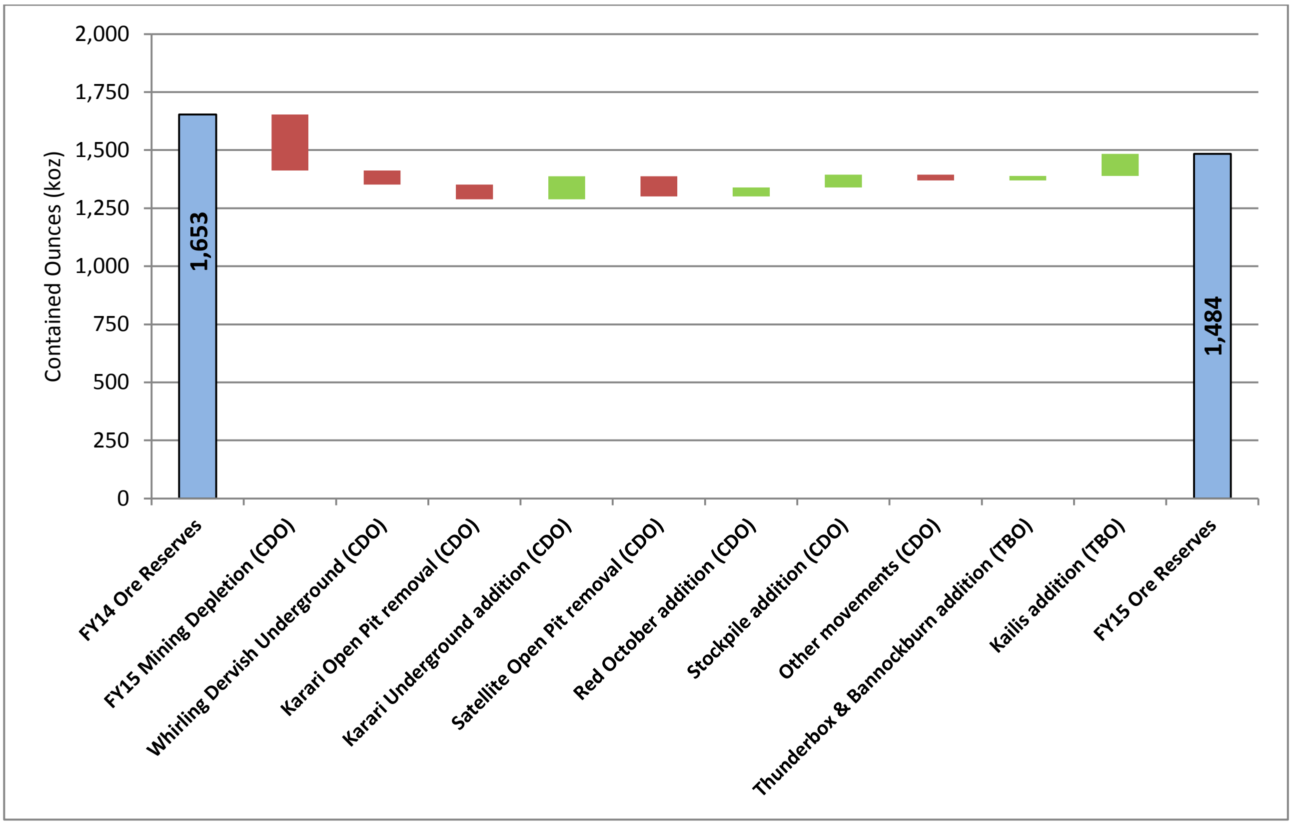


Figure 3 – Saracen Group Ore Reserve reconciliation 2014 - 2015



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Note:

** On 19 August 2015 Saracen Mineral Holdings Limited (SMH), Saracen Metals Pty Ltd (SM) and St Barbara Limited entered an Agreement for the sale and purchase of the King of the Hills and Kailis projects (Agreement). Please see SMH's ASX announcement dated 20 August 2015. All conditions precedent under the Agreement have been satisfied and completion is expected to take place on 15 October 2015, upon and following which SM will take ownership of the King of the Hills and Kailis projects.*

Mineral Resources – Gold

Table 3 – Saracen Group Gold Mineral Resources by deposit as at 30 June 2015

Location	District	Deposit	Measured			Indicated			Inferred			Total		
			tonnes	g/t	oz	tonnes	g/t	oz	tonnes	g/t	oz	tonnes	g/t	oz
Carosue Dam	Carosue Dam	Whirling Dervish O/P				5,619,000	1.5	277,000	305,000	1.1	11,000	5,924,000	1.5	288,000
		Whirling Dervish U/G				4,400,000	2.4	355,000	1,624,000	2.7	147,000	6,024,000	2.6	502,000
		Karari O/P				136,000	1.2	5,000	191,000	1.5	9,000	327,000	1.3	14,000
		Karari U/G	26,000	2.7	2,000	4,234,000	2.4	331,000	2,602,000	3.4	286,000	6,862,000	2.8	619,000
		Monty's/Elliots	123,000	2.2	9,000	1,422,000	1.8	83,000	374,000	1.6	19,000	1,919,000	1.8	111,000
		Twin Peaks	40,000	2.3	3,000	564,000	3.4	61,000	80,000	2.8	7,000	684,000	3.2	71,000
		North West				332,000	0.8	9,000	691,000	0.8	18,000	1,023,000	0.8	27,000
		Pinnacles				387,000	2.1	27,000	26,000	1.4	1,000	413,000	2.1	28,000
		Blue Manna							1,074,000	1.5	51,000	1,074,000	1.5	51,000
		Carosue Dam Sub-Total	*189,000*	*2.3*	*14,000*	*17,094,000*	*2.1*	*1,148,000*	*6,967,000*	*2.5*	*549,000*	*24,250,000*	*2.2*	*1,711,000*
	Porphyry	Porphyry O/P	702,000	1.1	25,000	7,262,000	1.0	239,000	1,551,000	1.0	48,000	9,515,000	1.0	312,000
		Porphyry U/G				488,000	5.0	78,000	243,000	2.9	23,000	731,000	4.3	101,000
		Million Dollar				9,270,000	1.0	298,000	1,639,000	0.9	47,000	10,909,000	1.0	345,000
		Wallbrook	1,286,000	1.1	44,000	6,775,000	1.0	216,000	4,037,000	1.1	141,000	12,098,000	1.0	401,000
		Margarets				48,000	1.4	2,000	634,000	1.1	22,000	682,000	1.1	24,000
		Enterprise	218,000	2.1	15,000	310,000	2.2	22,000	142,000	2.2	10,000	670,000	2.2	47,000
		Porphyry Sub-Total	*2,206,000*	*1.2*	*84,000*	*24,153,000*	*1.1*	*855,000*	*8,246,000*	*1.1*	*291,000*	*34,605,000*	*1.1*	*1,230,000*
	Safari Bore	Safari Bore	780,000	2.0	50,000	1,358,000	2.3	100,000	672,000	2.3	50,000	2,810,000	2.2	200,000
		Deep South O/P				355,000	2.5	29,000			0	355,000	2.5	29,000
		Deep South U/G				1,256,000	4.0	163,000	430,000	4.0	55,000	1,686,000	4.0	218,000
		Deep Well				68,000	2.2	5,000	15,000	2.0	1,000	83,000	2.2	6,000
		Safari Bore Sub-Total	*780,000*	*2.0*	*50,000*	*3,037,000*	*3.0*	*297,000*	*1,117,000*	*3.0*	*106,000*	*4,934,000*	*2.9*	*453,000*
	Red October	Red October O/P				251,000	1.7	14,000				251,000	1.7	14,000
		Red October U/G	9,000	8.6	2,000	152,000	16.8	82,000	33,000	13.9	15,000	194,000	15.9	99,000
		Thin Lizzie							325,000	1.3	14,000	325,000	1.3	14,000
		Tin Dog							1,284,000	1.3	54,000	1,284,000	1.3	54,000
		Bulldog							1,529,000	0.9	44,000	1,529,000	0.9	44,000
		Crimson Belle				916,000	1.4	41,000	577,000	1.3	24,000	1,493,000	1.4	65,000
		Butcher Well				2,692,000	1.7	144,000	2,280,000	1.7	126,000	4,972,000	1.7	270,000
		Red October Sub-Total	*9,000*	*6.9*	*2,000*	*4,011,000*	*2.2*	*281,000*	*6,028,000*	*1.4*	*277,000*	*10,048,000*	*1.7*	*560,000*
	All	Ore Stockpiles	2,296,000	1.1	81,000							2,296,000	1.1	81,000
		Sub-grade stockpiles	3,460,000	0.6	69,000							3,460,000	0.6	69,000
		Carosue Dam Mineral Resources	*8,940,000*	*1.0*	*300,000*	*48,295,000*	*1.7*	*2,581,000*	*22,358,000*	*1.7*	*1,223,000*	*79,593,000*	*1.6*	*4,104,000*
Thunderbox	Thunderbox	Thunderbox				27,278,000	1.7	1,516,000	9,940,000	1.6	505,000	37,218,000	1.7	2,021,000
		Mangilla				726,000	2.1	48,000	278,000	2.1	19,000	1,004,000	2.1	67,000
		Rainbow	226,000	1.5	11,000	588,000	1.2	23,000	909,000	1.0	30,000	1,723,000	1.2	64,000
		King of the Hills *				799,000	5.5	142,000	71,000	12.3	28,000	870,000	6.1	170,000
		Kailis *				1,287,000	3.3	135,000	76,000	2.7	7,000	1,363,000	3.2	142,000
		Thunderbox Sub-Total	*226,000*	*1.5*	*11,000*	*30,678,000*	*1.9*	*1,864,000*	*11,274,000*	*1.6*	*589,000*	*42,178,000*	*1.8*	*2,464,000*
	Bannockburn	Bannockburn				8,979,000	2.0	564,000	3,152,000	1.6	161,000	12,131,000	1.9	725,000
		North Well				4,321,000	1.5	209,000	2,460,000	1.6	124,000	6,781,000	1.5	333,000
		Bannockburn Sub-Total	*0*	*0.0*	*0*	*13,300,000*	*1.8*	*773,000*	*5,612,000*	*1.6*	*285,000*	*18,912,000*	*1.7*	*1,058,000*
	All	*Thunderbox Mineral Resources*	*226,000*	*1.5*	*11,000*	*43,978,000*	*1.9*	*2,637,000*	*16,886,000*	*1.6*	*874,000*	*61,090,000*	*1.8*	*3,522,000*
Total		*Total Mineral Resources*	*9,166,000*	*1.1*	*311,000*	*92,273,000*	*1.8*	*5,218,000*	*39,244,000*	*1.7*	*2,097,000*	*140,683,000*	*1.7*	*7,626,000*

Mineral Resources – Nickel

Table 4 – Saracen Group Nickel Mineral Resources by deposit as at 30 June 2015

Location	District	Deposit	Measured			Indicated			Inferred			Total		
			tonnes	Ni %	Ni tonnes	tonnes	Ni %	Ni tonnes	tonnes	Ni %	Ni tonnes	tonnes	Ni %	Ni tonnes
Thunderbox	Waterloo	Massive							20,334	7.6	1,545	20,334	7.6	1,545
		Matrix							52,027	4.1	2,133	52,027	4.1	2,133
		Disseminated							304,296	1.6	4,717	304,296	1.6	4,717
		Weak Disseminated							48,380	1.8	847	48,380	1.8	847
		Waterloo Sub-Total	*0*	*0.0*	*0*	*0*	*0.0*	*0*	*425,037*	*2.2*	*9,200*	*425,037*	*2.2*	*9,200*
	Amorac	All Amorac							264,277	2.0	5,233	264,277	2.0	5,233
		Amorac Sub-Total	*0*	*0.0*	*0*	*0*	*0.0*	*0*	*264,277*	*2.0*	*5,200*	*264,277*	*2.0*	*5,200*
Total		*Total Mineral Resources*	*0*	*0.0*	*0*	*0*	*0.0*	*0*	*689,314*	*2.1*	*14,400*	*689,314*	*2.1*	*14,400*

Ore Reserves – Gold

Table 5 – Saracen Group Gold Ore Reserves by deposit as at 30 June 2015

Gold Ore Reserves (JORC 2012 compliant)												
Location	District	Deposit	Mine Type	Proved Reserves			Probable Reserves			Total Ore Reserves		
				tonnes	g/t	oz	tonnes	g/t	oz	tonnes	g/t	oz
Carosue Dam	Carosue Dam	Karari	UG				1,025,000	3.0	98,000	**1,025,000**	***3.0***	**98,000**
		Whirling Dervish	UG				950,000	3.0	90,000	**950,000**	***3.0***	**90,000**
		Carosue Dam Sub-Total		***0***	***0.0***	***0***	***1,975,000***	***3.0***	***188,000***	***1,975,000***	***3.0***	***188,000***
	Porphyry	Million Dollar	OP				1,390,000	1.2	53,000	**1,390,000**	***1.2***	**53,000**
		Wallbrook	OP				1,765,000	1.3	71,000	**1,765,000**	***1.3***	**71,000**
		Enterprise	OP				357,000	2.2	26,000	**357,000**	***2.3***	**26,000**
		Porphyry Sub-Total		***0***	***0.0***	***0***	***3,512,000***	***1.3***	***150,000***	***3,512,000***	***1.3***	***150,000***
	Safari Bore	Deep South	UG				979,000	4.0	125,000	**979,000**	***4.0***	**125,000**
		Safari Bore Sub-Total		***0***	***0.0***	***0***	***979,000***	***4.0***	***125,000***	***979,000***	***4.0***	***125,000***
	Red October	Red October	UG				225,000	6.0	43,000	**225,000**	***6.0***	**43,000**
										0	***0.0***	**0**
		Red October Sub-Total		***0***	***0.0***	***0***	***225,000***	***6.0***	***43,000***	***225,000***	***6.0***	***43,000***
	All	Stockpiles	S	2,296,000	1.1	81,000				**2,296,000**	***1.1***	**81,000**
		Carosue Dam Ore Reserves		***2,296,000***	***1.1***	***81,000***	***6,691,000***	***2.4***	***506,000***	***8,987,000***	***2.0***	***587,000***
Thunderbox	Thunderbox	Thunderbox	OP				10,908,000	1.7	596,000	**10,908,000**	***1.7***	**596,000**
		Thunderbox Sub-Total		***0***	***0.0***	***0***	***10,908,000***	***1.7***	***596,000***	***10,908,000***	***1.7***	***596,000***
	Bannockburn	Bannockburn	OP				4,352,000	1.5	206,000	**4,352,000**	***1.5***	**206,000**
		Bannockburn Sub-Total		***0***	***0.0***	***0***	***4,352,000***	***1.5***	***206,000***	***4,352,000***	***1.5***	***206,000***
	King of the Hills	Kailis *	OP				998,000	3.0	95,000	**998,000**	***3.0***	**95,000**
		King of the Hills Sub-Total		***0***	***0.0***	***0***	***998,000***	***3.0***	***95,000***	***998,000***	***3.0***	***95,000***
	All	**Thunderbox Ore Reserves**		***0***	***0.0***	***0***	***16,258,000***	***1.7***	***897,000***	***16,258,000***	***1.7***	***897,000***
Total		*Total Ore Reserves*		*2,296,000*	*1.1*	*81,000*	*22,949,000*	*1.9*	*1,403,000*	*25,245,000*	*1.8*	*1,484,000*

Competent Person Statements

The information in the report to which this statement is attached that relates to Exploration Results and Mineral Resources related to Gold is based upon information compiled by Mr Daniel Howe, a Competent Person who is a member of The Australasian Institute of Mining and Metallurgy and the Australian Institute of Geoscientists. Daniel Howe is a full-time employee of the company. Daniel Howe has sufficient experience that is relevant to the style of mineralisation and type of deposit under consideration and to the activity being undertaken to qualify as a Competent Person as defined in the 2012 Edition of the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves'. Daniel Howe consents to the inclusion in the report of matters based on his information in the form and context in which it appears.

The information in the report to which this statement is attached that relates to Exploration Results and Mineral Resources related to Nickel is based upon information compiled by Mr Lynn Widenbar, a Competent Person who is a member of The Australasian Institute of Mining and Metallurgy. Lynn Widenbar is a consultant to Saracen Mineral Holdings. Lynn Widenbar has sufficient experience that is relevant to the style of mineralisation and type of deposit under consideration and to the activity being undertaken to qualify as a Competent Person as defined in the 2012 Edition of the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves'. Lynn Widenbar consents to the inclusion in the report of matters based on his information in the form and context in which it appears.

The information in the report to which this statement is attached that relates to underground Ore Reserves at Red October, Deep South, Karari and Whirling Dervish is based upon information compiled by Stephen King, a Competent Person who is a member of The Australasian Institute of Mining and Metallurgy. Stephen King is a full-time employee of the company. Stephen King has sufficient experience that is relevant to the style of mineralisation and type of deposit under consideration and to the activity being undertaken to qualify as a Competent Person as defined in the 2012 Edition of the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves'. Stephen King consents to the inclusion in the report of matters based on his information in the form and context in which it appears.

The information in the report to which this statement is attached that relates to all open pit Ore Reserves relating to Gold based upon information compiled by Christopher Burton, a Competent Person who is a member of The Australasian Institute of Mining and Metallurgy. Christopher Burton is a full-time employee of the company. Christopher Burton has sufficient experience that is relevant to the style of mineralisation and type of deposit under consideration and to the activity being undertaken to qualify as a Competent Person as defined in the 2012 Edition of the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves'. Christopher Burton consents to the inclusion in the report of matters based on his information in the form and context in which it appears.

Notes to Accompany JORC Code 2012 Mineral Resource and Ore Reserve Statements

Carosue Dam District

Whirling Dervish

Section 1: Sampling Techniques and Data

Criteria	JORC Code Explanation	Commentary
Sampling Techniques	*Nature and quality of sampling (e.g. cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc.). These examples should not be taken as limiting the broad meaning of sampling.*	Sampling methods undertaken by Saracen at Whirling Dervish have included reverse circulation (RC), diamond drillholes (DD) and RC grade control drilling within the pit. Historic methods conducted since 1993 have included aircore (AC), rotary air blast (RAB), reverse circulation and diamond drillholes.
	Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used	Sampling for diamond and RC drilling is carried out as specified within Saracen sampling and QAQC procedures as per industry standard. RC chips and diamond core provide high quality representative samples for analysis. RC, RAB, AC and DD core drilling was completed by previous holders to industry standard at that time (1993- 2002).
	Aspects of the determination of mineralisation that are Material to the Public Report. In cases where 'industry standard' work has been done this would be relatively simple (e.g. 'reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30 g charge for fire assay'). In other cases more explanation may be required, such as where there is coarse gold that has inherent sampling problems. *Unusual commodities or mineralisation types (e.g. submarine nodules) may warrant disclosure of detailed information*	Diamond core is NQ sized, sampled to 1m intervals and geological boundaries where necessary and cut into half core to give sample weights under 3 kg. Samples are selected to weigh less than 3 kg to ensure total sample inclusion at the pulverisation stage. RC chips are riffle or cone split and sampled into 1m intervals with total sample weights under 3kg Saracen core and chip samples are crushed, dried and pulverised to a nominal 90% passing 75µm to produce a 40g or 50 g sub sample for analysis by FA/AAS. Historical AC, RAB, RC and diamond sampling was carried out to industry standard at that time. Analysis methods include fire assay, aqua regia, B/ETA and unspecified methods.
Drilling Techniques	*Drill type (e.g. core, reverse 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.).*	The deposit was initially sampled by 35 AC holes, 159 RAB holes, 407 RC holes (assumed standard 5 ¼ ''bit size) and 53 surface diamond HQ core and unknown diameter holes. Saracen has completed 50 surface RC precollar with NQ diamond tail drill holes (precollars averaging 193m, diamond tails averaging 200m) , 6 diamond geotechnical holes , 72 RC holes from both surface and within the pit and 3989 grade control RC holes within the pit. Diamond tails were oriented using an Ezy-mark tool. Some historic surface diamond drill core appears to have been oriented by unknown methods.
Drill Sample Recovery	*Method of recording and assessing core and chip sample recoveries and results assessed*	Diamond core recovery percentages calculated from measured core versus drilled intervals are logged and recorded in the database. Recoveries average >90%. RC sampling recoveries are recorded as a percentage based on a visual weight estimate; no historic

Section 1: Sampling Techniques and Data		
Criteria	**JORC Code Explanation**	**Commentary**
		recoveries have been recorded.
	Measures taken to maximise sample recovery and ensure representative nature of the samples	Diamond core is reconstructed into continuous runs on an angle iron cradle for orientation marking. Depths are checked against depth given on the core blocks. During GC campaigns daily rig inspections are carried out to check splitter condition, general site and address general issues. The sample bags weight versus bulk reject weight is compared to ensure adequate and even sample recovery. Historical AC, RAB, RC and diamond drilling to industry standard at that time.
	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.	Diamond drilling has high recoveries meaning loss of material is minimal. There is no known relationship between sample recovery and grade for RC drilling. Any historical relationship is not known.
Logging	*Whether core and chip samples have been geologically and geotechnically logged to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies.* *Whether logging is qualitative or quantitative in nature.* *Core (or costean, channel, etc) photography.*	Logging of diamond drill core and RC chips records lithology, mineralogy, texture, mineralisation, weathering, alteration, veining and other features. Geotechnical and structural logging is carried out on all diamond holes to record recovery, RQD, defect number, type, fill material, shape and roughness and alpha and beta angles. Chips from all RC holes (exploration and GC) are stored in chip trays for future reference. Core is photographed in both dry and wet state. Qualitative and quantitative logging of historic data varies in its completeness.
	The total length and percentage of the relevant intersections logged	All diamond drillholes and exploration RC holes are logged in full. Every drill line is logged in grade control programs. Historical logging is approximately 95% complete.
Sub-sampling techniques and sample preparation	*If core, whether cut or sawn and whether quarter, half or all core taken.*	All drill core is cut in half onsite using an automatic core saw. Samples are always collected from the same side. Historic diamond drilling has been half core sampled.
	If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry.	All exploration and GC RC samples are cone or riffle split. Occasional wet samples are encountered; increased air capacity is routinely used to aid in keeping the sample dry when water is encountered. Historic AC, RAB and RC drilling was sampled using spear, grab, riffle and unknown methods.
	For all sample types, the nature, quality and appropriateness of the sample preparation technique.	The sample preparation of diamond core and RC chips adhere to industry best practice. It is conducted by a commercial laboratory and involves oven drying, coarse crushing then total grinding to a size of 90% passing 75 microns. Best practice is assumed at the time of historic sampling.
	Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.	All subsampling activities are carried out by commercial laboratory and are considered to be satisfactory. Sampling by previous holders assumed to be industry standard at the time.
	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.	Duplicate sampling is carried out at a rate of 1:10 for exploration drilling and 1:20 for GC drilling and is sampled directly from the on-board splitter on the rig. These are submitted for the same assay process as the original samples and the laboratory are unaware of such submissions. Sampling by previous holders assumed to be industry standard at the time.
	Whether sample sizes are appropriate to the grain size of the material being sampled.	Sample sizes are considered to be appropriate.
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.*	RC chip samples, grade control chip samples and diamond core are analysed by external laboratories using a 40g or 50g fire assay with AAS finish. These methods are considered suitable for determining gold concentrations in rock and are total digest methods.

Section 1: Sampling Techniques and Data

Criteria	JORC Code Explanation	Commentary
		Historic sampling includes fire assay, aqua regia, B/ETA and unknown methods.
	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 geophysical tools have been utilised for reporting gold mineralisation at Whirling Dervish.
	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.	Certified reference material (standards and blanks) with a wide range of values are inserted into every drillhole at a rate of 1:25 for exploration RC and DD, and 1:40 for GC drilling. These are not identifiable to the laboratory. QAQC data returned are checked against pass/fail limits with the SQL database and are passed or failed on import. A report is generated and reviewed by the geologist as necessary upon failure to determine further action. QAQC data is reported monthly. Sample preparation checks for fineness are carried out to ensure a grindsize of 90% passing 75 microns. The laboratory performs a number of internal processes including standards, blanks, repeats and checks. QAQC data analysis demonstrates sufficient accuracy and precision. Industry best practice is assumed for previous holders.
Verification of sampling and assaying	*The verification of significant intersections by either independent or alternative company personnel.*	Significant intercepts are verified by the Geology Manager and corporate personnel.
	The use of twinned holes.	No specific twinned holes have been drilled at Whirling Dervish but grade control drilling has confirmed the width and grade of previous exploration drilling.
	Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols	Primary data is collated in a set of excel templates utilising lookup codes. This data is forwarded to the Database Administrator for entry into a secure acQuire database with inbuilt validation functions. Data from previous owners was taken from a database compilation and validated as much as practicable before entry into the Saracen acQuire database.
	Discuss any adjustment to assay data.	No adjustments have been made to assay data. First gold assay is utilised for resource estimation.
Location of data points	*Accuracy and quality of surveys used to locate drillholes (collar and down-hole surveys), trenches, mine workings and other locations used in Mineral Resource estimation.*	Exploration drillholes are located using a Leica 1200 GPS with an accuracy of +/- 10mm. Drillhole collars within the pit and immediate surrounds are picked up by company surveyors using a Trimble R8 GNSS (GPS) with an expected accuracy of +/-8mm. Downhole surveys are carried out using an Eastman single shot camera at regular intervals (usually 30m). A number of drillholes have also been gyroscopically surveyed. Previous holders' survey accuracy and quality is unknown
	Specification of the grid system used.	A local grid system (Whirling Dervish) is used. It is rotated 45 degrees west of MGA_GDA94. The one point conversion to MGA_GDA94 zone 51 is WDEast WDNorth RL MGAEast MGANorth RL Point 1 20003.8190 50277.5540 0 437865.3740 6665770.2100 0 Historic data is converted to Whirling Dervish local grid upon export from the database.
	Quality and adequacy of topographic control.	Topographic control originally used site based survey pickups in addition to Kevron aerial photogrammetric surveys with +/- 5m resolution. Pre mining, new and more detailed topography has since been captured and will be used in future updates and for subsequent planning purposes.

Section 1: Sampling Techniques and Data		
Criteria	**JORC Code Explanation**	**Commentary**
Data spacing and distribution	*Data spacing for reporting of Exploration Results.*	The nominal spacing for exploration drilling is 25m x 25m
	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.	Data spacing and distribution are sufficient to establish the degree of geological and grade continuity appropriate for JORC classifications applied.
Orientation of data in relation to geological structure	*Whether sample compositing has been applied.*	Sample compositing is not applied until the estimation stage. Some historic RAB and RC sampling was composited into 3-4m samples with areas of interest re-sampled to 1m intervals. It is unknown at what threshold this occurred.
	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 drillholes are positioned to achieve optimum intersection angles to the ore zone as are practicable.
	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.	No significant sampling bias is thought to occur due to orientation of drilling in regards to mineralised structures.
Sample security	*The measures taken to ensure sample security.*	Samples are prepared on site under supervision of Saracen geological staff. Samples are selected, bagged into tied numbered calico bags then grouped into secured cages and collected by the laboratory personnel. Sample submissions are documented via laboratory tracking systems and assays are returned via email.
Audits or reviews	*The results of any audits or reviews of sampling techniques and data.*	An internal review of companywide sampling methodologies was conducted to create the current sampling and QAQC procedures.

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 Whirling Dervish pit is located on M28/166 and M31/220, while near mine exploration has been carried out on M28/245. The tenements are held 100% by Saracen Gold Mines Pty Ltd, a wholly owned subsidiary of Saracen Mineral Holdings Limited. Mining Leases M28/166 and M31/220 have a 21 year life (held until 2020) and are renewable for a further 21 years on a continuing basis. Mining Lease M28/245 has a 21 year life (held until 2029) and is renewable for a further 21 years on a continuing basis. Mining Lease M28/166 is subject to two third party royalties and one caveat (Caveat 51H/067). Mining Lease M31/220 is subject to two third party royalties and one caveat (Caveat 64H/067) and Mining Lease M28/245 is subject to one third party royalty. There are no caveats associated with Mining Lease M28/245. Mining Leases M28/166, M28/245 and M31/220 are subject to a bank mortgage (Mortgage 415495). All production is subject to a Western Australian state government NSR royalty of 2.5%. Mining Leases M28/166, M31/220 and M28/245 are subject to the Pinjin Pastoral Compensation Agreement. Mining Lease M31/220 is subject to the Pinjin and Gindalbie Pastoral Compensation Agreements.

Section 2: Reporting of Exploration Results

Criteria	JORC Code Explanation	Commentary
	The security of the tenure held at the time of reporting along with any known impediments to obtaining a licence to operate in the area.	The tenements are in good standing and the licence to operate already exists.
Exploration done by other parties	*Acknowledgment and appraisal of exploration by other parties.*	The Carosue Dam project area in which the Whirling Dervish deposit is located has been subjected to extensive gold exploration by numerous companies since 1991. Airborne geophysics conducted by Aberfoyle Resources in 1997 highlighted numerous targets in the project area with subsequent RAB drilling intersecting the Whirling Dervish mineralisation and an extensive RC campaign confirming it. Oriole Resources obtained the project in 1998 and, through wholly owned subsidiary company PacMin, completed closely spaced RC drilling to develop the resource through to reserve status. Sons of Gwalia carried out minor drilling before their collapse and takeover of the project by St Barbara.
Geology	*Deposit type, geological setting and style of mineralisation.*	Whirling Dervish is situated along the Kilkenny-Yilgangi fault zone on the boundary of the Steeple Hill and Mulgabbie domains. The lithology comprises primarily intermediate felsic volcaniclastic sandstones, intermediate tuffs and intermediate porphyry units intruded by granites of varying composition, with stratigraphy dipping generally to the east at approx. 60 degrees. Mineralization has a combined lithological and structurally control dipping parallel to the stratigraphy. Mineralization is continuous along strike in the footwall but is very discontinuous and patchy in the hanging wall structures and overall controlled by the general NW trending ductile faulting and is characterized by weak Hematite banding on the margins to intense hematite-silica alteration hosted in breccia zones adjacent to the faulting with high grade cores typically sericite-silica breccia. Pyrite is the dominant sulphide. The mineralization is terminated to the west by the by a NW trending shear zone dipping 60 degrees to the east.
Drillhole 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 does not detract from the understanding of the report, the Competent Person should clearly explain why this is the case.*	All material data is periodically released on the ASX: 14/10/2013, 23/07/2013, 03/12/2012, 10/10/2012, 31/07/2012, 27/04/2012, 06/03/2012, 27/01/2012, 06/01/2012, 26/10/2011, 01/08/2011, 28/07/2011, 03/06/2011, 21/04/2011, 09/02/2011
Data aggregation methods	*In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (e.g. cutting of high grades) and cut-off grades are usually Material and should be*	All significant intercepts have been length weighted with a minimum Au grade of 1ppm. No high grade cut off has been applied.

Section 2: Reporting of Exploration Results

Criteria	JORC Code Explanation	Commentary
	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.	Intercepts are aggregated with minimum width of 1m and maximum width of 3m for internal dilution. Where stand out higher grade zone exist with in the broader mineralised zone, the higher grade interval is reported also.
	The assumptions used for any reporting of metal equivalent values should be clearly stated.	There are no metal equivalents reported in this release.
Relationship between mineralisation widths and intercept lengths	*These relationships are particularly important in the reporting of Exploration Results.* *If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.* *If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (eg 'down hole length, true width not known').*	Previous announcements included sufficient detail to clearly illustrate the geometry of the mineralisation and the recent drilling. All results are reported as downhole lengths.
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.*	Please refer to diagrams in this announcement.
Balanced Reporting	*Where comprehensive reporting of all Exploration Results are not practicable, representative reporting of both low and high grades and/or widths should be practiced to avoid misleading reporting of Exploration Results.*	All results from previous campaigns have been reported, irrespective of success or not.
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.*	No substantive data acquisition has been completed in recent times.
Further work	*The nature and scale of planned further work (eg tests for lateral extensions or depth extensions or large-scale step-out drilling).* *Diagrams clearly highlighting the areas of possible*	Whirling Dervish is currently in production and extensional exploration at this time is under review.

Section 2: Reporting of Exploration Results

Criteria	JORC Code Explanation	Commentary
	extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive	

Section 3: Estimation and Reporting of Mineral Resources

Criteria	JORC Code Explanation	Commentary
Database Integrity	*Measures taken to ensure that data has not been corrupted by, for example, transcription or keying errors, between its initial collection and its use for Mineral Resource estimation purposes.*	Saracen utilises AcQuire software on an SQL server database to securely store and manage all drillhole and sample information. Data integrity protocols are built into the system to ensure data validity and minimise errors.
	Data validation procedures used.	Data that is captured in the field is entered into Excel templates which are checked on import into the database for errors. Assay jobs are dispatched electronically to the lab to minimise the chance of data entry errors. Assay results from the lab are received in CSV format and are checked for errors on import into the database. Data is regularly validated using the mining software. The data validation process is overseen by the Database Administrator.
Site Visits	*Comment on any site visits undertaken by the Competent Person and the outcome of those visits.*	The Competent Person regularly visits site (monthly and more so when the geological work is more complex and demanding) to assess geological competency and ensure integrity across all geological disciplines.
	If no site visits have been undertaken indicate why this is the case.	
Geological Interpretation	*Confidence in (or conversely, the uncertainty of) the geological interpretation of the mineral deposit.*	The resource categories assigned to the model directly reflect the confidence in the geological interpretation that is built using local, structural, mineral, and alteration geology obtained from mapping, logging, drill results and geophysics. Confidence in the interpretation improved with increased data density from grade control drilling at 12.5m X 12.5m and in pit mapping.
	Nature of the data used and any assumptions made.	The geological interpretation of Whirling Dervish has considered all available geological information including local geology, structural deformation events, and its relationship to neighbouring mineralised deposits. Rock types, mineral, alteration and veining assemblages from diamond drill core and RC Chips were all used to help define the mineralised domains and regolith boundaries. Interpreted shears and faults obtained from in pit mapping further constrained the domaining.
	The affect, if any, of alternative interpretations on Mineral Resource estimation.	The geological wireframes defining the mineralised zones are considered to be robust. Alternative interpretations were earlier trial scenarios that do not affect the current Mineral Resource Estimation.
	The use of geology in guiding and controlling the Mineral Resource estimation.	The wireframed domains are used as hard boundaries during the Mineral Resource Estimation. They are constructed using all available geological information (as stated above) and terminate along known structures. Mineralisation styles, geological homogenity, and grade distributions for each domain (used to highlight any potential for bimodal populations) are all assessed to ensure effective estimation of the domains.
	The factors affecting continuity both of grade and geology.	Cross cutting structures (NE - SW trending) grouped with flatter westerly dipping structures and intrusive rock types largely affect mineralisation continuity both along strike and down dip. Grade continuity is related to intense haematite, silica and sericite alteration and quartz breccia zones adjacent to shears and intrusive contacts.
Dimensions	*The extent and variability of the Mineral Resource*	Mineralisation at Whirling Dervish has continuity over 900m along strike, 500m down dip and 160m

Section 3: Estimation and Reporting of Mineral Resources

Criteria	JORC Code Explanation	Commentary
	expressed as length (along strike or otherwise), plan width, and depth below surface to the upper and lower limits of the Mineral Resource.	across strike. High grade mineralisation is controlled by 60° East dipping shear zones. Mineralisation is hosted within extensive quartz vein breccia zones adjacent to the shears. The high grade mineralisation is associated with intense haematite, silica and sericite alteration.
Estimation and modelling techniques	*The nature and appropriateness of the estimation technique(s) applied and key assumptions, including treatment of extreme grade values, domaining, interpolation parameters and maximum distance of extrapolation from data points.*	The mineralised ore domains were wireframed based on geological homogeneity, grade populations, mineralisation styles and orientation of grade continuity. The domain wireframes were used as hard boundaries during the estimation process. An unfolding process was carried out prior to variography and interpolation to remove the variable dip and strike typically associated with the mineralised domains. RAB, Aircore and grab samples were excluded from the estimation process due to the unreliability of results. Grade control drilling within the previous pit stage was also excluded from the estimation process to remove bias of the 8m x 6m spaced drilling. Negative gold grades were replaced with a grade of 0.001 g/t and null gold grades were excluded from the estimation process. Drillhole assays were composited to 1m intervals with a minimum length of 0.3m that best conformed to the sample length of the majority of the RC data. High grades within each domain were identified and top cuts were applied where necessary. Variograms were produced to determine the directional influence of each sample during the estimation process. The Mineral Resource Estimate was interpolated using Ordinary Kriging in Micromine 2013.
	The availability of check estimates, previous estimates and/or mine production records and whether the Mineral Resource estimate takes appropriate account of such data.	The Mineral Resource Estimation is checked against the previous block model estimations and reconciled production numbers.
	The assumptions made regarding recovery of by-products.	No assumptions have been made regarding the recovery of by-products for this Mineral Resource Estimation.
	Estimation of deleterious elements or other non-grade variables of economic significance (e.g. sulfur for acid mine drainage characterisation).	No estimation of deleterious elements or non-grade variables is required.
	In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed.	The model has been created using a parent cell size of 5m (East- West) x 20m (North-South) x 10m (vertical). Subcells have been used to a resolution of 1m x 2m x1m to ensure high resolution at ore boundaries. The drill spacing from the 310 to 135mRL is 12.5m by 12.5m with 1m sample intervals. Below the 135mRL the drill spacing is 40m x 40m with 1m sample intervals. The search distances are at 1.5x drill spacing but are also adjusted according to the directional ranges calculated from the variograms, and the geological understanding of Au and geometry continuity for each domain. Search ellipsoids are set from 13m X 26m X 3.25 to 30m X 40m X 9m and are extended in later search passes with a decreased number of minimum samples.
	Any assumptions behind modelling of selective mining units.	No assumptions have been made regarding the modelling of selective mining units for this Mineral Resource Estimation.
	Any assumptions about correlation between variables.	No assumptions have been made regarding the correlation between variables for this Mineral Resource Estimation.
	Description of how the geological interpretation was used to control the resource estimates.	Mineralised domains were wireframed within the context of the known local and structural geology was supported by the geological mapping within the pit and the geology logging of drillholes. Correlations between rock type, texture, alteration, and gold mineralisation were investigated. Below an assumed 20m crown pillar below the current pit design the ore domaining was more selective to best represent the underground potential.
	Discussion of basis for using or not using grade	Samples with extreme high grades that bias the mean grade and positively skew the grade population

Section 3: Estimation and Reporting of Mineral Resources

Criteria	JORC Code Explanation	Commentary
	cutting or capping.	within each mineralised domains are top cut to reduce the influence high grade outliers. The geostatistics to determine top cuts includes log probability plots and the coefficient of variation.
	The process of validation, the checking process used, the comparison of model data to drill hole data, and use of reconciliation data if available.	A number of statistical and visual measures are used to validate the accuracy of the estimation. The mean grade of the block model is compared to the mean grade of composites by domain. These are then further investigated by appropriate northing, easting and bench intervals in the form of swathe plots. The volume variance between the wireframed domains and block model domains are assessed. Kriging efficiency, and slope results give an indication of the quality of the estimate. A visual inspection of the drillhole assay results are compared to the estimated block model in section.
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.
Cut-off parameters	*The basis of the adopted cut-off grade(s) or quality parameters applied.*	The adopted cut-off grades for Mineral Resource Estimation reporting are 0.5g/t for Open Pit Resources, and 1.0g/t for Underground Resources.
Mining factors or assumptions	*Assumptions made regarding possible mining methods, minimum mining dimensions and internal (or, if applicable, external) mining dilution. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential mining methods, but the assumptions made regarding mining methods and parameters when estimating Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the mining assumptions made.*	The Mineral Resource Estimation was created with the assumption that the deposit will be mined using underground methods, with an anticipated grade control spacing of 20mE x 20mRL. No assumptions have been made for mining dilution.
Metallurgical factors or assumptions	*The basis for assumptions or predictions regarding metallurgical amenability. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential metallurgical methods, but the assumptions regarding metallurgical treatment process and parameters made when reporting Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the metallurgical assumptions made.*	The prediction of the metallurgical performance of the Whirling Dervish deposit is based on the geological foundation consisting of a free milling ore body contained within metamorphosed volcaniclastic sediments. Metallurgical testwork carried out by independent consultancies has indicated that there is moderate to high gravity recovery, with total cyanide soluble recoveries reporting 93-97%. Predicted mineralogy is expected to show a strong correlation to that experienced during the processing of nearby Karari pit ore. Historical performance at the Carosue Dam processing plant has evaluated the gold contained within the ore body to be approximately 92% recoverable across the first two stages of Whirling Dervish pit development.
Environmental factors or assumptions	*Assumptions made regarding possible waste and process residue disposal options. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider the potential environmental impacts of the mining and processing operation.*	Waste rock characterisation has been conducted on the deposit with no environmental issues identified except dispersive oxidised material and waste dump construction plan in place to manage. Tailings from the deposit are stored in an appropriate licensed tailings facility and closure plan in place.

Section 3: Estimation and Reporting of Mineral Resources

Criteria	JORC Code Explanation	Commentary
	While at this stage the determination of potential environmental impacts, particularly for a greenfields project, may not always be well advanced, the status of early consideration of these potential environmental impacts should be reported. Where these aspects have not been considered this should be reported with an explanation of the environmental assumptions made.	
Bulk Density	*Whether assumed or determined. If assumed, the basis for the assumptions. If determined, the method used, whether wet or dry, the frequency of the measurements, the nature, size and representativeness of the samples.*	The bulk densities for Whirling Dervish were determined via testing of representative intervals from diamond drillholes, regular sampling via grab samples from the Stage 1 and Stage 2 pit development, and regular ongoing sampling from the Stage 3 pit. The sample size is generally between 0.5 and 1.5kg and the method of calculation is the water displacement technique. Measurements have been recorded in the acquire database and extraction schemes pair this data with the major lithology code for statistical analysis.
	The bulk density for bulk material must have been measured by methods that adequately account for void spaces (vugs, porosity, etc), moisture and differences between rock and alteration zones within the deposit.	Ore zones predominantly exist in transitional to fresh non-porous material, so additional measures to reduce moisture intake during the water displacement method is unnecessary at this stage. Coating more friable oxides and sediments (to reduce moisture loss or moisture gain during the process) is considered on a deposit by deposit basis.
	Discuss assumptions for bulk density estimates used in the evaluation process of the different materials.	An average mean of densities collected for each lithological type has been uniformly applied to the modelled geological units. This includes the primary fresh lithologies as well as the weathered oxide and transitional zones.
Classification	*The basis for the classification of the Mineral Resources into varying confidence categories.*	Resource classifications were defined by a combination of data; drill hole spacing, estimation quality (search pass, Kriging Efficiency and Slope results), geological confidence and Au continuity of domains. Based on these factors hard boundaries were wireframed for measured, indicated and inferred material. Measured material exhibits high confidence defined by grade control drilling (12.5m x12.5m). Indicated material is defined by 40m x 40m drilling, having good geological continuity along strike and down dip. Inferred classification is given to the estimate outside the mineable area with more sparse drill intercepts (>40m X 40m) and having poorer estimation quality.
	Whether appropriate account has been taken of all the relevant factors (ie relative confidence in tonnage/grade estimations, reliability of input data, confidence in continuity of geology and metal values, quality, quantity and distribution of the data).	All relevant factors have been taken into account and are validated through thorough QAQC of the drillhole database and geological knowledge and interpretation of the Whirling Dervish deposit. Thorough model validations and reviews ensure the integrity of the final estimation and the grade and tonnage numbers.
	Whether the result appropriately reflects the Competent Person's view of the deposit.	The reviewing process allows the Competent Person's to assess and sign off on the model.
Audits or reviews	*The results of any audits or reviews of Mineral Resource estimates.*	At the completion of the resource estimation Saracen Gold Mines undertake an extensive review of the model that covers model inventory and comparisons to previous and budget models. Geological interpretation, wireframing, domain selection, statistics by domain, assay evaluation, parent cell sizes, data compositing, variography, search strategy, estimation and KNA and finally model validation and resource categorisation are all discussed and scrutinized by the geological and mine planning teams.
Discussion of relative	*Where appropriate a statement of the relative*	The Mineral Resource has been reported in accordance with the guidelines of the 2012 edition of the

Section 3: Estimation and Reporting of Mineral Resources		
Criteria	**JORC Code Explanation**	**Commentary**
accuracy/confidence	*accuracy and confidence level in the Mineral Resource estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the resource within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors that could affect the relative accuracy and confidence of the estimate.*	Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves. Saracen Gold Mine uses a standard approach to resource estimation and the procedure requires the systematic completion of the Saracen Resource Estimation Document that is thoroughly investigated and assessed in the Model review process, as stated above.
	The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonnages, which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the procedures used.	The statement relates to a global estimate.
	These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.	The current resource model is reconciled with production data on a monthly basis. This information is fed back into the resource modelling process and used to refine the model.

Section 4: Estimation and Reporting of Ore Reserves		
Criteria	**JORC Code Explanation**	**Commentary**
Mineral Resource estimate for conversion to Ore Reserves	*Description of the Mineral resource Estimate used as a basis for the conversion to an Ore Reserve.*	The Mineral Resource estimate for the Whirling Dervish gold deposit used as a basis for conversion to the Ore Reserve estimate was compiled by Saracen. The data included drilling and assay data, geological mapping and historical mining records to validate the model against and solid interpretation wireframes of the geology. This information was used to construct a model estimated by ordinary kriging. The model was depleted with the final pit survey completed in July 2015.
	Clear statement as to whether the Mineral Resources are reported additional to. Or inclusive of, the Ore Reserves.	The Mineral Resource reported is inclusive of the Ore Reserve.
Site Visits	*Comment on any site visits undertaken by the Competent Person and the outcome of those visits.*	The competent person is based at the Carosue Dam Operations mine site, where the Whirling Dervish deposit is located, on a regular commute roster. Consultant geotechnical engineers have visited Carosue Dam to gather data through inspection of the open pit and logging of drill core, used in the preparation of geotechnical reports to define parameters for underground mining. Hydrogeology consultants have visited Carosue Dam to gather data and inspect the inflow of groundwater into the open pit, used in the preparation of reports used to determine water management strategies.

Section 4: Estimation and Reporting of Ore Reserves

Criteria	**JORC Code Explanation**	**Commentary**
	If no site visits have been undertaken indicate why this is the case.	N/A
Study status	*The type and level of study undertaken to enable Mineral Resources to be converted to Ore Reserves*	The Whirling Dervish deposit was mined by Saracen as an open pit operation in three stages, commencing in 2010. The Stage 3 open pit was completed in July 2015. Ore from Whirling Dervish open pit continues to be treated at the Carosue Dam processing facility. A pre-feasibility underground study has been undertaken, with a detailed mine design and an economic analysis, to define the ore reserve.
	The Code requires that a study to at least Pre-Feasibility Study level has been undertaken to convert Mineral Resources to Ore Reserves. Such studies will have been carried out and will have determined a mine plan that is technically achievable and economically viable, and that material Modifying Factors have been considered.	Modifying factors have been applied to the study to ensure the rigor of the financial analysis. All of the parameters assumed and adopted, as well as the financial analysis completed, have been the subject to peer review.
Cut-off parameters	*The basis of the cut-off grade(s) or quality parameters applied*	For the purpose of Ore Reserve Estimate a cut-off grade of 1.8g/t was calculated based upon an assumed gold price of AUD$1500/Oz and applicable processing, haulage and administration costs. A top cut has already been applied to the Mineral Resource Estimate eliminating the necessity for any further adjustment to the Ore Reserve estimate.
Mining factors or assumptions	*The method and assumptions used as reported in the Pre-feasibility or Feasibility Study to convert the Mineral Resource to an Ore Reserve (i.e. either by application of appropriate factors by optimisation or by preliminary or detailed design).*	The Whirling Dervish underground ore reserve has been estimated using detailed mine development and stope designs. Modifying factors for dilution and recovery have been applied to the economic analysis of the design to generate the ore reserve.
	The choice, nature and appropriateness of the selected mining method(s) and other mining parameters including associated design issues such as pre-strip, access, etc.	Underground mechanised mining for development, ground support, and open stoping have been selected for Whirling Dervish. Mining and geotechnical studies have determined open stoping with remnant pillars is appropriate for the deposit. Similar methods are currently utilised at the Red October and Karari underground mines at Carosue Dam Operations.
	The assumptions made regarding geotechnical parameters (e.g. pit slopes, stope sizes, etc.), grade control, and pre-production drilling.	Analysis of geotechnical conditions and recommendations were made by geotechnical consultants Dempers and Seymour following site visits, logging of drill core from drilling and a review of the historical monthly geotechnical operational site visit reports. Hydraulic radius recommendations were given for different domains of the ore body, which were used in the design of stopes. A review of the previous analysis and assessment of the designed stopes was performed by Peter Andrews (geotechnical consultant – Andrews Rock Mechanics) and found to be acceptable. A grade control program with associated development for drilling platforms, grade control drilling designs, and sampling costs have been include in the economic analysis.

Section 4: Estimation and Reporting of Ore Reserves		
Criteria	**JORC Code Explanation**	**Commentary**
	The major assumptions made and Mineral Resource model used for pit and stope optimisation (if appropriate).	N/A
	The mining dilution factors used.	An allowance for mining dilution skin was incorporated into the stope designs, with 0.5m added to both the hanging-wall and footwall contacts of the stopes. Thus the designed dilution skin is assigned the modelled grade from the interpreted low grade ore halo surrounding the targeted high grade ore domains in the resource model.
	The mining recovery factors used.	A mining recovery factor of 95% has been assumed for all stopes.
	Any minimum mining widths used	A minimum stope width of 3m was adopted in the design process. The width of the ore domains exceeded 3m in all areas on which stopes have been designed.
	The manner in which inferred Mineral resources are utilised in mining studies and the sensitivity of the outcome to their inclusion.	Minor volumes (<1%) of inferred resources are contained within underground mine design. A grade of 0g/t has been assigned to all inferred resources within the design. Therefore inferred resources contribute no metal to the estimated reserve, and hence the reserve has no sensitivity to the inclusion of inferred resources.
	The infrastructure requirements of the selected mining methods.	Standard underground infrastructure is designed and will be provided, including a decline for access and truck haulage, ventilation fans, escape-way ladders, electrical reticulation, mine services (air and water), and mine dewatering infrastructure. No specialised infrastructure is required to accommodate this method of mining.
Metallurgical factors or assumptions	*The metallurgical process proposed and the appropriateness of that process to the style of mineralisation*	The ore reserve will be treated at the established Carosue Dam processing facility. The Carosue Dam Process Plant is a CIL cyanide leach plant incorporating a gravity circuit which is appropriate for the extraction of gold from free milling gold ores. An average plant processing recovery of 93% has been assumed in the Ore Reserve Estimate which is consistent with historical plant recoveries for Whirling Dervish ore.
	Whether the metallurgical process is well-tested technology or novel in nature.	The method of ore processing and extraction proposed utilises well tried and proven technology dating back to the 1960's and practiced extensively around the world.
	The nature, amount and representiveness of metallurgical test work undertaken, the nature of the metallurgical domaining applied and the corresponding metallurgical recovery factors applied.	In 2014 a review of the Whirling Dervish open pit ore processing performance was conducted and metallurgical test work was carried out determine the continuity of processing performance from underground ore. No evidence was found to indicate any changes in the processing performance from underground ore to the historical performance from open pit ore.
	Any assumptions or allowances made for deleterious elements.	No deleterious elements have been identified during the processing of Whirling Dervish ores since 2010.
	The existence of any bulk sample or pilot scale test work and the degree to which such samples are	Ore from the Whirling Dervish open pit has been treated at the Carosue Dam processing facility since

Section 4: Estimation and Reporting of Ore Reserves

Criteria	JORC Code Explanation	Commentary
	considered representative of the ore body as a whole.	2010. Stockpiled ore will continue to be treated throughout 2015 and 2016. The open pit fresh rock ore processed is considered representative of the ore expected from underground.
	For minerals that are defined by a specification, has the ore reserve estimation been based on the appropriate mineralogy to meet the specifications.	N/A
Environmental factors or assumptions	*The status of studies of potential environmental impacts of the mining and processing operation. Details of waste rock characterisation and the consideration of potential sites, status of design options considered and, where applicable, the status of approvals for process residue storage and waste dumps should be reported.*	Open pit mining operations ceased during July 2015, however all approvals (clearing permit, works approval and Mining Proposals) have been granted for ongoing mining and processing at Carosue Dam. The site currently holds and Environmental Protection Act Licence 7465/1999/8 for processing, mine dewatering and power generation. The existing Carosue Dam mine, including the area of Whirling Dervish underground mine, and the accommodation village all lay on granted mining leases. The following studies have been completed and provided to support for the required statutory approvals: Flora surveys of areas to be cleared, waste rock characterisation studies, surface water studies and tailings storage facility documentation.
Infrastructure	*The existence of appropriate infrastructure: availability of land for plant development, power, water, transportation (particularly for bulk commodities), labour, accommodation; or the ease with which the infrastructure can be provided, or accessed.*	Carosue Dam Operations are well established, with mining activities being conducted by Saracen since 2009. The operation comprises at 2.4mtpa CIL ore processing facility, associated tailings storage facilities, Power station, water supply, workshops, and administration offices. A modern accommodation camp is sited within a few kilometres of the administration offices and processing facility. A 70km gravel access road links Carosue Dam Operations to the gravel section of Yarri Road. Both the Saracen and Shire of Kalgoorlie gravel roads are well maintained. The mine site is ~120km from the sealed section or Yarri Road leading to Kalgoorlie.
Costs	*The derivation of, or assumptions made, regarding projected capital costs in the study.*	Capital costs relate to establishment of capital infra-structure and continuing expansion of capital works for Whirling Dervish underground. The cost estimates are based on historical costs for similar work undertaken at Carosue Dam for the establishment and operation of the Red October and Karari underground mines.
	The methodology used to estimate operating costs.	Operating costs for underground mining have been derived from a combination of actual costs from Carosue Dam Operations and tendered contract costs supplied by independent mining contractors. Operating costs for ore processing have been derived from known parameters at Carosue Dam, with additional costs such as labour sourced from current operational data.

Section 4: Estimation and Reporting of Ore Reserves

Criteria	JORC Code Explanation	Commentary
	Allowances made for the content of deleterious elements	Previous operational experience on the Whirling Dervish deposit at Carouse Dam did not reveal any deleterious elements within the ore or waste that required any additional cost allowances.
	The derivation of assumptions made of metal or commodity price(s), for the principal minerals and co-products	An assumed gold price of AUD$1,500/oz has been adopted for financial modelling.
	The source of exchange rates used in study	All revenue and cost calculations have been made in AUD, so no exchange rate usage or assumptions have been necessary.
	Derivation of transportation charges	Costs associated with bullion transportation have been derived from existing contractual arrangements at Carouse Dam Operations.
	The basis for forecasting or source of treatment and refining charges, penalties for failure to meet specification, etc.	Costs associated with refining have been derived from existing contractual arrangements at Carouse Dam Operations.
	The allowances made for royalties payable, both Government and private.	Royalty costs are a 2.5% royalty payable to the Western Australian state government, and a 1.5% royalty payable to IRC.
Revenue Factors	*The derivation of, or assumptions made, regarding revenue factors including head grade, metal or commodity price(s) exchange rates, transportation and treatment charges, penalties, net smelter returns, etc.*	N/A
	The derivation of assumptions made of metal or commodity price(s), for the principal metals, minerals and co-products	An assumed gold price of AUD$1,500/oz has been adopted for financial modelling.
Market Assessment	*The demand, supply and stock situation for the particular commodity, consumption trends and factors likely to affect supply and demand into the future.*	There is a transparent quoted market for the sale of gold.
	A customer and competitor analysis along with the identification of likely market windows for the product.	There is a transparent quoted market for the sale of gold.
	Price and volume forecasts and the basis for these forecasts.	There is a transparent quoted market for the sale of gold.
	For industrial minerals the customer specification, testing and acceptance requirements prior to a supply contract.	N/A
Economic	*The inputs to the economic analysis to produce the net present value (NPV) in the study, the source and confidence of these economic inputs including estimated inflation, discount rate, etc.*	Cost assumptions have been made using a combination of historical performance at Carosue Dam and contract mining costs from an experienced mining contractor. The economic analysis is viewed as representative of the current market conditions.
	NPV ranges and sensitivity to variations in the	An economic analysis was modelled with sensitivities applied to all key inputs and assumptions (+/-

Section 4: Estimation and Reporting of Ore Reserves

Criteria	JORC Code Explanation	Commentary
	significant assumptions and inputs.	10%), which is appropriate to the level of study undertaken (pre-feasibility). Undiscounted cash flows remained positive for all of the key sensitivities conducted.
Social	*The status of agreements with key stakeholders and matters leading to social licence to operate*	Carosue Dam is currently operating and has good relationships with neighbouring stakeholders, including engagement with the local pastoralists and the traditional owners. The mine is located on leasehold pastoral land with compensation agreements in place with the local pastoralist. Granted mining leases cover all of the proposed mining and processing assets and there are no Native title claims pending.
Other	*To the extent relevant, the impact of the following on the project and/or on the estimation and classification of the Ore Reserves:*	
	Any identified material naturally occurring risks	Water inrush is the only naturally occurring risk identified. Inrush from regional surface water flows has been addressed by the construction of appropriate water diversion bunds as part of previous open pit mining operations. A containment pond and dewatering infrastructure has provided for in the mine design and capital costs to mitigate water inrush from rainfall captured within the existing open pit.
	The status of material legal agreements and marketing arrangements	Contracts are in place for all critical goods and services to operate Carosue Dam Operations. A mining contract will be tendered for Whirling Dervish underground prior to the commencement of mining.
	The status of governmental agreements and approvals critical to the viability of the project, such as mineral tenement status, and government and statutory approvals. There must be reasonable grounds to expect that all necessary government approvals will be received within the timeframes anticipated in the Pre-Feasibility or Feasibility study. Highlight and discuss the materiality of any unresolved matter that is dependent on a third party on which extraction of the reserve is contingent.	Carosue Dam Operations is in production with all required government statutory permits and approvals in place for the three operating mines and processing plant. The required statutory approvals for Whirling Dervish will be applied for prior to the commencement of underground mining on the deposit.
Classification	*The basis for the classification of the Ore Reserve into varying confidence categories*	The Ore Reserve Estimate classification for Whirling Dervish underground has been in accordance with the JORC code 2012. The estimated Ore Reserve is classified as being Probable with the majority of the reserve being derived from that portion of the Mineral Resource classified as indicated. Minor volumes (<1%) of the underground ore is designed in Mineral Resource classified as inferred. The grade of this material was assigned as 0g/t, thus no metal is reported in the Ore Reserve Estimate from Mineral Resource classified as inferred. No material in the estimated Ore Reserve is classified as Proven, as no material is derived from that portion of the Mineral Resource classified as measured.

Section 4: Estimation and Reporting of Ore Reserves

Criteria	JORC Code Explanation	Commentary
	Whether the result appropriately reflects the Competent Person's view of the deposit.	Cost assumptions and inputs factors applied to the underground project were derived from a combination of historical site data, current operational data relating to Carouse Dam Operations, mining costs supplied by independent mining contractors, and recommendations from industry consultants. Results of the detailed design and analysis reflect the views of Competent Person regarding the Whirling Dervish deposit.
	The proportion of Probable Ore Reserves that have been derived from Measured Mineral Resources (if any)	There were no Measured Mineral Resources within the underground mine design that formed the physical extent of the estimated Ore Reserve.
Audits or reviews	*The results of any audits or reviews of Ore Reserve estimates*	There have been no external reviews of this Ore reserve estimate.
Discussion of relative accuracy/confidence	*Where appropriate a statement of the relative accuracy and confidence level in the Ore Reserve estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geo-statistical procedures to quantify the relative accuracy of the reserve within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors which could affect the relative accuracy and confidence of the estimate.* *The statement should specify whether it relates to global or local estimates, and if local, state the relevant tonnages which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the procedures used.* *Accuracy and confidence discussions should extend to specific discussions of any applied modifying factors that may have a material impact on Ore Reserve viability, or for which there are remaining areas of uncertainty at the current study stage.* *It is recognised that this may not be possible or appropriate in all circumstances. These statements or relative accuracy and confidence of the estimate should be compared with production data, where available.*	The Ore Reserve estimate has been prepared within the guidelines of the 2012 JORC Code. The relative confidence of the estimate complies with the criteria of Probable Ore Reserves. Based upon; significant operating history, application of current industry practices, appropriate operating and capital costs, The range of the modifying factors is reasonable and confidence in the resulting reserve estimate is reasonable. Estimates are global but will be reasonably accurate on a local scale. The complete mine design with all of the modifying factors assumed and adopted, and financial analysis used in the estimated Ore Reserve have been the subject to peer review internally, and the Competent Person is confident that it is an accurate estimation of the current Whirling Dervish reserve. Reconciliation results from past mining at Whirling Dervish and suitable factors from currently active underground operations at CDO have been considered and factored into the reserve assumptions where appropriate.

Karari

Section 1: Sampling Techniques and Data		
Criteria	**JORC Code Explanation**	**Commentary**
Sampling Techniques	*Nature and quality of sampling (e.g. cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc.). These examples should not be taken as limiting the broad meaning of sampling.*	Sampling methods undertaken by Saracen at Karari have included reverse circulation drillholes (RC), diamond drillholes (DD) and RC grade control drilling within the pit, and diamond drilling and face chip sampling underground. Historic sampling methods conducted since 1991 have included aircore (AC), rotary air blast (RAB), reverse circulation and diamond drillholes.
	Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used	Sampling for diamond and RC drilling and face chip sampling is carried out as specified within Saracen sampling and QAQC procedures as per industry standard. RC chips and diamond core provide high quality representative samples for analysis. RC, RAB, AC and DD core drilling was completed by previous holders to industry standard at that time (1991- 2004).
	Aspects of the determination of mineralisation that are Material to the Public Report. In cases where 'industry standard' work has been done this would be relatively simple (e.g. 'reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30 g charge for fire assay'). In other cases more explanation may be required, such as where there is coarse gold that has inherent sampling problems. *Unusual commodities or mineralisation types (e.g. submarine nodules) may warrant disclosure of detailed information*	RC chips are cone or riffle split and sampled into 1m intervals, diamond core is NQ or HQ sized, sampled to 1m intervals or geological boundaries where necessary and cut into half core and underground faces are chip sampled to geological boundaries (0.2-1m). All methods are used to produce representative sample of less than 3 kg. Samples are selected to weigh less than 3 kg to ensure total sample inclusion at the pulverisation stage. Saracen core and chip samples are crushed, dried and pulverised to a nominal 90% passing 75µm to produce a 40g or 50 g sub sample for analysis by FA/AAS. Some grade control RC chips were analysed in the Saracen on site laboratory using a PAL (pulverise and leach) method. Visible gold is sometimes encountered in underground drillcore and face samples. Historical AC, RAB, RC and diamond sampling was carried out to industry standard at that time. Analysis methods include fire assay and unspecified methods.
Drilling Techniques	*Drill type (e.g. core, reverse 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.).*	The deposit was initially sampled by 11 AC holes, 452 RAB holes, 496 RC holes (assumed standard 5 ¼ ''bit size) and 25 surface unknown diameter diamond core holes. In the recent program 16 RC holes were drilled using a 143mm diameter bit with a face sampling hammer. The rig was equipped with an external auxiliary booster. Saracen has previously completed 6 surface RC precollars with HQ and NQ diamond tail drill holes (precollars averaging 198m, diamond tails averaging 190m) , 43 RC holes from both surface and within the pit and 3052 grade control RC holes within the pit. 215 NQ diamond holes have been drilled underground. 201 underground faces and walls have been chip sampled. Diamond tails were oriented using an Ezi-mark tool. Some historic surface diamond drill core appears to have been oriented by unknown methods.
Drill Sample Recovery	*Method of recording and assessing core and chip sample recoveries and results assessed*	RC sampling recoveries are recorded in the database as a percentage based on a visual weight estimate; no historic recoveries have been recorded. Diamond core recovery percentages calculated from measured core versus drilled intervals are logged and recorded in the database. Recoveries average >90%.
	Measures taken to maximise sample recovery and ensure representative nature of the samples	RC drilling daily rig inspections are carried out to check splitter condition, general site and address general issues. Diamond core is reconstructed into continuous runs on an angle iron cradle for orientation marking.

Section 1: Sampling Techniques and Data		
Criteria	**JORC Code Explanation**	**Commentary**
		Depths are checked against depth given on the core blocks. UG faces are sampled from left to right across the face at the same height from the floor. During GC campaigns the sample bags weight versus bulk reject weight are compared to ensure adequate and even sample recovery. Historical AC, RAB, RC and diamond drilling to industry standard at that time.
	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.	There is no known relationship between sample recovery and grade for RC drilling. Diamond drilling has high recoveries due to the competent nature of the ground meaning loss of material is minimal. Any historical relationship is not known.
Logging	*Whether core and chip samples have been geologically and geotechnically logged to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies.* *Whether logging is qualitative or quantitative in nature.* *Core (or costean, channel, etc) photography.*	Logging of RC chips and diamond drill core records lithology, mineralogy, texture, mineralisation, weathering, alteration and veining. Geotechnical and structural logging is carried out on all diamond holes to record recovery, RQD, defect number, type, fill material, shape and roughness and alpha and beta angles. All faces are photographed and mapped. Chips from all RC holes (exploration and GC) are stored in chip trays for future reference while remaining core is stored in core trays and archived on site. Core is photographed in both dry and wet state. Qualitative and quantitative logging of historic data varies in its completeness.
	The total length and percentage of the relevant intersections logged	All RC and diamond drillholes holes are logged in full and all faces are mapped. Every second drill line is logged in grade control programs with infill logging carried out as deemed necessary. Historical logging is approximately 95% complete.
Sub-sampling techniques and sample preparation	*If core, whether cut or sawn and whether quarter, half or all core taken.*	All drill core is cut in half onsite using an automatic core saw. Samples are always collected from the same side.
	If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry.	All exploration and grade control RC samples are cone or riffle split. Occasional wet samples are encountered. Underground faces are chip sampled using a hammer. AC, RAB and RC drilling has been sampled using riffle and unknown methods.
	For all sample types, the nature, quality and appropriateness of the sample preparation technique.	The sample preparation of diamond core and RC and underground face chips adhere to industry best practice. It is conducted by a commercial laboratory and involves oven drying, coarse crushing then total grinding to a size of 90% passing 75 microns. Best practice is assumed at the time of historic sampling.
	Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.	All subsampling activities are carried out by commercial laboratory and are considered to be satisfactory. Sampling by previous holders assumed to be industry standard at the time.
	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.	RC field duplicate samples are carried out at a rate of 1:20 and are sampled directly from the on-board splitter on the rig. These are submitted for the same assay process as the original samples and the laboratory are unaware of such submissions. No duplicates have been taken of underground core or face samples. Sampling by previous holders assumed to be industry standard at the time.
	Whether sample sizes are appropriate to the grain size of the material being sampled.	Sample sizes of 3kg are considered to be appropriate given the grain size (90% passing 75 microns) of the material sampled.
Quality of assay data	*The nature, quality and appropriateness of the*	RC chip samples, grade control chip samples, underground face chip samples and diamond core are

Section 1: Sampling Techniques and Data

Criteria	JORC Code Explanation	Commentary
and laboratory tests	*assaying and laboratory procedures used and whether the technique is considered partial or total.*	analysed by external laboratories using a 40g or 50g fire assay with AAS finish. These methods are considered suitable for determining gold concentrations in rock and are total digest methods. Some GC samples were analysed in the Saracen onsite laboratory using pulverise and leach method. This method is a partial digest. Historic sampling includes fire assay and unknown methods.
	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 geophysical tools have been utilised for reporting gold mineralisation.
	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.	Certified reference material (standards and blanks) with a wide range of values are inserted into every drillhole at a rate of 1:25 for exploration RC and DD, and 1:40 for GC drilling. These are not identifiable to the laboratory. QAQC data returned are checked against pass/fail limits with the SQL database and are passed or failed on import. A report is generated and reviewed by the geologist as necessary upon failure to determine further action. QAQC data is reported monthly. Sample preparation checks for fineness are carried out to ensure a grindsize of 90% passing 75 microns. The laboratory performs a number of internal processes including standards, blanks, repeats and checks. QAQC data analysis demonstrates sufficient accuracy and precision. Industry best practice is assumed for previous holders.
Verification of sampling and assaying	*The verification of significant intersections by either independent or alternative company personnel.*	Significant intercepts are verified by the Geology Manager and corporate personnel.
	The use of twinned holes.	No specific twinned holes have been drilled at Karari but grade control drilling and underground diamond drilling has confirmed the width and grade of previous exploration drilling.
	Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols	Primary data is collated in a set of excel templates utilising lookup codes. This data is forwarded to the Database Administrator for entry into a secure acQuire database with inbuilt validation functions. Data from previous owners was taken from a database compilation and validated as much as practicable before entry into the Saracen acQuire database.
	Discuss any adjustment to assay data.	No adjustments have been made to assay data. First gold assay is utilised for resource estimation.
Location of data points	*Accuracy and quality of surveys used to locate drillholes (collar and down-hole surveys), trenches, mine workings and other locations used in Mineral Resource estimation.*	Exploration drillholes are located using a Leica 1200 GPS with an accuracy of +/- 10mm. Drillhole collars within the pit and immediate surrounds are picked up by company surveyors using a Trimble R8 GNSS (GPS) with an expected accuracy of +/-8mm. All undergournd drillhole collars are picked up by company surveyors using a Leica TS15i (total station) with an expected accuracy of +/-2mm. Underground faces are located using a Leica D5 disto with and accuracy of +/- 1mm from a known survey point. Underground downhole surveys are carried out using a Reflex single shot camera at regular intervals (usually 30m) down the hole. A multishot survey is carried out every 3m upon completion of the drillhole. Surveys are carried out every 30m downhole during RC and surface diamond drilling using an Eastman single shot camera

Section 1: Sampling Techniques and Data

Criteria	JORC Code Explanation	Commentary
		A number of drillholes have also been gyroscopically surveyed. Previous holders' survey accuracy and quality is unknown
	Specification of the grid system used.	A local grid system (Karari) is used. The two point conversion to MGA_GDA94 zone 51 is KAREast KARNorth RL MGAEast MGANorth RL Point 1 4000 8000 0 439359.94 6663787.79 0 Point 2 3000 7400 0 438359.84 6663187.72 0 Historic data is converted to the Karari local grid upon export from the database.
	Quality and adequacy of topographic control.	Topographic control originally used site based survey pickups in addition to Kevron aerial photogrammetric surveys with +/- 5m resolution. Pre mining, new and more detailed topography has since been captured and will be used in future updates and for subsequent planning purposes.
Data spacing and distribution	*Data spacing for reporting of Exploration Results.*	The nominal spacing for drilling is 25m x 25m. The recent drilling has been completed on 40m spaced lines
	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.	Data spacing and distribution are sufficient to establish the degree of geological and grade continuity appropriate for JORC classifications applied.
Orientation of data in relation to geological structure	*Whether sample compositing has been applied.*	Sample compositing is not applied until the estimation stage. Some historic RAB and RC sampling was composited into 3-4m samples with areas of interest re-sampled to 1m intervals. It is unknown at what threshold this occurred.
	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 drillholes are positioned to achieve optimum intersection angles to the ore zone as are practicable. Underground diamond drilling is designed to intersect the orebody in the best possible orientation given the constraints of underground drill locations. UG faces are sampled left to right across the face allowing a representative sample to be taken.
	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.	No significant sampling bias has been recognised due to orientation of drilling in regards to mineralised structures.
Sample security	*The measures taken to ensure sample security.*	Samples are prepared on site under supervision of Saracen geological staff. Samples are selected, bagged into tied numbered calico bags then grouped into secured cages and collected by the laboratory personnel. Sample submissions are documented via laboratory tracking systems and assays are returned via email
Audits or reviews	*The results of any audits or reviews of sampling techniques and data.*	An internal review of companywide sampling methodologies was conducted to create the current sampling and QAQC procedures. No external audits or reviews have been conducted.

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 Karari pit is located on M28/166 and M28/167 Mining Leases M28/166 and M28/167 are held 100% by Saracen Gold Mines Pty Ltd a wholly owned subsidiary of Saracen Mineral Holdings Limited. Mining Leases M28/166 and M28/167 have a 21 year life (held until 2020) and are renewable for a further 21 years on a continuing basis. There are no registered Aboriginal Heritage sites within Mining Leases M28/166 and M28/167. Mining Leases M28/166 and M28/167 are subject to two third party royalties payable on the tenements, a bank mortgage (Mortgage 41595) and two caveats (Caveat 51H/067 and 52H/067, respectively). All production is subject to a Western Australian state government NSR royalty of 2.5%. The tenements are subject to the Pinjin Pastoral Compensation Agreement.
	The security of the tenure held at the time of reporting along with any known impediments to obtaining a licence to operate in the area.	The tenements are in good standing and the licence to operate already exists
Exploration done by other parties	*Acknowledgment and appraisal of exploration by other parties.*	The Carosue Dam project area in which the Karari deposit is located has been subjected to extensive gold exploration by numerous companies since 1991. Karari was highlighted as an area of interest following an aeromagnetic survey conducted by CRA Exploration. Auger sampling of the target defined a widespread gold anomaly with follow up RAB drilling intersecting significant gold mineralisation. RC and DD drilling further defined the mineralisation before Aberfoyle entered into a joint venture agreement with CRA. Further drilling by Aberfoyle defined mineralisation over a 600m strike length. Aberfoyle were subject to a hostile takeover by Western Metals with PacMin then purchasing the Carosue Dam project. An intensive resource definition program consisting of both RC and DD drilling was carried out before mining of Karari commenced in 2000.
Geology	*Deposit type, geological setting and style of mineralisation.*	The Karari deposit sits along the regional NNW-trending Keith-Kilkenny fault zone within the eastern edge of the Norseman-Wiluna greenstone belt. The deposit itself is lithologically and structurally controlled and sits within an altered volcaniclastic sandstone unit that has been offset along a series of major faults running NE-SW and NW-SE, as well as intruded by large lamprophyre units post mineralization. Mineralization is dominated by pyrite and hosted in broad hematite altered sandstone units with a central high grade siliceous core light-moderately dipping to the North.
Drillhole 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*	All material data is periodically released on the ASX: 03/07/2015, 25/05/2015, 05/05/2015, 11/03/2015, 16/01/2014, 14/10/2013, 25/01/2013, 28/07/2011, 03/06/2011, 21/04/2011, 09/02/2011, 03/11/2008

Section 2: Reporting of Exploration Results

Criteria	JORC Code Explanation	Commentary
	exclusion does not detract from the understanding of the report, the Competent Person should clearly explain why this is the case.	
Data aggregation methods	*In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (e.g. cutting of high grades) and cut-off grades are usually Material and should be stated.*	All underground diamond drillhole significant intercepts have been length weighted with a minimum Au grade of 1ppm. No high grade cut off has been applied.
	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.	Intercepts are aggregated with minimum width of 1m and maximum width of 3m for internal dilution. Where stand out higher grade zone exist with in the broader mineralised zone, the higher grade interval is reported also.
	The assumptions used for any reporting of metal equivalent values should be clearly stated.	There are no metal equivalents reported in this release.
Relationship between mineralisation widths and intercept lengths	*These relationships are particularly important in the reporting of Exploration Results.* *If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.* *If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (eg 'down hole length, true width not known').*	Previous announcements included sufficient detail to clearly illustrate the geometry of the mineralisation and the recent drilling. All results are reported as downhole lengths.
Diagrams	*Appropriate maps and sections (with scales) and tabulations of intercepts should be included for any significant discovery being reported These should include, but not be limited to a plan view of drill hole collar locations and appropriate sectional views.*	No Diagrams are referenced in this release.
Balanced Reporting	*Where comprehensive reporting of all Exploration Results are not practicable, representative reporting of both low and high grades and/or widths should be practiced to avoid misleading reporting of Exploration Results.*	All results from previous campaigns have been reported, irrespective of success or not.
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*	No substantive data acquisition has been completed in recent times.

Section 2: Reporting of Exploration Results		
Criteria	**JORC Code Explanation**	**Commentary**
	density, groundwater, geotechnical and rock characteristics; potential deleterious or contaminating substances.	
Further work	*The nature and scale of planned further work (eg tests for lateral extensions or depth extensions or large-scale step-out drilling).* *Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive*	Further infill drilling may be carried out inside the reserve pit design to improve confidence. The drilling is getting to the depth where exploration is expensive and the approach needs to be carefully considered.

Section 3: Estimation and Reporting of Mineral Resources		
Criteria	**JORC Code Explanation**	**Commentary**
Database Integrity	*Measures taken to ensure that data has not been corrupted by, for example, transcription or keying errors, between its initial collection and its use for Mineral Resource estimation purposes.*	Saracen utilises AcQuire software on an SQL server database to securely store and manage all drillhole and sample information. Data integrity protocols are built into the system to ensure data validity and minimise errors are built into the data entry and import processes.
	Data validation procedures used.	Data that is captured in the field is entered into Excel templates which are checked on import into the database for errors. Assay jobs are dispatched electronically to the lab to minimise the chance of data entry errors. Assay results from the lab are received in CSV format and are checked for errors on import into the database. Data is regularly validated using the mining software. The data validation process is overseen by the Database Administrator.
Site Visits	*Comment on any site visits undertaken by the Competent Person and the outcome of those visits.*	The Competent Person regularly visits site (monthly and more so when the geological work is more complex and demanding) to assess geological competency and ensure integrity across all geological disciplines.
	If no site visits have been undertaken indicate why this is the case.	
Geological Interpretation	*Confidence in (or conversely, the uncertainty of) the geological interpretation of the mineral deposit.*	The resource categories assigned to the model directly reflect the confidence in the geological interpretation that is built using local, structural, mineral, and alteration geology obtained from mapping, logging, drill results and geophysics. Confidence in the interpretation improved with increased data density from close-spaced resource definition drilling, grade control drilling at 8m X 6m and in pit and underground mapping.
	Nature of the data used and any assumptions made.	The geological interpretation of Karari has considered all available geological information including local geology, structural deformation events, and its relationship to neighbouring mineralised deposits. Rock types, mineral, alteration and veining assemblages from diamond drill core and RC Chips were all used to help define the mineralised domains and regolith boundaries. Interpreted shears and faults obtained from in pit and underground mapping further constrained the domaining.
	The affect, if any, of alternative interpretations on Mineral Resource estimation.	The geological wireframes defining the mineralised zones are considered to be robust as they give a realistic representation of the mineralised structures. Alternative interpretations that were trialled earlier do not affect the current Mineral Resource Estimation.

Section 3: Estimation and Reporting of Mineral Resources

Criteria	JORC Code Explanation	Commentary
	The use of geology in guiding and controlling the Mineral Resource estimation.	A combination of a hard and soft boundary approach was used during the Mineral Resource Estimation. They are constructed using all available geological information (as stated above) and terminate along known structures. Mineralisation styles, geological homogeneity, and grade distributions for each domain (used to highlight any potential for bimodal populations) are all assessed to ensure effective estimation of the domains. The geological domains were also used as estimation domains.
	The factors affecting continuity both of grade and geology.	Cross cutting structures (NE - SW trending) grouped with flatter westerly dipping structures and intrusive rock types largely affect mineralisation continuity both along strike and down dip. Grade continuity is related intense haematite, silica and sericite alteration and quartz breccia zones adjacent to shears and intrusive contacts.
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.*	Mineralisation at Karari has continuity over 900m along strike, 400m down dip and 250m across strike. High grade mineralisation is controlled by 60° East dipping shear zones. Mineralisation is hosted within extensive quartz vein breccia zones adjacent to the shears. The high grade mineralisation is associated with intense haematite, silica and sericite alteration that occurs predominantly where flatter cross-linking structures intersect with the steeper dipping shears.
Estimation and modelling techniques	*The nature and appropriateness of the estimation technique(s) applied and key assumptions, including treatment of extreme grade values, domaining, interpolation parameters and maximum distance of extrapolation from data points.*	The mineralised ore domains were wireframed based on geological homogeneity, grade populations, mineralisation styles and orientation of grade continuity. The domain wireframes were used as hard boundaries during the estimation process. An unfolding process was carried out prior to variography and interpolation to remove the variable dip and strike typically associated with some of the mineralised domains. However in some the domains there subdomains were created using the categorical indicator approach in order to segregate the high and low grade populations. The high grade subdomains were estimated using a soft boundary while the low grade subdomains were estimated using a hard boundary. RAB, Aircore and grab samples were excluded from the estimation process due to the unreliability of the sample types. Grade control drilling within the previous pit stage was also excluded from the estimation process to remove bias of the 8m x 6m spaced drilling. Negative gold grades were replaced with a grade of 0.001 g/t and null gold grades were excluded from the estimation process. Drillhole assays were composited to 1m intervals with a minimum length of 0.3m that best conformed to the sample length of the majority of the RC data. High grades within each domain were identified and top cuts were applied where necessary. Variograms were produced to determine the directional influence of each sample during the estimation process. The Mineral Resource Estimate was interpolated using Ordinary Kriging in Micromine 2014.
	The availability of check estimates, previous estimates and/or mine production records and whether the Mineral Resource estimate takes appropriate account of such data.	The Mineral Resource Estimation is checked against the previous block model estimations and reconciled production numbers.
	The assumptions made regarding recovery of by-products.	No assumptions have been made regarding the recovery of by-products for this Mineral Resource Estimation.
	Estimation of deleterious elements or other non-grade variables of economic significance (e.g. sulfur for acid mine drainage characterisation).	No estimation of deleterious elements or non-grade variables is required
	In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed.	The model has been created using a parent cell size of 2.5m (East- West) x 10m (North-South) x 5m (vertical) which was optimised using kriging neighbourhood analysis and chosen as the Parent cell size. Subcells have been used to a resolution of 1m x 2m x1m to ensure high resolution at ore boundaries. The search distances are at 1.5x drill spacing but are also adjusted according to the directional ranges

Section 3: Estimation and Reporting of Mineral Resources

Criteria	JORC Code Explanation	Commentary
		calculated from the variograms, and the geological understanding of Au and geometry continuity for each domain. Search ellipsoids are set from 10m X 15m X 5m to 75m X 130m X 24m and are extended in later search passes with a decreased number of minimum samples.
	Any assumptions behind modelling of selective mining units.	No assumptions have been made regarding the modelling of selective mining units for this Mineral Resource Estimation.
	Any assumptions about correlation between variables.	No assumptions have been made regarding the correlation between variables for this Mineral Resource Estimation.
	Description of how the geological interpretation was used to control the resource estimates.	Mineralised domains were wireframed within the context of the known local and structural geology was supported by the geological mapping within the pit and the geology logging of drillholes. Correlations between rock type, texture, alteration, and gold mineralisation were investigated.
	Discussion of basis for using or not using grade cutting or capping.	Samples with extreme high grades that bias the mean grade and positively skew the grade population within each mineralised domains are top cut to reduce the influence high grade outliers. Log probability plots and the coefficient of variation statistic were used to determine top-cuts.
	The process of validation, the checking process used, the comparison of model data to drill hole data, and use of reconciliation data if available.	A number of statistical and visual measures are used to validate the accuracy of the estimation. The mean grade of the block model is compared to the mean grade of composites by domain. These are then further investigated by appropriate northing, easting and bench intervals in the form of swathe plots. The volume variance between the wireframe domains and block model domains are assessed. Kriging efficiency, and slope results give an indication of the quality of the estimate. A visual inspection of the drillhole assay results are compared to the estimated block model in section.
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.
Cut-off parameters	*The basis of the adopted cut-off grade(s) or quality parameters applied.*	The adopted cut-off grades for Mineral Resource Estimation reporting are determined by the current mining cut-off grades.
Mining factors or assumptions	*Assumptions made regarding possible mining methods, minimum mining dimensions and internal (or, if applicable, external) mining dilution. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential mining methods, but the assumptions made regarding mining methods and parameters when estimating Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the mining assumptions made.*	It is assumed that planned dilution is factored into the process at the stage of ore block design. Unplanned dilution incorporates Mining Dilution capped at 10%, and Mining Recovery at 99.5%. It is assumed that any further open pit operations at Karari will utilise 120t and 160t hydraulic excavators mining 10m benches on 2.5m flitches.
Metallurgical factors or assumptions	*The basis for assumptions or predictions regarding metallurgical amenability. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential metallurgical methods, but the assumptions regarding metallurgical treatment*	The prediction of the metallurgical performance of the Karari deposit is based on the geological foundation consisting of a free milling ore body contained within metamorphosed volcaniclastic sediments. Metallurgical testwork carried out by independent consultancies has indicated that there is moderate to high gravity recovery, with total cyanide soluble recoveries reporting 93-97%. Historical performance at the Carosue Dam processing plant has evaluated the gold contained within the ore body to be approximately 92% recoverable.

Section 3: Estimation and Reporting of Mineral Resources

Criteria	JORC Code Explanation	Commentary
	process and parameters made when reporting Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the metallurgical assumptions made.	
Environmental factors or assumptions	*Assumptions made regarding possible waste and process residue disposal options. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider the potential environmental impacts of the mining and processing operation. While at this stage the determination of potential environmental impacts, particularly for a greenfields project, may not always be well advanced, the status of early consideration of these potential environmental impacts should be reported. Where these aspects have not been considered this should be reported with an explanation of the environmental assumptions made.*	Waste rock characterisation has been conducted on the deposit with no environmental issues identified except dispersive oxidised material and waste dump construction plan in place to manage. Tailings from the deposit are stored in an appropriate licensed tailings facility and closure plan in place.
Bulk Density	*Whether assumed or determined. If assumed, the basis for the assumptions. If determined, the method used, whether wet or dry, the frequency of the measurements, the nature, size and representativeness of the samples.*	The bulk densities for Karari were determined via testing of representative intervals from diamond drillholes, regular sampling via grab samples from the pit development. The sample size is generally between 0.5 and 1.5kg and the method of calculation is the water displacement technique. Measurements have been recorded in the acquire database and extraction schemes pair this data with the major lithology code for statistical analysis.
	The bulk density for bulk material must have been measured by methods that adequately account for void spaces (vugs, porosity, etc), moisture and differences between rock and alteration zones within the deposit.	Ore zones predominantly exist in transitional to fresh non porous material, so additional measures to reduce moisture intake during the water displacement method is unnecessary at this stage. Coating more friable oxides and sediments (to reduce moisture loss or moisture gain during the process) is considered on a deposit by deposit basis.
	Discuss assumptions for bulk density estimates used in the evaluation process of the different materials.	An average mean of densities collected for each lithological type has been uniformly applied to the modelled geological units. This includes the primary fresh lithologies as well as the weathered oxide and transitional zones.
Classification	*The basis for the classification of the Mineral Resources into varying confidence categories.*	Resource classifications were defined by a combination of data; drill hole spacing, estimation quality (search pass, Kriging Effeciency and Slope results), geological confidence and Au continuity of domains. Based on these factors hard boundaries were wireframed for measured, indicated and inferred material. Measured material exhibits high confidence defined by grade control drilling, with estimates in the first search and KE and Slope results >80%. Indicated material is defined by close spaced drilling, having good geological continuity along strike and down dip and in such is reflected with good KE and Slope results. Inferred classification is given to the estimate outside the mineable area with more sparse drill intercepts (>25m X 25m) and having poorer estimation quality.

Section 3: Estimation and Reporting of Mineral Resources

Criteria	JORC Code Explanation	Commentary
	Whether appropriate account has been taken of all the relevant factors (ie relative confidence in tonnage/grade estimations, reliability of input data, confidence in continuity of geology and metal values, quality, quantity and distribution of the data).	All relevant factors have been taken into account and are validated through thorough QAQC of the drill hole database and geological knowledge and interpretation of the Karari deposit. Thorough model validations and reviews ensure the integrity of the final estimation and the grade and tonnage numbers.
	Whether the result appropriately reflects the Competent Person's view of the deposit.	The geological model and the mineral resource estimate reflect the competent person's view of the deposit.
Audits or reviews	*The results of any audits or reviews of Mineral Resource estimates.*	Saracen has adopted a process for geological modelling, estimation and reporting of mineral resources that meets high industry standards. At the completion of resource estimation Saracen Metals undertake an extensive review of the model that covers; Model inventory and comparisons to previous and budget models if in existence Geological interpretation, wireframing, domain selection, statisitics by domain, assay and metal evaluation, parent cell sizes, data compositing, variography, search strategy, estimation and KNA Model validation – swathe plots, visual checks, volume comparisons, composite to model metal comparisons. In the final stages the model and resource categorisation are all discussed and scrutinized by the geological and mine planning teams.
Discussion of relative accuracy/confidence	*Where appropriate a statement of the relative accuracy and confidence level in the Mineral Resource estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the resource within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors that could affect the relative accuracy and confidence of the estimate.*	The Mineral Resource has been reported in accordance with the guidelines of the 2012 edition of the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves. Saracen Gold Mine uses a standard approach to resource estimation and the procedure requires the systematic completion of the Saracen Resource Estimation Document that is thoroughly investigated and assessed in the Model review process, as stated above. It was identified that further work on QKNA for block size and search ellipses would help to further improve the optimisation of the block model.
	The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonnages, which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the procedures used.	The statement relates to global estimates.
	These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.	Previous Mineral Resource estimates have had a positive reconciliation against mill figures.

Section 4: Estimation and Reporting of Ore Reserves

Criteria	**JORC Code Explanation**	**Commentary**
Mineral Resource estimate for conversion to Ore Reserves	*Description of the Mineral resource Estimate used as a basis for the conversion to an Ore Reserve.*	The Mineral Resource estimate for the Karari gold deposit used as a basis for conversion to the Ore Reserve estimate was compiled by Saracen. The data included drilling and assay data, geological mapping and historical mining records to validate the model against and solid interpretation wireframes of the geology. This information was used to construct a model estimated by ordinary kriging. The model was depleted with the final pit survey completed in August 2013.
	Clear statement as to whether the Mineral Resources are reported additional to. Or inclusive of, the Ore Reserves.	The Mineral Resource reported is inclusive of the Ore Reserve.
Site Visits	*Comment on any site visits undertaken by the Competent Person and the outcome of those visits.*	The competent person is based at the Carosue Dam Operations mine site, where the Karari deposit is located, on a regular commute roster. Consultant geotechnical engineers have visited Carosue Dam to gather data through inspections of both the open pit and underground and logging of drill core, used in the preparation of geotechnical reports to define parameters for underground mining. Hydrogeology consultants have visited Carosue Dam to gather data and inspect the inflow of groundwater into the open pit, used in the preparation of reports used to determine water management strategies.
	If no site visits have been undertaken indicate why this is the case.	N/A
Study status	*The type and level of study undertaken to enable Mineral Resources to be converted to Ore Reserves*	The Karari deposit has been mined by Sons of Gwalia and Saracen as an open pit, and recently Saracen commenced the underground operation in November 2014. Ore from Karari continues to be treated at the Carosue Dam processing facility. Karari is an active underground operation with a detailed mine design and an economic analysis, to define the ore reserve.
	The Code requires that a study to at least Pre-Feasibility Study level has been undertaken to convert Mineral Resources to Ore Reserves. Such studies will have been carried out and will have determined a mine plan that is technically achievable and economically viable, and that material Modifying Factors have been considered.	Modifying factors have been applied to the mine design, as well as a financial analysis completed, both of these have been the subject to peer review.
Cut-off parameters	*The basis of the cut-off grade(s) or quality parameters applied*	For the purpose of Ore Reserve Estimate a cut-off grade of 1.8g/t was calculated based upon an assumed gold price of AUD$1500/Oz and applicable processing, haulage and administration costs. A top cut has already been applied to the Mineral Resource Estimate eliminating the necessity for any further adjustment to the Ore Reserve estimate.
Mining factors or assumptions	*The method and assumptions used as reported in the Pre-feasibility or Feasibility Study to convert the Mineral Resource to an Ore Reserve (i.e. either by*	The Karari underground ore reserve has been estimated using detailed mine development and stope designs. Modifying factors for dilution and recovery have been applied to the economic analysis of the

Section 4: Estimation and Reporting of Ore Reserves

Criteria	JORC Code Explanation	Commentary
	application of appropriate factors by optimisation or by preliminary or detailed design).	design to generate the ore reserve.
	The choice, nature and appropriateness of the selected mining method(s) and other mining parameters including associated design issues such as pre-strip, access, etc.	Underground mechanised mining for development, ground support, and open stoping have been selected for Karari. Mining and geotechnical studies have determined open stoping with remnant pillars is appropriate for the deposit. Similar methods are currently utilised at the Red October and Karari underground mines at Carosue Dam Operations.
	The assumptions made regarding geotechnical parameters (e.g. pit slopes, stope sizes, etc.), grade control, and pre-production drilling.	Assumptions are based upon actual mining conditions. A review of the previous analysis and assessment of the designed stopes was performed by Peter Andrews (geotechnical consultant – Andrews Rock Mechanics) and found to be acceptable. A grade control program with associated development for drilling platforms, grade control drilling designs, and sampling costs have been include in the mine design, mine schedule and economic analysis.
	The major assumptions made and Mineral Resource model used for pit and stope optimisation (if appropriate).	N/A
	The mining dilution factors used.	An allowance for mining dilution has been incorporated into the mine designs. An additional dilution allowance of 5% has been applied for stoping.
	The mining recovery factors used.	A mining recovery factor of 100% has been assumed for all stopes.
	Any minimum mining widths used	A minimum stope width of 3m was applied in the design process.
	The manner in which inferred Mineral resources are utilised in mining studies and the sensitivity of the outcome to their inclusion.	A minor amount (<4% of ounces) of inferred resources are contained within underground mine design. An average grade of 0.8g/t has been assigned to all inferred resources within the design. Therefore inferred resources contribute <4% metal to the estimated reserve, and hence the reserve has a minor sensitivity to the inclusion of inferred resources.
	The infrastructure requirements of the selected mining methods.	Standard underground infrastructure is currently operational; this includes a decline for access and truck haulage, ventilation fans, escape-way ladders, electrical reticulation, mine services (air and water), and mine dewatering infrastructure. No specialised infrastructure is required to accommodate this method of mining.
Metallurgical factors or assumptions	*The metallurgical process proposed and the appropriateness of that process to the style of mineralisation*	The ore reserve will be treated at the established Carosue Dam processing facility. The Carosue Dam Process Plant is a CIL cyanide leach plant incorporating a gravity circuit which is appropriate for the extraction of gold from free milling gold ores. An average plant processing recovery of 93% has been assumed in the Ore Reserve Estimate which is consistent with historical plant recoveries for Karari ore.
	Whether the metallurgical process is well-tested	The method of ore processing and extraction proposed utilises well tried and proven technology dating

Section 4: Estimation and Reporting of Ore Reserves		
Criteria	**JORC Code Explanation**	**Commentary**
	technology or novel in nature.	back to the 1960's and practiced extensively around the world.
	The nature, amount and representiveness of metallurgical test work undertaken, the nature of the metallurgical domaining applied and the corresponding metallurgical recovery factors applied.	In 2014 a review of the Karari open pit ore processing performance was conducted and metallurgical test work was carried out determine the continuity of processing performance from underground ore. No evidence was found to indicate any changes in the processing performance from underground ore to the historical performance from open pit ore.
	Any assumptions or allowances made for deleterious elements.	No deleterious elements have been identified during the processing of Karari ores since 2010.
	The existence of any bulk sample or pilot scale test work and the degree to which such samples are considered representative of the ore body as a whole.	Ore from the Karari open pit and underground has been treated at the Carosue Dam processing plant since 2010. Current underground ore is considered representative of the ongoing ore expected from underground.
	For minerals that are defined by a specification, has the ore reserve estimation been based on the appropriate mineralogy to meet the specifications.	N/A
Environmental factors or assumptions	*The status of studies of potential environmental impacts of the mining and processing operation. Details of waste rock characterisation and the consideration of potential sites, status of design options considered and, where applicable, the status of approvals for process residue storage and waste dumps should be reported.*	Karari is currently compliant with all legal and regulatory requirements. All approvals (clearing permit, works approval and Mining Proposals) have been granted for ongoing mining and processing at Carosue Dam. The site currently holds and Environmental Protection Act Licence 7465/1999/8 for processing, mine dewatering and power generation. The existing Carosue Dam mine, including the area of Karari underground mine, and the accommodation village all lay on granted mining leases. The following studies have been completed and provided to support for the required statutory approvals: Flora surveys of areas to be cleared, waste rock characterisation studies, surface water studies and tailings storage facility documentation.
Infrastructure	*The existence of appropriate infrastructure: availability of land for plant development, power, water, transportation (particularly for bulk commodities), labour, accommodation; or the ease with which the infrastructure can be provided, or accessed.*	Carosue Dam Operations are well established, with mining activities being conducted by Saracen since 2009. The operation comprises at 2.4mtpa CIL ore processing facility, associated tailings storage facilities, Power station, water supply, workshops, and administration offices. Karari underground mine is located within 500m of the CDO plant. A modern accommodation camp is sited within a few kilometres of the administration offices and processing facility. A 70km gravel access road links Carosue Dam Operations to the gravel section of Yarri Road. Both the Saracen and Shire of Kalgoorlie gravel roads are well maintained.

Section 4: Estimation and Reporting of Ore Reserves

Criteria	JORC Code Explanation	Commentary
		The mine site is ~120km from the sealed section or Yarri Road leading to Kalgoorlie.
Costs	*The derivation of, or assumptions made, regarding projected capital costs in the study.*	Actual mine operating and capital costs used.
	The methodology used to estimate operating costs.	Operating costs for underground mining have been derived from a combination of actual costs from Karari and tendered contract costs supplied by independent mining contractors. Operating costs for ore processing have been derived from known parameters at Carosue Dam, with additional costs such as labour sourced from current operational data.
	Allowances made for the content of deleterious elements	Previous operational experience on the Karari deposit at Carouse Dam did not reveal any deleterious elements within the ore or waste that required any additional cost allowances.
	The derivation of assumptions made of metal or commodity price(s), for the principal minerals and co-products	An assumed gold price of AUD$1,500/oz has been adopted for financial modelling.
	The source of exchange rates used in study	All revenue and cost calculations have been made in AUD, so no exchange rate usage or assumptions have been necessary.
	Derivation of transportation charges	Costs associated with bullion transportation have been derived from existing contractual arrangements at Carouse Dam Operations.
	The basis for forecasting or source of treatment and refining charges, penalties for failure to meet specification, etc.	Costs associated with refining have been derived from existing contractual arrangements at Carouse Dam Operations.
	The allowances made for royalties payable, both Government and private.	Royalty costs are a 2.5% royalty payable to the Western Australian state government, and a 1.5% royalty payable to IRC.
Revenue Factors	*The derivation of, or assumptions made, regarding revenue factors including head grade, metal or commodity price(s) exchange rates, transportation and treatment charges, penalties, net smelter returns, etc.*	N/A
	The derivation of assumptions made of metal or commodity price(s), for the principal metals, minerals and co-products	An assumed gold price of AUD$1,500/oz has been adopted for financial modelling.
Market Assessment	*The demand, supply and stock situation for the particular commodity, consumption trends and factors likely to affect supply and demand into the future.*	There is a transparent quoted market for the sale of gold.
	A customer and competitor analysis along with the identification of likely market windows for the product.	There is a transparent quoted market for the sale of gold.

Section 4: Estimation and Reporting of Ore Reserves

Criteria	JORC Code Explanation	Commentary
	Price and volume forecasts and the basis for these forecasts.	There is a transparent quoted market for the sale of gold.
	For industrial minerals the customer specification, testing and acceptance requirements prior to a supply contract.	N/A
Economic	*The inputs to the economic analysis to produce the net present value (NPV) in the study, the source and confidence of these economic inputs including estimated inflation, discount rate, etc.*	All costs assumptions are made based on a combination of historical performance at Carosue Dam and Karari mine. The economic analysis is viewed as representative of the current market conditions.
	NPV ranges and sensitivity to variations in the significant assumptions and inputs.	Sensitivities were not assessed
Social	*The status of agreements with key stakeholders and matters leading to social licence to operate*	Carosue Dam is currently operating and has good relationships with neighbouring stakeholders, including engagement with the local pastoralists and the traditional owners. The mine is located on leasehold pastoral land with compensation agreements in place with the local pastoralist. Granted mining leases cover all of the proposed mining and processing assets and there are no Native title claims pending.
Other	*To the extent relevant, the impact of the following on the project and/or on the estimation and classification of the Ore Reserves:*	
	Any identified material naturally occurring risks	Water inrush is the only naturally occurring risk identified. Inrush from regional surface water flows has been addressed by the construction of appropriate water diversion bunds as part of previous open pit mining operations. A containment pond and dewatering infrastructure has provided for in the mine design and capital costs to mitigate water inrush from rainfall captured within the existing open pit.
	The status of material legal agreements and marketing arrangements	Contracts are in place for all critical goods and services to operate Carosue Dam Operations. A mining contract will be tendered for Karari underground prior to the commencement of mining.
	The status of governmental agreements and approvals critical to the viability of the project, such as mineral tenement status, and government and statutory approvals. There must be reasonable grounds to expect that all necessary government approvals will be received within the timeframes anticipated in the Pre-Feasibility or Feasibility study. Highlight and discuss the materiality of any unresolved matter that is dependent on a third party on which extraction of the reserve is contingent.	Carosue Dam Operations is in production with all required government statutory permits and approvals in place for the three operating mines and processing plant. The required statutory approvals for Karari have been granted.
Classification	*The basis for the classification of the Ore Reserve into varying confidence categories*	The Ore Reserve Estimate classification for Karari underground has been in accordance with the JORC code 2012. The estimated Ore Reserve is classified as being Probable with the majority of the reserve

Section 4: Estimation and Reporting of Ore Reserves		
Criteria	**JORC Code Explanation**	**Commentary**
		being derived from that portion of the Mineral Resource classified as indicated. Minor volumes (<4% ounces) of the underground ore is designed in Mineral Resource classified as inferred. The average grade of this material is 0.8g/t, therefore inferred resources contribute <4% metal to the estimated reserve. No material in the estimated Ore Reserve is classified as Proven, as no material is derived from that portion of the Mineral Resource classified as measured.
	Whether the result appropriately reflects the Competent Person's view of the deposit.	Cost assumptions and inputs factors applied to the underground project were derived from a combination of historical site data, current operational data relating to Carouse Dam Operations, actual mining costs, and recommendations from industry consultants. Results of the detailed design and analysis reflect the views of Competent Person regarding the Karari deposit.
	The proportion of Probable Ore Reserves that have been derived from Measured Mineral Resources (if any)	There were no Measured Mineral Resources within the underground mine design that formed the physical extent of the estimated Ore Reserve.
Audits or reviews	*The results of any audits or reviews of Ore Reserve estimates*	There have been no external reviews of this Ore reserve estimate.

Section 4: Estimation and Reporting of Ore Reserves		
Criteria	**JORC Code Explanation**	**Commentary**
Discussion of relative accuracy/confidence	*Where appropriate a statement of the relative accuracy and confidence level in the Ore Reserve estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geo-statistical procedures to quantify the relative accuracy of the reserve within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors which could affect the relative accuracy and confidence of the estimate.* *The statement should specify whether it relates to global or local estimates, and if local, state the relevant tonnages which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the procedures used.* *Accuracy and confidence discussions should extend to specific discussions of any applied modifying factors that may have a material impact on Ore Reserve viability, or for which there are remaining areas of uncertainty at the current study stage.* *It is recognised that this may not be possible or appropriate in all circumstances. These statements or relative accuracy and confidence of the estimate should be compared with production data, where available.*	The Ore Reserve estimate has been prepared within the guidelines of the 2012 JORC Code. The relative confidence of the estimate complies with the criteria of Probable Ore Reserves. Based upon the resource model, and current mine and reconciliation performance, the Ore Reserve Estimate is considered reasonable. Estimates are global but will be reasonably accurate on a local scale. The complete mine design with all of the modifying factors assumed and adopted, and financial analysis used in the estimated Ore Reserve have been the subject to peer review internally, and the Competent Person is confident that it is an accurate estimation of the current Karari reserve. Reconciliation results from past and current mining at Karari have been considered and factored into the reserve assumptions where appropriate.

Monty's Dam and North West

Section 1: Sampling Techniques and Data		
Criteria	**JORC Code Explanation**	**Commentary**
Sampling Techniques	*Nature and quality of sampling (e.g. cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc.). These examples should not be taken as*	Sampling methods undertaken by Saracen at Monty's Dam-Elliot's Lode have included reverse circulation drillholes (RC) and one RC-pre-collared diamond drillhole (DD). Historic sampling methods conducted since 1983 have included auger, aircore (AC), rotary air blast (RAB), RC and DD drillholes.

Section 1: Sampling Techniques and Data

Criteria	JORC Code Explanation	Commentary
	limiting the broad meaning of sampling.	
	Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used	Sampling for diamond and RC drilling is carried out as specified within Saracen sampling and QAQC procedures as per industry standard. RC chips and diamond core provide high quality representative samples for analysis. RC, RAB, AC and DD core drilling was completed by previous holders to industry standard at that time (1991-2003).
	Aspects of the determination of mineralisation that are Material to the Public Report. In cases where 'industry standard' work has been done this would be relatively simple (e.g. 'reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30 g charge for fire assay'). In other cases more explanation may be required, such as where there is coarse gold that has inherent sampling problems. *Unusual commodities or mineralisation types (e.g. submarine nodules) may warrant disclosure of detailed information*	RC chips are cone or riffle split and sampled into 1m intervals with total sample weights under 3kg. Diamond core is NQ or HQ sized, sampled to 1m intervals or geological boundaries where necessary and cut into half core to give sample weights under 3 kg. Samples are selected to weigh less than 3 kg to ensure total sample inclusion at the pulverisation stage. Saracen core and chip samples are crushed, dried and pulverised to a nominal 90% passing 75µm to produce a 40g or 50 g sub sample for analysis by FA/AAS. Some grade control RC chips were analysed in the Saracen on site laboratory using a PAL (pulverise and leach) method. Historical AC, RAB, RC and diamond sampling was carried out to industry standard at that time. Analysis methods include fire assay and unspecified methods.
Drilling Techniques	*Drill type (e.g. core, reverse 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.).*	The Monty's Dam-Elliot's Lode deposit was initially sampled by 93 AC holes, 249 RAB holes, 329 RC holes (assumed standard 5 ¼ ''bit size) and 15 surface diamond core holes of unknown diameter. Of the 329 RC holes, Saracen drilled 77 RC holes using a 143mm diameter bit with a face sampling hammer. The rig was equipped with an external auxiliary/ booster. Saracen has completed 1 surface RC precollar with NQ diamond tail drillhole (precollar of about 228.7m and a diamond tail of 81.3m). Diamond tails were oriented using an Ezi-mark tool. Some historic surface diamond drill core appears to have been oriented by unknown methods.
Drill Sample Recovery	*Method of recording and assessing core and chip sample recoveries and results assessed*	RC sampling recoveries are recorded in the database as a percentage based on a visual weight estimate; no historic recoveries have been recorded. Diamond core recovery percentages calculated from measured core versus drilled intervals are logged and recorded in the database. Recoveries average >90%.
	Measures taken to maximise sample recovery and ensure representative nature of the samples	During RC drilling daily rig inspections are carried out to check splitter condition, general site and address general issues. Diamond core is reconstructed into continuous runs on an angle iron cradle for orientation marking. Depths are checked against depth given on the core blocks. During GC campaigns the sample bags weight versus bulk reject weight are compared to ensure adequate and even sample recovery. Historical AC, RAB, RC and diamond drilling to industry standard at that time.
	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.	There is no known relationship between sample recovery and grade for RC drilling. Diamond drilling has high recoveries meaning loss of material is minimal. Any historical relationship is not known.
Logging	*Whether core and chip samples have been geologically and geotechnically logged to a level of*	Logging of RC chips and diamond drill core records lithology, mineralogy, texture, mineralisation, weathering, alteration and veining.

Section 1: Sampling Techniques and Data

Criteria	JORC Code Explanation	Commentary
	detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies. *Whether logging is qualitative or quantitative in nature.* *Core (or costean, channel, etc) photography.*	Geotechnical and structural logging is carried out on all diamond holes to record recovery, RQD, defect number, type, fill material, shape and roughness, and alpha and beta angles. Chips from all RC holes are stored in chip trays for future reference while remaining core is stored in core trays and archived on site. Core is photographed in both dry and wet state. Qualitative and quantitative logging of historic data varies in its completeness.
	The total length and percentage of the relevant intersections logged	All RC and diamond drillholes holes are logged in full. Historical logging is approximately 100% complete.
Sub-sampling techniques and sample preparation	*If core, whether cut or sawn and whether quarter, half or all core taken.*	All drill core is cut in half onsite using an automatic core saw. Samples are always collected from the same side.
	If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry.	All RC samples are cone or riffle split. Occasional wet samples are encountered. AC, RAB and RC drilling has been sampled using riffle and unknown methods.
	For all sample types, the nature, quality and appropriateness of the sample preparation technique.	The sample preparation of diamond core and RC chips adhere to industry best practice. It is conducted by a commercial laboratory and involves oven drying, coarse crushing then total grinding to a size of 90% passing 75 microns. Best practice is assumed at the time of historic sampling.
	Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.	All subsampling activities are carried out by commercial laboratory and are considered to be satisfactory. Sampling by previous holders assumed to be industry standard at the time.
	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.	RC field duplicate samples are carried out at a rate of 1:20 and are sampled directly from the on-board splitter on the rig. These are submitted for the same assay process as the original samples and the laboratory are unaware of such submissions. Sampling by previous holders assumed to be industry standard at the time.
	Whether sample sizes are appropriate to the grain size of the material being sampled.	Sample sizes of 3kg are considered to be appropriate given the grain size (90% passing 75 microns) of the material sampled.
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.*	RC chip samples and diamond core are analysed by external laboratories using a 40g or 50g fire assay with AAS finish. These methods are considered suitable for determining gold concentrations in rock and are total digest methods. Historic sampling includes fire assay and unknown methods.
	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 geophysical tools have been utilised for reporting gold mineralisation.
	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.	Certified reference material (standards and blanks) with a wide range of values are inserted into every drillhole at a rate of 1:25 for exploration RC and DD. These are not identifiable to the laboratory. QAQC data returned are checked against pass/fail limits with the SQL database and are passed or failed on import. A report is generated and reviewed by the geologist as necessary upon failure to determine further action. QAQC data is reported monthly. Sample preparation checks for fineness are carried out to ensure a grindsize of 90% passing 75 microns. The laboratory performs a number of internal processes including standards, blanks, repeats and

Section 1: Sampling Techniques and Data

Criteria	JORC Code Explanation	Commentary
		checks. QAQC data analysis demonstrates sufficient accuracy and precision. Industry best practice is assumed for previous holders.
Verification of sampling and assaying	*The verification of significant intersections by either independent or alternative company personnel.*	Significant intercepts are verified by the Geology Manager and corporate personnel.
	The use of twinned holes.	No specific twinned holes have been drilled at Monty's Dam-Elliot's Lode by Saracen. It is unknown if previous holders twinned any hole.
	Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols	Primary data is collated in a set of acquire data entry objects utilising lookup codes. This data is forwarded to the Database Administrator for entry into a secure acQuire database with inbuilt validation functions. Data from previous owners was taken from a database compilation and validated as much as practicable before entry into the Saracen acQuire database.
	Discuss any adjustment to assay data.	No adjustments have been made to assay data. First gold assay is utilised for resource estimation.
Location of data points	*Accuracy and quality of surveys used to locate drillholes (collar and down-hole surveys), trenches, mine workings and other locations used in Mineral Resource estimation.*	Drillholes are located using a Leica 1200 GPS with an accuracy of +/-10mm. Downhole surveys are carried out using an Eastman single shot camera at regular intervals (usually 30m). A number of drillholes have also been gyroscopically surveyed. Previous holders' survey accuracy and quality is unknown
	Specification of the grid system used.	A local grid system, Old Plough Dam West (OPDW) is used. The two point conversion to MGA_GDA94 zone 51 is: OPDWEast OPDWNorth RL MGAEast MGANorth RL Point 1 8035.58 20901.34 0 431948.52 6674917.54 0 Point 2 8147.50 17313.10 0 434806.92 6672750.25 0 Historic data is converted to the Old Plough Dam West local grid upon export from the database.
	Quality and adequacy of topographic control.	Topographic control originally used site based survey pickups in addition to Kevron aerial photogrammetric surveys with +/- 5m resolution. Pre mining, new and more detailed topography has since been captured and will be used in future updates and for subsequent planning purposes.
Data spacing and distribution	*Data spacing for reporting of Exploration Results.*	Monty's Dam has a nominal drill spacing ranging from 10m x 10m to 20m x 20m, while Elliot's Lode has nominal 20m x 20m drill spacing.
	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.	Data spacing and distribution are sufficient to establish the degree of geological and grade continuity appropriate for JORC classifications applied.
Orientation of data in relation to geological structure	*Whether sample compositing has been applied.*	Sample compositing is not applied until the estimation stage. Some historic RAB and RC sampling was composited into 3-4m samples with areas of interest re-sampled to 1m intervals. It is unknown at what threshold this occurred.
	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 drillholes are positioned to achieve optimum intersection angles to the ore zone as are practicable.
	If the relationship between the drilling orientation	No significant sampling bias has been recognised due to orientation of drilling in regards to mineralised

Section 1: Sampling Techniques and Data

Criteria	JORC Code Explanation	Commentary
	and the orientation of key mineralised structures is considered to have introduced a sampling bias, this should be assessed and reported if material.	structures.
Sample security	*The measures taken to ensure sample security.*	Samples are prepared on site under supervision of Saracen geological staff. Samples are selected, bagged into tied numbered calico bags then grouped into secured cages and collected by the laboratory personnel. Sample submissions are documented via laboratory tracking systems and assays are returned via email
Audits or reviews	*The results of any audits or reviews of sampling techniques and data.*	An internal review of company-wide sampling methodologies was conducted to create the current sampling and QAQC procedures. No external audits or reviews have been conducted.

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 Monty's Dam-Elliot's Lode gold deposit is located in M31/209. The tenement is held 100% by Saracen Gold Mines Pty Ltd, a wholly owned subsidiary of Saracen Mineral Holdings Limited. Mining Lease M31/209 has a 21 year life (held until 2023) and is renewable for a further 21 years on a continuing basis. Mining Lease M31/209 is subject to two third party royalties, two caveats (Caveats 61H/067 and 340983) and a bank mortgage (Mortgage 415495). All production is subject to a Western Australian state government NSR royalty of 2.5%. Mining Lease M31/209 is subject to the Gindalbie Pastoral Compensation Agreement.
	The security of the tenure held at the time of reporting along with any known impediments to obtaining a licence to operate in the area.	The tenements are in good standing and the licence to operate already exists.
Exploration done by other parties	*Acknowledgment and appraisal of exploration by other parties.*	The Old Plough Dam project area in which the Monty's Dam-Elliot's Lode deposit is located has been subjected to extensive gold exploration by numerous companies since the 1980s. Monty's Dam was highlighted as an area of interest following a geochemical and ground magnetic survey conducted by Freeport-McMoran Australia in 1983. Auger sampling undertaken by Pancontinental Mining in 1991 further defined a target which was followed up by RAB drilling. Gold mineralisation at Monty's Dam was confirmed in March 1993 and additional RAB and step-out RC drilling discovered the adjacent Elliot's Lode to the north in 1994-1995. By this time, control over the prospects was transferred to Goldfields Exploration which conducted resource definition drilling, geophysical surveys and metallurgical tests until 2000. Tenement ownership then transferred to Oriole Resources which conducted infill drilling to follow up on previous works. In 2001, Sons of Gwalia (SOG) took over from Oriole Resources and undertook step-out AC drilling to test the NW extension of the deposit. SOG started mining at Monty's Dam in 2002 while drilling AC, RC and DD at the Elliot's Lode prospect. The tenement was then acquired by St Barbara and mined the Monty's Dam deposit until 2005. In 2006, Saracen took over the tenement and started step-out and infill RC drilling in 2010 at the Elliot's Lode prospect.
Geology	*Deposit type, geological setting and style of*	The Monty's Dam and Elliot's Lode deposits are classified as a late-tectonic, epigenetic (mesothermal)

Section 2: Reporting of Exploration Results

Criteria	JORC Code Explanation	Commentary
	mineralisation.	gold deposit reported to be associated with late (D4) N-NNE-trending faults. Stockwork mineralization overprinting wallwork foliation was produced by low-salinity H_2O-CO_2 fluids. Mineralization at Monty's Dam-Elliot's Lode is related to moderately intense quartz veining centered along the contact between fine-grained porphyry and underlying sediment with a strong and pervasive hematite alteration halo that also extends around felsic porphyry unit. Disseminated pyrite and moderate to weak sericitization also characterize the mineralized zone at Monty's Dam. As such, the mineralized zone is pinkish and the grade is correlatable to the degree of coloration (Fig. 12). These lensoidal to anastomosing mineralized zones vary in widths from 5 to 40 m. Because of this shape, the orientation can only be inferred to trend northwest, dipping 50 to 60 degrees to the east with a shallow plunge of 10 degrees to the south, which is similar to the regional geologic fabric (Longworth, 1994). Gold commonly occurs as blebs, intergrown within pyrite or as disseminated particles throughout the host rocks.
Drillhole 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 does not detract from the understanding of the report, the Competent Person should clearly explain why this is the case.*	All material data is periodically released on the ASX, notably on 9 December 2011 and 27 April 2012. Future drill hole data will be periodically released or when a results materially change the economic value of the project. Exclusion of the drilling information will not detract from the reader's view of the report.
Data aggregation methods	*In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (e.g. cutting of high grades) and cut-off grades are usually Material and should be stated.*	All significant intercepts have been length weighted with a minimum Au grade of 1ppm.
	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.	Intercepts are aggregated with minimum width of 1m and maximum width of 3m for internal dilution.
	The assumptions used for any reporting of metal equivalent values should be clearly stated.	Metal equivalent values are not reported
Relationship between mineralisation widths and intercept lengths	*These relationships are particularly important in the reporting of Exploration Results.* *If the geometry of the mineralisation with respect to*	Previous announcements included sufficient detail to clearly illustrate the geometry of the mineralisation and the recent drilling. All results were reported as downhole lengths.

Section 2: Reporting of Exploration Results

Criteria	JORC Code Explanation	Commentary
	the drill hole angle is known, its nature should be reported. *If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (eg 'down hole length, true width not known').*	
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.*	All significant exploration results released by Saracen are accompanied by the appropriate diagrams and maps at the time of the release.
Balanced Reporting	*Where comprehensive reporting of all Exploration Results are not practicable, representative reporting of both low and high grades and/or widths should be practiced to avoid misleading reporting of Exploration Results.*	All results from the recent campaign have been reported, irrespective of success or not.
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.*	No substantive data acquisition has been completed in recent times.
Further work	*The nature and scale of planned further work (eg tests for lateral extensions or depth extensions or large-scale step-out drilling).* *Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive*	No further drilling is currently planned. Open pit evaluation work is ongoing.

Section 3: Estimation and Reporting of Mineral Resources

Criteria	JORC Code Explanation	Commentary
Database Integrity	*Measures taken to ensure that data has not been corrupted by, for example, transcription or keying errors, between its initial collection and its use for Mineral Resource estimation purposes.*	Saracen utilises AcQuire software on an SQL server database to securely store and manage all drillhole and sample information. Data integrity protocols are built into the system to ensure data validity and minimise errors.
	Data validation procedures used.	Data that is captured in the field is entered into Excel templates which are checked on import into the

Section 3: Estimation and Reporting of Mineral Resources

Criteria	JORC Code Explanation	Commentary
		database for errors. Assay jobs are dispatched electronically to the lab to minimise the chance of data entry errors. Assay results from the lab are received in CSV format and are checked for errors on import into the database. Data is regularly validated using the mining software. The data validation process is overseen by the Database Administrator.
Site Visits	*Comment on any site visits undertaken by the Competent Person and the outcome of those visits.*	At the time of renewed exploration activities in 2012 the Competent Persons visited the geological area to assess geological competency and ensure integrity across all exploration geological disciplines.
	If no site visits have been undertaken indicate why this is the case.	
Geological Interpretation	*Confidence in (or conversely, the uncertainty of) the geological interpretation of the mineral deposit.*	A combination of well documented historic geology and structural information, exploration mapping, geophysical surveys, sufficient drill hole information and geological data collected during production at Montys Dam has resulted in a confident geological interpretation.
	Nature of the data used and any assumptions made.	The interpretations have been constructed using all available geological logging descriptions including but not limited to, stratigraphy, lithology, texture, and alteration. It is identified that the pinkish colouration of the haematitic rich alteration correlates well with mineralisation. For the purpose of the estimation the data was rotated into the Montys Dam local grid to ensure the holes (now east-west) intersected mineralisation at right angles to remove sampling bias. The collection of structural data from the latest drilling campaigns in 2012 in conjunction with additional magnetic studies have further clarified the local structural setting and possible explanations for termination of the lodes.
	The affect, if any, of alternative interpretations on Mineral Resource estimation.	Over the life of the project additional drilling campaigns have confirmed and further clarified the ubiquitous pinch and swell geometry of the mineralised lodes in a structurally controlled environment. Whilst structural theories have altered slightly over time, the general trend, dip and plunge of the lodes has remained constant.
	The use of geology in guiding and controlling the Mineral Resource estimation.	The geology has heavily influenced the extent of the domains controlling the mineral resource estimation. Mineralisation at Montys Dam is structurally controlled by the intersection of the local Eliot Lode Shear, (ELS) with the Monty North Shear, (MNS). The northern extent of the ELS intersects a secondary hangingwall shear and hosts the "Elliot Lode". The deposits are hosted in a sequence of volcaniclastic sandstones and porphyritic units, with mineralisation associated with quartz stockwork veining adjacent to the porphyritic contacts. Hematite alteration accompanies mineralisation. Such lithology, alteration, colour, and textures in conjunction with anomalous grade help define the domains. At Monty's North also known as North West (north of Monty's Dam) the mineralisation is of lower grade due to the absence of potassic and hematite alteration within an andesitic porphyritic host. Domaining is predominantly based on economic Au values as the alteration assemblages mimic those of the surrounding waste rock. All mineralised domains were wireframed with hard boundaries.
	The factors affecting continuity both of grade and geology.	ENE (local orientation) shear zones cross cutting the Elliot Lode Shear are most likely responsible for the northern termination or dextral offset of the Monty Dam deposit and similarly for the Elliot lodes. Biotitic assemblages increase in close proximity to these cross cutting shears and economic Au grade dissipates. It is also possible that these shears affect the continuity of the weakly mineralised Monty North lodes. The intersection of the MNS with the ELS closes out the Monty Dam deposit to the south.
Dimensions	*The extent and variability of the Mineral Resource expressed as length (along strike or otherwise),*	In the local grid; Monty's Dam, Monty's North and Elliots mineralisation extends from 17200mN to 18500mN, 7600mE –

Section 3: Estimation and Reporting of Mineral Resources

Criteria	JORC Code Explanation	Commentary
	plan width, and depth below surface to the upper and lower limits of the Mineral Resource.	8500mE to 200m below surface. Elliots lodes strike NE and dips 60° towards the SE with a gentle southerly plunge. It is overlain by a flat to shallow dipping supergene horizon. Monty's Dam strikes more N-S with dips 60° towards the E with a gentle northerly plunge. Monty's North follows suit however to the north lodes have a shoaling dip from 50° to 25°.
Estimation and modelling techniques	*The nature and appropriateness of the estimation technique(s) applied and key assumptions, including treatment of extreme grade values, domaining, interpolation parameters and maximum distance of extrapolation from data points.*	Ordinary Kriged Block estimation has been completed using Datamine software. All compositing, wireframes, surfaces, rock and domain models were constructed in Micromine. All estimation uses these wireframes as hard boundaries. Estimation of parent blocks are interpolated, and assigned to sub-cells. The maximum distance of extrapolation is less than 30m. Univariate statistical analysis of length weighted, (1m), domain and regolith coded downhole composites have been completed for all domains. 99% of the sample data used in the estimation is 1m in length. Clusters of higher grade outliers that could bias the mean were identified by domain by the use of log probability plots. These were used to determine specific top-cut values for each domain. Estimations only used RC and Diamond Drill results, negative Au grades were replaced with a value of 0.001g/t, and null assays were excluded from the sample data. Unfolding was carried out prior to variography and estimation to remove the local variances in dip and strike observed in the domains. Variogram modelling was completed with GeoAccess Professional software. This defined the sample continuity and nugget value for each domain. The parameters determined from this analysis were used in the interpolation process.
	The availability of check estimates, previous estimates and/or mine production records and whether the Mineral Resource estimate takes appropriate account of such data.	An inverse distance cubed estimate was run simultaneously with the ordinary kriged resource estimate, with an insignificant (0.01) variance between the global Au grade values. Globally the current resource model achieves similar (99%) tonnes, 20% more grade and 18% more ounces than the previous Saracens model from 2009. The 2011/2012 drilling campaign extended the continuity of the Elliots lodes adding 35% metal. Refining the wireframes using 0.5g/t cut off also influenced the increase in the global grade. Historically the earlier 2009 Saracens model estimated up to 10% less tonnes than SOG's estimated models.
	The assumptions made regarding recovery of by-products.	No assumptions have been made with respect to the recovery of by-products.
	Estimation of deleterious elements or other non-grade variables of economic significance (e.g. sulfur for acid mine drainage characterisation).	There has been no estimate at this point of deleterious elements. Saracen is unaware if any elements other than gold have been assayed.
	In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed.	The parent block sizes for the resource model are X (5m) by Y (10m) by Z (5m). These are deemed appropriate for the majority of the resource, where drill spacing is in the order of 20m x 20m to 20m x 10m. Parent blocks have been sub-celled to X (1.0m) by Y (1.0m) by Z (1.0m) to ensure that the wireframe boundaries are honoured and preserve the location and shape of the mineralisation. Search ranges have been informed by variogram modelling and knowledge of the drill spacing and the known mineralisation geometry including direction of maximum continuity. Three search estimation runs are used with the aim to satisfy the minimum sample criteria in the first search range where possible.
	Any assumptions behind modelling of selective	No selective mining units have been assumed.

Section 3: Estimation and Reporting of Mineral Resources

Criteria	JORC Code Explanation	Commentary
	mining units.	
	Any assumptions about correlation between variables.	No assumptions have been made regarding correlation between variables.
	Description of how the geological interpretation was used to control the resource estimates.	The geological interpretation strongly correlates with the mineralised domains and clearly defines the high grade zones. Hard wireframes were used to define all the mineralised domains.
	Discussion of basis for using or not using grade cutting or capping.	Linear interpolation methods such as Ordinary Kriging are sensitive to the presence of high-grade outliers that positively skew the data and bias the mean. Domain histogram and Log probability plots were used to determine appropriate top cuts.
	The process of validation, the checking process used, the comparison of model data to drill hole data, and use of reconciliation data if available.	Several key model validation steps have been taken to validate the resource estimate. The mineral resource model has been stepped through visually in sectional and plan view to appreciate the composite grades used in the estimate and the resultant block grades. Easting, Northing and Elevation swathe plots have been constructed to evaluate the composited assay means versus the mean block estimates. The mineral resource model has been constructed to include kriging efficiency and the slope of regression values. These values are used to measure the quality of the estimate. Natural deterioration of the quality is observed in areas where data density is lower. Reconciliation data from Sons of Gwalia is limited for the production of Monty's Dam in 2004 and thus making comparative studies unreliable.
Moisture	*Whether the tonnages are estimated on a dry basis or with natural moisture, and the method of determination of the moisture content.*	All tonnages are estimated on a dry basis.
Cut-off parameters	*The basis of the adopted cut-off grade(s) or quality parameters applied.*	Based on Saracen's current economic status the natural grade distinction above background for the Montys Elliot deposit is at a grade of 0.5g/t.
Mining factors or assumptions	*Assumptions made regarding possible mining methods, minimum mining dimensions and internal (or, if applicable, external) mining dilution. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential mining methods, but the assumptions made regarding mining methods and parameters when estimating Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the mining assumptions made.*	A historic open cut mine exits at Monty's Dam. There are reasonable grounds to assume that in the future the remaining resource at Monty's Dam and the total resource at Elliot's will be mined by conventional open pit methods given the close proximity to surface and the mean average grade of the mineralisation. At this stage mining has not been considered for the Monty's North deposit due to lower mean grades and resource categorisation.
Metallurgical factors or assumptions	*The basis for assumptions or predictions regarding metallurgical amenability. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential metallurgical methods, but the assumptions regarding metallurgical treatment process and parameters made when reporting Mineral Resources may not always be rigorous.*	Historic, SOG, metallurgical data from the Monty Dam operation cannot be sourced. Currently there has been no further metallurgical testing directly related to the Monty or Elliot Lodes that are exploratory in nature.

Section 3: Estimation and Reporting of Mineral Resources

Criteria	JORC Code Explanation	Commentary
	Where this is the case, this should be reported with an explanation of the basis of the metallurgical assumptions made.	
Environmental factors or assumptions	*Assumptions made regarding possible waste and process residue disposal options. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider the potential environmental impacts of the mining and processing operation. While at this stage the determination of potential environmental impacts, particularly for a greenfields project, may not always be well advanced, the status of early consideration of these potential environmental impacts should be reported. Where these aspects have not been considered this should be reported with an explanation of the environmental assumptions made.*	Environmental considerations are captured by Program of Work (PoW) requirements. Operations on these tenements are purely exploratory in nature to date.
Bulk Density	*Whether assumed or determined. If assumed, the basis for the assumptions. If determined, the method used, whether wet or dry, the frequency of the measurements, the nature, size and representativeness of the samples.*	The density values applied to the Monty Dam's and Elliot Deposits estimation are largely based on historic density measures from drilling and production at Monty's Dam during SOG's ownership. The bulk density data was imported into the AcQuire database with the Density method unknown.
	The bulk density for bulk material must have been measured by methods that adequately account for void spaces (vugs, porosity, etc), moisture and differences between rock and alteration zones within the deposit.	It is unknown what method was used to measure the historic bulk densities. For any future density measurements the Saracens Metals have standardised procedure would be adhered to.
	Discuss assumptions for bulk density estimates used in the evaluation process of the different materials.	Where bulk density measures are taken an average mean of densities collected for each lithological type is uniformly applied to the modelled geological units. This includes the primary fresh lithologies as well as the weathered oxide and transitional zones.
Classification	*The basis for the classification of the Mineral Resources into varying confidence categories.*	The mineral resource has been classified into Measured, Indicated and Inferred categories based on drill hole spacing, geological confidence, and grade continuity and estimation quality. The combination of these factors together guided the hard boundary wireframe used to define the Measured, Indicated and Inferred zones. Ore zones outside this wireframe were coded with the possible category of 4.
	Whether appropriate account has been taken of all the relevant factors (ie relative confidence in tonnage/grade estimations, reliability of input data, confidence in continuity of geology and metal values, quality, quantity and distribution of the data).	All care has been taken to account for relevant factors influencing the mineral resource estimate. The diligent Saracen Metals Resource review process ensures that data reliability and geological and metal confidence and continuity are reflected in the resource classification.
	Whether the result appropriately reflects the Competent Person's view of the deposit.	The geological model and the mineral resource estimate reflect the competent person's view of the deposit.
Audits or reviews	*The results of any audits or reviews of Mineral*	Saracen has adopted a process for geological modelling, estimation and reporting of mineral resources

Section 3: Estimation and Reporting of Mineral Resources		
Criteria	**JORC Code Explanation**	**Commentary**
	Resource estimates.	that meets high industry standards. At the completion of resource estimation Saracen Metals undertake an extensive review of the model that covers; Model inventory and comparisons to previous and budget models if in existence Geological interpretation, wireframing, domain selection, statisitics by domain, assay and metal evaluation, parent cell sizes, data compositing, variography, search strategy, estimation and KNA Model validation – swathe plots, visual checks, volume comparisons, composite to model metal comparisons. In the final stages the model and resource categorisation are all discussed and scrutinized by the geological and mine planning teams.
Discussion of relative accuracy/confidence	*Where appropriate a statement of the relative accuracy and confidence level in the Mineral Resource estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the resource within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors that could affect the relative accuracy and confidence of the estimate.*	The mineral resource has been reported in accordance with the guidelines established in the 2012 edition of the JORC code. Saracen Gold Mine uses a standard approach to resource estimation and the procedure requires the systematic completion of the Saracen Resource Estimation Document that is thoroughly investigated and assessed in the Model review process, as stated above. It was identified that; Confirmation of the bulk density values would be valuable Further work on KNA for block size, minimum and maximum number of samples, search ellipses and declustering of the composite data would help to further improve the optimisation of the block model.
	The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonnages, which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the procedures used.	The statements relate to a global estimate of tonnes and grade.
	These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.	The confidence in the model is reflected by the designation of Resource categories. Given the thorough geological analysis of this area and adequate drilling definition, it is a robust estimation of the resource at Monty's Dam and Elliots Lode. Monty's North, an Inferred resource, is of lower grade and has attracted far less drilling at this stage. It is reported that Sons of Gwalia produced around 0.61mt @ 2.70g/t for 53,000 ounces from Monty's Dam in 2004. Reconciliation and grade control data from this production of Monty's Dam is limited and cut off values are unknown thus making comparative studies unreliable.

Twin Peaks

Section 1: Sampling Techniques and Data		
Criteria	**JORC Code Explanation**	**Commentary**
Sampling Techniques	*Nature and quality of sampling (e.g. cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc.). These examples should not be taken as limiting the broad meaning of sampling.*	Sampling methods undertaken by Saracen at Twin Peaks have included reverse circulation (RC) and diamond drillholes (DD). Historic methods conducted since 1991 have included aircore (AC), rotary air blast (RAB), reverse circulation and diamond drillholes.
	Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used	Sampling for diamond and RC drilling is carried out as specified within Saracen sampling and QAQC procedures as per industry standard. RC chips and diamond core provide high quality representative samples for analysis. RC, RAB, AC and DD core drilling was completed by previous holders to industry standard at that time (1991- 2004).
	Aspects of the determination of mineralisation that are Material to the Public Report. In cases where 'industry standard' work has been done this would be relatively simple (e.g. 'reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30 g charge for fire assay'). In other cases more explanation may be required, such as where there is coarse gold that has inherent sampling problems. *Unusual commodities or mineralisation types (e.g. submarine nodules) may warrant disclosure of detailed information*	Diamond core is NQ sized, sampled to 1m intervals and geological boundaries where necessary and cut into half core to give sample weights under 3 kg. Samples are selected to weigh less than 3 kg to ensure total sample inclusion at the pulverisation stage. RC chips are cone split and sampled into 1m intervals with total sample weights under 3kg Saracen core and chip samples are crushed, dried and pulverised to a nominal 90% passing 75µm to produce a 50 g sub sample for analysis by FA/AAS. Historical AC, RAB, RC and diamond sampling was carried out to industry standard at that time. Analysis methods include fire assay, aqua regia and unspecified methods.
Drilling Techniques	*Drill type (e.g. core, reverse 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.).*	The deposit was initially sampled by 41 AC holes, 185 RAB holes, 110 RC holes (assumed standard 5 ¼ ''bit size) and 21 surface diamond HQ core and unknown diameter holes. Saracen has completed 7 surface RC precollar with NQ diamond tail drill holes (precollars averaging 241m, diamond tails averaging 209m) , and 11 RC holes. Diamond tails were oriented using an Ezy-mark tool. It is unknown if historic surface diamond drill core was oriented.
Drill Sample Recovery	*Method of recording and assessing core and chip sample recoveries and results assessed*	Diamond core recovery percentages calculated from measured core versus drilled intervals are logged and recorded in the database. Recoveries average >98%. RC sampling recoveries are recorded as a percentage based on a visual weight estimate; no historic recoveries have been recorded.
	Measures taken to maximise sample recovery and ensure representative nature of the samples	Diamond core is reconstructed into continuous runs on an angle iron cradle for orientation marking. Depths are checked against depth given on the core blocks. During RC campaigns daily rig inspections are carried out to check splitter condition, general site and address general issues. Historical AC, RAB, RC and diamond drilling to industry standard at that time.

Section 1: Sampling Techniques and Data

Criteria	JORC Code Explanation	Commentary
	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.	Diamond drilling has high recoveries meaning loss of material is minimal. There is no known relationship between sample recovery and grade for RC drilling. Any historical relationship is not known.
Logging	*Whether core and chip samples have been geologically and geotechnically logged to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies.* *Whether logging is qualitative or quantitative in nature.* *Core (or costean, channel, etc) photography.*	Logging of diamond drill core and RC chips records lithology, mineralogy, texture, mineralisation, weathering, alteration, veining and other features. Geotechnical and structural logging is carried out on all diamond holes to record recovery, RQD, defect number, type, fill material, shape and roughness and alpha and beta angles. Chips from all RC holes are stored in chip trays for future reference. Core is photographed in both dry and wet state. Qualitative and quantitative logging of historic data varies in its completeness.
	The total length and percentage of the relevant intersections logged	All diamond drillholes and exploration RC holes are logged in full. Historical logging is approximately 95% complete.
Sub-sampling techniques and sample preparation	*If core, whether cut or sawn and whether quarter, half or all core taken.*	All drill core is cut in half onsite using an automatic core saw. Samples are always collected from the same side. Historic diamond drilling was half core sampled or sampled via unknown methods.
	If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry.	All RC samples are cone split. Occasional wet samples are encountered; increased air capacity is routinely used to aid in keeping the sample dry when water is encountered. Historic AC, RAB and RC drilling was sampled using spear, riffle and unknown methods.
	For all sample types, the nature, quality and appropriateness of the sample preparation technique.	The sample preparation of diamond core and RC chips adhere to industry best practice. It is conducted by a commercial laboratory and involves oven drying, coarse crushing then total grinding to a size of 90% passing 75 microns. Best practice is assumed at the time of historic sampling.
	Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.	All subsampling activities are carried out by commercial laboratory and are considered to be satisfactory. Sampling by previous holders assumed to be industry standard at the time.
	Measures taken to ensure that the sampling is representative of the in situ material collected, including for instance results for field duplicate/second halfsampling.	Duplicate sampling is carried out at a rate of 1:10 for exploration drilling and is sampled directly from the on-board splitter on the rig. These are submitted for the same assay process as the original samples and the laboratory are unaware of such submissions. Sampling by previous holders assumed to be industry standard at the time.
	Whether sample sizes are appropriate to the grain size of the material being sampled.	Sample sizes are considered to be appropriate.
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.*	RC chip samples, grade control chip samples and diamond core are analysed by external laboratories using a 50g fire assay with AAS finish. This method is considered suitable for determining gold concentration in rock and is a total digest method. Historic sampling includes fire assay, aqua regia and unknown methods.
	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 geophysical tools have been utilised for reporting gold mineralisation at Twin Peaks.
	Nature of quality control procedures adopted	Certified reference material (standards and blanks) with a wide range of values are inserted into every

Section 1: Sampling Techniques and Data		
Criteria	**JORC Code Explanation**	**Commentary**
	(e.g.standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (i.e.lack of bias) and precision have been established.	drillhole at a rate of 1:25 for exploration RC and DD drilling. These are not identifiable to the laboratory. QAQC data returned are checked against pass/fail limits with the SQL database and are passed or failed on import. A report is generated and reviewed by the geologist as necessary upon failure to determine further action. QAQC data is reported monthly. Sample preparation checks for fineness are carried out to ensure a grind size of 90% passing 75 microns. The laboratory performs a number of internal processes including standards, blanks, repeats and checks. QAQC data analysis demonstrates sufficient accuracy and precision. Industry best practice is assumed for previous holders.
Verification of sampling and assaying	*The verification of significant intersections by either independent or alternative company personnel.*	Significant intercepts are verified by the Geology Manager and corporate personnel.
	The use of twinned holes.	No specific twinned holes have been drilled at Twin Peaks.
	Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols	Primary data is collated in a set of excel templates utilising lookup codes. This data is forwarded to the Database Administrator for entry into a secure acQuire database with inbuilt validation functions. Data from previous owners was taken from a database compilation and validated as much as practicable before entry into the Saracen acQuire database.
	Discuss any adjustment to assay data.	No adjustments have been made to assay data. First gold assay is utilised for resource estimation.
Location of data points	*Accuracy and quality of surveys used to locate drillholes (collar and down-hole surveys), trenches, mine workings and other locations used in Mineral Resource estimation.*	Exploration drillholes are located using a Leica 1200 GPS with an accuracy of +/- 10mm. Downhole surveys are carried out using an Eastman single shot camera at regular intervals (usually 30m). A number of drillholes have also been gyroscopically surveyed. Previous holders' survey accuracy and quality is unknown.
	Specification of the grid system used.	A local grid system (Old Plough Dam West) is used. The two point conversion to MGA_GDA94 zone 51 is OPDWEast OPDWNorth RL MGAEast MGANorth RL Point 1 8035.58 20901.34 0 431948.52 6674917.54 0 Point 2 8147.50 17313.10 0 434806.92 6672750.25 0 Historic data is converted to Old Plough Dam West local grid upon export from the database.
	Quality and adequacy of topographic control.	Topographic control originally used site based survey pickups in addition to Kevron aerial photogrammetric surveys with +/- 5m resolution. Pre mining, new and more detailed topography has since been captured and will be used in future updates and for subsequent planning purposes.
Data spacing and distribution	*Data spacing for reporting of Exploration Results.*	The nominal spacing for exploration drilling is 20 m x 20 m
	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.	Data spacing and distribution are sufficient to establish the degree of geological and grade continuity appropriate for JORC classifications applied.
Orientation of data in relation to geological structure	*Whether sample compositing has been applied.*	Sample compositing is not applied until the estimation stage. Some historic RAB and RC sampling was composited into 3-4m samples with areas of interest re-sampled to 1m intervals. It is unknown at what threshold this occurred.

Section 1: Sampling Techniques and Data

Criteria	JORC Code Explanation	Commentary
	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 drillholes are positioned to achieve optimum intersection angles to the ore zone as are practicable.
	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.	No significant sampling bias is thought to occur due to orientation of drilling in regards to mineralised structures.
Sample security	*The measures taken to ensure sample security.*	Samples are prepared on site under supervision of Saracen geological staff. Samples are selected, bagged into tied numbered calico bags then grouped into secured cages and collected by the laboratory personnel. Sample submissions are documented via laboratory tracking systems and assays are returned via email
Audits or reviews	*The results of any audits or reviews of sampling techniques and data.*	An internal review of companywide sampling methodologies was conducted to create the current sampling and QAQC procedures.

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 Twin Peaks pit is located on M31/208. The tenement is held 100% by Saracen Gold Mines Pty Ltd, a wholly owned subsidiary of Saracen Mineral Holdings Limited. Mining Lease M31/208 has a 21 year life (held until 2023) and is renewable for a further 21 years on a continuing basis. Mining Lease M31/208 is subject to two royalty agreements, two associated caveats (60H/067 and 340982) and a bank mortgage (415495). All production is subject to a Western Australian state government NSR royalty of 2.5%. Mining Lease M31/208 is subject to the Gindalbie Pastoral Compensation Agreement. There are no registered Aboriginal Heritage sites within Mining Lease M31/208.
	The security of the tenure held at the time of reporting along with any known impediments to obtaining a licence to operate in the area.	The tenement is in good standing and there are no known impediments to obtaining a licence to operate.
Exploration done by other parties	*Acknowledgment and appraisal of exploration by other parties.*	Exploration at Twin Peaks began in 1991 with a soil auger program carried out by PanContinental Mining outlining a number of anomalies that were followed up with RAB drilling, intersecting encouraging mineralisation. Geophysical surveys followed by RAB, RC and diamond drilling were then carried out by PanCon to further define the mineralised zone and strike extensions of the Twin Peaks deposit and calculate a resource. Goldfields acquired the project and completed further RC and DD resource definition drilling as well as RAB and aircore traverses targeting mineralisation extensions, and geophysical surveys. PacMin carried out infill resource drilling before Sons of Gwalia took ownership of the project and mined the Twin Peaks open pit between 2003 and 2004. Regional aircore and RC drilling was carried out before the collapse of Sons of Gwalia and takeover of the project by St Barbara.

Section 2: Reporting of Exploration Results

Criteria	JORC Code Explanation	Commentary
Geology	*Deposit type, geological setting and style of mineralisation.*	The Twin Peaks deposit lies within a greenstone-granite belt within the Edjudina-Kanowna region of the Archaean Yilgarn Block. The Twin Peaks mineralisation is located in metasedimentary rocks below the regional-scale Kilkenny-Yilgangi Fault within an intensely fractured, easterly plunging alteration zone. The mineralisation is associated with potassic alteration surrounded by carbonate zones within a quartz-feldspar dominated turbiditic sequence that appears to be isoclinally folded, with silt to sand particle size. The stratigraphy strikes northwest and dips on average 60 - 70 degrees to the northeast with 'way up' indicators suggesting the entire section in overturned.
Drillhole 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 does not detract from the understanding of the report, the Competent Person should clearly explain why this is the case.*	All material data is periodically released on the ASX: Material relating to Twin Peaks was released on 27/01/2012. Future drill hole data will be periodically released or when a results materially change the economic value of the project.
Data aggregation methods	*In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (e.g. cutting of high grades) and cut-off grades are usually Material and should be stated.*	All significant intercepts have been length weighted with a minimum Au grade of 1ppm. No high grade cut off has been applied.
	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.	Intercepts are aggregated with minimum width of 1m and maximum width of 3m for internal dilution. Where stand out higher grade zone exist with in the broader mineralised zone, the higher grade interval is reported also.
	The assumptions used for any reporting of metal equivalent values should be clearly stated.	Metal equivalent values are not reported
Relationship between mineralisation widths and intercept lengths	*These relationships are particularly important in the reporting of Exploration Results.* *If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.* *If it is not known and only the down hole lengths are*	Previous announcements included sufficient detail to clearly illustrate the geometry of the mineralisation and the recent drilling.

Section 2: Reporting of Exploration Results		
Criteria	**JORC Code Explanation**	**Commentary**
	reported, there should be a clear statement to this effect (eg 'down hole length, true width not known').	
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.*	All significant exploration results released by Saracen are accompanied by the appropriate diagrams and maps at the time of the release.
Balanced Reporting	*Where comprehensive reporting of all Exploration Results is not practicable, representative reporting of both low and high grades and/or widths should be practiced to avoid misleading reporting of Exploration Results.*	All results from the recent campaign have been reported, irrespective of success or not
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.*	No substantive data acquisition has been completed in recent times.
Further work	*The nature and scale of planned further work (eg tests for lateral extensions or depth extensions or large-scale step-out drilling). Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive*	Twin Peaks is a current exploration play that will be further reviewed post optimisation processes.

Section 3: Estimation and Reporting of Mineral Resources		
Criteria	**JORC Code Explanation**	**Commentary**
Database Integrity	*Measures taken to ensure that data has not been corrupted by, for example, transcription or keying errors, between its initial collection and its use for Mineral Resource estimation purposes.*	The database used for the estimate an extract from an acquire SQL database. The primary database is regulated by a locked framework called the acquire data model which fixes the relationships between tables. The data model minimises the potential for data collection and data usage errors through pre-determined look up tables, storage and export functions. User defined permissions also regulate the ability to add, edit or extract data. Primary data is recorded using typical manual translation of logging and data capture from written logs and direct import of csv tables through a data import scheme where data is validated upon import or direct data entry options into the database using predefined look up values.
	Data validation procedures used.	The rigid structure of the acquire data model is such that predefined rules and look up tables are applied

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Criteria	JORC Code Explanation	Commentary
		to all data entry. Data that does not meet the criteria are highlighted and moved to a buffer area until the data is rectified to meet the passing rules.
Site Visits	*Comment on any site visits undertaken by the Competent Person and the outcome of those visits.*	The competent person together with other Saracen's geology personnel have carried out site visits to the Twin Peaks deposit on numerous occasions. The competent has inspected the deposit and has built a sound understanding of the deposit geology. All geological processes undertaken by Saracen concerning Twin Peaks Resource have been done using Saracen's standard procedures.
	If no site visits have been undertaken indicate why this is the case.	Not applicable
Geological Interpretation	*Confidence in (or conversely, the uncertainty of) the geological interpretation of the mineral deposit.*	The interpretation has been based on the detailed geological work completed by previous owners of the project. This knowledge is based on extensive geological logging of drill core, RC chips, detailed open pit mapping and assay data. The Twin Peaks mineralisation is located in metasedimentary rocks below the regional-scale Kilkenny-Yilgangi Fault within an intensely fractured, easterly plunging alteration zone The mineralisation is associated with potassic alteration surrounded by carbonate zones within a quartz-feldspar dominated turbiditic sequence that appears to be isoclinally folded, with silt to sand particle size. The stratigraphy strikes northwest and dips on average 60 - 70 degrees to the northeast with 'way up' indicators suggesting the entire section in overturned.
	Nature of the data used and any assumptions made.	The interpretations have been constructed using all available geological logging descriptions including but not limited to, stratigraphy, lithology, texture, and alteration. Interpreted cross cutting faults have been observed and have been use to guide disruptions in the position of the key mineralised domains. The dominant structural controls on mineralisation appear to be the east dipping foliation, the fault hosting the east-west dyke and south-plunging folds. The large ellipsoid above 100 metres appears to have developed at the intersection of the two main structural controls. Surface mapping had been included in the interpretation. Cross sectional interpretations of the mineralisation have been created and from the basic framework through which the 3D wireframe solid is built.
	The affect, if any, of alternative interpretations on Mineral Resource estimation.	The Twin Peaks deposit is generally subvertical in geometry, with clear zones that show the tenor of the mineralisation. Saracen has conducted extensional down dip drilling which supports the current interpretation which is considered to be robust.
	The use of geology in guiding and controlling the Mineral Resource estimation.	Geological controls and relationships were used to define mineralised domains. The most important distinction is between the Breccia Zone and the Footwall Zone. This separation was handled by the position of the transitional to fresh boundary. The breccia zone is within the transitional area and the footwall zone is in the fresh area.
	The factors affecting continuity both of grade and geology.	At the deposit scale the gold distribution is predominantly characterised by a quartz-arsenopyrite breccia within a sericite-carbonate alteration envelope. This has been overprinted by a later quartz-pyrite-biotite vein event, which has remobilised or introduced a new phase of Au mineralisation. The dominant structural controls on mineralisation appear to be the east dipping foliation, the fault hosting the east-west dyke and south-plunging folds. The large ellipsoid above 100 metres appears to have developed at the intersection of the two main structural controls.
Dimensions	*The extent and variability of the Mineral Resource expressed as length (along strike or otherwise),*	Within 100 metres of the surface, the orebody has an ellipsoid shape measuring approximately 90 x 45 metres. Below this depth, mineralisation is pipe-shaped, measuring approximately 50 x 20 metres (in

Section 3: Estimation and Reporting of Mineral Resources

Criteria	JORC Code Explanation	Commentary
	plan width, and depth below surface to the upper and lower limits of the Mineral Resource.	the horizontal plane) and plunging to grid south east at around 50°. The deposit is open below 300m.
Estimation and modelling techniques	*The nature and appropriateness of the estimation technique(s) applied and key assumptions, including treatment of extreme grade values, domaining, interpolation parameters and maximum distance of extrapolation from data points.*	Grade estimation using Ordinary Kriging (OK) was completed for Twin Peaks. CAE Studio 3 software was used to estimate gold into 5m x10m x5m size parent blocks . Drill grid spacing ranges from 20 m by 20 m and increases with depth. Drillhole sample data was flagged using domain codes generated from three dimensional mineralisation domains and oxidation surfaces. Sample data was composited to one metre downhole length. Over 97% of the sample intervals are 1m. Intervals with no assays were excluded from the compositing routine. The influence of extreme sample distribution outliers was reduced by top-cutting where required. The top-cut levels were determined using a combination of top-cut analysis tools (grade histograms, log probability plots and CVs). Top-cuts were reviewed and applied on a domain basis. Due to the flexures in the mineralised envelopes, the estimation process was in unfolded space. The blocks are relocated back to their original space after the estimation. Variography was conducted in unfolded space using Snowden's supervisor software.
	The availability of check estimates, previous estimates and/or mine production records and whether the Mineral Resource estimate takes appropriate account of such data.	No comparison have been done with previous estimates
	The assumptions made regarding recovery of by-products.	No assumptions have been made with respect to the recovery of by-products.
	Estimation of deleterious elements or other non-grade variables of economic significance (e.g. sulfur for acid mine drainage characterisation).	There has been no estimate at this point of deleterious elements. Saracen is unaware if any elements other than gold have been assayed. Arsenic may have been assayed; however this data has not been made available.
	In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed.	A single block model for Twin Peaks was constructed using an 5 mE by 10 mN by 5 mRL parent block size with subcelling to 1 mE by 2 mN by 1 mRL for domain volume resolution. All estimation was completed at the sub-cell scale which might not be ideal in this particular case given the wider drill spacing on this deposit. The size of the search ellipse per domain was based on the gold variography. Three search passes were used for each domain. In general, the first pass used the ranges of 40m in major direction,60m in semi-major and 6m in the minor direction and a minimum and maximum samples of 10 and 24 samples respectively. In the second pass the search ranges were doubled and the minimum and maximum samples remained the same. The third pass ellipse was extended to 8 times the range of the gold variograms and the minimum number of samples reduced to 1 and a maximum of 24 samples were applied. A maximum of 4 samples per hole were used. In the majority of domains, most blocks were estimated in the first pass (particularly for the main domains); however, some more sparsely-sampled domains were predominantly estimated on the second or third pass.
	Any assumptions behind modelling of selective mining units.	No selective mining units have been assumed.
	Any assumptions about correlation between variables.	No assumptions have been made regarding correlation between variables.
	Description of how the geological interpretation was	The geological interpretation strongly correlates with the mineralised domains The Twin Peaks

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Criteria	JORC Code Explanation	Commentary
	used to control the resource estimates.	mineralisation lies within metasediments, within an intensely fractured, pipe like, easterly plunging alteration zone. This alteration pipe has a central high gold grade core associated with potassic alteration and surrounded by carbonate zones. All wireframe boundaries including those where lithology and mineralisation correspond, hard boundaries are enforced.
	Discussion of basis for using or not using grade cutting or capping.	Statistical analysis showed the populations in each domain at Twin Peaks to generally have a reasonable coefficient of variation (<1.6) but it was noted that some of the estimation domains included outlier values that required top-cut values to be applied.
	The process of validation, the checking process used, the comparison of model data to drill hole data, and use of reconciliation data if available.	Validation of the block model carried out a volumetric comparison of the resource wireframes to the block model volumes. Validating the estimate compared block model grades to the input data using tables of values, and swath plots showing northing, easting and elevation comparisons. Visual validation of grade trends and metal distributions was carried out. Reconciliation studies for Twin show more or less similar tonnes production to milled tonnes, but with 18% higher milled grade compared with the claimed production grade. This indicates the model is conservative.
Moisture	*Whether the tonnages are estimated on a dry basis or with natural moisture, and the method of determination of the moisture content.*	All tonnages are estimated on a dry basis.
Cut-off parameters	*The basis of the adopted cut-off grade(s) or quality parameters applied.*	Based on Saracen's current economic operations at Carosue Dam, and the natural grade distinction above background, a grade of 0.5g/t has been chosen.
Mining factors or assumptions	*Assumptions made regarding possible mining methods, minimum mining dimensions and internal (or, if applicable, external) mining dilution. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential mining methods, but the assumptions made regarding mining methods and parameters when estimating Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the mining assumptions made.*	Mining of the Twin Peaks at this stage deposit will be dominantly by underground mining methods involving mechanised mining techniques. The geometry of the deposit will make it amenable to mining methods currently employed in many underground operations in similar deposits around the world. No assumptions on mining methodology have been made as yet.
Metallurgical factors or assumptions	*The basis for assumptions or predictions regarding metallurgical amenability. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential metallurgical methods, but the assumptions regarding metallurgical treatment process and parameters made when reporting Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the metallurgical assumptions made.*	The following conclusions can be made from the test work conducted at Twin Peaks: Mineralogical analysis of the ore showed a large proportion of free gold with particles at 10 in size. No composite gold was detected. Sulphides present were mainly as pyrite and arsenopyrite. High proportion of gold recovered to Knelson concentrate (up to 83%). An overall gold recovery of 93% was obtained for this material. The gold recoveries ranged between 90% to 93%, with the lower recovery attributed to gravity stage / intensive cyanidation inefficiencies. Grindability tests showed low ore hardness with a BWi result of 6.9 kWh/t, and low abrasiveness with an abrasion index value of 0.116. The slurry viscosity measurements at the various shear rates showed no major pumping or mixing issues should be experienced with this material. The samples exhibited low cyanide consumptions and very low oxygen demands. A large variation in gold recoveries were obtained depending on test work methods used. Tests which

Section 3: Estimation and Reporting of Mineral Resources

Criteria	JORC Code Explanation	Commentary
		utilised a gravity stage were deemed as most appropriate for assessing anticipated plant performance. The testwork showed that high gold recoveries of 93% for the Twin Peaks material, is achievable. No major processing difficulties are anticipated for this deposits (assuming the material tested is representative of the ore deposit).
Environmental factors or assumptions	*Assumptions made regarding possible waste and process residue disposal options. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider the potential environmental impacts of the mining and processing operation. While at this stage the determination of potential environmental impacts, particularly for a greenfields project, may not always be well advanced, the status of early consideration of these potential environmental impacts should be reported. Where these aspects have not been considered this should be reported with an explanation of the environmental assumptions made.*	No processing or beneficiation of ore expected on these tenements, as ore is hauled to Carosue Dam Minesite for processing. Rehabilitation of Twin Peaks WRL is progressing with 45% of the total area rated as stable with self-sustaining vegetation. The landform is functionally intact and there is no loss of material to the surrounding landscape. While ecosystem diversity completion targets are mostly achieved, landscape stability targets are yet to be achieved. Approximately 70% of the rehabilitated ROM landform, east of Twin Peaks' WRL is poorly vegetated, of which 50% is highly saline. Remedial treatment may be required to achieve 'sign-off'. Repair works are currently under review by SGM management and will be factored into future budgets.
Bulk Density	*Whether assumed or determined. If assumed, the basis for the assumptions. If determined, the method used, whether wet or dry, the frequency of the measurements, the nature, size and representativeness of the samples.*	Previous owners have taken routine density measurements when drilling diamond core. The method of calculation is the water displacement technique. Density in the current model has been assigned based on oxidation state, using historical density determinations carried out by PACMIN and SOG on the drill samples. A detailed set of density data were available for Twin Peaks; these had been rigorously validated. The data was flagged by domain and analysed statistically.
	The bulk density for bulk material must have been measured by methods that adequately account for void spaces (vugs, porosity, etc), moisture and differences between rock and alteration zones within the deposit.	The frequency and distribution is unknown at this point in time. It has assumed from the good reconciliation performance from mine to mill that the determined density assignments from the mine are accurate.
	Discuss assumptions for bulk density estimates used in the evaluation process of the different materials.	Average mean of densities collected for each lithological and weathering profile has been uniformly applied to the modelled geological units. This includes the primary fresh lithologies as well as the weathered oxide and transitional zones.
Classification	*The basis for the classification of the Mineral Resources into varying confidence categories.*	The mineral resource has been classified into Measured, Indicated and Inferred categories based on drill hole spacing, geological confidence, and grade continuity and estimation quality. The combination of these factors together guide the construction of wireframes which select and codes the appropriate blocks with the nominated resource classification category.
	Whether appropriate account has been taken of all the relevant factors (ie relative confidence in tonnage/grade estimations, reliability of input data, confidence in continuity of geology and metal values, quality, quantity and distribution of the data).	The input data is comprehensive in its coverage of the mineralisation and does not favour or misrepresent in-situ mineralisation. Geological control at Twin Peaks consists of a primary mineralisation is associated with easterly plunging alteration zone. The definition of mineralised zones is based on a high level of geological understanding producing a robust model of mineralised domains. The validation of the block model shows good correlation of the input data to the estimated grades.
	Whether the result appropriately reflects the	The geological model and the mineral resource estimate reflect the competent person's view of the

Section 3: Estimation and Reporting of Mineral Resources		
Criteria	**JORC Code Explanation**	**Commentary**
	Competent Person's view of the deposit.	deposit.
Audits or reviews	*The results of any audits or reviews of Mineral Resource estimates.*	Saracen has adopted a process for geological modelling, estimation and reporting of mineral resources that meets high industry standards. No external audits have been conducted on this deposit as Saracen is still conducting an internal scoping study.
Discussion of relative accuracy/confidence	*Where appropriate a statement of the relative accuracy and confidence level in the Mineral Resource estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the resource within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors that could affect the relative accuracy and confidence of the estimate.*	The relative accuracy of the Mineral Resource estimate is reflected in the reporting of the Mineral Resource as per the guidelines of the 2012 JORC Code. The resource estimates have undergone a robust validation process, and as such, the competent person is satisfied that the resources estimated in the block model are a true representation of the global insitu resources.
	The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonnages, which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the procedures used.	The statements relate to a global estimate of tonnes and grade.
	These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.	The Twin Peaks resource model was done using Saracen' s resource estimation procedures. The model has been validated thoroughly and the competent person is satisfied that the estimated gold grades give a true reflection of the global insitu resources. The model had been compared with previous production data and it can be concluded that the model is conservative based on all the available data.

Pinnacles

Section 1: Sampling Techniques and Data		
Criteria	**JORC Code Explanation**	**Commentary**
Sampling Techniques	*Nature and quality of sampling (e.g. cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc.). These examples should not be taken as limiting the broad meaning of sampling.*	Saracen has undertaken reverse circulation (RC) drilling at Pinnacles. Historic sampling methods conducted since 1984 have included rotary air blast (RAB) and RC drillholes.
	Include reference to measures taken to ensure	Sampling for diamond and RC drilling is carried out as specified within Saracen sampling and QAQC

Section 1: Sampling Techniques and Data

Criteria	JORC Code Explanation	Commentary
	sample representivity and the appropriate calibration of any measurement tools or systems used	procedures as per industry standard. RC chips provide high quality representative samples for analysis. RC and RAB drilling was completed by previous holders to industry standard at that time (1984- 2003).
	Aspects of the determination of mineralisation that are Material to the Public Report. In cases where 'industry standard' work has been done this would be relatively simple (e.g. 'reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30 g charge for fire assay'). In other cases more explanation may be required, such as where there is coarse gold that has inherent sampling problems. *Unusual commodities or mineralisation types (e.g. submarine nodules) may warrant disclosure of detailed information*	RC chips are cone split and sampled into 1m intervals with total sample weights under 3kg Samples are selected to weigh less than 3 kg to ensure total sample inclusion at the pulverisation stage. Saracen chip samples are crushed, dried and pulverised to a nominal 90% passing 75µm to produce a 50g sub sample for analysis by FA/AAS. Historical RAB and RC sampling was carried out to industry standard at that time. Analysis methods include fire assay and atomic absorption spectroscopy.
Drilling Techniques	*Drill type (e.g. core, reverse 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.).*	The deposit was initially sampled by 36 RAB holes and 63 RC holes (assumed standard 5 ¼ ''bit size). Saracen has completed 42 surface RC drill holes.
Drill Sample Recovery	*Method of recording and assessing core and chip sample recoveries and results assessed*	RC sampling recoveries are recorded in the database as a percentage based on a visual weight estimate; no historic recoveries have been recorded.
	Measures taken to maximise sample recovery and ensure representative nature of the samples	During RC drilling daily rig inspections are carried out to check splitter condition, general site and address general issues. Historical RAB and RC drilling to industry standard at that time.
	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.	There is no known relationship between sample recovery and grade for RC drilling. Any historical relationship is not known.
Logging	*Whether core and chip samples have been geologically and geotechnically logged to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies.* *Whether logging is qualitative or quantitative in nature.* *Core (or costean, channel, etc) photography.*	Logging of RC chips records lithology, mineralogy, texture, mineralisation, weathering, alteration and veining. Chips from all RC holes are stored in chip trays for future reference. Qualitative and quantitative logging of historic data varies in its completeness.
	The total length and percentage of the relevant intersections logged	All RC drillholes holes are logged in full. Historical logging is approximately 95% complete.
Sub-sampling techniques and sample preparation	*If core, whether cut or sawn and whether quarter, half or all core taken.*	No diamond drilling has been completed at Pinnacles.
	If non-core, whether riffled, tube sampled, rotary	All exploration RC samples are cone split. Occasional wet samples are encountered; increased air

Section 1: Sampling Techniques and Data

Criteria	JORC Code Explanation	Commentary
	split, etc and whether sampled wet or dry.	capacity is routinely used to aid in keeping the sample dry when water is encountered. Historic RAB and RC drilling was sampled using riffle and unknown methods.
	For all sample types, the nature, quality and appropriateness of the sample preparation technique.	The sample preparation of RC chips adheres to industry best practice. It is conducted by a commercial laboratory and involves oven drying, coarse crushing then total grinding to a size of 90% passing 75 microns. Best practice is assumed at the time of historic sampling.
	Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.	All subsampling activities are carried out by commercial laboratory and are considered to be satisfactory. Sampling by previous holders assumed to be industry standard at the time.
	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.	RC field duplicate samples are carried out at a rate of 1:20 and are sampled directly from the on-board splitter on the rig. These are submitted for the same assay process as the original samples and the laboratory are unaware of such submissions. Sampling by previous holders assumed to be industry standard at the time.
	Whether sample sizes are appropriate to the grain size of the material being sampled.	Sample sizes of 3kg are considered to be appropriate given the grain size (90% passing 75 microns) of the material sampled.
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.*	RC chip samples are analysed by external laboratories using a 50g fire assay with AAS finish. This method is considered suitable for determining gold concentrations in rock and is a total digest method. Historic sampling includes fire assay and atomic absorption spectroscopy.
	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 geophysical tools have been utilised for reporting gold mineralisation.
	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.	Certified reference material (standards and blanks) with a wide range of values are inserted into every drillhole at a rate of 1:25 for exploration RC. These are not identifiable to the laboratory. QAQC data returned are checked against pass/fail limits with the SQL database and are passed or failed on import. A report is generated and reviewed by the geologist as necessary upon failure to determine further action. QAQC data is reported monthly. Sample preparation checks for fineness are carried out to ensure a grindsize of 90% passing 75 microns. The laboratory performs a number of internal processes including standards, blanks, repeats and checks. QAQC data analysis demonstrates sufficient accuracy and precision. Industry best practice is assumed for previous holders.
Verification of sampling and assaying	*The verification of significant intersections by either independent or alternative company personnel.*	Significant intercepts are verified by the Geology Manager and corporate personnel.
	The use of twinned holes.	No specific twinned holes have been drilled at Pinnacles.
	Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols	Primary data is collated in a set of excel templates utilising lookup codes. This data is forwarded to the Database Administrator for entry into a secure acQuire database with inbuilt validation functions. Data from previous owners was taken from a database compilation and validated as much as practicable before entry into the Saracen acQuire database.
	Discuss any adjustment to assay data.	No adjustments have been made to assay data. First gold assay is utilised for resource estimation.

Section 1: Sampling Techniques and Data

Criteria	JORC Code Explanation	Commentary
Location of data points	*Accuracy and quality of surveys used to locate drillholes (collar and down-hole surveys), trenches, mine workings and other locations used in Mineral Resource estimation.*	Exploration drillholes are located using a Leica 1200 GPS with an accuracy of +/- 10mm. Downhole surveys are carried out using an Eastman single shot camera at regular intervals (usually 30m). A number of drillholes have also been gyroscopically surveyed. Previous holders' survey accuracy and quality is unknown
	Specification of the grid system used.	A local grid system (Pinnacles East) is used. The two point conversion to MGA_GDA94 zone 51 is PEEast PENorth RL MGAEast MGANorth RL Point 1 993 976 0 439656.00 6649294.68 0 Point 2 974 1060 0 439660.00 6649381.68 0 Historic data is converted to the Pinnacles East local grid upon export from the database.
	Quality and adequacy of topographic control.	Topographic control originally used site based survey pickups in addition to Kevron aerial photogrammetric surveys with +/- 5m resolution. Pre mining, new and more detailed topography has since been captured and will be used in future updates and for subsequent planning purposes.
Data spacing and distribution	*Data spacing for reporting of Exploration Results.*	The nominal spacing for drilling is predominantly 15m x15m.
	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.	Data spacing and distribution are sufficient to establish the degree of geological and grade continuity appropriate for JORC classifications applied.
Orientation of data in relation to geological structure	*Whether sample compositing has been applied.*	Sample compositing is not applied until the estimation stage. Some historic RC sampling was composited into 3m samples.
	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 drillholes are positioned to achieve optimum intersection angles to the ore zone as are practicable.
	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.	No significant sampling bias has been recognised due to orientation of drilling in regards to mineralised structures.
Sample security	*The measures taken to ensure sample security.*	Samples are prepared on site under supervision of Saracen geological staff. Samples are selected, bagged into tied numbered calico bags then grouped into secured cages and collected by the laboratory personnel. Sample submissions are documented via laboratory tracking systems and assays are returned via email
Audits or reviews	*The results of any audits or reviews of sampling techniques and data.*	An internal review of companywide sampling methodologies was conducted to create the current sampling and QAQC procedures. No external audits or reviews have been conducted.

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 Pinnacles resource is located on M28/243. The tenement is held 100% by Saracen Gold Mines Pty Ltd, a wholly owned subsidiary of Saracen Mineral Holdings Limited. Mining Lease M28/243 has a 21 year life (held until 2031) and is renewable for a further 21 years on a continuing basis. Mining Lease M28/243 is subject to one royalty agreement and a caveat (454H/067). All production is subject to a Western Australian state government NSR royalty of 2.5%. There is one registered Aboriginal Heritage site within Mining Lease M28/243 (ID19141).
	The security of the tenure held at the time of reporting along with any known impediments to obtaining a licence to operate in the area.	The tenement is in good standing and there are no known impediments to obtaining a license to operate.
Exploration done by other parties	*Acknowledgment and appraisal of exploration by other parties.*	Numerous companies have undertaken extensive gold exploration in the Pinnacles region beginning in the 1980's. Central Kalgoorlie Gold Mines carried out mapping, geological and aerial surveys and RC drilling, yielding no significant results. Esmeralda Resources acquired the project and carried out channel and costean sampling, rock chip and RC drilling, intersecting mineralisation and defining a resource. Various geochemical and geophysical surveys were then conducted by Cesium International, MIM and Troy Resources, outlining a number of anomalies. Aberfoyle acquired the leases and carried out RAB drilling to test previously defined anomalies. Minor mineralisation was encountered. Sons of Gwalia carried out a successful RC drilling program designed to intersect mineralisation at depth and further define the resource, as well as a regional shallow RAB program, which returned no significant gold. The project was acquired by St Barbara's following the collapse of Sons of Gwalia.
Geology	*Deposit type, geological setting and style of mineralisation.*	The Pinnacles project area is situated within the Eastern Goldfields Province of the Archaean Yilgarn Craton, on the eastern margin of the Norseman- Wiluna greenstone belt. Geology of the project area is dominated by volcanically derived sandstones, black shales, mafic and ultramafic volcanics and granites. Gold mineralisation at Pinnacles is structurally controlled and defines three major domains, (Dom01, Dom02 and Dom02A) hosted within the black shale units. Intense mineralisation is associated with quartz veining and significant hematite and sulphide alteration and clay, which gives the highly mineralised zones a distinct orange brown colour. The high grade zones plunge gently (20 degrees) to the south. At depth (around the 245 to 255mRL) there is evidence of an easterly dipping (80 degrees) syn/post shear zone that obliterates the mineralisation in the major domain, Dom01.
Drillhole 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.*	All material data was periodically released on the ASX dated; 25/01/2013, 27/04/2012, 05/03/2012, 27/01/2012, 06/01/2012, 30/07/2008, 16/06/2008. Future drill hole data will be periodically released or when a results materially change the economic value of the project. Exclusion of the drilling information will not detract from the reader's view of the report.

Section 2: Reporting of Exploration Results

Criteria	JORC Code Explanation	Commentary
	• *If the exclusion of this information is justified on the basis that the information is not Material and this exclusion does not detract from the understanding of the report, the Competent Person should clearly explain why this is the case.*	
Data aggregation methods	*In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (e.g. cutting of high grades) and cut-off grades are usually Material and should be stated.*	All significant intercepts have been length weighted with a minimum Au grade of 1ppm. No high grade cut off has been applied.
	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.	Intercepts are aggregated with minimum width of 1m and maximum width of 3m for internal dilution. Where stand out higher grade zone exist with in the broader mineralised zone, the higher grade interval is reported also.
	The assumptions used for any reporting of metal equivalent values should be clearly stated.	Metal equivalent values are not reported
Relationship between mineralisation widths and intercept lengths	*These relationships are particularly important in the reporting of Exploration Results.* *If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.* *If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (eg 'down hole length, true width not known').*	Previous announcements included sufficient detail to clearly illustrate the geometry of the mineralisation and the recent drilling. All results are reported as downhole lengths.
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.*	All significant exploration results released by Saracen are accompanied by the appropriate diagrams and maps at the time of the release.
Balanced Reporting	*Where comprehensive reporting of all Exploration Results are not practicable, representative reporting of both low and high grades and/or widths should be practiced to avoid misleading reporting of Exploration Results.*	All results from previous campaigns have been reported, irrespective of success or not.
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*	No substantive data acquisition has been completed in recent times.

Section 2: Reporting of Exploration Results		
Criteria	**JORC Code Explanation**	**Commentary**
	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 planned further work (eg tests for lateral extensions or depth extensions or large-scale step-out drilling).* *Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive*	The Pinnacle Deposit is a current exploration play that will be further reviewed post optimisation processes.

Section 3: Estimation and Reporting of Mineral Resources		
Criteria	**JORC Code Explanation**	**Commentary**
Database Integrity	*Measures taken to ensure that data has not been corrupted by, for example, transcription or keying errors, between its initial collection and its use for Mineral Resource estimation purposes.*	Saracen utilises AcQuire software on an SQL server database to securely store and manage all drillhole and sample information. Data integrity protocols are built into the system to ensure data validity and minimise errors.
	Data validation procedures used.	Data that is captured in the field is entered into Excel templates which are checked on import into the database for errors. Assay jobs are dispatched electronically to the lab to minimise the chance of data entry errors. Assay results from the lab are received in CSV format and are checked for errors on import into the database. Data is regularly validated using the mining software. The data validation process is overseen by the Database Administrator.
Site Visits	*Comment on any site visits undertaken by the Competent Person and the outcome of those visits.*	The Competent Person visited the geological area to assess geological competency and ensure integrity across all exploration geological disciplines.
	If no site visits have been undertaken indicate why this is the case.	
Geological Interpretation	*Confidence in (or conversely, the uncertainty of) the geological interpretation of the mineral deposit.*	The resource categories assigned to the model directly reflect the confidence in the geological interpretation that is built using local, structural, mineral, and alteration geology obtained from logging, drill results and geophysics.
	Nature of the data used and any assumptions made.	The interpretations have been constructed using all available geological logging descriptions including but not limited to, stratigraphy, lithology, texture, and alteration. It was highlighted that alteration style and colour can be adequately used to define hangingwall and footwall positions of the mineralised zone as well as a fault zone that cuts the primary ore zone and obliterates gold. Relogging of various historic RC holes and downhole magnetic surveys assisted in ore definition and propelled a geological theory of micro folding and fold nose geometry to the north of the deposit. Cross sectional interpretations of the mineralisation have been created and from the basic framework through which the 3D wireframe solid is built.

Section 3: Estimation and Reporting of Mineral Resources

Criteria	JORC Code Explanation	Commentary
	The affect, if any, of alternative interpretations on Mineral Resource estimation.	Due to the reasonably simplistic nature of the mineralisation no alternative interpretations have been considered. Over the life of the project additional drilling campaigns have confirmed the strong north-south strike of the main mineralised zone.
	The use of geology in guiding and controlling the Mineral Resource estimation.	The geology has heavily influenced the domains controlling the mineral resource estimation. The structurally controlled mineralisation within a sedimentary host is clearly defined by alteration style and colour that is dominated by a quartz-hematite-sulphide-clay assemblage. These mineralised domains were wireframed with hard boundaries.
	The factors affecting continuity both of grade and geology.	At depth (around the 245 to 255mRL) there is evidence of a north-south trending steeply east dipping syn/post faulted/shear zone that is not gold bearing. This creates a 10m barren zone within the main mineralised domain. Where drilling intersects this fault zone, sheared and altered sediments can be identified and are visually different to that of the Au bearing zones. Four southerly plunging high grade shoots were identified within the Main mineralised domain. These shoots, with increased alteration and sulphide enrichment, were wireframed as hard boundaries.
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.*	Pinnacles mineralisation extends from 850mN to 1180mN, 950mE – 1020mE to 180m below surface. The Pinnacles shear generally strikes North-South and dips 80 to 85° towards the West with a gentle southerly plunge. The plunge steepens to the north (up to 60°) in closer proximity to the interpreted fold nose. In the vicinity of the strongest gold mineralisation the high grade zones plunge consistently at 20° to south mimicking that of its host.
Estimation and modelling techniques	*The nature and appropriateness of the estimation technique(s) applied and key assumptions, including treatment of extreme grade values, domaining, interpolation parameters and maximum distance of extrapolation from data points.*	Block estimation has been completed using Datamine software. All compositing, wireframes, surfaces, rock and domain models were constructed in Micromine. All estimation uses these wireframes as hard boundaries. Estimation of parent blocks are interpolated, and assigned to sub-cells. The maximum distance of extrapolation is less than 40m. Univariate statistical analysis of length weighted, (1m), domain and regolith coded downhole composites have been completed for all domains and top-cuts applied where applicable. Extreme grades are not common in the data set excluding the high grade zones. The high grade shoots exhibited a greater number of outliers up to 61g/t. All domains have been analysed individually to determine specific top-cut values. Estimations used only RC and Diamond Drill results, negative Au grades were replaced with a value of 0.001g/t, and null assays were excluded from the sample data. Unfolding was carried out prior to variography and estimation to remove the local variances in dip and strike observed in the domains. Variogram modelling was completed with GeoAccess Professional software. This defined the special continuity with in the domains. The parameters determined from this analysis were used in the interpolation process.
	The availability of check estimates, previous estimates and/or mine production records and whether the Mineral Resource estimate takes appropriate account of such data.	An inverse distance cubed estimate was run simultaneously with the ordinary kriged resource estimate, with an insignificant (0.01) variance between the global Au grade values. The Pinnacles resource model was compared to the previously run OK model of 2010. Additional drilling completed in 2011 and 2012 expanded the current resource to have additional 40% more tonnes and 42% more ounces than the prior 2010 model. This increase is geologically supported. There has been no production recorded for this deposit.
	The assumptions made regarding recovery of by-products.	No assumptions have been made with respect to the recovery of by-products.

Section 3: Estimation and Reporting of Mineral Resources

Criteria	JORC Code Explanation	Commentary
	Estimation of deleterious elements or other non-grade variables of economic significance (e.g. sulfur for acid mine drainage characterisation).	There has been no estimate at this point of deleterious elements. Saracen is unaware if any elements other than gold have been assayed.
	In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed.	The parent block sizes for the resource model are X (5m) by Y (10m) by Z (5m). These are deemed appropriate for the majority of the resource, where drill spacing is in the order of 15m x 15m to 10m x 15m. Parent blocks have been sub-celled to X (1.0m) by Y (1.0m) by Z (1.0m) to ensure that the wireframe boundaries are honoured and preserve the location and shape of the mineralisation. Search ranges have been informed by variogram modelling and knowledge of the drill spacing and the known mineralisation geometry including direction of maximum continuity. Three search estimation runs are used with the aim to satisfy the minimum sample criteria in the first search range where possible.
	Any assumptions behind modelling of selective mining units.	No selective mining units have been assumed.
	Any assumptions about correlation between variables.	No assumptions have been made regarding correlation between variables.
	Description of how the geological interpretation was used to control the resource estimates.	The geological interpretation strongly correlates with the mineralised domains and clearly defines the high grade zones. Hard wireframes were used to define all the mineralised domains. The estimation search parameters helped to control the extent of the barren waste zone (10-15m) observed in the main ore shoot.
	Discussion of basis for using or not using grade cutting or capping.	Statistical analysis of all domains highlighted minimal outliers and only the main domain (Dom01) and its associated high grade shoots required top cutting to eliminate the risk of overestimating in the local areas. Normal histogram and log probability plots were used to determine appropriate top cuts.
	The process of validation, the checking process used, the comparison of model data to drill hole data, and use of reconciliation data if available.	Several key model validation steps have been taken to validate the resource estimate. The mineral resource model has been stepped through visually in sectional and plan view to appreciate the composite grades used in the estimate and the resultant block grades. This has also been carried out in 3D with the composite grades and a point cloud of the model grades. Easting, Northing and Elevation swathe plots have been constructed to evaluate the composited assay means versus the mean block estimates. The mineral resource model has been constructed to include kriging efficiency and the slope of regression values. These values are used to measure the quality of the estimate. Natural deterioration of the quality is observed in areas where data density is lower. No production has taken place for this deposit.
Moisture	*Whether the tonnages are estimated on a dry basis or with natural moisture, and the method of determination of the moisture content.*	All tonnages are estimated on a dry basis.
Cut-off parameters	*The basis of the adopted cut-off grade(s) or quality parameters applied.*	Based on Saracen's current economic operations at Carosue Dam, and the natural grade distinction above background, a grade of 0.4g/t has been chosen.
Mining factors or assumptions	*Assumptions made regarding possible mining methods, minimum mining dimensions and internal (or, if applicable, external) mining dilution. It is*	There are reasonable grounds to assume that in the future the Pinnacles resource will be mined by conventional open pit methods given the close proximity to surface and the mean average grade of the mineralisation.

Section 3: Estimation and Reporting of Mineral Resources

Criteria	JORC Code Explanation	Commentary
	always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential mining methods, but the assumptions made regarding mining methods and parameters when estimating Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the mining assumptions made.	
Metallurgical factors or assumptions	*The basis for assumptions or predictions regarding metallurgical amenability. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential metallurgical methods, but the assumptions regarding metallurgical treatment process and parameters made when reporting Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the metallurgical assumptions made.*	At this stage of the project there is no metallurgical data available.
Environmental factors or assumptions	*Assumptions made regarding possible waste and process residue disposal options. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider the potential environmental impacts of the mining and processing operation. While at this stage the determination of potential environmental impacts, particularly for a greenfields project, may not always be well advanced, the status of early consideration of these potential environmental impacts should be reported. Where these aspects have not been considered this should be reported with an explanation of the environmental assumptions made.*	Environmental considerations are captured by Program of Work (PoW) requirements. Operations on these tenements are purely exploratory in nature to date.
Bulk Density	*Whether assumed or determined. If assumed, the basis for the assumptions. If determined, the method used, whether wet or dry, the frequency of the measurements, the nature, size and representativeness of the samples.*	The density values applied to the Pinnacles estimation are largely based on historic density measures for similar lithological units in the same geological zones. The absence of diamond holes into the Pinnacles Deposit does not allow for accurate bulk density testing.
	The bulk density for bulk material must have been measured by methods that adequately account for void spaces (vugs, porosity, etc), moisture and differences between rock and alteration zones	It is unknown how the historic bulk densities were measured. Any future bulk density measurements will follow the Saracens Metals standardised procedures.

Section 3: Estimation and Reporting of Mineral Resources

Criteria	JORC Code Explanation	Commentary
	within the deposit.	Saracens Metals have standardised procedures for bulk density testing. Most ore zones predominantly exist in transitional to fresh non porous material, however additional measures are taken to reduce moisture intake during the water displacement process if the coating is made of more friable oxides and sediments. This latter method aims to reduce moisture loss or moisture gain during the process and is considered on a deposit by deposit basis.
	Discuss assumptions for bulk density estimates used in the evaluation process of the different materials.	Density values are allocated uniformly to each lithological and regolith type. This includes the primary fresh lithologies as well as the weathered oxide and transitional zones.
Classification	*The basis for the classification of the Mineral Resources into varying confidence categories.*	The mineral resource has been classified into Indicated and Inferred categories based on drill hole spacing, geological confidence, and grade continuity and estimation quality. The combination of these factors together guided the hard boundary wireframe used to define the Indicated zone. Ore zones outside this wireframe were coded with the inferred category.
	Whether appropriate account has been taken of all the relevant factors (ie relative confidence in tonnage/grade estimations, reliability of input data, confidence in continuity of geology and metal values, quality, quantity and distribution of the data).	All care has been taken to account for relevant factors influencing the mineral resource estimate. The diligent Saracen Metals Resource review process ensures that data reliability and geological and metal confidence and continuity are reflected in the resource classification.
	Whether the result appropriately reflects the Competent Person's view of the deposit.	The geological model and the mineral resource estimate reflect the competent person's view of the deposit.
Audits or reviews	*The results of any audits or reviews of Mineral Resource estimates.*	Saracen has adopted a process for geological modelling, estimation and reporting of mineral resources that meets high industry standards. At the completion of resource estimation Saracen Metals undertake an extensive review of the model that covers; Model inventory and comparisons to previous and budget models if in existence Geological interpretation, wireframing, domain selection, statistics by domain, assay and metal evaluation, parent cell sizes, data compositing, variography, search strategy, estimation and KNA Model validation – swathe plots, visual checks, volume comparisons, composite to model metal comparisons. In the final stages the model and resource categorisation are all discussed and scrutinized by the geological and mine planning teams. Due to the simple geological setting of the Pinnacles Deposit no external audits have been conducted.
Discussion of relative accuracy/confidence	*Where appropriate a statement of the relative accuracy and confidence level in the Mineral Resource estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the resource within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors that could affect the relative accuracy and confidence of the estimate.*	The mineral resource has been reported in accordance with the guidelines established in the 2012 edition of the JORC code. Saracen Gold Mine uses a standard approach to resource estimation and the procedure requires the systematic completion of the Saracen Resource Estimation Document that is thoroughly investigated and assessed in the Model review process, as stated above. It was identified that further work on KNA for block size, minimum and maximum number of samples, search ellipses would help to further improve the optimisation of the block model.

Section 3: Estimation and Reporting of Mineral Resources		
Criteria	**JORC Code Explanation**	**Commentary**
	The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonnages, which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the procedures used.	The statements relate to a global estimate of tonnes and grade.
	These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.	No previous mining has occurred at this deposit.

Blue Manna

Section 1: Sampling Techniques and Data		
Criteria	**JORC Code Explanation**	**Commentary**
Sampling Techniques	*Nature and quality of sampling (e.g. cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc.). These examples should not be taken as limiting the broad meaning of sampling.*	Sampling methods undertaken at Blue Manna have included surface aircore (AC), reverse circulation (RC) and diamond drilling (DD).Auger sampling has also been carried out.
	Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used	Sampling was guided by Saracen Sampling and QAQC procedures as per industry standard. Historical RC and AC drilling was completed by previous holders to industry standard at that time (1994).
	Aspects of the determination of mineralisation that are Material to the Public Report. In cases where 'industry standard' work has been done this would be relatively simple (e.g. 'reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30 g charge for fire assay'). In other cases more explanation may be required, such as where there is coarse gold that has inherent sampling problems. *Unusual commodities or mineralisation types (e.g. submarine nodules) may warrant disclosure of detailed information*	Saracen RC and auger samples are crushed, dried and pulverised to a nominal 90% passing 75µm to produce a 40 g sub sample for analysis by FA/AAS. Historical AC and RC sampling was carried out to industry standard at that time. Analysis methods include fire assay, aqua regia and unspecified methods.
Drilling Techniques	*Drill type (e.g. core, reverse 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-*	The deposit was initially sampled by 77 AC holes and 24 RC holes (assumed standard 5 ¼" bit size). Saracen has completed 97 surface RC holes, 1688 auger samples and 2 surface HQ diameter DD holes.

Section 1: Sampling Techniques and Data		
Criteria	**JORC Code Explanation**	**Commentary**
	sampling bit or other type, whether core is oriented and if so, by what method, etc.).	
Drill Sample Recovery	*Method of recording and assessing core and chip sample recoveries and results assessed*	Sampling recoveries of Saracen RC holes were recorded as a percentage based on a visual weight estimate. No historical record exists in the Saracen database of previous RC and AC sampling recoveries. Diamond core recovery percentages calculated from measured core versus drilled intervals are logged and recorded in the database. Recoveries average >90%
	Measures taken to maximise sample recovery and ensure representative nature of the samples	At the RC rig, sampling systems are routinely cleaned to minimise contamination and drilling methods are focused on sample quality. Previous AC and RC drilling were carried out according to industry standard at that time.
	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 sample recovery issues have impacted on potential sample bias. Any relationship with historical drilling is not known.
Logging	*Whether core and chip samples have been geologically and geotechnically logged to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies.* *Whether logging is qualitative or quantitative in nature.* *Core (or costean, channel, etc) photography.*	Logging of RC chips and diamond core records lithology, mineralogy, texture, mineralisation, weathering, alteration, veining and other features. Geotechnical logging was carried out on all drill core, and all core was photgraphed. Structural logging was carried out in selected RC holes using Televiewer acoustic logging technology which recorded the interpreted structure, its depth, dip and dip direction. Qualitative logging varies in the level of detail.
	The total length and percentage of the relevant intersections logged	Logging is 100% complete with all AC, RC and DD information available.
Sub-sampling techniques and sample preparation	*If core, whether cut or sawn and whether quarter, half or all core taken.*	Diamond core is likely to be half cored following further structural anaylsis.
	If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry.	Saracen RC samples were cone split, while historic AC and RC samples were sampled using unknown methods. Occasional wet samples were encountered.
	For all sample types, the nature, quality and appropriateness of the sample preparation technique.	The sample preparation of AC and RC chips adhere to industry best practice. It is conducted by a commercial laboratory and involves oven drying, coarse crushing then total grinding using an LM5 to a grind size of 90% passing 75 microns. Best practice is assumed at the time of historic sampling.
	Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.	All subsampling activities are carried out by commercial laboratory and are considered to be satisfactory. Sampling by previous holders assumed to be industry standard at the time.
	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.	RC field duplicate samples are carried out at a rate of 1:20 and are sampled directly from the on-board splitter on the rig. These are submitted for the same assay process as the original samples and the laboratory are unaware of such submissions. Sampling by previous holders assumed to be industry standard at the time.
	Whether sample sizes are appropriate to the grain size of the material being sampled.	Sample sizes of 3kg are considered to be appropriate given the grain size (90% passing 75 microns) of the material sampled.

Section 1: Sampling Techniques and Data

Criteria	JORC Code Explanation	Commentary
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.*	RC chip samples are analysed by external laboratories using a 40g or 50g fire assay with AAS finish. This method is considered suitable for determining gold concentrations in rock and is a total digest method. Historic sampling includes fire assay and unknown methods.
	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 geophysical tools, spectrometer, handheld XRF have been utilised for reporting gold mineralisation.
	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.	Certified reference material (standards and blanks) with a wide range of values are inserted into every drillhole at a rate of 1:25 for exploration RC drilling. These are not identifiable to the laboratory. QAQC data returned are checked against pass/fail limits with the SQL database and are passed or failed on import. A report is generated and reviewed by the geologist as necessary upon failure to determine further action. QAQC data is reported monthly. Sample preparation checks for fineness are carried out to ensure a grindsize of 90% passing 75 microns. The laboratory performs a number of internal processes including standards, blanks, repeats and checks. QAQC data analysis demonstrates sufficient accuracy and precision. Industry best practice is assumed for previous holders.
Verification of sampling and assaying	*The verification of significant intersections by either independent or alternative company personnel.*	Significant intercepts are verified by the Geology Manager and corporate personnel.
	The use of twinned holes.	No twinned holes have been drilled at Blue Manna.
	Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols	Primary data is collated in a set of Excel templates utilising lookup codes. This data is forwarded to the Database Administrator for entry into a secure acQuire database with inbuilt validation functions. Data from previous owners was taken from a database compilation and validated as much as practicable before entry into the Saracen acQuire database.
	Discuss any adjustment to assay data.	No adjustments have been made to assay data. First gold assay is utilised for resource estimation.
Location of data points	*Accuracy and quality of surveys used to locate drillholes (collar and down-hole surveys), trenches, mine workings and other locations used in Mineral Resource estimation.*	Exploration drillholes are located using a Leica 1200 GPS with an accuracy of +/- 10mm. Historic RC collars within the immediate surrounds of Saracen-drilled holes were picked up using the same instrument. Downhole surveys are carried out using an Eastman single shot camera at regular intervals (usually 30m). A number of drillholes have also been gyroscopically surveyed. Previous holders' survey accuracy and quality is unknown
	Specification of the grid system used.	A local grid system (Old Plough Dam East) is used. The two point conversion to MGA_GDA94 zone 51 is: OPDEEast OPDENorth RL MGAEast MGANorth RL Point 1 51933.86 51985.59 0 436148.56 6675821.82 0 Point 2 51312.14 51120.80 0 436061.05 6674760.34 0 Historic data is converted to the Old Plough Dam East local grid upon export from the database.
	Quality and adequacy of topographic control.	DGPS survey has been used to establish a topographic surface.
Data spacing and	*Data spacing for reporting of Exploration Results.*	The nominal spacing for drilling is 25m x 25m.

Section 1: Sampling Techniques and Data

Criteria	JORC Code Explanation	Commentary
distribution	*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.*	Data spacing and distribution are sufficient to establish the degree of geological and grade continuity appropriate for JORC classifications applied.
Orientation of data in relation to geological structure	*Whether sample compositing has been applied.*	Sample compositing is not applied until the estimation stage. Historic AC sampling was composited into 4m samples with areas of interest re-sampled to 1m intervals. It is unknown at what threshold this occurred.
	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 drillholes are positioned to achieve optimum intersection angles to the ore zone as are practicable.
	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.	No significant sampling bias is thought to occur due to orientation of drilling in regards to mineralised structures
Sample security	*The measures taken to ensure sample security.*	Samples are prepared on site under supervision of Saracen geological staff. Samples are selected, bagged into tied numbered calico bags then grouped into secured cages and collected by the laboratory personnel. Sample submissions are documented via laboratory tracking systems and assays are returned via email.
Audits or reviews	*The results of any audits or reviews of sampling techniques and data.*	An internal review of companywide sampling methodologies was conducted to create the current sampling and QAQC procedures. No external audits or reviews have been conducted.

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.*	Blue Manna is wholly located within Mining Lease M31/156. The tenement is held 100% by Saracen Gold Mines Pty Ltd, a wholly owned subsidiary of Saracen Mineral Holdings Limited. Mining Lease M31/156 has a 21 year life (held until 2029) and is renewable for a further 21 years on a continuing basis. Mining Lease M31/156 is subject to two third party royalties and two caveats (Caveats 340981 and 432950). All production is subject to a Western Australian state government NSR royalty of 2.5%. Mining Lease M31/156 is subject to the Gindalbie Pastoral Compensation Agreement.
	The security of the tenure held at the time of reporting along with any known impediments to obtaining a licence to operate in the area.	The tenement is in good standing.
Exploration done by other parties	*Acknowledgment and appraisal of exploration by other parties.*	The Blue Manna area was covered by Pancontinental Mining's regional exploration programme in the early 1990s. The prospect itself was traversed by auger and a few AC and RC drillholes (drilled in 1994). RAB holes, drilled between 1993 and 1997, are located further to the NW of the Blue Manna deposit. Saracen tightened up the auger sampling in 2008 and followed it up by 4 RC drillholes in 2012. Significant intercepts were encountered in all the drillholes such that follow up drilling was carried out in

Section 2: Reporting of Exploration Results

Criteria	JORC Code Explanation	Commentary
		May 2013.
Geology	*Deposit type, geological setting and style of mineralisation.*	The Blue Manna deposit sits along the regional NNW-trending Keith-Kilkenny fault zone within the eastern edge of the Norseman-Wiluna greenstone belt. Mineralization appears to be associated with lithological and/or structural contacts in between the shale and sandstone-siltstone interbed, with the best grades occurring within a dilated sandstone unit. Mineralization is accompanied by silicification, quartz veining, and minor sulphidation. Sericite alteration has been logged in some mineralized intervals.
Drillhole 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 does not detract from the understanding of the report, the Competent Person should clearly explain why this is the case.*	Material information about Saracen's Blue Manna drilling campaign were reported on ASX releases dated 22 July 2015, 10 June 2015, 17 April 2013, 6 August 2013 and in the 2013 Annual Report. Future drill hole data will be periodically released or when a results materially change the economic value of the project. Exclusion of the drilling information will not detract from the reader's view of the report.
Data aggregation methods	*In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (e.g. cutting of high grades) and cut-off grades are usually Material and should be stated.*	All significant intercepts have been length-weighted with a minimum Au grade of 1ppm.
	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.	No interval below 1m was sampled.
	The assumptions used for any reporting of metal equivalent values should be clearly stated.	There are no metal equivalents reported in this release.
Relationship between mineralisation widths and intercept lengths	*These relationships are particularly important in the reporting of Exploration Results.* *If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.* *If it is not known and only the down hole lengths are*	Drillholes on average are at 50 degrees to the mineralised contacts, thus the ratio of down length to true width is 1m: 0.75m.

Section 2: Reporting of Exploration Results

Criteria	JORC Code Explanation	Commentary
	reported, there should be a clear statement to this effect (eg 'down hole length, true width not known').	
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.*	All significant exploration results released by Saracen are accompanied by the appropriate diagrams and maps at the time of the release.
Balanced Reporting	*Where comprehensive reporting of all Exploration Results are not practicable, representative reporting of both low and high grades and/or widths should be practiced to avoid misleading reporting of Exploration Results.*	All results from the recent campaign have been reported, irrespective of success or not.
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.*	Auger drilling, SAM and Gravity geophysical surveys were completed over the Blue Manna region allowing the drill program to be refined and prioritised by the results.
Further work	*The nature and scale of planned further work (eg tests for lateral extensions or depth extensions or large-scale step-out drilling). Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive*	Blue Manna is a current exploration play that will be further reviewed post optimisation processes.

Section 3: Estimation and Reporting of Mineral Resources

Criteria	JORC Code Explanation	Commentary
Database Integrity	*Measures taken to ensure that data has not been corrupted by, for example, transcription or keying errors, between its initial collection and its use for Mineral Resource estimation purposes.*	Saracen utilises AcQuire software on an SQL server database to securely store and manage all drillhole and sample information. Data integrity protocols are built into the system to ensure data validity and minimise errors.
	Data validation procedures used.	Data that is captured in the field is entered into Excel templates which are checked on import into the database for errors. Assay jobs are dispatched electronically to the lab to minimise the chance of data entry errors. Assay results from the lab are received in CSV format and are checked for errors on import into the database. Data is regularly validated using the mining software. The data validation process is overseen by the Database Administrator.

Section 3: Estimation and Reporting of Mineral Resources

Criteria	JORC Code Explanation	Commentary
Site Visits	*Comment on any site visits undertaken by the Competent Person and the outcome of those visits.*	Site visits were undertaken at the Blue Manna prospect during review and exploration stages by the competent person.
	If no site visits have been undertaken indicate why this is the case.	
Geological Interpretation	*Confidence in (or conversely, the uncertainty of) the geological interpretation of the mineral deposit.*	Blue Manna is interpreted as a series of stacked parallel lodes that follow the lithological or structural contacts between the shale and sandstone-siltstone interbed. Best grades are observed within a dilated sandstone unit. There is reasonable confidence in the global interpretation, however given the current drill spacing and the variability in AU (high nugget) the estimation is classified as Inferred.
	Nature of the data used and any assumptions made.	The interpretations have been constructed using all available geological logging descriptions including but not limited to, stratigraphy, lithology, weathering, sulphide content and alteration. It is identified that mineralization is accompanied by silicification, sericite alteration, quartz veining, and minor sulphidation.
	The affect, if any, of alternative interpretations on Mineral Resource estimation.	Given the drill results and the known geological regime, the current interpretation is the best fit. There are currently no alternative interpretations.
	The use of geology in guiding and controlling the Mineral Resource estimation.	The lithological geology has influenced the extent and dip of the domains controlling the mineral resource estimation.
	The factors affecting continuity both of grade and geology.	The continuity of the ore zones that make up Blue Manna are limited only by the extents of drilling. Within the drilled areas gold and geology continuity is largely controlled by the interlayers of metasediments, particularly the rheological contrast that occurs with the shale marker unit. Sericite alteration and quartz veining locally affect the grade continuity. Possible cross cutting structures (NE trending) appear to disjoint or offset the mineralisation along strike.
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 mineral resource covers an area 500m in the strike direction X 150m in width. It extends to 150m below the surface. Blue Manna sits within the local coordinates 51000mE – 51150mE, 49100mN – 49600mN and 340mRL – 192.5mRL.
Estimation and modelling techniques	*The nature and appropriateness of the estimation technique(s) applied and key assumptions, including treatment of extreme grade values, domaining, interpolation parameters and maximum distance of extrapolation from data points.*	A combination of categorical and ordinary kriged estimation was deemed appropriate for the Blue Manna deposit. Categorical estimation was used for the main lodes that were well defined by geology. An indicator at 0.4g/t cut off threshold (and resulting indicator variogram) was used to define the high grade and low grade subdomains within these main lodes. These subdomains and other subsidiary structures were then ordinary kriged to produce a robust Au estimation. KNA, swathe plots, comparative studies of mean composite and model grades and a visual inspection of the model support the level of confidence in the estimation. All estimation uses these wireframes as hard boundaries. Estimation of parent blocks are interpolated, and assigned to sub-cells. The maximum distance of extrapolation is less than 40m. Analyses of sample data lengths show all are 1m. A composite interval of 1m was chosen to maintain the differentiation of internal high grade and waste zones within the mineralised domains. Composites were broken where there was a change of mineralisation domain, subdomain code or regolith code. Clusters of higher grade outliers that could bias the mean were identified by domain by the use of log probability and mean variance plots. High grade outliers were used to determine specific top-cut values for each domain. Estimations used 100% RC Drill results, negative Au grades were replaced with a value of 0.001g/t, and

Section 3: Estimation and Reporting of Mineral Resources

Criteria	JORC Code Explanation	Commentary
		null assays were excluded from the sample data. Variogram modelling was completed with Supervisor software. This defined the sample continuity and nugget value for each domain. The parameters determined from this analysis were used in the interpolation process.
	The availability of check estimates, previous estimates and/or mine production records and whether the Mineral Resource estimate takes appropriate account of such data.	With the increased and extended drilling the current Blue Manna resource extends beyond the previous resource estimation. A comparison was completed for the same dimensions of the previous estimation as a check. A slight variation in the ounces can be easily accounted for as the current resource is more informed with newer assay results. Mining has not commenced at Blue Manna.
	The assumptions made regarding recovery of by-products.	No assumptions have been made with respect to the recovery of by-products.
	Estimation of deleterious elements or other non-grade variables of economic significance (e.g. sulfur for acid mine drainage characterisation).	Estimation of deleterious elements or other non-grade variables of economic significance (e.g. sulfur for acid mine drainage characterisation): There has been no estimate at this point of deleterious elements
	In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed.	The parent block sizes for the resource model are X (10m) by Y (25m) by Z (5m). These were deemed globally appropriate for the resource, where drill spacing is in the order from 25m x 25m. Parent blocks have been sub-celled to X (1.0m) by Y (2.5m) by Z (1.0m) to ensure that the wireframe boundaries were honoured and preserved the location and shape of the mineralisation. Search ranges have been informed by variogram modelling and knowledge of the drill spacing and the known mineralisation geometry including direction of maximum continuity. Three search estimation runs are used with the aim to satisfy the minimum sample criteria in the first search range where possible.
	Any assumptions behind modelling of selective mining units.	No selective mining units have been assumed.
	Any assumptions about correlation between variables.	No assumptions have been made regarding correlation between variables.
	Description of how the geological interpretation was used to control the resource estimates.	The geology was used to define the hard wireframed domains, which were subsequently used in the estimation.
	Discussion of basis for using or not using grade cutting or capping.	Linear interpolation methods such as Ordinary Kriging are sensitive to the presence of high-grade outliers that positively skew the data and bias the mean. Domain histogram and Log probability plots were used to determine appropriate top cuts.
	The process of validation, the checking process used, the comparison of model data to drill hole data, and use of reconciliation data if available.	A number of validation and checking processes was used to ensure the integrity of the estimation. These checks included; Volume comparison of wireframes to estimate domain volumes Mean composite grade comparison to mean estimate grade of the estimate by domain Swathe plots in northing, easting and RL slices for each domain Slope and KE means for each domain A step through visual inspection comparing the estimates to composited data. All validation steps indicated that the Blue Manna estimate was a globally robust model.
Moisture	*Whether the tonnages are estimated on a dry basis or with natural moisture, and the method of*	All tonnages were calculated on a dry basis and the density values take into consideration the moisture potential in the oxide horizons.

Section 3: Estimation and Reporting of Mineral Resources

Criteria	JORC Code Explanation	Commentary
	determination of the moisture content.	
Cut-off parameters	*The basis of the adopted cut-off grade(s) or quality parameters applied.*	The adopted cut-off grades for Mineral Resource Estimation reporting are 0.5g/t for Open Pit Resource
Mining factors or assumptions	*Assumptions made regarding possible mining methods, minimum mining dimensions and internal (or, if applicable, external) mining dilution. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential mining methods, but the assumptions made regarding mining methods and parameters when estimating Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the mining assumptions made.*	There are reasonable grounds to assume that in the future the Blue Manna resource will be mined by conventional open pit methods given the close proximity to surface and the mean average grade of the mineralisation.
Metallurgical factors or assumptions	*The basis for assumptions or predictions regarding metallurgical amenability. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential metallurgical methods, but the assumptions regarding metallurgical treatment process and parameters made when reporting Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the metallurgical assumptions made.*	At this stage of the project there is no metallurgical data available.
Environmental factors or assumptions	*Assumptions made regarding possible waste and process residue disposal options. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider the potential environmental impacts of the mining and processing operation. While at this stage the determination of potential environmental impacts, particularly for a greenfields project, may not always be well advanced, the status of early consideration of these potential environmental impacts should be reported. Where these aspects have not been considered this should be reported with an explanation of the environmental assumptions made.*	Environmental considerations captured by Program of Work (PoW) requirements. Operations on these tenements purely exploratory in nature to date.
Bulk Density	*Whether assumed or determined. If assumed, the basis for the assumptions. If determined, the method used, whether wet or dry, the frequency of*	Bulk density values are based on similar rock types and regolith profiles from deposits within the same geological area and environment.

Section 3: Estimation and Reporting of Mineral Resources

Criteria	JORC Code Explanation	Commentary
	the measurements, the nature, size and representativeness of the samples.	In the last drill campaign two diamond holes were drilled and bulk density measurements were carried out on representative samples.
	The bulk density for bulk material must have been measured by methods that adequately account for void spaces (vugs, porosity, etc), moisture and differences between rock and alteration zones within the deposit.	The density measurements methods will follow standard Saracen procedures that take into account porosity and moisture variances. It was found that the oxide horizons contain moisture and affect the density value.
	Discuss assumptions for bulk density estimates used in the evaluation process of the different materials.	Density values are allocated uniformly to each lithological and regolith type. This includes the primary fresh lithologies as well as the weathered oxide and transitional zones. The number of density values has increased significantly with the most recent 2014 and 2015 drill programs.
Classification	*The basis for the classification of the Mineral Resources into varying confidence categories.*	Based on the variability of the Au results and the decreased confidence in the predictability of AU values, the Blue Manna deposit is categorised as an Inferred resource.
	Whether appropriate account has been taken of all the relevant factors (ie relative confidence in tonnage/grade estimations, reliability of input data, confidence in continuity of geology and metal values, quality, quantity and distribution of the data).	All care has been taken to account for relevant factors influencing the mineral resource estimate. The Saracen Resource review process ensures that data reliability and geological and metal confidence and continuity are reflected in the resource classification.
	Whether the result appropriately reflects the Competent Person's view of the deposit.	The geological model and the mineral resource estimate reflect the competent person's view of the deposit.
Audits or reviews	*The results of any audits or reviews of Mineral Resource estimates.*	The standard review process adopted by Saracen, indicates that Blue Manna is a robust global inferred model. Due to the simple geological setting of the Blue Manna Deposit no external audits have been conducted.
Discussion of relative accuracy/confidence	*Where appropriate a statement of the relative accuracy and confidence level in the Mineral Resource estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the resource within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors that could affect the relative accuracy and confidence of the estimate.*	The mineral resource has been reported in accordance with the guidelines established in the 2012 edition of the JORC code. Saracen uses a standard approach to resource estimation and the procedure requires the systematic completion of the Saracen Resource Estimation Document. It was identified that further information from XRD, ASD and diamond core structural analysis and sampling will help to validate the relationship of Au mineralisation with alteration and increase the understanding of Au variability.
	The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonnages, which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the procedures used.	The statements relate to a global estimate of tonnes and grade.
	These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.	No previous mining has occurred at this deposit.

Porphyry District

Porphyry

Section 1: Sampling Techniques and Data		
Criteria	**JORC Code Explanation**	**Commentary**
Sampling Techniques	*Nature and quality of sampling (e.g. cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc.). These examples should not be taken as limiting the broad meaning of sampling.*	Sampling methods undertaken in the Porphyry project area by Saracen have included reverse circulation (RC), diamond drillholes (DD) and RC grade control drilling within the pits. Historic methods conducted since 1945 have included rotary air blast (RAB), reverse circulation and diamond drillholes.
	Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used	Sampling for diamond and RC drilling is carried out as specified within Saracen sampling and QAQC procedures as per industry standard. RC chips and diamond core provide high quality representative samples for analysis. RC, RAB and DD core drilling was completed by previous holders to industry standard at that time (1945- 2003).
	Aspects of the determination of mineralisation that are Material to the Public Report. In cases where 'industry standard' work has been done this would be relatively simple (e.g. 'reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30 g charge for fire assay'). In other cases more explanation may be required, such as where there is coarse gold that has inherent sampling problems. *Unusual commodities or mineralisation types (e.g. submarine nodules) may warrant disclosure of detailed information*	Diamond core is HQ or NQ sized, sampled to 1m intervals and geological boundaries where necessary and cut into half core to give sample weights under 3 kg. Samples are selected to weigh less than 3 kg to ensure total sample inclusion at the pulverisation stage. RC chips are riffle or cone split and sampled into 1m intervals with total sample weights under 3kg Saracen core and chip samples are crushed, dried and pulverised to a nominal 90% passing 75µm to produce a 40g or 50 g sub sample for analysis by FA/AAS. Historical RAB, RC and diamond sampling was carried out to industry standard at that time. Analysis methods include fire assay, aqua regia and unspecified methods.
Drilling Techniques	*Drill type (e.g. core, reverse 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.).*	The deposit was initially sampled by 574 RAB holes, 1781 RC holes (assumed standard 5 ¼ ''bit size) and 276 surface diamond core drillholes of unknown diameter. Saracen has completed 38 surface RC precollar with NQ diamond tail drill holes (precollars averaging 215m, diamond tails averaging 55m) , 1 HQ and 4 NQ diamond geotechnical holes , 2 NQ diamond holes for metallurgical test work, 544 RC holes from surface and 3168 grade control RC holes from within the pits. Diamond tails were oriented using an Ezy-mark tool. Limited historic surface diamond drill core was oriented via unknown methods.
Drill Sample Recovery	*Method of recording and assessing core and chip sample recoveries and results assessed*	Diamond core recovery percentages calculated from measured core versus drilled intervals are logged and recorded in the database. Recoveries average >98%. RC sampling recoveries are recorded as a percentage based on a visual weight estimate; no historic recoveries have been recorded.

Section 1: Sampling Techniques and Data

Criteria	JORC Code Explanation	Commentary
	Measures taken to maximise sample recovery and ensure representative nature of the samples	Diamond core is reconstructed into continuous runs on an angle iron cradle for orientation marking. Depths are checked against depth given on the core blocks. During GC campaigns daily rig inspections are carried out to check splitter condition, general site and address general issues. The sample bags weight versus bulk reject weight is compared to ensure adequate and even sample recovery. Historical RAB, RC and diamond drilling to industry standard at that time.
	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.	Diamond drilling has high recoveries meaning loss of material is minimal. There is no known relationship between sample recovery and grade for RC drilling. Any historical relationship is not known.
Logging	*Whether core and chip samples have been geologically and geotechnically logged to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies.* *Whether logging is qualitative or quantitative in nature.* *Core (or costean, channel, etc) photography.*	Logging of diamond drill core and RC chips records lithology, mineralogy, texture, mineralisation, weathering, alteration, veining and other features. Geotechnical and structural logging is carried out on all diamond holes to record recovery, RQD, defect number, type, fill material, shape and roughness and alpha and beta angles. Chips from all RC holes (exploration and GC) are stored in chip trays for future reference. Core is photographed in both dry and wet state. Qualitative and quantitative logging of historic data varies in its completeness.
	The total length and percentage of the relevant intersections logged	All diamond drillholes and exploration RC holes are logged in full. Every second drill line is logged in grade control programs with infill logging carried out as necessary. Historical logging is complete.
Sub-sampling techniques and sample preparation	*If core, whether cut or sawn and whether quarter, half or all core taken.*	All drill core is cut onsite using an automatic core saw. Geotechnical drillholes were quarter core sampled, metallurgical drillholes were full core sampled and all exploration drillholes were half core sampled. Samples are always collected from the same side. Historic diamond drilling has been sampled via unknown methods.
	If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry.	All exploration and GC RC samples are cone or riffle split. Occasional wet samples are encountered; increased air capacity is routinely used to aid in keeping the sample dry when water is encountered. Historic RAB and RC drilling was sampled using spear, riffle and unknown methods.
	For all sample types, the nature, quality and appropriateness of the sample preparation technique.	The sample preparation of diamond core and RC chips adhere to industry best practice. It is conducted by a commercial laboratory and involves oven drying, coarse crushing then total grinding to a size of 90% passing 75 microns. Best practice is assumed at the time of historic sampling.
	Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.	All subsampling activities are carried out by commercial laboratory and are considered to be satisfactory. Sampling by previous holders assumed to be industry standard at the time.
	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.	Duplicate sampling is carried out at a rate of 1:10 for exploration drilling and 1:20 for GC drilling and is sampled directly from the on-board splitter on the rig. These are submitted for the same assay process as the original samples and the laboratory are unaware of such submissions. Sampling by previous holders assumed to be industry standard at the time.
	Whether sample sizes are appropriate to the grain size of the material being sampled.	Sample sizes are considered to be appropriate.
Quality of assay data and laboratory tests	*The nature, quality and appropriateness of the assaying and laboratory procedures used and*	RC chip samples, grade control chip samples and diamond core are analysed by external laboratories using a 40g or 50g fire assay with AAS finish. These methods are considered suitable for determining

Section 1: Sampling Techniques and Data		
Criteria	**JORC Code Explanation**	**Commentary**
	whether the technique is considered partial or total.	gold concentrations in rock and are total digest methods. Historic sampling includes fire assay, aqua regia and unknown methods.
	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 geophysical tools have been utilised for reporting gold mineralisation at Porphyry.
	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.	Certified reference material (standards and blanks) with a wide range of values are inserted into every drillhole at a rate of 1:25 for exploration RC and DD, and 1:40 for GC drilling. These are not identifiable to the laboratory. QAQC data returned are checked against pass/fail limits with the SQL database and are passed or failed on import. A report is generated and reviewed by the geologist as necessary upon failure to determine further action. QAQC data is reported monthly. Sample preparation checks for fineness are carried out to ensure a grindsize of 90% passing 75 microns. The laboratory performs a number of internal processes including standards, blanks, repeats and checks. QAQC data analysis demonstrates sufficient accuracy and precision. Industry best practice is assumed for previous holders.
Verification of sampling and assaying	*The verification of significant intersections by either independent or alternative company personnel.*	Significant intercepts are verified by the Geology Manager and corporate personnel.
	The use of twinned holes.	No specific twinned holes have been drilled at Porphyry but grade control drilling has confirmed the width and grade of previous exploration drilling.
	Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols	Primary data is collated in a set of excel templates utilising lookup codes. This data is forwarded to the Database Administrator for entry into a secure acQuire database with inbuilt validation functions. Data from previous owners was taken from a database compilation and validated as much as practicable before entry into the Saracen acQuire database.
	Discuss any adjustment to assay data.	No adjustments have been made to assay data. First gold assay is utilised for resource estimation.
Location of data points	*Accuracy and quality of surveys used to locate drillholes (collar and down-hole surveys), trenches, mine workings and other locations used in Mineral Resource estimation.*	Exploration drillholes are located using a Leica 1200 GPS with an accuracy of +/- 10mm. Drillhole collars within the pit and immediate surrounds are picked up by company surveyors using a Trimble R8 GNSS (GPS) with an expected accuracy of +/-8mm. Downhole surveys are carried out using an Eastman single shot camera at regular intervals (usually 30m). A number of drillholes have also been gyroscopically surveyed. Previous holders' survey accuracy and quality is unknown
	Specification of the grid system used.	A local grid system (Porphyry) is used. The two point conversion to MGA_GDA94 zone 51 is POREast PORNorth RL MGAEast MGANorth RL Point 1 3000 9000 0 430968.22 6706569.44 0 Point 2 3000 5000 0 430865.29 6702572.36 0 Historic data is converted to the Porphyry local grid upon export from the database.
	Quality and adequacy of topographic control.	Topographic control originally used site based survey pickups in addition to Kevron aerial photogrammetric surveys with +/- 5m resolution.

Section 1: Sampling Techniques and Data

Criteria	JORC Code Explanation	Commentary
		Pre mining, new and more detailed topography has since been captured and will be used in future updates and for subsequent planning purposes.
Data spacing and distribution	*Data spacing for reporting of Exploration Results.*	The nominal spacing for exploration drilling ranges from 20m x20m to 50mx50m
	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.	Data spacing and distribution are sufficient to establish the degree of geological and grade continuity appropriate for JORC classifications applied.
Orientation of data in relation to geological structure	*Whether sample compositing has been applied.*	Sample compositing is not applied until the estimation stage. Some historic reconnaissance RAB and RC sampling was composited into 2, 3 or 4m samples.
	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 drillholes are positioned to achieve optimum intersection angles to the ore zone as are practicable.
	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.	No significant sampling bias is thought to occur due to orientation of drilling in regards to mineralised structures.
Sample security	*The measures taken to ensure sample security.*	Samples are prepared on site under supervision of Saracen geological staff. Samples are selected, bagged into tied numbered calico bags then grouped into secured cages and collected by the laboratory personnel. Sample submissions are documented via laboratory tracking systems and assays are returned via email.
Audits or reviews	*The results of any audits or reviews of sampling techniques and data.*	An internal review of companywide sampling methodologies was conducted to create the current sampling and QAQC procedures.

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 Porphyry pit is located on M31/3, with related deposits Pioneer Paddock and Maingays situated on M31/3 and M31/5. Near mine exploration extends onto M31/4 and M31/6. The tenements are held 100% by Saracen Gold Mines Pty Ltd, a wholly owned subsidiary of Saracen Mineral Holdings Limited. Mining Leases M31/3, M31/4, M31/5 and M31/6 have a 21 year life and are held until 2025. All are renewable for a further 21 years on a continuing basis. Mining Leases M31/3, M31/4, M31/5 and M31/6 are each subject to one royalty agreement and one caveat (54H/067, 55H/067, 56H/067 and 57H/067, respectively). M31/3, M31/4 and M31/5 are each subject to a bank mortgage (415495). All production is subject to a Western Australian state government NSR royalty of 2.5%.

Section 2: Reporting of Exploration Results

Criteria	JORC Code Explanation	Commentary
		Mining Leases M31/3, M31/4, M31/5 and M31/6 are subject to the Edjudina Pastoral Compensation Agreement. There are no registered Aboriginal Heritage sites within M31/3, M31/5 and M31/6. A single Aboriginal artefact scatter (ID2323) lies within the northern portion of M31/4 but is not impacted by current mining and exploration activities.
	The security of the tenure held at the time of reporting along with any known impediments to obtaining a licence to operate in the area.	The tenements are in good standing and the licence to operate already exists.
Exploration done by other parties	*Acknowledgment and appraisal of exploration by other parties.*	The Porphyry deposit was discovered in the 1930s with mining operations carried out from 1936 to 1943 and minor works occurring up until 1972. Near mine exploration programs were carried out during this time. Pennzoil acquired the project in the late 1970s and embarked on an extensive RAB and DD program. The creation of Edjudina Gold Mines led to the reopening of the mine in 1984, with operations at Porphyry and Million Dollar continuing until 1988. Extensive RC and DD drilling was carried out also during this period, outlining the Maingays mineralisation. In 1989 Westralian acquired the lease and completed further resource and exploration drilling, finding mineralisation at Pioneer Paddock. Mining did not recommence due to production rate concerns. Mount Edon acquired the project and carried out limited RAB and RC drilling before being taken over by PacMin who suspended work at the project. Sons of Gwalia carried out minor drilling before their collapse and takeover of the project by St Barbara.
Geology	*Deposit type, geological setting and style of mineralisation.*	The Porphyry deposit lies in a belt of greenstone-granite within the Edjudina-Kanowna region of the Archaean Yilgarn Block. The region of alternating mafic-ultramafic and felsic clastic sequences are currently considered overlapping contemporaneous volcanic episodes. The deposit is contained within a quartz monzonite, which intrudes the greenschist facies greenstone within the Murrin-Margaret sector. Mineralisation, especially high gold values is associated with intense shearing and confined to thin, intensely sheared bands approximately 10cm thick. The edge of the mineralisation feathers out into multiple, thin low grade bands. Generally, a halo of weak sheared and carbonatisation envelope the strongly sheared and mineralised zone of quartz-pyrite veining and hematite alteration. The most obvious guides to gold mineralisation are shearing, quartz-pyrite veining and strong hematite alteration. mineralisation is structurally controlled. The deposit is segregated into a series of lenses, with the largest measuring 400m by 150m. The ore lenses maybe separated by faults, but are generally stacked en echelon. Within each lens, the distribution of gold mineralisation is a complex series of en echelon sub-lens of 20m to 40m in width, segregated by waste bands. The lenses contain ore pods that strike perpendicular to the orebody and may dip approximately 40° south. (Smith, 2004). Ore lenses also step to the right in longitudinal section suggesting sinistral movement on the north-south portion of the mineralised structure
Drillhole 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*	All material data is periodically released on the ASX: 27/04/2012, 28/07/2011, 03/06/2011, 30/01/2009 Future drill hole data will be periodically released or when a results materially change the economic value of the project.

Section 2: Reporting of Exploration Results

Criteria	JORC Code Explanation	Commentary
	- down hole length and interception depth *- hole length.* *• If the exclusion of this information is justified on the basis that the information is not Material and this exclusion does not detract from the understanding of the report, the Competent Person should clearly explain why this is the case.*	
Data aggregation methods	*In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (e.g. cutting of high grades) and cut-off grades are usually Material and should be stated.*	All significant intercepts have been length weighted with a minimum Au grade of 1ppm. No high grade cut off has been applied.
	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.	Intercepts are aggregated with minimum width of 1m and maximum width of 3m for internal dilution. Where stand out higher grade zone exist with in the broader mineralised zone, the higher grade interval is reported also.
	The assumptions used for any reporting of metal equivalent values should be clearly stated.	There are no metal equivalents reported in this release.
Relationship between mineralisation widths and intercept lengths	*These relationships are particularly important in the reporting of Exploration Results.* *If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.* *If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (eg 'down hole length, true width not known').*	Previous announcements included sufficient detail to clearly illustrate the geometry of the mineralisation and the latest drilling. All results were reported as downhole lengths.
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.*	All significant exploration results released by Saracen are accompanied by the appropriate diagrams and maps at the time of the release.
Balanced Reporting	*Where comprehensive reporting of all Exploration Results are not practicable, representative reporting of both low and high grades and/or widths should be practiced to avoid misleading reporting of Exploration Results.*	All results from the recent campaign have been reported, irrespective of success or not.
Other substantive exploration data	*Other exploration data, if meaningful and material, should be reported including (but not limited to): geological observations; geophysical survey*	No substantive data acquisition has been completed in recent times.

Section 2: Reporting of Exploration Results		
Criteria	**JORC Code Explanation**	**Commentary**
	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 planned further work (eg tests for lateral extensions or depth extensions or large-scale step-out drilling).* *Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive*	Porphyry is a current exploration play that is currently being reviewed for greater exploration potential.

Section 3: Estimation and Reporting of Mineral Resources		
Criteria	**JORC Code Explanation**	**Commentary**
Database Integrity	*Measures taken to ensure that data has not been corrupted by, for example, transcription or keying errors, between its initial collection and its use for Mineral Resource estimation purposes.*	The database used for the estimate an extract from an acquire SQL database. The primary database is regulated by a locked framework called the acquire data model which fixes the relationships between tables. The data model minimises the potential for data collection and data usage errors through pre-determined look up tables, storage and export functions. User defined permissions also regulate the ability to add, edit or extract data. Primary data is recorded using typical manual translation of logging and data capture from written logs and direct import of csv tables through a data import scheme where data is validated upon import or direct data entry options into the database using predefined look up values.
	Data validation procedures used.	The rigid structure of the acquire data model is such that predefined rules and look up tables are applied to all data entry. Data that does not meet the criteria are highlighted and moved to a buffer area until the data is rectified to meet the passing rules.
Site Visits	*Comment on any site visits undertaken by the Competent Person and the outcome of those visits.*	The Competent Person regularly visited the site during exploration and mining phases to assess geological competency and ensure integrity across all geological disciplines. The competent person has built a sound understanding of the deposit geology thus far.
	If no site visits have been undertaken indicate why this is the case.	Not applicable
Geological Interpretation	*Confidence in (or conversely, the uncertainty of) the geological interpretation of the mineral deposit.*	The confidence in the geological interpretation of the Porphyry deposit is considered robust. The interpretation has been based on the detailed geological work completed by Saracen and previous owners of the project. This knowledge is based on extensive geological logging of drill core, RC chips, detailed open pit mapping and assay data. The Porphyry deposit lies in a belt of greenstone-granite

Section 3: Estimation and Reporting of Mineral Resources

Criteria	JORC Code Explanation	Commentary
		within the Edjudina-Kanowna region of the Archaean Yilgarn Block. The region of alternating mafic-ultramafic and felsic clastic sequences are currently considered overlapping contemporaneous volcanic episodes. The deposit is contained within a quartz monzonite, which intrudes the greenschist facies greenstone within the Murrin-Margaret sector. Mineralisation, especially high gold values is associated with intense shearing and confined to thin, intensely sheared bands approximately 10cm thick. The edge of the mineralisation feathers out into multiple, thin low grade bands. Generally, a halo of weak sheared and carbonatisation envelope the strongly sheared and mineralised zone of quartz-pyrite veining and hematite alteration. The most obvious guides to gold mineralisation are shearing, quartz-pyrite veining and strong hematite alteration.
	Nature of the data used and any assumptions made.	The interpretations have been constructed using all available geological logging descriptions including but not limited to, stratigraphy, lithology, texture, structure and alteration. Interpreted cross cutting regional faults have been observed and have been use to guide disruptions in the position of the key mineralised domains.
	The affect, if any, of alternative interpretations on Mineral Resource estimation.	The Porphyry deposit is generally sub vertical in geometry, with clear well defined zones that show the tenor of the mineralisation. Saracen considers the current interpretation to be robust based on all the examined geological data.
	The use of geology in guiding and controlling the Mineral Resource estimation.	Geological controls and relationships were used to define mineralised domains. Structural controls on mineralisation are shallow dipping brittle shear zones, related to the NNW trending regional faults. Mineralisation is confined within 2 sub-parallel shear zones, the northern Porphyry shear zone and the southern Million Dollar shear zone. The 2 shear zones strike North and dip 20°- 25° east, lying close to the contact along much of its length. The Porphyry shear forms a broad, east plunging antiform. Mineralisation thickens in the middle of the structure and plunges to the SE. The majority of ounces have been mined from this shear.
	The factors affecting continuity both of grade and geology.	Gold mineralisation at Porphyry is primarily hosted within a quartz monzonite and mineralisation is structurally controlled. The deposit is segregated into a series of lenses, with the largest measuring 400m by 150m. The ore lenses maybe separated by faults, but are generally stacked en echelon. Within each lens, the distribution of gold mineralisation is a complex series of en echelon sub-lens of 20m to 40m in width, segregated by waste bands. The lenses contain ore pods that strike perpendicular to the orebody and may dip approximately 40° south. (Smith, 2004). Ore lenses also step to the right in longitudinal section suggesting sinistral movement on the north-south portion of the mineralised structure.
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 gold mineralisation at Porphyry strikes about 1.4 km in length spanning over an area with 150m in width. The mineralisation extends to below 300m below surface.
Estimation and modelling techniques	*The nature and appropriateness of the estimation technique(s) applied and key assumptions, including treatment of extreme grade values, domaining, interpolation parameters and maximum distance of extrapolation from data points.*	Grade estimation using Ordinary Kriging (OK) was completed for Porphyry. CAE Studio 3 was used to estimate gold grades into 5m x10m x 5m size parent blocks. Drill grid spacing ranges from 20 m X 20 m to 50 m x 50 m. Drill hole sample data was flagged using domain codes generated from three dimensional mineralisation domains and oxidation surfaces. Sample data was composited to 1 metre downhole length. Intervals with no assays were excluded from the compositing routine. The influence of extreme sample distribution outliers was reduced by top-cutting where required. The

Section 3: Estimation and Reporting of Mineral Resources

Criteria	JORC Code Explanation	Commentary
		top-cut levels were determined using a combination of top-cut analysis tools (grade histograms, log probability plots and CVs). Top-cuts were reviewed and applied on a domain basis. Due to the flexures in the mineralised envelopes, the estimation process was in unfolded space. The blocks are relocated back to their original space after the estimation. Variography was conducted in unfolded space using Geo Access software.
	The availability of check estimates, previous estimates and/or mine production records and whether the Mineral Resource estimate takes appropriate account of such data.	No comparison have been done with previous estimates
	The assumptions made regarding recovery of by-products.	No assumptions have been made with respect to the recovery of by-products.
	Estimation of deleterious elements or other non-grade variables of economic significance (e.g. sulphur for acid mine drainage characterisation).	There has been no estimate at this point of deleterious elements or other 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.	A single block model for Porphyry was constructed using a 5 mE by 10 mN by 5 mRL parent block size with sub-celling to 1 mE by 1 mN by 1 mRL for domain volume resolution. All estimation was completed at the parent cell size scale. Search ellipses and passes and minimum and maximum search number parameters are detailed below. The search strategy was set up such that the first search pass would fill blocks informed by the typical drill spacing. The second search used search ellipse multiplied by a factor of 2.5, while the third search increased the dimensions by a factor of 5 to ensure filling of all blocks. With the very limited across structure variogram range, a limit of 4 composites per drill hole was set. The first search pass used a maximum of 24 and a minimum of 16 samples. The second search pass used a maximum of 24 with a minimum of 8 samples while the third search pass used a maximum of 24 with a minimum of 1 sample.
	Any assumptions behind modelling of selective mining units.	No selective mining units have been assumed.
	Any assumptions about correlation between variables.	No assumptions have been made regarding correlation between variables.
	Description of how the geological interpretation was used to control the resource estimates.	Geological controls and relationships were used to define mineralised domains. The mineralisation at Porphyry is structurally controlled. The deposit is segregated into a series of lenses, with the largest measuring 400m by 150m. The ore lenses maybe separated by faults, but are generally stacked en echelon. Within each lens, the distribution of gold mineralisation is a complex series of en echelon sub-lens of 20m to 40m in width, segregated by waste bands. The lenses contain ore pods that strike perpendicular to the orebody and may dip approximately 40° south. (Smith, 2004). Ore lenses also step to the right in longitudinal section suggesting sinistral movement on the north-south portion of the mineralised structure
	Discussion of basis for using or not using grade cutting or capping.	A top cut was used in each sub-zone both within the main domains and according to regolith, based on a review of the histogram, log probability plot, and a summary graph of the effects of top-cutting for each domain combination. A top cut was selected to minimise the effects of isolated high grade outliers, without cutting a large proportion of the data or contained metal within the domain.
	The process of validation, the checking process used, the comparison of model data to drill hole	Validation of the block model carried out a volumetric comparison of the resource wireframes to the block model volumes. Validating the estimate compared block model grades to the input data using

Section 3: Estimation and Reporting of Mineral Resources

Criteria	JORC Code Explanation	Commentary
	data, and use of reconciliation data if available.	tables of values, and swath plots showing northing, easting and elevation comparisons. Visual validation of grade trends and metal distributions was carried out. Reconciliation studies for Porphyry show that the model compares well with historical production
Moisture	*Whether the tonnages are estimated on a dry basis or with natural moisture, and the method of determination of the moisture content.*	All tonnages are estimated on a dry basis.
Cut-off parameters	*The basis of the adopted cut-off grade(s) or quality parameters applied.*	Based on Saracen's current economic operations at Carosue Dam, and the natural grade distinction above background, a grade of 0.4g/t has been chosen.
Mining factors or assumptions	*Assumptions made regarding possible mining methods, minimum mining dimensions and internal (or, if applicable, external) mining dilution. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential mining methods, but the assumptions made regarding mining methods and parameters when estimating Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the mining assumptions made.*	Mining of the Porphyry at this stage deposit will be by Open pit mining methods involving mechanised mining techniques. Open pit mining will most likely by a cut-back on the existing Porphyry Pit. Some of the factor used in consideration of the mining method include, proximity of the mineralisation to surface, geotechnical and hydrogeological factors, prevailing gold price, planned mining dilution and mining recoveries and the average plant processing recoveries.
Metallurgical factors or assumptions	*The basis for assumptions or predictions regarding metallurgical amenability. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential metallurgical methods, but the assumptions regarding metallurgical treatment process and parameters made when reporting Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the metallurgical assumptions made.*	Metallurgical testing (and processing operations at CDO) identified Porphyry ores as being free milling at coarse grind sizes with leach recoveries in excess of 90% with a high gravity gold component (>50%).
Environmental factors or assumptions	*Assumptions made regarding possible waste and process residue disposal options. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider the potential environmental impacts of the mining and processing operation. While at this stage the determination of potential environmental impacts, particularly for a greenfields project, may not always be well advanced, the status of early consideration of these potential environmental impacts should be reported. Where these aspects have not been considered this*	No processing or benefication of ore expected on these tenements, as ore is hauled to Carosue Dam Minesite for Processing. Waste characterisation showed that Regoliths and waste bedrock associated with the Porphyry deposit pose no geochemical concerns due to the low sulphide content of the deposit and waste bedrock that is variously calcitic. The tailings solids in the historic TSF tailings solids are essentially barren and geochemically benign and do not pose any geochemical concerns for management. All long term infrastructures at Porphyry have been rehabilitated. Closure Plan is in place covering the Porphyry Mining area and infrastructure. Discharge from Prophyry Pit has occurred in the past to nearby Lake Rebecca under existing approbals and is closely monitored, no negative effects have been observed to date.

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Criteria	JORC Code Explanation	Commentary
	should be reported with an explanation of the environmental assumptions made.	
Bulk Density	*Whether assumed or determined. If assumed, the basis for the assumptions. If determined, the method used, whether wet or dry, the frequency of the measurements, the nature, size and representativeness of the samples.*	Previous owners have taken routine density measurements when drilling diamond core. The method of calculation is the water displacement technique. Density in the current model has been assigned based on oxidation state, using averaged historical measurements.
	The bulk density for bulk material must have been measured by methods that adequately account for void spaces (vugs, porosity, etc), moisture and differences between rock and alteration zones within the deposit.	The frequency and distribution is unknown at this point in time. It has assumed from the good reconciliation performance from mine to mill that the determined density assignments from the mine are accurate.
	Discuss assumptions for bulk density estimates used in the evaluation process of the different materials.	Average mean of densities collected for each lithological and weathering profile has been uniformly applied to the modelled geological units. This includes the primary fresh lithologies as well as the weathered oxide and transitional zones.
Classification	*The basis for the classification of the Mineral Resources into varying confidence categories.*	The mineral resource has been classified into Measured, Indicated and Inferred categories based on drill hole spacing, geological confidence, and grade continuity and estimation quality. The combination of these factors together guides the construction of wireframes which select and codes the appropriate blocks with the nominated resource classification category.
	Whether appropriate account has been taken of all the relevant factors (ie relative confidence in tonnage/grade estimations, reliability of input data, confidence in continuity of geology and metal values, quality, quantity and distribution of the data).	The input data is comprehensive in its coverage of the mineralisation and does not favour or misrepresent in-situ mineralisation. The mineralisation at Porphyry is structurally controlled and the deposit is segregated into a series of lenses. The definition of mineralised zones is based on a high level of geological understanding producing a robust model of mineralised domains. The validation of the block model shows good correlation of the input data to the estimated grades.
	Whether the result appropriately reflects the Competent Person's view of the deposit.	The geological model and the mineral resource estimate reflect the competent person's view of the deposit.
Audits or reviews	*The results of any audits or reviews of Mineral Resource estimates.*	Saracen has adopted a process for geological modelling, estimation and reporting of mineral resources that meets high industry standards. The Porphyry Resource model was completed by an external consultant under guidance from Saracen geology personnel. Saracen has reviewed the resource estimates and is satisfied that they are a true reflection of the global insitu resources for Porphyry.
Discussion of relative accuracy/confidence	*Where appropriate a statement of the relative accuracy and confidence level in the Mineral Resource estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the resource within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors that could affect the relative accuracy and confidence of the estimate.*	The relative accuracy of the Mineral Resource estimate is reflected in the reporting of the Mineral Resource as per the guidelines of the 2012 JORC Code. The resource estimates have undergone a robust validation process, and as such, the competent person is satisfied that the resources estimated in the block model are a true representation of the global insitu resources.

Section 3: Estimation and Reporting of Mineral Resources		
Criteria	**JORC Code Explanation**	**Commentary**
	The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonnages, which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the procedures used.	The statements relate to a global estimate of tonnes and grade.
	These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.	The Porphyry resource model was completed by an external consultant and reviewed by Saracen geology personnel. The model has been validated and the competent person is satisfied that the estimated gold grades give a true reflection of the global insitu resources. Reconciliation studies for Porphyry show that the resource model for Porphyry has a good predictive capacity and is a good representation of the insitu resources.

Million Dollar

Section 1: Sampling Techniques and Data		
Criteria	**JORC Code Explanation**	**Commentary**
Sampling Techniques	*Nature and quality of sampling (e.g. cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc.). These examples should not be taken as limiting the broad meaning of sampling.*	Saracen has undertaken reverse circulation drilling (RC) at Million Dollar. Historic sampling methods conducted since 1979 have included rotary air blast (RAB), reverse circulation and diamond drillholes (DD).
	Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used	Sampling for RC drilling is carried out as specified within Saracen sampling and QAQC procedures as per industry standard. RC chips provide high quality representative samples for analysis. RC, RAB and DD core drilling was completed by previous holders to industry standard at that time (1979- 2004).
	Aspects of the determination of mineralisation that are Material to the Public Report. In cases where 'industry standard' work has been done this would be relatively simple (e.g. 'reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30 g charge for fire assay'). In other cases more explanation may be required, such as where there is coarse gold that has inherent sampling problems. *Unusual commodities or mineralisation types (e.g. submarine nodules) may warrant disclosure of detailed information*	RC chips are cone split and sampled into 1m intervals with total sample weights less than 3 kg. Samples are selected to weigh less than 3 kg to ensure total sample inclusion at the pulverisation stage. Saracen chip samples are crushed, dried and pulverised to a nominal 90% passing 75µm to produce a 50g sub sample for analysis by FA/AAS. Historical RAB, RC and diamond sampling was carried out to industry standard at that time. Analysis methods include fire assay, screen fire assay, aqua regia and unspecified methods.
Drilling Techniques	*Drill type (e.g. core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic,*	The deposit was initially sampled by 442 RAB holes, 595 RC holes (assumed standard 5 ¼ ''bit size) and 49 surface unknown diameter diamond core holes.

Section 1: Sampling Techniques and Data

Criteria	JORC Code Explanation	Commentary
	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.).	Saracen has previously completed 199 RC drillholes. It is unknown if historic diamond drill core was oriented.
Drill Sample Recovery	*Method of recording and assessing core and chip sample recoveries and results assessed*	RC sampling recoveries are recorded in the database as a percentage based on a visual weight estimate; no historic recoveries have been recorded. No historic diamond core recovery data has been recorded.
	Measures taken to maximise sample recovery and ensure representative nature of the samples	During RC drilling daily rig inspections are carried out to check splitter condition, general site and address general issues. Historical RAB, RC and diamond drilling to industry standard at that time.
	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.	There is no known relationship between sample recovery and grade for RC drilling. Any historical relationship is not known.
Logging	*Whether core and chip samples have been geologically and geotechnically logged to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies.* *Whether logging is qualitative or quantitative in nature.* *Core (or costean, channel, etc) photography.*	Logging of RC chips records lithology, mineralogy, texture, mineralisation, weathering, alteration and veining. Chips from all RC drillholes are stored in chip trays for future reference. Qualitative and quantitative logging of historic data varies in its completeness.
	The total length and percentage of the relevant intersections logged	All RC drillholes holes are logged in full. Historical logging is approximately 95% complete.
Sub-sampling techniques and sample preparation	*If core, whether cut or sawn and whether quarter, half or all core taken.*	Saracen has not completed any diamond drilling at Million Dollar. Historic diamond drilling has been sampled via unknown methods.
	If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry.	All exploration samples are cone split. Occasional wet samples are encountered; increased air capacity is routinely used to aid in keeping the sample dry when water is encountered. Historic RAB and RC drilling was sampled using riffle, grab, spear and unknown methods.
	For all sample types, the nature, quality and appropriateness of the sample preparation technique.	The sample preparation of RC chips adheres to industry best practice. It is conducted by a commercial laboratory and involves oven drying, coarse crushing then total grinding to a size of 90% passing 75 microns. Best practice is assumed at the time of historic sampling.
	Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.	All subsampling activities are carried out by commercial laboratory and are considered to be satisfactory. Sampling by previous holders assumed to be industry standard at the time.
	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.	RC field duplicate samples are carried out at a rate of 1:10 and are sampled directly from the on-board splitter on the rig. These are submitted for the same assay process as the original samples and the laboratory are unaware of such submissions. Sampling by previous holders assumed to be industry standard at the time.
	Whether sample sizes are appropriate to the grain size of the material being sampled.	Sample sizes of 3kg are considered to be appropriate given the grain size (90% passing 75 microns) of the material sampled.
Quality of assay data	*The nature, quality and appropriateness of the*	RC chip samples are analysed by external laboratories using a 50g fire assay with AAS finish. This

Section 1: Sampling Techniques and Data

Criteria	JORC Code Explanation	Commentary
and laboratory tests	*assaying and laboratory procedures used and whether the technique is considered partial or total.*	method is considered suitable for determining gold concentrations in rock and is a total digest method. Historic sampling includes fire assay, screen fire assay, aqua regia and unspecified methods.
	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 geophysical tools have been utilised for reporting gold mineralisation.
	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.	Certified reference material (standards and blanks) with a wide range of values are inserted into every drillhole at a rate of 1:25 for exploration RC. These are not identifiable to the laboratory. QAQC data returned are checked against pass/fail limits with the SQL database and are passed or failed on import. A report is generated and reviewed by the geologist as necessary upon failure to determine further action. QAQC data is reported monthly. Sample preparation checks for fineness are carried out to ensure a grindsize of 90% passing 75 microns. The laboratory performs a number of internal processes including standards, blanks, repeats and checks. QAQC data analysis demonstrates sufficient accuracy and precision. Industry best practice is assumed for previous holders.
Verification of sampling and assaying	*The verification of significant intersections by either independent or alternative company personnel.*	Significant intercepts are verified by the Geology Manager and corporate personnel.
	The use of twinned holes.	No twinned holes have been drilled at Million Dollar.
	Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols	Primary data is collated in a set of excel templates utilising lookup codes. This data is forwarded to the Database Administrator for entry into a secure acQuire database with inbuilt validation functions. Data from previous owners was taken from a database compilation and validated as much as practicable before entry into the Saracen acQuire database.
	Discuss any adjustment to assay data.	No adjustments have been made to assay data. First gold assay is utilised for resource estimation.
Location of data points	*Accuracy and quality of surveys used to locate drillholes (collar and down-hole surveys), trenches, mine workings and other locations used in Mineral Resource estimation.*	Exploration drillholes are located using a Leica 1200 GPS with an accuracy of +/- 10mm. Downhole surveys are carried out using an Eastman single shot camera at regular intervals (usually 30m). Previous holders' survey accuracy and quality is unknown
	Specification of the grid system used.	A local grid system (Million Dollar) is used. The one point conversion to MGA_GDA94 zone 51 is MDEast MDNorth RL MGAEast MGANorth RL Point 1 5000 20000 0 430962.99 6703259.80 0 Historic data is converted to the Million Dollar local grid upon export from the database.
	Quality and adequacy of topographic control.	Topographic control originally used site based survey pickups in addition to Kevron aerial photogrammetric surveys with +/- 5m resolution. Pre mining, new and more detailed topography has since been captured and will be used in future updates and for subsequent planning purposes.
Data spacing and distribution	*Data spacing for reporting of Exploration Results.*	The nominal spacing for drilling is 20m x 20m to 50mx50m.
	Whether the data spacing and distribution is sufficient to establish the degree of geological and	Data spacing and distribution are sufficient to establish the degree of geological and grade continuity appropriate for JORC classifications applied.

Section 1: Sampling Techniques and Data		
Criteria	**JORC Code Explanation**	**Commentary**
	grade continuity appropriate for the Mineral Resource and Ore Reserve estimation procedure(s) and classifications applied.	
Orientation of data in relation to geological structure	*Whether sample compositing has been applied.*	Sample compositing is not applied until the estimation stage. Some historic RAB sampling was composited into 4m samples.
	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 drillholes are positioned to achieve optimum intersection angles to the ore zone as are practicable.
	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.	No significant sampling bias has been recognised due to orientation of drilling in regards to mineralised structures.
Sample security	*The measures taken to ensure sample security.*	Samples are prepared on site under supervision of Saracen geological staff. Samples are selected, bagged into tied numbered calico bags then grouped into secured cages and collected by the laboratory personnel. Sample submissions are documented via laboratory tracking systems and assays are returned via email
Audits or reviews	*The results of any audits or reviews of sampling techniques and data.*	An internal review of companywide sampling methodologies was conducted to create the current sampling and QAQC procedures. No external audits or reviews have been conducted.

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 Million Dollar pit is located on M31/3. Near mine exploration has occurred on M31/4, M31/6 and M31/76. The tenements are held 100% by Saracen Gold Mines Pty Ltd, a wholly owned subsidiary of Saracen Mineral Holdings Limited. Mining Leases M31/3, M31/4 and M31/6 have a 21 year life and are held until 2025. M31/076 has a 21 year life and is held until 2030. All are renewable for a further 21 years on a continuing basis. Mining Leases M31/3, M31/4 and M31/6 are each subject to one royalty agreement and one caveat (54H/067, 55H/067 and 57H/067, respectively). M31/76 is subject to two royalty agreements, a caveat (59H/067) and a pre-emptive right. M31/3, M31/4 and M31/76 are each subject to a bank mortgage (415495). All production is subject to a Western Australian state government NSR royalty of 2.5%. Mining Leases M31/3, M31/4, M31/6 and M31/76 are subject to the Edjudina Pastoral Compensation Agreement. There are no registered Aboriginal Heritage sites within M31/3, M31/6 and M31/76. A single Aboriginal artefact scatter (ID2323) lies within the northern portion of M31/4 but is not impacted by current mining and exploration activities.
	The security of the tenure held at the time of reporting along with any known impediments to obtaining a licence to operate in the area.	The tenements are in good standing and there are no known impediments to obtaining a licence to operate.

Section 2: Reporting of Exploration Results

Criteria	JORC Code Explanation	Commentary
Exploration done by other parties	*Acknowledgment and appraisal of exploration by other parties.*	Exploration began in the area in the 1930s, with the Porphyry orebody discovered to the north of Million Dollar with mining operations continuing into the 1940s. Pennzoil carried out exploration in the late 1970s, focussing on the Porphyry area and discovering the Million Dollar mineralisation. Concurrent exploration by Seltrust delineated the Million Dollar South mineralisation. Edjudina Gold Mines, a joint venture between Pennzoil, Picon and Pioneer Concrete, reopened the Porphyry mine, carried out extensive drilling and developed the Million Dollar pit. Poor recovery and excessive dilution led to the closure of the operation. In the late 1980's Audax carried out RAB, RC and diamond drilling at Million Dollar south, delineating the resource. Enterprise Gold entered into a JV with Audax and completed further drilling. Consolidated Resources acquired the Million Dollar project area and carried out further RC drilling at Million Dollar South and a feasibility study before being taken over by Mount Edon Gold Mines who suspended further work. Following an aeromagnetic survey of the Porphyry - Million Dollar area, Mount Edon carried out a RAB and RC program. PacMin acquired the tenements following the takeover of Mount Edon, who then merged with Sons of Gwalia. A wide spaced infill drilling program was commenced to test for extensions and deeper repetitions of the mineralisation before their collapse and takeover of the project by St Barbara.
Geology	*Deposit type, geological setting and style of mineralisation.*	The Million Dollar deposits lie in a greenstone-granite belt within the Eastern Goldfields Province of the Archaean Yilgarn Block. The deposits are hosted predominately within porphyritic quartz monzonite intruded into andesitic volcanic rocks. Gold mineralisation is associated with albite-silica-hematite-sericite-pyrite alteration and quartz pyrite veining. Structural controls on the mineralisation are shallow easterly dipping north striking brittle shear zones related to the NNW trending regional faults. The thickness of the shear zones vary between 1m and 10m wide.
Drillhole 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 does not detract from the understanding of the report, the Competent Person should clearly explain why this is the case.*	All material data was periodically released on the ASX: nominally the report dated 29/07/2010 Future drill hole data will be periodically released or when a results materially change the economic value of the project.
Data aggregation methods	*In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (e.g. cutting of high grades) and cut-off grades are usually Material and should be stated.*	All significant intercepts have been length weighted with a minimum Au grade of 1ppm. No high grade cut off has been applied.

Section 2: Reporting of Exploration Results

Criteria	JORC Code Explanation	Commentary
	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.	Intercepts are aggregated with minimum width of 1m and maximum width of 3m for internal dilution. Where stand out higher grade zone exist with in the broader mineralised zone, the higher grade interval is reported also.
	The assumptions used for any reporting of metal equivalent values should be clearly stated.	There are no metal equivalents reported in this release.
Relationship between mineralisation widths and intercept lengths	*These relationships are particularly important in the reporting of Exploration Results.* *If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.* *If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (eg 'down hole length, true width not known').*	Previous announcements included sufficient detail to clearly illustrate the geometry of the mineralisation and the latest drilling. All results were reported as downhole lengths.
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.*	All significant exploration results released by Saracen are accompanied by the appropriate diagrams and maps at the time of the release.
Balanced Reporting	*Where comprehensive reporting of all Exploration Results are not practicable, representative reporting of both low and high grades and/or widths should be practiced to avoid misleading reporting of Exploration Results.*	All results from the recent campaign have been reported, irrespective of success or not.
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.*	No substantive data acquisition has been completed in recent times.
Further work	*The nature and scale of planned further work (eg tests for lateral extensions or depth extensions or large-scale step-out drilling).* *Diagrams clearly highlighting the areas of possible extensions, including the main geological*	Million Dollar is a current exploration play that is currently being reviewed for greater exploration potential.

Section 2: Reporting of Exploration Results

Criteria	JORC Code Explanation	Commentary
	interpretations and future drilling areas, provided this information is not commercially sensitive	

Section 3: Estimation and Reporting of Mineral Resources

Criteria	JORC Code Explanation	Commentary
Database Integrity	*Measures taken to ensure that data has not been corrupted by, for example, transcription or keying errors, between its initial collection and its use for Mineral Resource estimation purposes.*	The database used for the estimate an extract from an acquire SQL database. The primary database is regulated by a locked framework called the acquire data model which fixes the relationships between tables. The data model minimises the potential for data collection and data usage errors through pre-determined look up tables, storage and export functions. User defined permissions also regulate the ability to add, edit or extract data. Primary data is recorded using typical manual translation of logging and data capture from written logs and direct import of csv tables through a data import scheme where data is validated upon import or direct data entry options into the database using predefined look up values.
	Data validation procedures used.	Data that is captured in the field is entered into Excel templates which are checked on import into the database for errors. Assay jobs are dispatched electronically to the lab to minimise the chance of data entry errors. Assay results from the lab are received in CSV format and are checked for errors on import into the database. Data is regularly validated using the mining software. The data validation process is overseen by the Database Administrator.
Site Visits	*Comment on any site visits undertaken by the Competent Person and the outcome of those visits.*	The Competent Person regularly visited the site during exploration phases to assess geological competency and ensure integrity across all geological disciplines. The competent person has built a sound understanding of the deposit geology thus far.
	If no site visits have been undertaken indicate why this is the case.	
Geological Interpretation	*Confidence in (or conversely, the uncertainty of) the geological interpretation of the mineral deposit.*	The resource categories assigned to the model directly reflect the confidence in the geological interpretation that is built using local, structural, mineral, and alteration geology obtained from mapping, logging, drill results and geophysics.
	Nature of the data used and any assumptions made.	The interpretations have been constructed using all available geological logging descriptions including but not limited to, stratigraphy, lithology, texture, and alteration. Cross sectional interpretations of the mineralisation have been created and from the basic framework through which the 3D wireframe solid is built.
	The affect, if any, of alternative interpretations on Mineral Resource estimation.	The geological wireframes defining the mineralised zones are considered to be robust, so no alternative interpretations have been considered.
	The use of geology in guiding and controlling the Mineral Resource estimation.	The wireframed domains are used as hard boundaries during the Mineral Resource Estimation. They are constructed using all available geological information (as stated above) and terminate along known structures. Mineralisation styles, geological homogeneity, and grade distributions for each domain (used to highlight any potential for bimodal populations) are all assessed to ensure effective estimation of the domains.
	The factors affecting continuity both of grade and geology.	Gold mineralisation at Million Dollar is primarily hosted within a porphyritic quartz monzonite and mineralisation appears to be structurally controlled. The deposit is segregated into a series of lenses

Section 3: Estimation and Reporting of Mineral Resources

Criteria	JORC Code Explanation	Commentary
		that maybe separated by faults, but are generally stacked en echelon. Geological characteristics of this deposit are very similar to the geological setting observed at the neighbouring porphyry deposit. The strike continuity of Million Dollar is expressed as Million Dollar North and South exploration plays that are less well defined at this stage.
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.*	Million Dollar mineralisation extends from 6702245mN to 6704065mN, 430785mE to 431585mE and 300meters below surface.
Estimation and modelling techniques	*The nature and appropriateness of the estimation technique(s) applied and key assumptions, including treatment of extreme grade values, domaining, interpolation parameters and maximum distance of extrapolation from data points.*	Grade estimation using Ordinary Kriging (OK) was completed for Million Dollar. All wireframes have been constructed in Micromine. These are used as hard boundaries in the block estimation which has been completed using Datamine software. Estimation of parent blocks are interpolated, and assigned to sub-cells. Drill hole sample data was flagged using domain codes generated from three dimensional mineralisation domains and oxidation surfaces. Sample data was composited to 1 metre downhole length. Intervals with no assays were excluded from the compositing routine. The influence of extreme sample distribution outliers was reduced by top-cutting where required. The top-cut levels were determined using a combination of top-cut analysis tools (grade histograms, log probability plots and CVs). Top-cuts were reviewed and applied on a domain basis. Due to the flexures in the mineralised envelopes, the estimation process was in unfolded space. The blocks are relocated back to their original space after the estimation. Variography was conducted in unfolded space using Geo Access software.
	The availability of check estimates, previous estimates and/or mine production records and whether the Mineral Resource estimate takes appropriate account of such data.	The ordinary kriged resource estimate has been cross checked with several previous estimates. The variance between the estimates was less than 1%. Historic mine production records are not available to evaluate the estimated model.
	The assumptions made regarding recovery of by-products.	No assumptions have been made with respect to the recovery of by-products.
	Estimation of deleterious elements or other non-grade variables of economic significance (e.g. sulfur for acid mine drainage characterisation).	There has been no estimate at this point of deleterious elements.
	In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed.	The parent block sizes for the resource model are 10m(X) by 20m(Y) by 5m (Z). These are deemed appropriate for the majority of the resource, where drill spacing is in the order of 20m x 20m. Parent blocks have been sub-celled to 1m(X) by 1m(Y) by 1m(Y) to ensure that the wireframe boundaries are honoured and preserve the location and shape of the mineralisation. Search ranges have been informed by variogram modelling and knowledge of the drill spacing and the known mineralisation geometry including direction of maximum continuity. Three search estimation runs are used with the aim to satisfy the minimum sample criteria in the first search range where possible.
	Any assumptions behind modelling of selective mining units.	No selective mining units have been assumed.
	Any assumptions about correlation between variables.	No assumptions have been made regarding correlation between variables.
	Description of how the geological interpretation was	The geological interpretation strongly correlates with the mineralised domains. Specifically where the

Section 3: Estimation and Reporting of Mineral Resources

Criteria	JORC Code Explanation	Commentary
	used to control the resource estimates.	mineralised domain corresponds with the quartz monzonite intrusion. All wireframe boundaries including those where lithology and mineralisation correspond, hard boundaries are enforced.
	Discussion of basis for using or not using grade cutting or capping.	A top cut was used in each sub-zone both within the main domains and according to regolith, based on a review of the histogram, log probability plot, and a summary graph of the effects of top-cutting for each domain combination. A top cut was selected to minimise the effects of isolated high grade outliers, without cutting a large proportion of the data or contained metal within the domain.
	The process of validation, the checking process used, the comparison of model data to drill hole data, and use of reconciliation data if available.	Several key model validation steps have been taken to validate the resource estimate. The mineral resource model has been stepped through visually in sectional and plan view to appreciate the composite grades used in the estimate and the resultant block grades. This has also been carried out in 3D with the composite grades and a point cloud of the model grades.
Moisture	*Whether the tonnages are estimated on a dry basis or with natural moisture, and the method of determination of the moisture content.*	All tonnages are estimated on a dry basis.
Cut-off parameters	*The basis of the adopted cut-off grade(s) or quality parameters applied.*	Based on Saracen’s current economic operations at Carosue Dam, and the natural grade distinction above background, a grade of 0.5g/t has been chosen.
Mining factors or assumptions	*Assumptions made regarding possible mining methods, minimum mining dimensions and internal (or, if applicable, external) mining dilution. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential mining methods, but the assumptions made regarding mining methods and parameters when estimating Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the mining assumptions made.*	The deposit has previously been mined as an open pit, and it is assumed that in the future this deposit will again be mined by conventional open pit load and haul operations.
Metallurgical factors or assumptions	*The basis for assumptions or predictions regarding metallurgical amenability. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential metallurgical methods, but the assumptions regarding metallurgical treatment process and parameters made when reporting Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the metallurgical assumptions made.*	Metallurgical testing of RC composites of oxide and transition ores identified leach recoveries from 92% to 96% with a high gravity gold component (70% - 80%).
Environmental factors or assumptions	*Assumptions made regarding possible waste and process residue disposal options. It is always necessary as part of the process of determining reasonable prospects for eventual economic*	No processing or benefication of ore expected on these tenements, as ore is hauled to Carosue Dam Minesite for Processing. The potential for acid generation is extremely low with samples showing strongly negative NAPP values. The mobility of the major solid-phase metals and metalloids is negligible and therefore there is a low potential for metalliferous drainage to occur sat Million Dollar.

Section 3: Estimation and Reporting of Mineral Resources

Criteria	JORC Code Explanation	Commentary
	extraction to consider the potential environmental impacts of the mining and processing operation. While at this stage the determination of potential environmental impacts, particularly for a greenfields project, may not always be well advanced, the status of early consideration of these potential environmental impacts should be reported. Where these aspects have not been considered this should be reported with an explanation of the environmental assumptions made.	
Bulk Density	*Whether assumed or determined. If assumed, the basis for the assumptions. If determined, the method used, whether wet or dry, the frequency of the measurements, the nature, size and representativeness of the samples.*	No new Bulk Density data was collected and measured by Saracen. Densities used in the model are based on data collected by Sons of Gwalia Exploration and Resource Development departments. Data was collected from within 3 separate drill holes, and consisted of 17 samples in total. These were measured from zones recognised as fresh. Density values for the transitional and oxide horizons were based on values from the Porphyry deposit. The method of density measurement of the historic data is unknown.
	The bulk density for bulk material must have been measured by methods that adequately account for void spaces (vugs, porosity, etc), moisture and differences between rock and alteration zones within the deposit.	Ore zones predominantly exist in transitional to fresh non porous material, so additional measures to reduce moisture intake during the water displacement method is unnecessary at this stage. Coating more friable oxides and sediments (to reduce moisture loss or moisture gain during the process) is considered on a deposit by deposit basis.
	Discuss assumptions for bulk density estimates used in the evaluation process of the different materials.	An average mean of densities collected for each lithological type has been uniformly applied to the modelled geological units. This includes the primary fresh lithologies as well as the weathered oxide and transitional zones.
Classification	*The basis for the classification of the Mineral Resources into varying confidence categories.*	The mineral resource has been classified into Measured, Indicated and Inferred categories based on drill hole spacing, geological confidence, and grade continuity and estimation quality.
	Whether appropriate account has been taken of all the relevant factors (ie relative confidence in tonnage/grade estimations, reliability of input data, confidence in continuity of geology and metal values, quality, quantity and distribution of the data).	All care has been taken to account for relevant factors influencing the mineral resource estimate. Confidence in the predicted tonnes and grade estimated in the model is high.
	Whether the result appropriately reflects the Competent Person's view of the deposit.	The geological model and the mineral resource estimate reflect the competent person’s view of the deposit.
Audits or reviews	*The results of any audits or reviews of Mineral Resource estimates.*	Saracen has adopted a process for geological modelling, estimation and reporting of mineral resources that meets high industry standards. At the completion of resource estimation Saracen Gold Mines undertake an extensive review of the model that covers model inventory and comparisons to previous and budget models. Geological interpretation, wireframing, domain selection, statistics by domain, assay evaluation, parent cell sizes, data compositing, variography, search strategy, estimation and KNA and finally model validation and resource categorisation are all discussed and scrutinized by the geological and mine planning teams.
Discussion of relative accuracy/confidence	*Where appropriate a statement of the relative accuracy and confidence level in the Mineral*	The relative accuracy of the Mineral Resource estimate is reflected in the reporting of the Mineral Resource as per the guidelines of the 2012 JORC Code. The resource estimates have undergone a

Section 3: Estimation and Reporting of Mineral Resources

Criteria	JORC Code Explanation	Commentary
	Resource estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the resource within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors that could affect the relative accuracy and confidence of the estimate.	robust validation process, and as such, the competent person is satisfied that the resources estimated in the block model are a true representation of the global insitu resources.
	The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonnages, which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the procedures used.	The statements relate to a global estimate of tonnes and grade.
	These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.	Historical production data is not available so no comparison of the model has been made.

Section 4: Estimation and Reporting of Ore Reserves

Criteria	JORC Code Explanation	Commentary
Mineral Resource estimate for conversion to Ore Reserves	*Description of the Mineral resource Estimate used as a basis for the conversion to an Ore Reserve.*	The Mineral Resource Model for the Million Dollar gold deposit is a robust global estimate that was used as a basis for conversion to the Ore Reserve estimate. It was compiled and validated by Saracen following their standard estimation procedures. The estimate was built using a combination of data supplied by Consolidated Resources NL, and data compiled by Saracen. The data included drilling and assay data, limited geological mapping and historical mining records. The latter was used to validate the model and the solid interpretation wireframes of the geology. This information was used to construct a model estimated by ordinary kriging. The model was depleted with the last final pit survey completed in 1989.
	Clear statement as to whether the Mineral Resources are reported additional to. Or inclusive of, the Ore Reserves.	The Mineral Resource reported is inclusive of the Ore Reserve.
Site Visits	*Comment on any site visits undertaken by the Competent Person and the outcome of those visits.*	Chris Burton has conducted several site visits to the Million Dollar pit since the deposit came under Saracen's ownership. The purpose of these visits included gathering information for feasibility studies, observing wall conditions and groundwater inflows.
	If no site visits have been undertaken indicate why this is the case.	N/A

Section 4: Estimation and Reporting of Ore Reserves		
Criteria	**JORC Code Explanation**	**Commentary**
Study status	*The type and level of study undertaken to enable Mineral Resources to be converted to Ore Reserves*	The Million Dollar Gold Mine operated as an open pit mine for a short period during the late 1980's. The existing pit is very small and no sgnificant documentation relating to the operation parameters for the pit have been obtained. There exist geological similarities between Million Dollar and the adjoinging Porphyry deposit which has been successfully mined by Saracen in the last five years. Saracen has undertaken a pre-feasibility study with mining and processing parameters reflecting mining conditions experienced at the neighbouring Porphyry deposit.
	The Code requires that a study to at least Pre-Feasibility Study level has been undertaken to convert Mineral Resources to Ore Reserves. Such studies will have been carried out and will have determined a mine plan that is technically achievable and economically viable, and that material Modifying Factors have been considered.	Modifying factors have been applied to the study to ensure the rigor of the financial analysis. All of the parameters assumed and adopted, as well as the financial analysis completed, have been the subject to peer review.
Cut-off parameters	*The basis of the cut-off grade(s) or quality parameters applied*	For the purpose of Ore Reserve Estimate a marginal cut-off of 0.7g/t was calculated based upon an assumed gold price of AUD$1400/oz and applicable processing, haulage and administration costs. A top cut has already been applied to the Mineral Resource Estimate eliminating the necessity for any further adjustment to the Ore Reserve estimate.
Mining factors or assumptions	*The method and assumptions used as reported in the Pre-feasibility or Feasibility Study to convert the Mineral Resource to an Ore Reserve (i.e. either by application of appropriate factors by optimisation or by preliminary or detailed design).*	The resource model used in the Mineral Resource Estimation was the basis for the generation of a range of Whittle 4X pit optimisation shells. The generation of these shells was reliant upon costs and inputs derived from current operational data and independent consultant recommendations. An appropriate shell was then selected as the basis for an iterative process of pit design work, culminating in the finalisation of a detailed pit design for the Million Dollar cutbacks.
	The choice, nature and appropriateness of the selected mining method(s) and other mining parameters including associated design issues such as pre-strip, access, etc.	Mining method to be employed will be conventional hydraulic excavator and dump truck fleet, with 190t and 120t class excavators assumed. The class of excavator employed matches those used in previous mining at SGM's Carosue Dam Operations, providing good comparative cost data for financial modelling purposes, as well as a reliable database of excavation and performance rates. The pit will be mined in two cutbacks, extending the existing pit to the south and creating a new satellite pit to the north.
	The assumptions made regarding geotechnical parameters (e.g. pit slopes, stope sizes, etc.), grade control, and pre-production drilling.	Geotechnical recommendations were made by Peter O'Bryan & Associates (geotechnical consultants) following site visits, inspection of drill core, and a review of the geotechnical data gathered during earlier operations. Peter O'Bryan & Associates were engaged by Saracen to oversee geotechnical risk during the mining of the adjacent Porphyry pit and are familiar with both deposits. The Grade control method to be employed at Million Dollar will utilise RC grade control sampling methods.
	The major assumptions made and Mineral Resource model used for pit and stope optimisation (if appropriate).	Planned mining dilution & mining recoveries are factored into the model used in the Mineral Resource Estimation assuming the use of 190t and 120t class hydraulic excavators and based on previous and current mining experience.
	The mining dilution factors used.	Unplanned mining dilution has been assumed at 15%, based on relatively flat dipping mineralised zones and the class of excavator to be used.
	The mining recovery factors used.	Unplanned mining recovery has been assumed at 98%, based on relatively flat dipping mineralised zones and the class of excavator to be used.

Section 4: Estimation and Reporting of Ore Reserves		
Criteria	**JORC Code Explanation**	**Commentary**
	Any minimum mining widths used	A minimum mining width of 30m has been adopted for the main excavation fleet. Where 'pinch-points' occur along the interface with the existing pit it has been assumed that a smaller more versatile excavator will be employed, with appropriate costings for these areas applied.
	The manner in which inferred Mineral resources are utilised in mining studies and the sensitivity of the outcome to their inclusion.	No inferred resources are contained within the final pit design boundaries; therefore the project has no sensitivity to the possible inclusion of that resource category. Pit optimisation and mining studies excluded any inferred mineral resources.
	The infrastructure requirements of the selected mining methods.	The selected mining method for the pit is conventional for this style of mineralisation and no specialised infrastructure is required to accommodate this method of mining
Metallurgical factors or assumptions	*The metallurgical process proposed and the appropriateness of that process to the style of mineralisation*	The ore reserve will be treated at the established Carosue Dam processing facility. The Carosue Dam Process Plant is a CIL cyanide leach plant incorporating a gravity circuit which is appropriate for the extraction of gold from free milling gold ores. An average plant processing recovery of 92.0% has been assumed in the Ore Reserve Estimate which was derived from the long term average recovery data collected at the Carosue Plant. It should be noted that this is a likely to be a conservative rate, as testwork carried out suggest a metallurgical recovery in the range of 93-96% for Million Dollar ore.
	Whether the metallurgical process is well-tested technology or novel in nature.	The method of ore processing and extraction proposed utilises well tried and proven technology dating back to the 1960's and practiced extensively around the world.
	The nature, amount and representiveness of metallurgical test work undertaken, the nature of the metallurgical domaining applied and the corresponding metallurgical recovery factors applied.	An average plant processing recovery of 92.0% has been assumed in the Ore Reserve Estimate which was derived from the long term average recovery data collected at the Carosue Plant. Historically, the Million Dollar ore from the existing pit was processed on site at the now dismantled Porphyry processing facility. Records detailing recoveries for the ore are not available. Metallurgical testwork has been carried out on samples from the Million Dollar deposit by Ammtec, with recoveries in the range of 93-96%, so the adoption of the CDO long term average recovery may be a little conservative.
	Any assumptions or allowances made for deleterious elements.	There are no known deleterious elements present in Million Dollar ore.
	The existence of any bulk sample or pilot scale test work and the degree to which such samples are considered representative of the ore body as a whole.	No records exist of the performance of the small amount of Million Dollar ore as it was processed at the Porphyry facility.
	For minerals that are defined by a specification, has the ore reserve estimation been based on the appropriate mineralogy to meet the specifications.	N/A
Environmental factors or assumptions	*The status of studies of potential environmental impacts of the mining and processing operation. Details of waste rock characterisation and the consideration of potential sites, status of design options considered and, where applicable, the status of approvals for process residue storage and*	The mine is currently on 'care and maintenance'. A mining proposal has previously been submitted by Saracen, but was later withdrawn due to a change in the life of mine plan. Clearing permits have been granted and works approvals are in place. The existing Carosue Dam processing facility at which the Million Dollar ore will be processed and the accommodation village all lay on granted mining leases. The road haulage network footprint is underpinned by a combination of miscellaneous licences and granted mining leases

Section 4: Estimation and Reporting of Ore Reserves

Criteria	**JORC Code Explanation**	**Commentary**
	waste dumps should be reported.	
Infrastructure	*The existence of appropriate infrastructure: availability of land for plant development, power, water, transportation (particularly for bulk commodities), labour, accommodation; or the ease with which the infrastructure can be provided, or accessed.*	The Million Dollar deposit has little infrastructure, however, when the area was previously mined by Saracen minimal infrastructure was required to facilitate this satellite operation. All of the required processing facilities are in place and fully operational at Carosue Dam. Power is generated from a powerhouse containing diesel generators and processing water is sourced by dewatering old pits. Potable water is sourced from borefields and then processed through a reverse osmosis plant. A modern well appointed accommodation camp is in place and fully operational at Carosue Dam. Access to the site for FIFO workers is via commercial flights in and out of Kalgoorlie regional airport and then via road to Carosue Dam.
Costs	*The derivation of, or assumptions made, regarding projected capital costs in the study.*	Capital costs relating to the commencement of this operation are low, with monthly allowances made in the financial analysis for sustaining capital
	The methodology used to estimate operating costs.	Operating costs for open pit mining have been derived from a combination of actual costs from SGM's Carosue Dam Operations and costs supplied by an independent industry consultant. Operating costs for ore processing, haulage and administration have been derived from known parameters at Carosue Dam.
	Allowances made for the content of deleterious elements	There is no evidence of any deleterious elements within the ore or waste that required any additional cost allowances.
	The derivation of assumptions made of metal or commodity price(s), for the principal minerals and co-products	An assumed gold price of AUD$1,400/oz has been adopted for financial modelling
	The source of exchange rates used in study	All revenue and cost calculations have been made in AUD, so no exchange rate usage or assumptions have been necessary
	Derivation of transportation charges	Costs associated with bullion transportation have been derived from existing contractual arrangements at Carouse Dam
	The basis for forecasting or source of treatment and refining charges, penalties for failure to meet specification, etc.	Costs associated with refining have been derived from existing contractual arrangements at Carouse Dam
	The allowances made for royalties payable, both Government and private.	Royalty costs are the WA state government 2.5% royalty, and a 1.5% royalty payable to IRC
Revenue Factors	*The derivation of, or assumptions made, regarding revenue factors including head grade, metal or commodity price(s) exchange rates, transportation and treatment charges, penalties, net smelter returns, etc.*	For the purposes of reserve estimation it has been assumed that there is no gold hedging. All gold production will be sold at spot price to the Perth Mint.
	The derivation of assumptions made of metal or commodity price(s), for the principal metals, minerals and co-products	An assumed gold price of AUD$1,400/oz has been adopted for financial modelling

Section 4: Estimation and Reporting of Ore Reserves		
Criteria	**JORC Code Explanation**	**Commentary**
Market Assessment	*The demand, supply and stock situation for the particular commodity, consumption trends and factors likely to affect supply and demand into the future.*	There is a transparent quoted market for the sale of gold
	A customer and competitor analysis along with the identification of likely market windows for the product.	There is a transparent quoted market for the sale of gold
	Price and volume forecasts and the basis for these forecasts.	There is a transparent quoted market for the sale of gold
	For industrial minerals the customer specification, testing and acceptance requirements prior to a supply contract.	N/A
Economic	*The inputs to the economic analysis to produce the net present value (NPV) in the study, the source and confidence of these economic inputs including estimated inflation, discount rate, etc.*	An optimal pit shell based upon an AUD$1,400/oz gold price was the basis for the pit design adopted in the Ore Reserve Estimate. Due to the short duration of mining (less than 18 months) a discount rate has not been applied to cash flow calculations.
	NPV ranges and sensitivity to variations in the significant assumptions and inputs.	A full financial model was developed with sensitivities applied to all key inputs and assumptions (+/-15%), which is appropriate to the level of study undertaken (pre-feasibility). Undiscounted cash flows remained positive for all of the key sensitivities conducted.
Social	*The status of agreements with key stakeholders and matters leading to social licence to operate*	When the Porphyry mining centre was previously in operation, Saracen experienced good relations with neighbouring stakeholders, including engagement with the local pastoralists and the traditional owners, and have no reason to think that this would change in the future. The mine is located on leasehold pastoral land with compensation agreements in place with the local pastoralist. Granted mining leases cover all of the proposed mining and processing assets and there are no Native title claims pending.
Other	*To the extent relevant, the impact of the following on the project and/or on the estimation and classification of the Ore Reserves:*	
	Any identified material naturally occurring risks	Water inrush is the only naturally occurring risk identified, and was partially addressed by the construction of appropriate water diversion bunds as part of normal mining operations the last time that the Porlyry mining centre was mined. The costs associated with some minor extension of the bund have been factored into waste mining haulage.
	The status of material legal agreements and marketing arrangements	A royalty of 1.5% of production is payable to IRC.
	The status of governmental agreements and approvals critical to the viability of the project, such as mineral tenement status, and government and statutory approvals. There must be reasonable grounds to expect that all necessary government approvals will be received within the timeframes anticipated in the Pre-Feasibility or Feasibility study. Highlight and discuss the materiality of any unresolved matter that is dependent on a third party	Gold produced from Million Dollar Mine will be sold on the spot market. A royalty of 2.5% is payable to the W.A. State government, with a royalty of 1.5% of production payable to IRC. Government approvals will need to be sought relating to this Ore Reserve Estimate, namely for mining, waste dumping, diversion of surface run-off, water extraction from pits and bores and the associated discharge. The best opinion available suggests that this will be a likely outcome.

Section 4: Estimation and Reporting of Ore Reserves

Criteria	**JORC Code Explanation**	**Commentary**
	on which extraction of the reserve is contingent.	
Classification	*The basis for the classification of the Ore Reserve into varying confidence categories*	The Ore Reserve Estimate classification for Million Dollar has been in accordance with the JORC code 2012. All of the Ore Reserve Estimate was classified as being Probable with all of the Ore Reserve Estimate being derived from that portion of the Mineral Resource classified as indicated. There is no measured component to the Million Dollar Mineral Resource Estimate within the proposed pit boundaries.
	Whether the result appropriately reflects the Competent Person's view of the deposit.	Cost assumptions and inputs applied to the pit optimisation and subsequent design were derived from current operational data relating to Carosue Dam Operations, and expert recommendations from industry consultants. Results of these optimisations and the resultant analysis reflect the views of Chris Burton regarding the Million Dollar deposit.
	The proportion of Probable Ore Reserves that have been derived from Measured Mineral Resources (if any)	There were no Measured Mineral Resources within the pit design that formed the physical extent of the ore reserve estimate.
Audits or reviews	*The results of any audits or reviews of Ore Reserve estimates*	All of the parameters assumed and adopted, as well as the financial analysis completed, have been the subject to peer review.
Discussion of relative accuracy/confidence	*Where appropriate a statement of the relative accuracy and confidence level in the Ore Reserve estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geo-statistical procedures to quantify the relative accuracy of the reserve within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors which could affect the relative accuracy and confidence of the estimate.* *The statement should specify whether it relates to global or local estimates, and if local, state the relevant tonnages which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the procedures used.* *Accuracy and confidence discussions should extend to specific discussions of any applied modifying factors that may have a material impact on Ore Reserve viability, or for which there are remaining areas of uncertainty ay the current study stage.*	The ore reserve estimate was derived from the mineral resource estimate which in turn was reliant upon a resource block model whose estimation was derived from drill-hole data of sufficient continuity and spacing to satisfy the requirements for an indicated resource. The interpretation and estimation process integrated an allowance for a selective mining unit, effectively building in planned dilution to the Mineral resource estimate. This had the impact of diluting the upper and lower confines of the shallow dipping ore zones that are difficult to mine selectively. Saracen has made certain assumptions regarding mining and processing costs, mining dilution and recoveries, geotechnical parameters, and metallurgical recoveries. All of these have been documented and are based upon known parameters either at Million Dollar whilst previously in operation, or in existence at Saracen's other operations, or have been recommended by reputable industry consultants. All of the parameters assumed and adopted, as well as the financial analysis completed, have been the subject to peer review.

Section 4: Estimation and Reporting of Ore Reserves

Criteria	JORC Code Explanation	Commentary
	It is recognised that this may not be possible or appropriate in all circumstances. These statements or relative accuracy and confidence of the estimate should be compared with production data, where available.	

Wallbrook

Section 1: Sampling Techniques and Data

Criteria	JORC Code Explanation	Commentary
Sampling Techniques	*Nature and quality of sampling (e.g. cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc.). These examples should not be taken as limiting the broad meaning of sampling.*	Sampling methods undertaken by Saracen at the Wallbrook project area have included reverse circulation (RC), diamond drillholes (DD) and RC grade control drilling within the pits. Historic methods conducted since 1977 have included rotary air blast (RAB), reverse circulation and diamond drillholes.
	Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used	Sampling for diamond and RC drilling is carried out as specified within Saracen sampling and QAQC procedures as per industry standard. RC chips and diamond core provide high quality representative samples for analysis. RC, RAB and DD core drilling was completed by previous holders to industry standard at that time (1977- 2006).
	Aspects of the determination of mineralisation that are Material to the Public Report. In cases where 'industry standard' work has been done this would be relatively simple (e.g. 'reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30 g charge for fire assay'). In other cases more explanation may be required, such as where there is coarse gold that has inherent sampling problems. *Unusual commodities or mineralisation types (e.g. submarine nodules) may warrant disclosure of detailed information*	Diamond core is NQ sized, sampled to 1m intervals and geological boundaries where necessary and cut into half core to give sample weights under 3 kg. Samples are selected to weigh less than 3 kg to ensure total sample inclusion at the pulverisation stage. RC chips are riffle or cone split and sampled into 1m intervals with total sample weights under 3kg Saracen core and chip samples are crushed, dried and pulverised to a nominal 90% passing 75µm to produce a 50 g sub sample for analysis by FA/AAS. Historical RAB, RC and diamond sampling was carried out to industry standard at that time. Analysis methods include fire assay, aqua regia and unspecified methods.
Drilling Techniques	*Drill type (e.g. core, reverse 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.).*	The deposit was initially sampled by 516 RAB holes, 360 RC holes (assumed standard 5 ¼ ''bit size) and 10 surface diamond HQ, PQ and unknown diameter holes. Saracen has completed 2 NQ diameter diamond geotechnical holes, 1 HQ diameter diamond drillhole for metallurgical test work, 210 RC holes from surface and 1868 grade control RC holes within the pits. Diamond drillholes were oriented using an Ezy-mark tool. It is unknown if historic diamond drill core was oriented.

Section 1: Sampling Techniques and Data

Criteria	JORC Code Explanation	Commentary
Drill Sample Recovery	*Method of recording and assessing core and chip sample recoveries and results assessed*	Diamond core recovery percentages calculated from measured core versus drilled intervals are logged and recorded in the database. No historic recoveries have been recorded. Recoveries average >95%. RC sampling recoveries are recorded as a percentage based on a visual weight estimate; limited historic recoveries have been recorded.
	Measures taken to maximise sample recovery and ensure representative nature of the samples	Diamond core is reconstructed into continuous runs on an angle iron cradle for orientation marking. Depths are checked against depth given on the core blocks. During exploration RC drilling minimum tolerance shrouds were used to improve sample recovery. These were adjusted based on the difficulty of the clay. During GC campaigns daily rig inspections are carried out to check splitter condition, general site and address general issues. The sample bags weight versus bulk reject weight is compared to ensure adequate and even sample recovery. Historical RAB, RC and diamond drilling to industry standard at that time.
	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.	Diamond drilling has high recoveries meaning loss of material is minimal. There is no known relationship between sample recovery and grade for RC drilling. Any historical relationship is not known.
Logging	*Whether core and chip samples have been geologically and geotechnically logged to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies.* *Whether logging is qualitative or quantitative in nature.* *Core (or costean, channel, etc) photography.*	Logging of diamond drill core and RC chips records lithology, mineralogy, texture, mineralisation, weathering, alteration, veining and other features. Geotechnical and structural logging is carried out on all diamond holes to record recovery, RQD, defect number, type, fill material, shape and roughness and alpha and beta angles. Chips from all RC holes (exploration and GC) are stored in chip trays for future reference. Core is photographed in both dry and wet state. Qualitative and quantitative logging of historic data varies in its completeness.
	The total length and percentage of the relevant intersections logged	All diamond drillholes and exploration RC holes are logged in full. Every second drill line is logged in grade control programs with infill logging carried out as necessary. Historical logging is approximately 95% complete.
Sub-sampling techniques and sample preparation	*If core, whether cut or sawn and whether quarter, half or all core taken.*	All drill core is cut in half onsite using an automatic core saw. Samples are always collected from the same side. Historic drillcore had been half core, quarter core and full core sampled.
	If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry.	All exploration and GC RC samples are cone or riffle split. Occasional wet samples are encountered; increased air capacity is routinely used to aid in keeping the sample dry when water is encountered. Historic RAB and RC drilling was sampled using riffle and unknown methods.
	For all sample types, the nature, quality and appropriateness of the sample preparation technique.	The sample preparation of diamond core and RC chips adhere to industry best practice. It is conducted by a commercial laboratory or onsite laboratory and involves oven drying, coarse crushing then total grinding to a size of 90% passing 75 microns. Best practice is assumed at the time of historic sampling.
	Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.	All subsampling activities are carried out by commercial laboratory or onsite laboratory and are considered to be satisfactory. Sampling by previous holders assumed to be industry standard at the time.
	Measures taken to ensure that the sampling is representative of the in situ material collected,	Duplicate sampling is carried out at a rate of 1:10 for exploration drilling and 1:20 for GC drilling and is sampled directly from the on-board splitter on the rig. These are submitted for the same assay process

Section 1: Sampling Techniques and Data

Criteria	JORC Code Explanation	Commentary
	including for instance results for field duplicate/second half sampling.	as the original samples and the laboratory are unaware of such submissions. Sampling by previous holders assumed to be industry standard at the time.
	Whether sample sizes are appropriate to the grain size of the material being sampled.	Sample sizes are considered to be appropriate.
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.*	RC chip samples, diamond core and some grade control chip samples are analysed by external laboratories using a 50g fire assay with AAS finish. This method is considered suitable for determining gold concentrations in rock and is a total digest method. Some GC samples were analysed in the Saracen onsite laboratory using a pulverise and leach method. This method is a partial digest. Historic sampling includes fire assay, aqua regia and unknown methods.
	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 geophysical tools have been utilised for reporting gold mineralisation within the Wallbrook project.
	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.	Certified reference material (standards and blanks) with a wide range of values are inserted into every drillhole at a rate of 1:25 for exploration RC and DD, and 1:40 for GC drilling. These are not identifiable to the laboratory. QAQC data returned are checked against pass/fail limits with the SQL database and are passed or failed on import. A report is generated and reviewed by the geologist as necessary upon failure to determine further action. QAQC data is reported monthly. Sample preparation checks for fineness are carried out to ensure a grindsize of 90% passing 75 microns. The laboratory performs a number of internal processes including standards, blanks, repeats and checks. QAQC data analysis demonstrates sufficient accuracy and precision. Industry best practice is assumed for previous holders.
Verification of sampling and assaying	*The verification of significant intersections by either independent or alternative company personnel.*	Significant intercepts are verified by the Geology Manager and corporate personnel.
	The use of twinned holes.	No specific twinned holes have been drilled in the Wallbrook project area but grade control drilling has confirmed the width and grade of previous exploration drilling.
	Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols	Primary data is collated in a set of excel templates utilising lookup codes. This data is forwarded to the Database Administrator for entry into a secure acQuire database with inbuilt validation functions. Data from previous owners was taken from a database compilation and validated as much as practicable before entry into the Saracen acQuire database.
	Discuss any adjustment to assay data.	No adjustments have been made to assay data. First gold assay is utilised for resource estimation.
Location of data points	*Accuracy and quality of surveys used to locate drillholes (collar and down-hole surveys), trenches, mine workings and other locations used in Mineral Resource estimation.*	Exploration drillholes are located using a Leica 1200 GPS with an accuracy of +/- 10mm. Drillhole collars within the pit and immediate surrounds are picked up by company surveyors using a Trimble R8 GNSS (GPS) with an expected accuracy of +/-8mm. Downhole surveys are carried out using an Eastman single shot camera at regular intervals (usually 30m). A number of drillholes have also been gyroscopically surveyed. Previous holders' survey accuracy and quality is unknown.

Section 1: Sampling Techniques and Data

Criteria	JORC Code Explanation	Commentary
	Specification of the grid system used.	The gird system used at the Wallbrook project area is MGA94 zone 51.
	Quality and adequacy of topographic control.	Topographic control originally used site based survey pickups in addition to Kevron aerial photogrammetric surveys with +/- 5m resolution. Pre mining, new and more detailed topography has since been captured and will be used in future updates and for subsequent planning purposes.
Data spacing and distribution	*Data spacing for reporting of Exploration Results.*	The nominal spacing for exploration drilling is 25m X 25m to 25m/20m X 12.5m in the Redbrook and Eleven Bells and 30m X 20m to 20m X 20m at Red Flag and Crusader respectively.
	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.	Data spacing and distribution are sufficient to establish the degree of geological and grade continuity appropriate for JORC classifications applied.
Orientation of data in relation to geological structure	*Whether sample compositing has been applied.*	Sample compositing is not applied until the estimation stage. Some historic RAB and RC sampling was composited into 3-4m samples with areas of interest re-sampled to 1m intervals. It is unknown at what threshold this occurred.
	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 drillholes are positioned to achieve optimum intersection angles to the ore zone as are practicable.
	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.	No significant sampling bias is thought to occur due to orientation of drilling in regards to mineralised structures.
Sample security	*The measures taken to ensure sample security.*	Samples are prepared on site under supervision of Saracen geological staff. Samples are selected, bagged into tied numbered calico bags then grouped into secured cages and collected by the laboratory personnel. Sample submissions are documented via laboratory tracking systems and assays are returned via email
Audits or reviews	*The results of any audits or reviews of sampling techniques and data.*	An internal review of companywide sampling methodologies was conducted to create the current sampling and QAQC procedures.

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 Wallbrook area comprises a number of resources located on M31/172 and M31/231. Near mine exploration has been carried out on M31/188 and M31/251. The tenements are held 100% by Saracen Gold Mines Pty Ltd, a wholly owned subsidiary of Saracen Mineral Holdings Limited. The tenements have a 21 year mine life (held until 2029) and are renewable for a further 21 years on a continuing basis. Mining leases M31/172,M31/188 and M31/231 are subject to a bank mortgage. There are no registered Aboriginal Heritage sites within Mining Leases M31/172, M31/188, M31/231 and M31/251. All the tenements are subject to the Edjudina Pastoral Compensation

Section 2: Reporting of Exploration Results

Criteria	JORC Code Explanation	Commentary
		agreement. All production is subject to a Western Australian state government NSR royalty of 2.5%
	The security of the tenure held at the time of reporting along with any known impediments to obtaining a licence to operate in the area.	The tenements are in good standing and the licence to operate already exists.
Exploration done by other parties	*Acknowledgment and appraisal of exploration by other parties.*	Gold mining began in the Wallbrook area at Redbrook as early as 1903 and continued sporadically until 1942. Regional exploration carried out the 1960's and 1970's by Falconbridge and Asarco focused on base metal discovery with no significant anomalism detected. The exploration focus shifted back to gold in the late 1970's. Sampling and RAB drilling carried out by Pennzoil in 1981 delineated the Wallbrook and Redbrook mineralisation, with RC drilling carried out by Ivernia in 1987 further defining the resource. The project changed hands a number of times with Poseidon, Talon Resources, Croesus and Jackson Gold all carrying out various drilling and sampling campaigns and identifying further resources including Eleven Bells, Red Flag and Crusader before Saracen acquired the project.
Geology	*Deposit type, geological setting and style of mineralisation.*	Centred in the Wallbrook region is Wallbrook Hill area is described as a medium-grained leucocratic granitoid that crops out on two low hills which jointly cover an area of approximately 1200m (northsouth) by 200m (east west). The two hills appear to represent two narrowly separated granitoid bodies surrounded by greenstone. The greenstones are dominantly amygdaloidal basalt and chlorite-plagioclase-rich mafic schist, with minor intermediate to felsic schist. The margins of the granitoids are 'porphyritic and interleaved with greenstone. Competency contrast between the Wallbrook granitoids and adjacent rock types, is considered important in localising mineralised vein systems at the Wallbrook deposit. At Wallbrook a mineralised quartz vein stockwork has developed within and adjacent to a small syenogranitic intrusion within metabasalt. Locally however, the wall rocks at Wallbrook comprise relatively incompetent felsic schists. Quartz veins formed a conjugate set while the local principal stress axis was oriented northeast – southwest. Further north the structurally controlled Red Flag and Crusader deposits form at sheared contacts between mafic and felsic units that exhibit increased quartz veining.
Drillhole 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 does not detract from the understanding of the report, the Competent Person should clearly explain why this is the case.*	All material data is periodically released on the ASX: 31/07/2012, 28/04/2010, 13/04/2010, 30/04/2008, 12/03/2008, 31/01/2008, 03/12/2007, 30/10/2007, 28/09/2007 Future drill hole data will be periodically released or when a results materially change the economic value of the project.

Section 2: Reporting of Exploration Results

Criteria	JORC Code Explanation	Commentary
Data aggregation methods	*In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (e.g. cutting of high grades) and cut-off grades are usually Material and should be stated.*	All significant intercepts have been length weighted with a minimum Au grade of 1ppm. No high grade cut off has been applied.
	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.	Intercepts are aggregated with minimum width of 1m and maximum width of 3m for internal dilution. Where stand out higher grade zone exist with in the broader mineralised zone, the higher grade interval is reported also.
	The assumptions used for any reporting of metal equivalent values should be clearly stated.	There are no metal equivalents reported in this release.
Relationship between mineralisation widths and intercept lengths	*These relationships are particularly important in the reporting of Exploration Results.* *If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.* *If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (eg 'down hole length, true width not known').*	Previous announcements (mentioned above) included sufficient detail to clearly illustrate the geometry of the mineralisation and the recent drilling.
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.*	All significant exploration results released by Saracen are accompanied by the appropriate diagrams and maps at the time of the release.
Balanced Reporting	*Where comprehensive reporting of all Exploration Results are not practicable, representative reporting of both low and high grades and/or widths should be practiced to avoid misleading reporting of Exploration Results.*	All results from the recent campaign have been reported, irrespective of success or not.
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.*	A number of studies were carried out in 2010 including a hydrological assessment and dewatering investigation that determined no impact on surrounding area, a waste characterisation and acid mine drainage management study that reported no issues and a geotechnical study that concluded geological structures will greatly influence wall stability.

Section 2: Reporting of Exploration Results

Criteria	JORC Code Explanation	Commentary
Further work	*The nature and scale of planned further work (eg tests for lateral extensions or depth extensions or large-scale step-out drilling).* *Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive*	Wallbrook is a prospective area and is well defined. Open Pit optimisation is ongoing. Further work in the future will be focused more on extensional exploration.

Section 3: Estimation and Reporting of Mineral Resources

Criteria	JORC Code Explanation	Commentary
Database Integrity	*Measures taken to ensure that data has not been corrupted by, for example, transcription or keying errors, between its initial collection and its use for Mineral Resource estimation purposes.*	Saracen utilises AcQuire software on an SQL server database to securely store and manage all drillhole and sample information. Data integrity protocols are built into the system to ensure data validity and minimise errors are built into the data entry and import processes.
	Data validation procedures used.	Data that is captured in the field is entered into Excel templates which are checked on import into the database for errors. Assay jobs are dispatched electronically to the lab to minimise the chance of data entry errors. Assay results from the lab are received in CSV format and are checked for errors on import into the database. Data is regularly validated using the mining software. The data validation process is overseen by the Database Administrator.
Site Visits	*Comment on any site visits undertaken by the Competent Person and the outcome of those visits.*	The Competent Person visited the geological area at the time of review and exploration to assess geological competency and ensure integrity across all exploration geological disciplines.
	If no site visits have been undertaken indicate why this is the case.	
Geological Interpretation	*Confidence in (or conversely, the uncertainty of) the geological interpretation of the mineral deposit.*	Included in the Wallbrook Project area are four spatially separate deposits that are possibly part of the same regional geology regime but are geologically different on a local scale. Redbrook and Eleven Bells, historically mined at a small scale, are well defined by exploration drilling and grade control drilling in the upper levels. Mineralisation at Redbrook is well understood and the resource categories applied to its estimation reflect the geological confidence. Eleven Bells mineralisation is far more complex and historic drilling at various orientations reflects the intricacies in geology. A bulk mining methodology was proposed for this deposit and with that confidence in metal recovery is high. The resource categories consider both geological understanding from drill results and the bulk mining metal recovery. Red Flag and Crusader are exhibit simpler geology and interpretations have not altered significantly over historic and more recent drilling campaigns. There is a high confidence in the interpretations and the appropriate resource categories are reflected in the model.
	Nature of the data used and any assumptions made.	The geological interpretation of Wallbrook has considered all available geological information including local geology, structural deformation events, and its relationship to neighbouring mineralised deposits. Rock types, mineral, alteration and veining assemblages from diamond drill core and RC Chips were all used to help define the mineralised domains, regolith boundaries and granite intrusion contacts. Historic in pit mapping further constrained the domaining.
	The affect, if any, of alternative interpretations on	The geological wireframes defining the mineralised zones are considered to be robust. Whilst the

Section 3: Estimation and Reporting of Mineral Resources

Criteria	JORC Code Explanation	Commentary
	Mineral Resource estimation.	Eleven Bells wireframes are well defined by geology, the ambiguity surrounding the gold bearing structures resulted in various model runs that included a bulk mining approach, and estimations looking at different composited lengths. Globally they all behaved in a similar manner.
	The use of geology in guiding and controlling the Mineral Resource estimation.	The wireframed domains are used as hard boundaries during the Mineral Resource Estimation. They are constructed using all available geological information (as stated above) and terminate along known structures and or granite contacts in the case of Eleven Bells and Redbrook. Mineralisation styles, geological homogenity, and grade distributions for each domain (used to highlight any potential for bimodal populations) are all assessed to ensure effective estimation of the domains.
	The factors affecting continuity both of grade and geology.	Grade and geology continuity for each of the deposits at Wallbrook are influenced by various controls. Economic mineralisation at Redbrook is largely controlled by the proximity of the granitoid contact that acts as a conduit for au bearing fluids. A stockwork of quartz veining is strongly associated with healthy Au mineralisation. The along strike extents are possibly terminated by structures however further drilling would be required to verify this. The main Redbrook domains are open at depth and down plunge. Elevenbells mineralisation abutts the northern contact of the granite and subsequently terminates along it. Moving away from the granite the NW extent of the mineralisation naturally attenuates. Quartz veining in the metabasalt host is the only consistent marker for Au mineralisation; however geological relationships are ambiguous due to the orientation of the drilling. At Red Flag Au mineralisation at Red Flag is largely associated with sheared contacts between mafic and felsic units and increased quartz veining. Both the northerly and southerly extents of these domains are terminated by local to regional scaled NW trending structures that can be easily picked in the Magnetics. Au mineralisation at Crusader mimics other deposits and is largely associated with sheared mafic (intermediate) and felsic unit contacts. Quartz veining and associated chlorite, hematite, sericite alteration is not always an indicator of economic Au mineralisation. Cross cutting the Crusader deposit to the north are a series of porphyries that are associated with weaker Au mineralisation. The southerly extent of Crusader domains are terminated by the same NW structure that intervenes with Red Flag. To the north the gold mineralisation appears to peter out, however it remains relatively untested.
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.*	Redbrook and Eleven Bells deposits stretch from 6694800mN to 6695800mN and 433800mE to 434400mE to 300m below surface. The ore lodes have strike lengths from 25m to 260m and plunge extents and widths up to 330m. Red Flag and Crusader deposits stretch from 6695905mN to 6697595mN and 433000mE to 434600mE to 300m below surface. Red Flag domains are dominated by shorter strike lengths from 25m to 230m, whereas the domains at Crusader stretch from 60m to 1130m.
Estimation and modelling techniques	*The nature and appropriateness of the estimation technique(s) applied and key assumptions, including treatment of extreme grade values, domaining, interpolation parameters and maximum distance of extrapolation from data points.*	Ordinary Krige The mineralised ore domains were wireframed based on geological homogeneity, grade populations, mineralisation styles and orientation of grade continuity. The domain wireframes were used as hard boundaries during the estimation process. Grade control holes assisted in the geological definition of the primary ore domains, though were omitted in the estimation of the resource. An unfolding process was carried out prior to variography and interpolation to remove the variable dip and strike typically associated with the mineralised domains. RAB, Aircore and grab samples were excluded from the estimation process for Redbrook and Eleven Bells due to the unreliability of results. However as almost half the dataset for Red Flag and Crusader consisted of RAB drilling these were included in their estimation. Negative gold grades were replaced with a grade of 0.001 g/t and null gold grades were

Section 3: Estimation and Reporting of Mineral Resources		
Criteria	**JORC Code Explanation**	**Commentary**
		excluded from the estimation process. Drillhole assays were composited to 1m intervals with a minimum length of 0.3m that best conformed to the sample length of the majority of the RC data. High grades within each domain were identified and top cuts were applied where necessary. Variograms were produced to determine the directional influence of each sample during the estimation process. The Mineral Resource Estimate was interpolated using Ordinary Kriging in Micromine 2012.
	The availability of check estimates, previous estimates and/or mine production records and whether the Mineral Resource estimate takes appropriate account of such data.	An inverse distance cubed estimate was run simultaneously with the ordinary kriged resource estimate, with an insignificant variance between the global Au grade values. The Wallbrook resource model was compared to the previously run Widenbar OK model of 2009 and changes including increased tonnages were the result of more available mineralised drill intersections, in pit mapping and geophysics data. The current resource model was reconciled with production data on a monthly basis. This information for Redbrook and Eleven Bells was fed back into the resource modelling process and used to refine the model.
	The assumptions made regarding recovery of by-products.	No assumptions have been made regarding the recovery of by-products for this Mineral Resource Estimation.
	Estimation of deleterious elements or other non-grade variables of economic significance (e.g. sulfur for acid mine drainage characterisation).	No estimation of deleterious elements or non-grade variables is required
	In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed.	Average drill hole data spacing and mining selectivity were among the primary considerations for block size. In the case of Red Brook and Eleven Bells, larger bulk mining practices and broader ore zones resulted in the more appropriate parent cell size of 20m X 20m X 10 m. Sub celling resolutions to 2m x 2m x 2m was applied. The parent cell size of 10m x 10m x 5m with a subcelling to 1m in each direction was used in the Red Flag and Crusader estimation. The search strategy was set up such that the first search pass would fill blocks informed by the closest spaced drilling, whilst the second search would inform blocks in area of more typical drill spacing. The second search used search ellipse multiplied by a factor of 2, while the third search increased the dimensions by a factor of 5 to ensure filling of all blocks. Initial search distances are done on a domain by domain basis.
	Any assumptions behind modelling of selective mining units.	No selective mining units have been assumed.
	Any assumptions about correlation between variables.	No assumptions have been made regarding correlation between variables.
	Description of how the geological interpretation was used to control the resource estimates.	Mineralised domains were wireframed within the context of the known local and structural geology. The interpretation was influenced by historical information, geological mapping within the pit (Redbrook only) and geology logging of drillholes. Correlations between rock type, texture, and alteration, veining and gold mineralisation were investigated for each deposit.
	Discussion of basis for using or not using grade cutting or capping.	Samples with extreme high grades that bias the mean grade and positively skew the grade population within each mineralised domains are top cut to reduce the influence high grade outliers. The geostatistics to determine top cuts includes log probability plots and the coefficient of variation.
	The process of validation, the checking process used, the comparison of model data to drill hole data, and use of reconciliation data if available.	A number of statistical and visual measures are used to validate the accuracy of the estimation. The mean grade of the block model is compared to the mean grade of composites by domain. These are then further investigated by appropriate northing, easting and bench intervals in the form of swathe plots. The volume variance between the wireframed domains and block model domains are assessed. Kriging effeciency, and slope results give an indication of the quality of the estimate. A visual inspection of the

Section 3: Estimation and Reporting of Mineral Resources

Criteria	JORC Code Explanation	Commentary
		drillhole assay results are compared to the estimated block model in section.
Moisture	*Whether the tonnages are estimated on a dry basis or with natural moisture, and the method of determination of the moisture content.*	All tonnages are estimated on a dry basis.
Cut-off parameters	*The basis of the adopted cut-off grade(s) or quality parameters applied.*	The adopted cut-off grades for Mineral Resource Estimation reporting are determined by the current mining cut-off grades. For Wallbrook these were set at 0.4 Au g/t.
Mining factors or assumptions	*Assumptions made regarding possible mining methods, minimum mining dimensions and internal (or, if applicable, external) mining dilution. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential mining methods, but the assumptions made regarding mining methods and parameters when estimating Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the mining assumptions made.*	Open cut mining has been successful at the Redbrook and Eleven Bells deposit. It is therefore assumed that there are reasonable grounds to mine the remaining resource at these deposits by conventional open pit methods given the close proximity to surface and the mean average grade of the mineralisation. Similarly mining methods would also be amenable for Red Flag and Crusader deposits.
Metallurgical factors or assumptions	*The basis for assumptions or predictions regarding metallurgical amenability. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential metallurgical methods, but the assumptions regarding metallurgical treatment process and parameters made when reporting Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the metallurgical assumptions made.*	Metallurgical testing (and processing operations at CDO) identified Wallbrook ores as being free milling sizes with leach recoveries in excess of 90% with a moderate gravity gold component (30% - 40%).
Environmental factors or assumptions	*Assumptions made regarding possible waste and process residue disposal options. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider the potential environmental impacts of the mining and processing operation. While at this stage the determination of potential environmental impacts, particularly for a greenfields project, may not always be well advanced, the status of early consideration of these potential environmental impacts should be reported. Where these aspects have not been considered this should be reported with an explanation of the environmental assumptions made.*	Wallbrook Waste characterisation indicated that seepage from waste rock stockpiles at Wallbrook are slightly alkaline, non-saline to slightly brackish and contain very low concentrations of metals and metalloids. Waste materials have been classed as NAF, small percentage of low risk acid forming materials will be encapsulated in Waste Rock Dump through dump strategy. No processing or benefication of ore expected on these tenements, as ore is hauled to Carosue Dam Minesite for Processing.

Section 3: Estimation and Reporting of Mineral Resources

Criteria	JORC Code Explanation	Commentary
Bulk Density	*Whether assumed or determined. If assumed, the basis for the assumptions. If determined, the method used, whether wet or dry, the frequency of the measurements, the nature, size and representativeness of the samples.*	Density in the current model has been assigned based on oxidation state, using both recent density determinations carried out by Saracen on its drill samples and historical data. The sample size is generally between 0.5 and 1.5kg and the method of calculation is the water displacement technique. Measurements have been recorded in the acquire database.
	The bulk density for bulk material must have been measured by methods that adequately account for void spaces (vugs, porosity, etc), moisture and differences between rock and alteration zones within the deposit.	Ore zones predominantly exist in transitional to fresh non porous material, so additional measures to reduce moisture intake during the water displacement method is unnecessary at this stage. Coating more friable oxides and sediments (to reduce moisture loss or moisture gain during the process) is considered on a deposit by deposit basis.
	Discuss assumptions for bulk density estimates used in the evaluation process of the different materials.	An average mean of densities collected for each lithological type has been uniformly applied to the modelled geological units. This includes the primary fresh lithologies as well as the weathered oxide and transitional zones.
Classification	*The basis for the classification of the Mineral Resources into varying confidence categories.*	Drill hole location plots have been used to ensure that local drill spacing conforms to the minimum expected for the resource classification. Measured material has been defined where there is detailed grade control and resource definition drilling where confidence in lode volume and continuity is very high. Indicated material is generally confined to areas where resource definition drilling is typically defined by 25m x 25m spaced drilling or closer, and there is still high confidence in lode location and continuity. Inferred material lies beyond the Indicated boundaries and meets the criteria expressed in the JORC Code for Inferred Resource. Based on the above criteria a series of strings were constructed and linked together to form solid wireframes that defined the measured (RESCAT = 1) and indicated (RESCAT = 2) categories. The block model outside the Indicated wireframe was given the default Inferred value of RESCAT = 3. Additionally estimation properties, such as search passes, number of samples, and kriging efficiencies, were considered in the definition of the resource boundaries and were visually compared to the RESCATS previously defined by the drill spacing and geological continuity.
	Whether appropriate account has been taken of all the relevant factors (ie relative confidence in tonnage/grade estimations, reliability of input data, confidence in continuity of geology and metal values, quality, quantity and distribution of the data).	All relevant factors have been taken into account and are validated through thorough QAQC of the drill hole database and geological knowledge and interpretation of the Wallbrook deposit. Thorough model validations and reviews ensure the integrity of the final estimation and the grade and tonnage numbers.
	Whether the result appropriately reflects the Competent Person's view of the deposit.	The geological model and the mineral resource estimate reflect the competent person’s view of the deposit.
Audits or reviews	*The results of any audits or reviews of Mineral Resource estimates.*	At the completion of resource estimation Saracen Gold Mines undertake an extensive review of the model that covers model inventory and comparisons to previous and budget models. Geological interpretation,wireframing, domain selection, statisitics by domain, assay evaluation, parent cell sizes, data compositing, variography, search strategy, estimation and KNA and finally model validation and resource categorisation are all discussed and scrutinized by the geological and mine planning teams.
Discussion of relative accuracy/confidence	*Where appropriate a statement of the relative accuracy and confidence level in the Mineral Resource estimate using an approach or procedure deemed appropriate by the Competent Person. For*	The Mineral Resource has been reported in accordance with the guidelines of the 2004 edition of the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves. Saracen Gold Mine uses a standard approach to resource estimation and the procedure requires the systematic completion of the Saracen Resource Estimation Document that is thoroughly investigated and assessed

Section 3: Estimation and Reporting of Mineral Resources

Criteria	JORC Code Explanation	Commentary
	example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the resource within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors that could affect the relative accuracy and confidence of the estimate.	in the Model review process, as stated above. It was identified that with improved software, validation and additional KNA measures would help improve the optimisation of the block model.
	The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonnages, which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the procedures used.	The statements relate to a global estimate of tonnes and grade.
	These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.	Compared to production data, Redbrook resource estimation reconciled well, reporting 98% accuracy in ounces. This equates to a 97% tonnes and 102% grade reconciliation. This is indicative of the broad and consistent ore zone mined at Redbrook. Geology and mineralisation is less well understood at Eleven Bells and variability (10% - 35% less ounces) in historic production figures with resource estimates is indicative of this complex setting. The current bulk resource estimation takes this complexity into account, reducing the potential for ore misallocation. This setup produces far more favourable and minable set of parameters.

Section 4: Estimation and Reporting of Ore Reserves

Criteria	JORC Code Explanation	Commentary
Mineral Resource estimate for conversion to Ore Reserves	*Description of the Mineral resource Estimate used as a basis for the conversion to an Ore Reserve.*	The Mineral Resource estimate for the Wallbrook gold deposit is a robust global estimate that considers the intricacies of the geology for each deposit within the geological region. Accordingly Eleven Bells adopted a bulk modelling and estimation approach and the Redbrook estimation honoured the greater geological understanding and definition. These “reduced risk” estimations were used as a basis for conversion to the Ore Reserve estimate that was compiled by Saracen. The estimate used data from previous owners (Jackson Gold) as well as data compiled by Saracen whilst mining the existing pits. The data included drilling and assay data, geological mapping, mining records, and reconciliation data. The latter was used to validate the model and determine the best approach to solid wireframe interpretation of the geology. Subsequently information was used to construct a model estimated by ordinary kriging. The model was depleted with the last final pit survey completed in 2012.
	Clear statement as to whether the Mineral Resources are reported additional to. Or inclusive of, the Ore Reserves.	The Mineral Resource reported is inclusive of the Ore Reserve.
Site Visits	*Comment on any site visits undertaken by the Competent Person and the outcome of those visits.*	Chris Burton has conducted several site visits both before, during and after completion of mining of the existing Wallbrook pits under Saracen’s stewardship. The purpose of these visits included gathering information for feasibility studies, monitoring of mining progress, accompanying geotechnical consultants carrying out wall inspections.

Section 4: Estimation and Reporting of Ore Reserves

Criteria	JORC Code Explanation	Commentary
	If no site visits have been undertaken indicate why this is the case.	N/A
Study status	*The type and level of study undertaken to enable Mineral Resources to be converted to Ore Reserves*	The Wallbrook Gold Mine operated as an open pit mine for a period of 10 months from 2011-2012. All of the mechanised mining to date at Wallbrook has occurred during Saracen's tenure and as such all production data and operating parameters have been available for inclusion in the pre-feasibility study with mining and processing parameters updated to reflect current conditions.
	The Code requires that a study to at least Pre-Feasibility Study level has been undertaken to convert Mineral Resources to Ore Reserves. Such studies will have been carried out and will have determined a mine plan that is technically achievable and economically viable, and that material Modifying Factors have been considered.	Modifying factors have been applied to the study to ensure the rigor of the financial analysis. All of the parameters assumed and adopted, as well as the financial analysis completed, have been the subject to peer review.
Cut-off parameters	*The basis of the cut-off grade(s) or quality parameters applied*	For the purpose of Ore Reserve Estimate a marginal cut-off of 0.7g/t was calculated based upon an assumed gold price of AUD$1400/oz and applicable processing, haulage and administration costs. A top cut has already been applied to the Mineral Resource Estimate eliminating the necessity for any further adjustment to the Ore Reserve estimate.
Mining factors or assumptions	*The method and assumptions used as reported in the Pre-feasibility or Feasibility Study to convert the Mineral Resource to an Ore Reserve (i.e. either by application of appropriate factors by optimisation or by preliminary or detailed design).*	The resource model used in the Mineral Resource Estimation was the basis for the generation of a range of Whittle 4X pit optimisation shells. The generation of these shells was reliant upon costs and inputs derived from current operational data and independent consultant recommendations. An appropriate shell was then selected as the basis for an iterative process of pit design work, culminating in the finalisation of a detailed pit design for the Wallbrook cutbacks
	The choice, nature and appropriateness of the selected mining method(s) and other mining parameters including associated design issues such as pre-strip, access, etc.	Mining method to be employed will be conventional hydraulic excavator and dump truck fleet, with 190t and 120t class excavators assumed. The class of excavator employed matches those used in previous mining at Wallbrook by Saracen, providing good comparative cost data for financial modelling purposes, as well as a reliable database of excavation and performance rates. The deposit will be mined in two cutbacks, with the mine schedule timed to allow campaign mining operations to switch from cutback to cutback as pit floor space dictates.
	The assumptions made regarding geotechnical parameters (e.g. pit slopes, stope sizes, etc.), grade control, and pre-production drilling.	Geotechnical recommendations were made by Peter O'Bryan & Associates (geotechnical consultants) following numerous site visits, inspection of drill core, and a review of the geotechnical data gathered during earlier operations. Peter O'Bryan & Associates were engaged by Saracen to oversee geotechnical risk during the mining of the previous cutbacks at Wallbrook. Once the pit is dewatered there may be some need for additional geotechnical input. The Grade control method to be employed at Wallbrook will utilise RC grade control sampling methods due to the proven success of this method in earlier mined stages of the pit.
	The major assumptions made and Mineral Resource model used for pit and stope optimisation (if appropriate).	Planned mining dilution & mining recoveries are factored into the model used in the Mineral Resource Estimation assuming the use of 190t and 120t class hydraulic excavators and based on previous and current mining experience.

Section 4: Estimation and Reporting of Ore Reserves

Criteria	JORC Code Explanation	Commentary
	The mining dilution factors used.	Unplanned mining dilution has been assumed at 10%
	The mining recovery factors used.	Unplanned mining recovery has been assumed at 98%
	Any minimum mining widths used	A minimum mining width of 30m has been adopted for the main excavation fleet. Where 'pinch-points' occur along the interface with the existing pit it has been assumed that a smaller more versatile excavator will be employed, with appropriate costings for these areas applied.
	The manner in which inferred Mineral resources are utilised in mining studies and the sensitivity of the outcome to their inclusion.	No inferred resources are contained within the final pit design boundaries, therefore the project has no sensitivity to the possible inclusion of that resource category. Pit optimisation and mining studies excluded any inferred mineral resources.
	The infrastructure requirements of the selected mining methods.	The selected mining method for the pit is conventional for this style of mineralisation and no specialised infrastructure is required to accommodate this method of mining
Metallurgical factors or assumptions	*The metallurgical process proposed and the appropriateness of that process to the style of mineralisation*	The ore reserve will be treated at the established Carosue Dam processing facility. The Carosue Dam Process Plant is a CIP plant incorporating a gravity circuit which is appropriate for the extraction of gold from free milling gold ores. An average plant processing recovery of 92.0% has been assumed in the Ore Reserve Estimate which was derived from the long term average recovery data collected at the Carosue Plant. Historically, Wallbrook ore was often blended with other ore sources through the Carosue plant, however, no significant variations in metallurgical recovery were experienced during that time, hence the adoption of the average recovery.
	Whether the metallurgical process is well-tested technology or novel in nature.	The method of ore processing and extraction proposed utilises well tried and proven technology dating back to the 1960's and practiced extensively around the world.
	The nature, amount and representiveness of metallurgical test work undertaken, the nature of the metallurgical domaining applied and the corresponding metallurgical recovery factors applied.	An average plant processing recovery of 92.0% has been assumed in the Ore Reserve Estimate which was derived from the long term average recovery data collected at the Carosue Plant. Historically, Wallbrook ore was often blended with other ore sources through the Carosue plant, however, no significant variations in metallurgical recovery were experienced during that time, hence the adoption of the average recovery. Approximately two years of processing of the Wallbrook ore through this plant have resulted in a solid understanding of the metallurgical parameters of the ore. Oxide, transitional ore have all been processed through this plant during the previous operational period.
	Any assumptions or allowances made for deleterious elements.	There are no known deleterious elements present in Wallbrook ore.
	The existence of any bulk sample or pilot scale test work and the degree to which such samples are considered representative of the ore body as a whole.	Over 500,000 tonnes of the Wallbrook ore were processed over a two year period commencing in the second quarter of FY12, representing a sizeable bulk sample/pilot test. The ore contained in the Ore reserve estimate would be processed through the same facility.
	For minerals that are defined by a specification, has	N/A

Section 4: Estimation and Reporting of Ore Reserves

Criteria	**JORC Code Explanation**	**Commentary**
	the ore reserve estimation been based on the appropriate mineralogy to meet the specifications.	
Environmental factors or assumptions	*The status of studies of potential environmental impacts of the mining and processing operation. Details of waste rock characterisation and the consideration of potential sites, status of design options considered and, where applicable, the status of approvals for process residue storage and waste dumps should be reported.*	The mine is currently on 'care and maintenance'. All statutory approvals required for mining to commence at Wallbrook are approved and in place. The existing Carosue Dam processing facility at which the Wallbrook ore will be processed, and the accommodation village all lay on granted mining leases. The road haulage network footprint is underpinned by a combination of miscellaneous licences and granted mining leases
Infrastructure	*The existence of appropriate infrastructure: availability of land for plant development, power, water, transportation (particularly for bulk commodities), labour, accommodation; or the ease with which the infrastructure can be provided, or accessed.*	The Wallbrook deposit has little infrastructure, however, when Wallbrook was previously mined minimal infrastructure was required to facilitate this satellite operation. All of the required processing facilities are in place and fully operational at Carosue Dam. Power is generated from a powerhouse containing diesel generators and processing water is sourced by dewatering old pits. Potable water is sourced from borefields and then processed through a reverse osmosis plant. A modern well appointed accommodation camp is in place and fully operational at Carosue Dam. Access to the site for FIFO workers is via commercial flights in and out of Kalgoorlie regional airport and then via road to Carosue Dam.
Costs	*The derivation of, or assumptions made, regarding projected capital costs in the study.*	Capital costs relating to the commencement of this operation are low, with monthly allowances made in the financial analysis for sustaining capital
	The methodology used to estimate operating costs.	Operating costs for open pit mining have been derived from a combination of actual costs from SGM's Carosue Dam Operations and costs supplied by an independent industry consultant. Operating costs for ore processing, haulage and administration have been derived from known parameters at Carosue Dam.
	Allowances made for the content of deleterious elements	Previous operational experience at Wallbrook did not reveal any deleterious elements within the ore or waste that required any additional cost allowances.
	The derivation of assumptions made of metal or commodity price(s), for the principal minerals and co-products	An assumed gold price of AUD$1,400/oz has been adopted for financial modelling
	The source of exchange rates used in study	All revenue and cost calculations have been made in AUD, so no exchange rate usage or assumptions have been necessary
	Derivation of transportation charges	Costs associated with bullion transportation have been derived from existing contractual arrangements at Carouse Dam
	The basis for forecasting or source of treatment and refining charges, penalties for failure to meet specification, etc.	Costs associated with refining have been derived from existing contractual arrangements at Carouse Dam
	The allowances made for royalties payable, both Government and private.	The only royalty costs associated with Wallbrook are the WA state government 2.5% royalty.

Section 4: Estimation and Reporting of Ore Reserves

Criteria	JORC Code Explanation	Commentary
Revenue Factors	*The derivation of, or assumptions made, regarding revenue factors including head grade, metal or commodity price(s) exchange rates, transportation and treatment charges, penalties, net smelter returns, etc.*	For the purposes of reserve estimation it has been assumed that there is no gold hedging. All gold production will be sold at spot price to the Perth Mint.
	The derivation of assumptions made of metal or commodity price(s), for the principal metals, minerals and co-products	An assumed gold price of AUD$1,400/oz has been adopted for financial modelling
Market Assessment	*The demand, supply and stock situation for the particular commodity, consumption trends and factors likely to affect supply and demand into the future.*	There is a transparent quoted market for the sale of gold
	A customer and competitor analysis along with the identification of likely market windows for the product.	There is a transparent quoted market for the sale of gold
	Price and volume forecasts and the basis for these forecasts.	There is a transparent quoted market for the sale of gold
	For industrial minerals the customer specification, testing and acceptance requirements prior to a supply contract.	N/A
Economic	*The inputs to the economic analysis to produce the net present value (NPV) in the study, the source and confidence of these economic inputs including estimated inflation, discount rate, etc.*	An optimal pit shell based upon an AUD$1,450/oz gold price was the basis for the pit design adopted in the Ore Reserve Estimate. Due to the short duration of mining (less than 18 months) a discount rate has not been applied to cash flow calculations.
	NPV ranges and sensitivity to variations in the significant assumptions and inputs.	A full financial model was developed with sensitivities applied to all key inputs and assumptions (+/- 15%), which is appropriate to the level of study undertaken (pre-feasibility). Undiscounted cash flows remained positive for all of the key sensitivities conducted, with the exception of revenue. The revenue levers are gold price, grade and mining recovery. A gold price of $1,400/oz has been assumed in all modelling, a 15% sensitivity reduction in that price would give a resultant price of $1,190/oz, which compared to an average spot price of $1,500/oz over the last 12 months, would equate to almost a 20% sensitivity. Saracen also has gold hedging of 140koz at an average price of $1,520 for CDO, none of which has been included in any of the financial modelling for the Ore Reserve Estimate. The sensitivity testing of grade and mining recovery are largely mitigated by the methodology incorporated during the block modelling process. All previous mining at Wallbrook relied upon a block model that assumed that selective mining of the ore body would be practical, however, the stock work nature of the ore body at Wallbrook resulted in a poor reconciliation of metal in 2012. A revised approach to the block modelling process has resulted in a simplified domaining of the ore with a single domain being used for the majority of the ore body to create a ‘bulk mining’ model. Additional domains were only added where at least 5m of waste separated the new domain from the main domain and where sufficient continuity of the ore warranted the addition of the new domain. This revised approach has resulted in the grades in the Ore Reserve Estimate reflecting the previous mined stage reconciled grades. The combination of gold hedging and the use of bulk modelling have de-risked the 15% downside sensitivity to the revenue stream for Wallbrook.

Section 4: Estimation and Reporting of Ore Reserves

Criteria	**JORC Code Explanation**	**Commentary**
Social	*The status of agreements with key stakeholders and matters leading to social licence to operate*	When Wallbrook was previously in operation, Saracen experienced good relations with neighbouring stakeholders, including engagement with the local pastoralists and the traditional owners, and have no reason to think that this would change in the future. The mine is located on leasehold pastoral land with compensation agreements in place with the local pastoralist. Granted mining leases cover all of the proposed mining and processing assets and there are no Native title claims pending.
Other	*To the extent relevant, the impact of the following on the project and/or on the estimation and classification of the Ore Reserves:*	
	Any identified material naturally occurring risks	Water inrush is the only naturally occurring risk identified, and was addressed by the construction of appropriate water diversion bunds as part of normal mining operations the last time that Wallbrook was mined. The costs associated with some minor extension of the bund have been factored into waste mining haulage.
	The status of material legal agreements and marketing arrangements	N/A
	The status of governmental agreements and approvals critical to the viability of the project, such as mineral tenement status, and government and statutory approvals. There must be reasonable grounds to expect that all necessary government approvals will be received within the timeframes anticipated in the Pre-Feasibility or Feasibility study. Highlight and discuss the materiality of any unresolved matter that is dependent on a third party on which extraction of the reserve is contingent.	Gold produced from Wallbrook Mine will be sold on the spot market. A royalty of 2.5% is payable to the W.A. State government. No third party royalties exist. Government approvals have been sought and granted relating to this Ore Reserve Estimate, namely for mining, waste dumping, diversion of surface run-off, ore processing, tailings storage, water extraction from pits and bores and the associated discharge.
Classification	*The basis for the classification of the Ore Reserve into varying confidence categories*	The Ore Reserve Estimate classification for Wallbrook has been in accordance with the JORC code 2012. All of the Ore Reserve Estimate was classified as being Probable with all of the Ore Reserve Estimate being derived from that portion of the Mineral Resource classified as either measured or indicated. Approximately 40% of the Ore Reserve Estimate being derived from that portion of the Mineral Resource classified as measured for the Wallbrook deposit.
	Whether the result appropriately reflects the Competent Person's view of the deposit.	Cost assumptions and inputs applied to the pit optimisation and subsequent design were derived from current operational data relating to Carosue Dam Operations, and expert recommendations from industry consultants. Results of these optimisations and the resultant analysis reflect the views of Chris Burton regarding the Wallbrook deposit.
	The proportion of Probable Ore Reserves that have been derived from Measured Mineral Resources (if any)	Approximately 40% of the Ore Reserve Estimate has been derived from that portion of the Mineral Resource classified as measured within the pit design that formed the physical extent of the ore reserve estimate.
Audits or reviews	*The results of any audits or reviews of Ore Reserve estimates*	All of the parameters assumed and adopted, as well as the financial analysis completed, have been the subject to peer review.
Discussion of relative	*Where appropriate a statement of the relative*	The ore reserve estimate was derived from the mineral resource estimate which in turn was reliant upon

Section 4: Estimation and Reporting of Ore Reserves		
Criteria	**JORC Code Explanation**	**Commentary**
accuracy/confidence	*accuracy and confidence level in the Ore Reserve estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geo-statistical procedures to quantify the relative accuracy of the reserve within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors which could affect the relative accuracy and confidence of the estimate.* *The statement should specify whether it relates to global or local estimates, and if local, state the relevant tonnages which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the procedures used.* *Accuracy and confidence discussions should extend to specific discussions of any applied modifying factors that may have a material impact on Ore Reserve viability, or for which there are remaining areas of uncertainty ay the current study stage.* *It is recognised that this may not be possible or appropriate in all circumstances. These statements or relative accuracy and confidence of the estimate should be compared with production data, where available.*	a resource block model whose estimation was derived from drill-hole data of sufficient continuity and spacing to satisfy the requirements for a measured and indicated resource. All previous mining at Wallbrook relied upon a block model that assumed that selective mining of the ore body would be practical, however, the stock work nature of the ore body at Wallbrook resulted in a poor reconciliation of metal in 2012. A revised approach to the block modelling process for this Ore Reserve Estimate has resulted in a simplified domaining of the ore with a single domain being used for the majority of the ore body to create a 'bulk mining' model. Additional domains were only added where at least 5m of waste separated the new domain from the main domain and where sufficient continuity of the ore warranted the addition of the new domain. This revised approach has resulted in the grades in the Ore Reserve Estimate reflecting the previously mined pit stage reconciled grades. This bulk mining approach to the domaining of the ore body has provided the confidence to apply 10% mining dilution and an ore loss of 2% given the lack of selectivity in the mining Given the size of excavator proposed for mining, this rate of dilution is conservative, and there is minimal scope for ore loss. The proposed mining plan has the same mineralised zone being mined with excavators of a size and configuration well understood at Carosue Dam, utilising the same grade control methods widely in operation at Carosue Dam, and being processed through the same facility. The opportunity for deviation from the modelled plan is considered minimal All of the parameters assumed and adopted, as well as the financial analysis completed, have been the subject to peer review.

Margaret's

Section 1: Sampling Techniques and Data		
Criteria	**JORC Code Explanation**	**Commentary**
Sampling Techniques	*Nature and quality of sampling (e.g. cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole*	Sampling methods undertaken by Saracen at Margaret's have included reverse circulation (RC and RC grade control drilling within the pit. Historic methods conducted since 1984 have included diamond drilling (DD), rotary air blast (RAB) and reverse circulation drilling.

Section 1: Sampling Techniques and Data

Criteria	JORC Code Explanation	Commentary
	gamma sondes, or handheld XRF instruments, etc.). These examples should not be taken as limiting the broad meaning of sampling.	
	Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used	Sampling for RC exploration and grade control drilling is carried out as specified within Saracen sampling and QAQC procedures as per industry standard. RC chips provide high quality representative samples for analysis. DD, RC and RAB drilling was completed by previous holders to industry standard at that time (1984-2002).
	Aspects of the determination of mineralisation that are Material to the Public Report. In cases where 'industry standard' work has been done this would be relatively simple (e.g. 'reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30 g charge for fire assay'). In other cases more explanation may be required, such as where there is coarse gold that has inherent sampling problems. *Unusual commodities or mineralisation types (e.g. submarine nodules) may warrant disclosure of detailed information*	RC chips are cone split and sampled into 1m intervals with total sample weights under 3kg to ensure total sample inclusion at the pulverisation stage. Saracen chip samples are crushed, dried and pulverised to a nominal 90% passing 75µm to produce a 50 g sub sample for analysis by FA/AAS. Some grade control RC chips were analysed in the Saracen on site laboratory using a PAL (pulverise and leach) method. Historical DD, RAB and RC sampling was carried out to industry standard at that time. Analysis methods include fire assay, atomic absorption spectroscopy, aqua regia and unknown methods.
Drilling Techniques	*Drill type (e.g. core, reverse 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.).*	The deposit was initially sampled by 76 RAB holes and 190 RC holes (assumed standard 5 ¼ ''bit size) and 19 NQ diameter diamond drill holes. Saracen has completed 30 RC holes from surface and 770 grade control RC holes within the pit. It is unknown if historic diamond drill core was oriented.
Drill Sample Recovery	*Method of recording and assessing core and chip sample recoveries and results assessed*	Exploration RC sampling recoveries are recorded as a percentage based on a visual weight estimate; no historic recoveries have been recorded.
	Measures taken to maximise sample recovery and ensure representative nature of the samples	During RC drilling daily rig inspections are carried out to check splitter condition, general site and address general issues. During GC campaigns the sample bags weight versus bulk reject weight is compared to ensure adequate and even sample recovery. Historical RAB, RC and diamond drilling to industry standard at that time.
	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.	There is no known relationship between sample recovery and grade for RC drilling. Any historical relationship is not known.
Logging	*Whether core and chip samples have been geologically and geotechnically logged to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies.* *Whether logging is qualitative or quantitative in*	Logging of RC chips records lithology, mineralogy, texture, mineralisation, weathering, alteration, veining and other features. Chips from all RC holes (exploration and GC) are stored in chip trays for future reference. Qualitative and quantitative logging of historic data varies in its completeness.

Section 1: Sampling Techniques and Data

Criteria	JORC Code Explanation	Commentary
	nature. Core (or costean, channel, etc) photography.	
	The total length and percentage of the relevant intersections logged	All exploration RC holes are logged in full. Every second drill line is logged in grade control programs with infill logging carried out as necessary. Historical logging is complete.
Sub-sampling techniques and sample preparation	*If core, whether cut or sawn and whether quarter, half or all core taken.*	Historic drillcore has been half core sampled.
	If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry.	All exploration and GC RC samples are cone split. Occasional wet samples are encountered; increased air capacity is routinely used to aid in keeping the sample dry when water is encountered. Historic RAB and RC drilling was sampled using grab, riffle and unknown methods.
	For all sample types, the nature, quality and appropriateness of the sample preparation technique.	The sample preparation of RC chips adheres to industry best practice. It is conducted by a commercial or onsite laboratory and involves oven drying, coarse crushing then total grinding to a size of 90% passing 75 microns. Best practice is assumed at the time of historic sampling.
	Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.	All subsampling activities are carried out by commercial or onsite laboratory and are considered to be satisfactory. Sampling by previous holders assumed to be industry standard at the time.
	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.	Duplicate sampling is carried out at a rate of 1:10 for exploration drilling and 1:20 for GC drilling and is sampled directly from the on-board splitter on the rig. These are submitted for the same assay process as the original samples and the laboratory are unaware of such submissions. Sampling by previous holders assumed to be industry standard at the time.
	Whether sample sizes are appropriate to the grain size of the material being sampled.	Sample sizes of 3kg were considered to be appropriate given the grain size (90% passing 75 microns) of the material sampled.
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.*	RC chip samples and grade control chip are analysed by external laboratories using a 50g fire assay with AAS finish. This method is considered suitable for determining gold concentrations in rock and is a total digest method. Some GC samples were analysed in the Saracen onsite laboratory using a pulverise and leach method. This method is a partial digest. Historic sampling methods include fire assay and aqua regia.
	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 geophysical tools have been utilised for reporting gold mineralisation.
	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.	Certified reference material (standards and blanks) with a wide range of values are inserted into every drillhole at a rate of 1:25 for exploration RC and 1:40 for GC drilling. These are not identifiable to the laboratory. QAQC data returned are checked against pass/fail limits with the SQL database and are passed or failed on import. A report is generated and reviewed by the geologist as necessary upon failure to determine further action. QAQC data is reported monthly. Sample preparation checks for fineness are carried out to ensure a grindsize of 90% passing 75 microns.

Section 1: Sampling Techniques and Data

Criteria	JORC Code Explanation	Commentary
		The laboratory performs a number of internal processes including standards, blanks, repeats and checks. QAQC data analysis demonstrates sufficient accuracy and precision. Industry best practice is assumed for previous holders.
Verification of sampling and assaying	*The verification of significant intersections by either independent or alternative company personnel.*	Significant intercepts are verified by the Geology Manager and corporate personnel.
	The use of twinned holes.	No specific twinned holes have been drilled at Margaret's but grade control drilling has confirmed the width and grade of previous exploration drilling.
	Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols	Primary data is collated in a set of excel templates utilising lookup codes. This data is forwarded to the Database Administrator for entry into a secure acQuire database with inbuilt validation functions. Data from previous owners was taken from a database compilation and validated as much as practicable before entry into the Saracen acQuire database.
	Discuss any adjustment to assay data.	No adjustments have been made to assay data. First gold assay is utilised for resource estimation.
Location of data points	*Accuracy and quality of surveys used to locate drillholes (collar and down-hole surveys), trenches, mine workings and other locations used in Mineral Resource estimation.*	Exploration drillholes are located using a Leica 1200 GPS with an accuracy of +/- 10mm. Drillhole collars within the pit and immediate surrounds are picked up by company surveyors using a Trimble R8 GNSS (GPS) with an expected accuracy of +/-8mm. Downhole surveys are carried out using an Eastman single shot camera at regular intervals (usually 30m). A number of drillholes have also been gyroscopically surveyed. Previous holders' survey accuracy and quality is unknown.
	Specification of the grid system used.	A local grid system (Margaret) is used at Margaret's The two point conversion to MGA_GDA94 zone 51 is: MAREast MARNorth RL MGAEast MGANorth RL Point 1 10000 10500 0 433411.082 6705652.245 0 Point 2 10000 9800 0 433414.203 6704952.493 0 Historic data is converted to the Margaret's local grid upon export from the database
	Quality and adequacy of topographic control.	Topographic control originally used site based survey pickups in addition to Kevron aerial photogrammetric surveys with +/- 5m resolution. Pre mining, new and more detailed topography has since been captured and will be used in future updates and for subsequent planning purposes.
Data spacing and distribution	*Data spacing for reporting of Exploration Results.*	The nominal spacing for exploration drilling is 25m x 20m to 12.5m x 20m.
	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.	Data spacing and distribution are sufficient to establish the degree of geological and grade continuity appropriate for JORC classifications applied.
Orientation of data in relation to geological structure	*Whether sample compositing has been applied.*	Sample compositing is not applied until the estimation stage. Some historic RAB sampling was composited into 3-4m samples.
	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 drillholes are positioned to achieve optimum intersection angles to the ore zone as are practicable.

Section 1: Sampling Techniques and Data

Criteria	JORC Code Explanation	Commentary
	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.	No significant sampling bias is thought to occur due to orientation of drilling in regards to mineralised structures.
Sample security	*The measures taken to ensure sample security.*	Samples are prepared on site under supervision of Saracen geological staff. Samples are selected, bagged into tied numbered calico bags then grouped into secured cages and collected by the laboratory personnel. Sample submissions are documented via laboratory tracking systems and assays are returned via email
Audits or reviews	*The results of any audits or reviews of sampling techniques and data.*	An internal review of companywide sampling methodologies was conducted to create the current sampling and QAQC procedures.

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 Margaret's pit and near mine exploration is located on M31/30. The tenement is held 100% by Saracen Gold Mines Pty Ltd, a wholly owned subsidiary of Saracen Mineral Holdings Limited. Mining Lease M31/30 has a 21 year life (held until 2028) and is renewable for a further 21 years on a continuing basis. Mining Lease M31/30 is subject to one caveat (58H/067) and a bank mortgage (415495). All production is subject to a Western Australian state government NSR royalty of 2.5%. Mining Lease M31/30 is subject to the Edjudina Pastoral Compensation Agreement. There are no registered Aboriginal Heritage sites within the mining tenement.
	The security of the tenure held at the time of reporting along with any known impediments to obtaining a licence to operate in the area.	The tenement is in good standing and the licence to operate already exists.
Exploration done by other parties	*Acknowledgment and appraisal of exploration by other parties.*	Minor gold mining activities took place in the vicinity of Margaret's in the 1930's. In the early 1980s Amoco Resources carried out percussion drilling and an IP survey at the Margaret prospect before Cyprys acquired the ground and completed diamond tails on a number of the holes. Various drilling programs were completed by in the area companies including Southern Ventures, Enterprise Gold and Consolidated Resources and an open-pittable resource was delineated at Margaret's. Consolidated were taken over by Mount Edon who completed further RAB and RC programs and were then taken over by Pacmin. Sons Of Gwalia acquired the project and completed resource definition RC drilling before their collapse and takeover of the project by St Barbara. Saracen acquired the project and carried out further resource definition RC drilling before mining part of the deposit as a two stage open pit in 2012
Geology	*Deposit type, geological setting and style of mineralisation.*	Margaret's is a structurally controlled deposit hosted within deformed andesites. Gold mineralisation is considered to be associated with haematitic alteration and intensity and quartz veining. The best mineralisation is postulated to occur at the intersection of strongly deformed andesites occurring within N-S trending shear/fault zones which dip steeply to the east and a series of quartz stockwork vein arrays

Section 2: Reporting of Exploration Results

Criteria	JORC Code Explanation	Commentary
		trending NNW (325 to 340 deg) which dip steeply to the west. This mineralised system forms pipe-like bodies, which plunge gently to the south. Mineralisation also occurs within the steeply dipping quartz stockwork vein arrays that trend NNW.
Drillhole 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 does not detract from the understanding of the report, the Competent Person should clearly explain why this is the case.*	All material data in relation to this deposit was periodically released on the ASX. Future drill hole data will be periodically released or when a results materially change the economic value of the project. Exclusion of the drilling information will not detract from the reader's view of the report.
Data aggregation methods	*In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (e.g. cutting of high grades) and cut-off grades are usually Material and should be stated.*	All significant intercepts have been length weighted with a minimum Au grade of 1ppm. No high grade cut off has been applied.
	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.	Intercepts are aggregated with minimum width of 1m and maximum width of 3m for internal dilution. Where stand out higher grade zone exist with in the broader mineralised zone, the higher grade interval is reported also.
	The assumptions used for any reporting of metal equivalent values should be clearly stated.	Metal equivalent values are not reported
Relationship between mineralisation widths and intercept lengths	*These relationships are particularly important in the reporting of Exploration Results.* *If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.* *If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (eg 'down hole length, true width not known').*	Previous announcement included sufficient detail to clearly illustrate the geometry of the mineralisation and the drilling. All results are reported as downhole lengths
Diagrams	*Appropriate maps and sections (with scales) and tabulations of intercepts should be included for any*	All significant exploration results released by Saracen are accompanied by the appropriate diagrams and maps at the time of the release.

Section 2: Reporting of Exploration Results		
Criteria	**JORC Code Explanation**	**Commentary**
	significant discovery being reported These should include, but not be limited to a plan view of drill hole collar locations and appropriate sectional views.	
Balanced Reporting	*Where comprehensive reporting of all Exploration Results are not practicable, representative reporting of both low and high grades and/or widths should be practiced to avoid misleading reporting of Exploration Results.*	All results from the recent campaign have been reported, irrespective of success or not.
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.*	No substantive data acquisition has been completed in recent times.
Further work	*The nature and scale of planned further work (eg tests for lateral extensions or depth extensions or large-scale step-out drilling).* *Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive*	At this time the Margaret Deposit is under review.

Section 3: Estimation and Reporting of Mineral Resources		
Criteria	**JORC Code Explanation**	**Commentary**
Database Integrity	*Measures taken to ensure that data has not been corrupted by, for example, transcription or keying errors, between its initial collection and its use for Mineral Resource estimation purposes.*	Saracen utilises AcQuire software on an SQL server database to securely store and manage all drillhole and sample information. Data integrity protocols are built into the system to ensure data validity and minimise errors.
	Data validation procedures used.	Data that is captured in the field is entered into Excel templates which are checked on import into the database for errors. Assay jobs are dispatched electronically to the lab to minimise the chance of data entry errors. Assay results from the lab are received in CSV format and are checked for errors on import into the database. Data is regularly validated using the mining software. The data validation process is overseen by the Database Administrator.
Site Visits	*Comment on any site visits undertaken by the Competent Person and the outcome of those visits.*	At the time of mining activities in 2011/2012 the Competent Persons visited the geological area frequently to assess geological competency and ensure integrity across all geological disciplines.

Section 3: Estimation and Reporting of Mineral Resources		
Criteria	**JORC Code Explanation**	**Commentary**
	If no site visits have been undertaken indicate why this is the case.	
Geological Interpretation	*Confidence in (or conversely, the uncertainty of) the geological interpretation of the mineral deposit.*	A combination of exploration mapping, geophysical surveys, both exploration and grade control drill hole information and geological data, including mapping, collected during production at Margaret's has resulted in a confident geological interpretation.
	Nature of the data used and any assumptions made.	The interpretations have been constructed using all available geological logging descriptions including but not limited to, stratigraphy, lithology, texture, and alteration. It is identified that hematite and strong quartz veining is related to Au mineralisation and it is a structurally controlled environment. All the available exploration and grade control data with results returned by the end of May 2012 were used in the delineation of the Margaret domains. The latter stages of grade control drilling were therefore not incorporated into the model. Due to the difference in scales of the drill spacing only the exploration data (minus the RAB holes) were used in the estimation of the Margaret 2012 Resource. The most current and ore defining exploration drilling was all drilled and orientated according to the known geological environment. These were consistently at -60 degrees toward the west which for the majority of the primary structures is perpendicular (or close to) to actual width and strike of the ore (N-S dipping east). However the west dipping vein sets that intersect the main shear were poorly defined by this drilling, and thus it was difficult to determine the actual geometry of these from drilling. Where major structures were known to be orientated more NW (Marg_30 and 31) the drilling was optimally reorientated. Only a low grade subsidiary hangingwall structure to the south east was ill defined by this oriented drilling, (Domain Marg_06). All grade control drilling followed suit, dipping -60 degrees to the west. Overall sampling achieved reasonably unbiased results.
	The affect, if any, of alternative interpretations on Mineral Resource estimation.	A comparative MP3 model was available and it highlighted the potential issues of unconstrained high grades within the Mp3 estimation and issues with density allocation. Hence the preferred modelling technique was Ordinary Kriged utilising hard wireframes to clearly define mineralisation and high grade zones.
	The use of geology in guiding and controlling the Mineral Resource estimation.	The geology has heavily influenced the extent of the domains controlling the mineral resource estimation. Gold mineralisation is considered to be associated with haematitic alteration and intensity and quartz veining. The best mineralisation is postulated to occur at the intersection of strongly deformed andesites occurring within N-S trending shear/fault zones which dip steeply to the east and a series of quartz stockwork vein arrays trending NNW (325 to 340 deg) which dip steeply to the west. This mineralised system forms pipe-like bodies, which plunge gently to the south. Mineralisation also occurs within the steeply dipping quartz stockwork vein arrays that trend NNW. All mineralised domain, including the internal high grade shoots were wireframed with hard boundaries.
	The factors affecting continuity both of grade and geology.	The continuity of the Margaret's Deposit down plunge is open at depth. Within the economic deposit itself high grade shoots are restricted by the influence of intersecting shears; the steeply east dipping N-S trending shear and the conjugate steeply west dipping (striking NNW) veining.
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 mineral resource extends an 800m area to 100m below surface, with local coordinates 9600mE – 10200mE, 9700mN – 10500mN and 397.5mRL - 222.5mRL. Within that area the main ore lodes have strike lengths in the order of 350m and the high grade shoots plunge 40m through to 80m.
Estimation and	*The nature and appropriateness of the estimation*	Ordinary Kriged Block estimation has been completed using Datamine software. All compositing,

Section 3: Estimation and Reporting of Mineral Resources

Criteria	JORC Code Explanation	Commentary
modelling techniques	*technique(s) applied and key assumptions, including treatment of extreme grade values, domaining, interpolation parameters and maximum distance of extrapolation from data points.*	wireframes, surfaces, rock and domain models were constructed in Micromine. All estimation uses these wireframes as hard boundaries. Estimation of parent blocks are interpolated, and assigned to sub-cells. The maximum distance of extrapolation is less than 30m. Univariate statistical analysis of length weighted, (1m), domain and regolith coded downhole composites have been completed for all domains. 83% of the sample data used in the estimation was 1m in length with the average for the entire sample set at 1.28m. Composites were broken where there was a change of mineralisation domain code or regolith code. Clusters of higher grade outliers that could bias the mean were identified by domain by the use of log probability plots. Where bimodal populations were evident within a domain, internal high grade zones were flagged by hard boundary wireframes and estimated separately. High grade outliers were used to determine specific top-cut values for each domain. Estimations used only RC and Diamond Drill results, negative Au grades were replaced with a value of 0.001g/t, and null assays were excluded from the sample data. Unfolding was carried out prior to variography and estimation to remove the local variances in dip and strike observed in the domains. Variogram modelling was completed with GeoAccess Professional software. This defined the sample continuity and nugget value for each domain. The parameters determined from this analysis were used in the interpolation process.
	The availability of check estimates, previous estimates and/or mine production records and whether the Mineral Resource estimate takes appropriate account of such data.	To validate the resource integrity a rerun of the estimation using the grade control data was also completed. The inclusion of the GC Data changed the overall estimate by 2% more ounces. The current model reconciled within 6%of the ounces from the previous 2010 OK Model. This is the result of tighter geological control and identification of high grade zones that were evident in the log histogram plots.
	The assumptions made regarding recovery of by-products.	No assumptions have been made with respect to the recovery of by-products.
	Estimation of deleterious elements or other non-grade variables of economic significance (e.g. sulfur for acid mine drainage characterisation).	There has been no estimate at this point of deleterious elements. Saracen is unaware if any elements other than gold have been assayed.
	In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed.	The parent block sizes for the resource model are X (5m) by Y (10m) by Z (5m). These were deemed appropriate for the majority of the resource, where drill spacing is in the order of 25m x 20m to 12.5m x 20m. Parent blocks have been sub-celled to X (1.0m) by Y (1.0m) by Z (1.0m) to ensure that the wireframe boundaries were honoured and preserved the location and shape of the mineralisation. Search ranges have been informed by variogram modelling and knowledge of the drill spacing and the known mineralisation geometry including direction of maximum continuity. Three search estimation runs are used with the aim to satisfy the minimum sample criteria in the first search range where possible.
	Any assumptions behind modelling of selective mining units.	No selective mining units have been assumed.
	Any assumptions about correlation between variables.	No assumptions have been made regarding correlation between variables.

Section 3: Estimation and Reporting of Mineral Resources

Criteria	JORC Code Explanation	Commentary
	Description of how the geological interpretation was used to control the resource estimates.	The geological interpretation is defined by the mineralised domains and clearly delineates the structurally controlled high grade shoots. Definition of these shoots with hard wireframes helped to confine the spread of high grades in the estimation. Previous estimates had not considered this. Hard wireframes were used to define all the mineralised domains.
	Discussion of basis for using or not using grade cutting or capping.	Linear interpolation methods such as Ordinary Kriging are sensitive to the presence of high-grade outliers that positively skew the data and bias the mean. Domain histogram and Log probability plots were used to determine appropriate top cuts.
	The process of validation, the checking process used, the comparison of model data to drill hole data, and use of reconciliation data if available.	Several key model validation steps have been taken to validate the resource estimate. The mineral resource model has been stepped through visually in sectional and plan view to appreciate the composite grades used in the estimate and the resultant block grades. Easting, Northing and Elevation swathe plots have been constructed to evaluate the composited assay means versus the mean block estimates. The mineral resource model has been constructed to include kriging efficiency and the slope of regression values. These values are used to measure the quality of the estimate. Natural deterioration of the quality is observed in areas where data density is lower. This model was reconciled against the previous OK model, Mp3 model used in production and another run of the model was completed including the gc data to test its validity. The results of these were discussed in the "*The availability of check estimates, previous estimates and/or mine production records and whether the Mineral Resource estimate takes appropriate account of such data"* section above.
Moisture	*Whether the tonnages are estimated on a dry basis or with natural moisture, and the method of determination of the moisture content.*	All tonnages are estimated on a dry basis.
Cut-off parameters	*The basis of the adopted cut-off grade(s) or quality parameters applied.*	Based on Saracen's current economic status the natural grade distinction above background for the Margarets deposit was at a grade of 0.4g/t.
Mining factors or assumptions	*Assumptions made regarding possible mining methods, minimum mining dimensions and internal (or, if applicable, external) mining dilution. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential mining methods, but the assumptions made regarding mining methods and parameters when estimating Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the mining assumptions made.*	The Margaret's deposit was mined by open pit in 2011/2012. Underground methods have not been considered for this deposit at this stage. There are reasonable grounds to assume that in the future the remaining resource at this deposit will be mined by conventional open pit methods given the close proximity to surface and the mean average grade of the mineralisation.
Metallurgical factors or assumptions	*The basis for assumptions or predictions regarding metallurgical amenability. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential metallurgical methods, but the assumptions regarding metallurgical treatment process and parameters made when reporting*	Given Margaret's close proximity and similar geology to Enterprise, the same metallurgical characteristics were assumed. Metallurgical testing (and processing operations at CDO) identified the ores as being free milling at coarse grind sizes with leach recoveries in excess of 90% with a high gravity gold component.

Section 3: Estimation and Reporting of Mineral Resources

Criteria	JORC Code Explanation	Commentary
	Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the metallurgical assumptions made.	
Environmental factors or assumptions	*Assumptions made regarding possible waste and process residue disposal options. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider the potential environmental impacts of the mining and processing operation. While at this stage the determination of potential environmental impacts, particularly for a greenfields project, may not always be well advanced, the status of early consideration of these potential environmental impacts should be reported. Where these aspects have not been considered this should be reported with an explanation of the environmental assumptions made.*	No processing or benefication of ore expected on these tenements, as ore is hauled to Carosue Dam Minesite for Processing. Closure Plan is in place covering the Margaret Mining area and infrastructure. Margaret waste rock can be considered geochemically benign. All rock types are classified as NAF and the quality of seepage from waste rock stockpiles of these materials are alkaline, non saline and have very low concentrations of metals and metalloids
Bulk Density	*Whether assumed or determined. If assumed, the basis for the assumptions. If determined, the method used, whether wet or dry, the frequency of the measurements, the nature, size and representativeness of the samples.*	The density values applied to the Margaret's Deposit estimation are largely based on historic density measures from drilling and production at Margarets in Stage 1 and Stage 2. The bulk density data was imported into the AcQuire database with the Density method unknown for the historic data.
	The bulk density for bulk material must have been measured by methods that adequately account for void spaces (vugs, porosity, etc), moisture and differences between rock and alteration zones within the deposit.	Saracens Metals have standardised procedures for bulk density testing. Most ore zones predominantly exist in transitional to fresh non porous material, however additional measures are taken to reduce moisture intake during the water displacement process if the coating is made of more friable oxides and sediments. This latter method aims to reduce moisture loss or moisture gain during the process and is considered on a deposit by deposit basis.
	Discuss assumptions for bulk density estimates used in the evaluation process of the different materials.	Where bulk density measures are taken an average mean of densities collected for each lithological type is uniformly applied to the modelled geological units. This includes the primary fresh lithologies as well as the weathered oxide and transitional zones.
Classification	*The basis for the classification of the Mineral Resources into varying confidence categories.*	The mineral resource has been classified into Measured, Indicated and Inferred categories based on drill hole spacing, geological confidence, and grade continuity and estimation quality. The combination of these factors together guided the hard boundary wireframe used to define the Measured, Indicated and Inferred zones. The measured material relates directly to the mined material up until the end of month of April 2012. Outside the Inferred boundary the estimated blocks were flagged with rescat value of 4.
	Whether appropriate account has been taken of all the relevant factors (ie relative confidence in tonnage/grade estimations, reliability of input data, confidence in continuity of geology and metal values, quality, quantity and distribution of the data).	All care has been taken to account for relevant factors influencing the mineral resource estimate. The diligent Saracen Metals Resource review process ensures that data reliability and geological and metal confidence and continuity are reflected in the resource classification.
	Whether the result appropriately reflects the	The geological model and the mineral resource estimate reflect the competent person's view of the

Section 3: Estimation and Reporting of Mineral Resources

Criteria	JORC Code Explanation	Commentary
	Competent Person's view of the deposit.	deposit.
Audits or reviews	*The results of any audits or reviews of Mineral Resource estimates.*	Saracen has adopted a process for geological modelling, estimation and reporting of mineral resources that meets high industry standards. At the completion of resource estimation Saracen Metals undertake an extensive review of the model that covers; Model inventory and comparisons to previous and budget models if in existence Geological interpretation, wireframing, domain selection, statisitics by domain, assay and metal evaluation, parent cell sizes, data compositing, variography, search strategy, estimation and KNA Model validation – swathe plots, visual checks, volume comparisons, composite to model metal comparisons. In the final stages the model and resource categorisation are all discussed and scrutinized by the geological and mine planning teams.
Discussion of relative accuracy/confidence	*Where appropriate a statement of the relative accuracy and confidence level in the Mineral Resource estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the resource within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors that could affect the relative accuracy and confidence of the estimate.*	The mineral resource has been reported in accordance with the guidelines established in the 2012 edition of the JORC code. Saracen Gold Mine uses a standard approach to resource estimation and the procedure requires the systematic completion of the Saracen Resource Estimation Document that is thoroughly investigated and assessed in the Model review process, as stated above. It was identified that; Further work on KNA for block size, minimum and maximum number of samples, search ellipses and declustering of the composite data would help to further improve and validate the current optimisation of the block model.
	The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonnages, which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the procedures used.	The statements relate to a global estimate of tonnes and grade.
	These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.	The confidence in the model is reflected by the designation of Resource categories. Given the thorough geological analysis of this area and adequate drilling definition, it is a good estimation of the resource at Margaret's Deposit. Reconciled numbers between the resource and the production figures indicated the variance was within 10%.

Enterprise

Section 1: Sampling Techniques and Data		
Criteria	**JORC Code Explanation**	**Commentary**
Sampling Techniques	*Nature and quality of sampling (e.g. cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc.). These examples should not be taken as limiting the broad meaning of sampling.*	Sampling methods undertaken by Saracen at Enterprise have included reverse circulation (RC), diamond drillholes (DD) and RC grade control drilling within the pit. Historic methods conducted since 1984 have included rotary air blast (RAB), reverse circulation and diamond drillholes.
	Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used	Sampling for diamond and RC drilling is carried out as specified within Saracen sampling and QAQC procedures as per industry standard. RC chips and diamond core provide high quality representative samples for analysis. RC, RAB and DD core drilling was completed by previous holders to industry standard at that time (1984- 2004).
	Aspects of the determination of mineralisation that are Material to the Public Report. In cases where 'industry standard' work has been done this would be relatively simple (e.g. 'reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30 g charge for fire assay'). In other cases more explanation may be required, such as where there is coarse gold that has inherent sampling problems. *Unusual commodities or mineralisation types (e.g. submarine nodules) may warrant disclosure of detailed information*	Diamond core is NQ sized, sampled to 1m intervals and geological boundaries where necessary and cut into half core to give sample weights under 3 kg. Samples are selected to weigh less than 3 kg to ensure total sample inclusion at the pulverisation stage. RC chips are cone split and sampled into 1m intervals with total sample weights under 3kg Saracen core and chip samples are crushed, dried and pulverised to a nominal 90% passing 75µm to produce a 50 g sub sample for analysis by FA/AAS. Historical RAB, RC and diamond sampling was carried out to industry standard at that time. Analysis methods include fire assay and aqua regia.
Drilling Techniques	*Drill type (e.g. core, reverse 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.).*	The deposit was initially sampled by 43 RAB holes, 412 RC holes (assumed standard 5 ¼ ''bit size) and 12 surface diamond HQ and unknown diameter holes. Saracen has completed 2 NQ diameter diamond drill holes, 26 RC holes from surface and 1381 grade control RC holes within the pit. Diamond drillholes were oriented using an Ezy-mark tool. It is unknown if historic diamond drill core was oriented.
Drill Sample Recovery	*Method of recording and assessing core and chip sample recoveries and results assessed*	RC sampling recoveries are recorded as a percentage based on a visual weight estimate; no historic recoveries have been recorded. Diamond core recovery was not calculated but no intervals of core loss were recorded. No historic recoveries have been recorded.
	Measures taken to maximise sample recovery and ensure representative nature of the samples	During RC drilling daily rig inspections are carried out to check splitter condition, general site and address general issues. Diamond core is reconstructed into continuous runs on an angle iron cradle for orientation marking. Depths are checked against depth given on the core blocks. During GC campaigns the sample bags weight versus bulk reject weight is compared to ensure adequate and even sample recovery. Historical RAB, RC and diamond drilling to industry standard at that time.

Section 1: Sampling Techniques and Data		
Criteria	**JORC Code Explanation**	**Commentary**
	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.	Diamond drilling has high recoveries meaning loss of material is minimal. There is no known relationship between sample recovery and grade for RC drilling. Any historical relationship is not known.
Logging	*Whether core and chip samples have been geologically and geotechnically logged to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies.* *Whether logging is qualitative or quantitative in nature.* *Core (or costean, channel, etc) photography.*	Logging of diamond drill core and RC chips records lithology, mineralogy, texture, mineralisation, weathering, alteration, veining and other features. Structural logging was carried out on all diamond holes to record defect number, type, fill material, shape and roughness and alpha and beta angles. Chips from all RC holes (exploration and GC) are stored in chip trays for future reference. Core is photographed in both dry and wet state. Qualitative and quantitative logging of historic data varies in its completeness.
	The total length and percentage of the relevant intersections logged	All diamond drillholes and exploration RC holes are logged in full. Every second drill line is logged in grade control programs with infill logging carried out as necessary. Historical logging is complete.
Sub-sampling techniques and sample preparation	*If core, whether cut or sawn and whether quarter, half or all core taken.*	All drill core is cut in half onsite using an automatic core saw. Samples are always collected from the same side. Historic drillcore has been half or quarter core sampled.
	If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry.	All exploration and GC RC samples are cone split. Occasional wet samples are encountered; increased air capacity is routinely used to aid in keeping the sample dry when water is encountered. Historic RAB and RC drilling was sampled using grab, riffle and unknown methods.
	For all sample types, the nature, quality and appropriateness of the sample preparation technique.	The sample preparation of diamond core and RC chips adhere to industry best practice. It is conducted by a commercial laboratory and involves oven drying, coarse crushing then total grinding to a size of 90% passing 75 microns. Best practice is assumed at the time of historic sampling.
	Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.	All subsampling activities are carried out by commercial laboratory and are considered to be satisfactory. Sampling by previous holders assumed to be industry standard at the time.
	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.	Duplicate sampling is carried out at a rate of 1:10 for exploration drilling and 1:20 for GC drilling and is sampled directly from the on-board splitter on the rig. These are submitted for the same assay process as the original samples and the laboratory are unaware of such submissions. Sampling by previous holders assumed to be industry standard at the time.
	Whether sample sizes are appropriate to the grain size of the material being sampled.	Sample sizes are considered to be appropriate.
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.*	RC chip samples, grade control chip samples and diamond core are analysed by external laboratories using a 50g fire assay with AAS finish. This method is considered suitable for determining gold concentrations in rock and is a total digest method. Historic sampling methods include fire assay and aqua regia.
	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 geophysical tools have been utilised for reporting gold mineralisation.

Section 1: Sampling Techniques and Data

Criteria	JORC Code Explanation	Commentary
	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.	Certified reference material (standards and blanks) with a wide range of values are inserted into every drillhole at a rate of 1:25 for exploration RC and DD, and 1:40 for GC drilling. These are not identifiable to the laboratory. QAQC data returned are checked against pass/fail limits with the SQL database and are passed or failed on import. A report is generated and reviewed by the geologist as necessary upon failure to determine further action. QAQC data is reported monthly. Sample preparation checks for fineness are carried out to ensure a grindsize of 90% passing 75 microns. The laboratory performs a number of internal processes including standards, blanks, repeats and checks. QAQC data analysis demonstrates sufficient accuracy and precision. Industry best practice is assumed for previous holders.
Verification of sampling and assaying	*The verification of significant intersections by either independent or alternative company personnel.*	Significant intercepts are verified by the Geology Manager and corporate personnel.
	The use of twinned holes.	No specific twinned holes have been drilled at Enterprise but grade control drilling has confirmed the width and grade of previous exploration drilling.
	Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols	Primary data is collated in a set of excel templates utilising lookup codes. This data is forwarded to the Database Administrator for entry into a secure acQuire database with inbuilt validation functions. Data from previous owners was taken from a database compilation and validated as much as practicable before entry into the Saracen acQuire database.
	Discuss any adjustment to assay data.	No adjustments have been made to assay data. First gold assay is utilised for resource estimation.
Location of data points	*Accuracy and quality of surveys used to locate drillholes (collar and down-hole surveys), trenches, mine workings and other locations used in Mineral Resource estimation.*	Exploration drillholes are located using a Leica 1200 GPS with an accuracy of +/- 10mm. Drillhole collars within the pit and immediate surrounds are picked up by company surveyors using a Trimble R8 GNSS (GPS) with an expected accuracy of +/-8mm. Downhole surveys are carried out using an Eastman single shot camera at regular intervals (usually 30m). A number of drillholes have also been gyroscopically surveyed. Previous holders' survey accuracy and quality is unknown.
	Specification of the grid system used.	A local grid system (Enterprise) is used at Enterprise The two point conversion to MGA_GDA94 zone 51 is: ENTEast ENTNorth RL MGAEast MGANorth RL Point 1 1000 6500 0 433626.73 6706103.13 0 Point 2 1000 5400 0 433820.92 6705020.86 0 Historic data is converted to the Enterprise local grid upon export from the database
	Quality and adequacy of topographic control.	Topographic control originally used site based survey pickups in addition to Kevron aerial photogrammetric surveys with +/- 5m resolution. Pre mining, new and more detailed topography has since been captured and will be used in future updates and for subsequent planning purposes.
Data spacing and distribution	*Data spacing for reporting of Exploration Results.*	The nominal spacing for exploration drilling is 25m x 20m to 12.5m x 20m.
	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)	Data spacing and distribution are sufficient to establish the degree of geological and grade continuity appropriate for JORC classifications applied.

Section 1: Sampling Techniques and Data

Criteria	JORC Code Explanation	Commentary
	and classifications applied.	
Orientation of data in relation to geological structure	*Whether sample compositing has been applied.*	Sample compositing is not applied until the estimation stage. Some historic RAB sampling was composited into 3-4m samples.
	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 drillholes are positioned to achieve optimum intersection angles to the ore zone as are practicable.
	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.	No significant sampling bias is thought to occur due to orientation of drilling in regards to mineralised structures.
Sample security	*The measures taken to ensure sample security.*	Samples are prepared on site under supervision of Saracen geological staff. Samples are selected, bagged into tied numbered calico bags then grouped into secured cages and collected by the laboratory personnel. Sample submissions are documented via laboratory tracking systems and assays are returned via email
Audits or reviews	*The results of any audits or reviews of sampling techniques and data.*	An internal review of companywide sampling methodologies was conducted to create the current sampling and QAQC procedures.

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 Enterprise pit and near mine exploration are located on M31/380, M31/381 and M31/30. The tenements are held 100% by Saracen Gold Mines Pty Ltd, a wholly owned subsidiary of Saracen Mineral Holdings Limited. Mining Leases M31/380, M31/381 and M31/30 have a 21 year life (held until 2028) and are renewable for a further 21 years on a continuing basis. Mining Lease M31/380, M31/381 and M31/30 are each subject to two royalty agreements and one caveat (303500, 303501 and 58H/067, respectively). All are subject to a bank mortgage (415495). All production is subject to a Western Australian state government NSR royalty of 2.5%. Mining Leases M31/380, M31/381 and M31/30 are subject to the Edjudina Pastoral Compensation Agreement. There are no registered Aboriginal Heritage sites within the mining tenements.
	The security of the tenure held at the time of reporting along with any known impediments to obtaining a licence to operate in the area.	The tenements are in good standing and the licence to operate already exists.
Exploration done by other parties	*Acknowledgment and appraisal of exploration by other parties.*	Minor gold mining activities took place in the vicinity of Enterprise in the 1930's. Edjudina Gold Mines undertook an exploration program in the area in 1985 following the reopening of the nearby Porphyry mine and development of Million Dollar, including geochemistry, magnetic surveys and RC drilling to calculate a small resource. Enterprise Gold carried out RC drilling in the area before entering into a joint venture with Consolidated Resources. A RAB, RC and DD campaign carried out in 1994 and 1995 delineated the resource. Consolidated were taken over by Mount Edon who completed further RAB and

Section 2: Reporting of Exploration Results

Criteria	JORC Code Explanation	Commentary
		RC programs, and were then taken over by Pacmin. Sons Of Gwalia acquired the project and completed resource definition RC drilling before their collapse and takeover of the project by St Barbara.
Geology	*Deposit type, geological setting and style of mineralisation.*	The best mineralisation is postulated to occur at the intersection of strongly deformed andesites occurring within N-S trending shear/fault zones which dip steeply to the east and a series of quartz stockwork vein arrays trending NNW (330 to 340 deg) which dip steeply to the west. This mineralised system forms pipe-like bodies, which plunge gently to the south. Based on this geological understanding the initial stages of interpretation assumed positions of repetitious structures that structurally displaced the lodes.
Drillhole 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 does not detract from the understanding of the report, the Competent Person should clearly explain why this is the case.*	A total of 185 exploration holes have been used in the mineral resource and are deemed to be material. The results of this data have been reported in prior ASX releases. Future drill hole data will be periodically released or when a results materially change the economic value of the project. Exclusion of the drilling information will not detract from the reader's view of the report.
Data aggregation methods	*In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (e.g. cutting of high grades) and cut-off grades are usually Material and should be stated.*	All significant intercepts have been length weighted with a minimum Au grade of 1ppm. No high grade cut off has been applied.
	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.	Intercepts are aggregated with minimum width of 1m and maximum width of 3m for internal dilution. Where stand out higher grade zone exist with in the broader mineralised zone, the higher grade interval is reported also.
	The assumptions used for any reporting of metal equivalent values should be clearly stated.	Metal equivalent values are not reported
Relationship between mineralisation widths and intercept lengths	*These relationships are particularly important in the reporting of Exploration Results.* *If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.*	Previous announcements include sufficient detail to clearly illustrate the geometry of the mineralisation and the drilling. All results are reported as downhole lengths.

Section 2: Reporting of Exploration Results

Criteria	JORC Code Explanation	Commentary
	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').	
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.*	All significant exploration results released by Saracen are accompanied by the appropriate diagrams and maps at the time of the release.
Balanced Reporting	*Where comprehensive reporting of all Exploration Results are not practicable, representative reporting of both low and high grades and/or widths should be practiced to avoid misleading reporting of Exploration Results.*	All results from the recent campaign have been reported, irrespective of success or not.
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.*	No substantive data acquisition has been completed in recent times
Further work	*The nature and scale of planned further work (eg tests for lateral extensions or depth extensions or large-scale step-out drilling).* *Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive*	Further exploration work at Enterprise is currently under review. Economic constraints determine the priority given to this area.

Section 3: Estimation and Reporting of Mineral Resources

Criteria	JORC Code Explanation	Commentary
Database Integrity	*Measures taken to ensure that data has not been corrupted by, for example, transcription or keying errors, between its initial collection and its use for Mineral Resource estimation purposes.*	Saracen utilises AcQuire software on an SQL server database to securely store and manage all drillhole and sample information. Data integrity protocols are built into the system to ensure data validity and minimise errors.
	Data validation procedures used.	Data that is captured in the field is entered into Excel templates which are checked on import into the database for errors. Assay jobs are dispatched electronically to the lab to minimise the chance of data entry errors. Assay results from the lab are received in CSV format and are checked for errors on import

Section 3: Estimation and Reporting of Mineral Resources

Criteria	JORC Code Explanation	Commentary
		into the database. Data is regularly validated using the mining software. The data validation process is overseen by the Database Administrator.
Site Visits	*Comment on any site visits undertaken by the Competent Person and the outcome of those visits.*	At the time of mining activities in 2011/2012 the Competent Persons visited the geological area frequently to assess geological competency and ensure integrity across all geological disciplines.
	If no site visits have been undertaken indicate why this is the case.	
Geological Interpretation	*Confidence in (or conversely, the uncertainty of) the geological interpretation of the mineral deposit.*	A combination of both exploration and grade control drill hole information and geological data, including mapping, collected during production at Enterprise has resulted in a confident geological interpretation, in particular the structures that control the extent of lodes within broader domains.
	Nature of the data used and any assumptions made.	The interpretations have been constructed using all available geological logging descriptions including but not limited to, stratigraphy, lithology, texture, and alteration. It is identified that haematitic alteration and intensity along with strong quartz veining relates well to gold grade. The best mineralisation is postulated to occur at the intersection of strongly deformed andesites occurring within N-S trending shear/fault zones which dip steeply to the east and a series of quartz stockwork vein arrays trending NNW (330 to 340 deg) which dip steeply to the west. This mineralised system forms pipe-like bodies, which plunge gently to the south. Based on this geological understanding the initial stages of interpretation assumed positions of repetitious structures that structurally displaced the lodes. In some parts this interpretation was supported by drill hole information (alteration) and the disjointed position of the lodes perpendicular to the strike. In pit mapping later confirmed the actual number and position of these structures.
	The affect, if any, of alternative interpretations on Mineral Resource estimation.	An earlier interpretation of the Enterprise deposit had similar but more simplified plunging domains that were not as structurally controlled as the current interpretation. In pit mapping during production identified the repetition of structures that characterised this interpretation.
	The use of geology in guiding and controlling the Mineral Resource estimation.	The geology has heavily influenced the extent of the domains controlling the mineral resource estimation. Gold mineralisation is considered to be associated with haematitic alteration and intensity and quartz veining. The Enterprise mineralisation lies within a synformal, south plunging (25 degree) zone of haematite-carbonate-quartz-pyrite alteration superimposed on variably foliated andesitic volcanics. Steep north south repetitious shears chop up the mineralisation and thus confining their lateral extents. This is defined by hard wireframes.
	The factors affecting continuity both of grade and geology.	The continuity of the Enterprise Deposit down plunge is open at depth. Steep north south repetitious shears chop up the mineralisation and thus confining their lateral extents. To the east a major steeply east dipping shear restricts the down dip extents.
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 mineral resource extends a 900m area to 200m below surface, with local coordinates 800mE – 1200mE, 4700mN – 6200mN and 380mRL – 242.5mRL. Within that area the main ore lodes commonly dip moderately to the west with a steeper east dipping lode on the eastern margins.
Estimation and modelling techniques	*The nature and appropriateness of the estimation technique(s) applied and key assumptions, including treatment of extreme grade values, domaining, interpolation parameters and maximum*	Ordinary Kriged Block estimation has been completed using Datamine software. All compositing, wireframes, surfaces, rock and domain models were constructed in Micromine. All estimation uses these wireframes as hard boundaries. Estimation of parent blocks are interpolated, and assigned to sub-cells.

Section 3: Estimation and Reporting of Mineral Resources

Criteria	JORC Code Explanation	Commentary
	distance of extrapolation from data points.	The maximum distance of extrapolation is less than 20m as individual lodes do not have long strike or dip lengths. Analysis of sample data lengths show that while the majority of samples are 1m, there are a significant number of non-regular sample data. A composite interval of 1m was chosen to maintain the differentiation of internal high grade and waste zones within the mineralised domains. Composites were broken where there was a change of mineralisation domain code or regolith code. Clusters of higher grade outliers that could bias the mean were identified by domain by the use of log probability plots. Where bimodal populations were evident within a domain, internal high grade zones were flagged by hard boundary wireframes and estimated separately. High grade outliers were used to determine specific top-cut values for each domain. Estimations used only RC and Diamond Drill results, negative Au grades were replaced with a value of 0.001g/t, and null assays were excluded from the sample data. Unfolding was carried out prior to variography and estimation to remove the local variances in dip and strike observed in the domains. Variogram modelling was completed with GeoAccess Professional software. This defined the sample continuity and nugget value for each domain. The parameters determined from this analysis were used in the interpolation process.
	The availability of check estimates, previous estimates and/or mine production records and whether the Mineral Resource estimate takes appropriate account of such data.	An OK estimation was checked successfully against an alternative MIK model. The latter gave better local estimates for the mineable area and was used in conjunction with an Mp3 estimates at the grade control level. Globally the OK estimate reconciled within 6% of the total produced ounces.
	The assumptions made regarding recovery of by-products.	No assumptions have been made with respect to the recovery of by-products.
	Estimation of deleterious elements or other non-grade variables of economic significance (e.g. sulfur for acid mine drainage characterisation).	There has been no estimate at this point of deleterious elements. Saracen is unaware if any elements other than gold have been assayed.
	In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed.	The parent block sizes for the resource model are X (5m) by Y (10m) by Z (5m). These were deemed appropriate for the majority of the resource, where drill spacing is in the order from 25m x 20m to 12.5m x 20m. Parent blocks have been sub-celled to X (1.0m) by Y (1.0m) by Z (1.0m) to ensure that the wireframe boundaries were honoured and preserved the location and shape of the mineralisation. Search ranges have been informed by variogram modelling and knowledge of the drill spacing and the known mineralisation geometry including direction of maximum continuity. Three search estimation runs are used with the aim to satisfy the minimum sample criteria in the first search range where possible.
	Any assumptions behind modelling of selective mining units.	No selective mining units have been assumed.
	Any assumptions about correlation between variables.	No assumptions have been made regarding correlation between variables.
	Description of how the geological interpretation was used to control the resource estimates.	The geological interpretation is defined by the structurally controlled mineralised domains that are consistently south plunging. Definition of these lodes with hard wireframes honoured both the location of the mineralisation and the extent of the estimation.
	Discussion of basis for using or not using grade	Linear interpolation methods such as Ordinary Kriging are sensitive to the presence of high-grade

Section 3: Estimation and Reporting of Mineral Resources

Criteria	JORC Code Explanation	Commentary
	cutting or capping.	outliers that positively skew the data and bias the mean. Domain histogram and Log probability plots were used to determine appropriate top cuts.
	The process of validation, the checking process used, the comparison of model data to drill hole data, and use of reconciliation data if available.	Several key model validation steps have been taken to validate the resource estimate. The mineral resource model has been stepped through visually in sectional and plan view to appreciate the composite grades used in the estimate and the resultant block grades. Northing and Elevation swathe plots were constructed to evaluate the composited assay means versus the mean block estimates. The mineral resource model has been constructed to include kriging efficiency and the slope of regression values. These values are used to measure the quality of the estimate. Natural deterioration of the quality is observed in areas where data density is lower.
Moisture	*Whether the tonnages are estimated on a dry basis or with natural moisture, and the method of determination of the moisture content.*	All tonnages are estimated on a dry basis.
Cut-off parameters	*The basis of the adopted cut-off grade(s) or quality parameters applied.*	Based on Saracen's current economic status the natural grade distinction above background for the Enterprise deposit was at a grade of 0.4g/t.
Mining factors or assumptions	*Assumptions made regarding possible mining methods, minimum mining dimensions and internal (or, if applicable, external) mining dilution. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential mining methods, but the assumptions made regarding mining methods and parameters when estimating Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the mining assumptions made.*	The Enterprise deposit was mined by open pit in 2011/2012 by Saracen Gold Mines. There are reasonable grounds to assume that in the future the remaining resource at this deposit will be mined by conventional open pit methods given the close proximity to surface and the mean average grade of the mineralisation. Underground methods have not been considered for this deposit at this stage.
Metallurgical factors or assumptions	*The basis for assumptions or predictions regarding metallurgical amenability. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential metallurgical methods, but the assumptions regarding metallurgical treatment process and parameters made when reporting Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the metallurgical assumptions made.*	Metallurgical testing (and processing operations at CDO) identified Enterprise ores as being free milling at coarse grind sizes with leach recoveries in excess of 90% with a high gravity gold component.
Environmental factors or assumptions	*Assumptions made regarding possible waste and process residue disposal options. It is always necessary as part of the process of determining reasonable prospects for eventual economic*	No processing or benefication of ore expected on these tenements, as ore is hauled to Carosue Dam Minesite for Processing. Closure Plan is in place covering the Enterprise Mining area and infrastructure. Enterprise waste rock can be considered geochemically benign. All rock types are classified as NAF and the quality of seepage from waste rock stockpiles of these materials are alkaline, non-saline and have

Section 3: Estimation and Reporting of Mineral Resources

Criteria	JORC Code Explanation	Commentary
	extraction to consider the potential environmental impacts of the mining and processing operation. While at this stage the determination of potential environmental impacts, particularly for a greenfields project, may not always be well advanced, the status of early consideration of these potential environmental impacts should be reported. Where these aspects have not been considered this should be reported with an explanation of the environmental assumptions made.	very low concentrations of metals and metalloids
Bulk Density	*Whether assumed or determined. If assumed, the basis for the assumptions. If determined, the method used, whether wet or dry, the frequency of the measurements, the nature, size and representativeness of the samples.*	Density in the current model has been assigned based on oxidation state, using both recent density determinations carried out by Saracen on its drill samples and historical data. A detailed set of density data (522 values) were available for Enterprise; these had been compiled by Speijers for the 1995 resource estimation and rigorously validated.
	The bulk density for bulk material must have been measured by methods that adequately account for void spaces (vugs, porosity, etc), moisture and differences between rock and alteration zones within the deposit.	Most ore zones predominantly exist in transitional to fresh non porous material, however additional measures are taken to reduce moisture intake during the water displacement process if the coating is made of more friable oxides and sediments. This latter method aims to reduce moisture loss or moisture gain during the process and is considered on a deposit by deposit basis.
	Discuss assumptions for bulk density estimates used in the evaluation process of the different materials.	Where bulk density measures are taken an average mean of densities collected for each lithological type is uniformly applied to the modelled geological units. This includes the primary fresh lithologies as well as the weathered oxide and transitional zones.
Classification	*The basis for the classification of the Mineral Resources into varying confidence categories.*	The mineral resource has been classified into Measured, Indicated and Inferred categories based on drill density, geological confidence, and grade continuity. The combination of these factors together guided the hard boundary wireframe or dtm's used to define the Measured, Indicated and Inferred zones. Outside the Inferred boundary the estimated blocks were flagged as unclassified.
	Whether appropriate account has been taken of all the relevant factors (ie relative confidence in tonnage/grade estimations, reliability of input data, confidence in continuity of geology and metal values, quality, quantity and distribution of the data).	All care has been taken to account for relevant factors influencing the mineral resource estimate. The review process ensures that data reliability and geological and metal confidence and continuity are reflected in the resource classification.
	Whether the result appropriately reflects the Competent Person's view of the deposit.	The geological model and the mineral resource estimate reflect the competent person's view of the deposit.
Audits or reviews	*The results of any audits or reviews of Mineral Resource estimates.*	Saracen has adopted a process for geological modelling, estimation and reporting of mineral resources that meets high industry standards. The geological interpretation of the Enterprise model was reviewed thoroughly, along with the estimate that was validated and compared to previous estimations. Results indicated a more robust model that honoured geology, structures and mean composited grades. The OK estimation was reviewed externally and from that an MIK model was generated for the optimised resource that was mined during 2011/2012. The OK model was deemed a robust global

Section 3: Estimation and Reporting of Mineral Resources

Criteria	JORC Code Explanation	Commentary
		estimate for the remaining resource.
Discussion of relative accuracy/confidence	*Where appropriate a statement of the relative accuracy and confidence level in the Mineral Resource estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the resource within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors that could affect the relative accuracy and confidence of the estimate.*	The mineral resource has been reported in accordance with the guidelines established in the 2004 edition of the JORC code. Through the review process it was identified that; Further KNA could improve the local estimate; however it is not entirely necessary at this stage.
	The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonnages, which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the procedures used.	The statements relate to a global estimate of tonnes and grade.
	These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.	The confidence in the model is reflected by the designation of Resource categories. Given the thorough geological analysis of this area and adequate drilling definition, it is a good estimation of the resource at Enterprise Deposit. Compared to reconciled production, the Enterprise deposit delivered within 6% of the total ounces defined in the resource estimate.

Section 4: Estimation and Reporting of Ore Reserves

Criteria	JORC Code Explanation	Commentary
Mineral Resource estimate for conversion to Ore Reserves	*Description of the Mineral resource Estimate used as a basis for the conversion to an Ore Reserve.*	The Mineral Resource estimate for the Enterprise gold deposit is a robust global estimate that was used as a basis for conversion to the Ore Reserve estimate. It was compiled using data accumulated during Saracen's ownership of the associated tenements, along with historical data. The data included drilling and assay data, geological mapping and historical mining records to validate the model against and solid interpretation wireframes of the geology. This information was used to construct a model estimated by ordinary kriging. The model was depleted with the last final pit survey completed in 2012.
	Clear statement as to whether the Mineral Resources are reported additional to. Or inclusive of, the Ore Reserves.	The Mineral Resource reported is inclusive of the Ore Reserve.
Site Visits	*Comment on any site visits undertaken by the Competent Person and the outcome of those visits.*	Chris Burton has conducted several site visits both before, during and after completion of mining of the existing Enterprise pit under Saracen's stewardship. The purpose of these visits included gathering information for feasibility studies, monitoring of mining progress, accompanying geotechnical consultants carrying out wall inspections.
	If no site visits have been undertaken indicate why	N/A

Section 4: Estimation and Reporting of Ore Reserves

Criteria	JORC Code Explanation	Commentary
	this is the case.	
Study status	*The type and level of study undertaken to enable Mineral Resources to be converted to Ore Reserves*	The Enterprise Gold Mine operated as an open pit mine for a period of 15 months from 2011-2012. All of the mechanised mining to date at Enterprise has occurred during Saracen's tenure and as such all production data and operating parameters have been available for inclusion in the pre-feasibility study with mining and processing parameters updated to reflect current conditions.
	The Code requires that a study to at least Pre-Feasibility Study level has been undertaken to convert Mineral Resources to Ore Reserves. Such studies will have been carried out and will have determined a mine plan that is technically achievable and economically viable, and that material Modifying Factors have been considered.	Modifying factors have been applied to the study to ensure the rigor of the financial analysis. All of the parameters assumed and adopted, as well as the financial analysis completed, have been the subject to peer review.
Cut-off parameters	*The basis of the cut-off grade(s) or quality parameters applied*	For the purpose of Ore Reserve Estimate a marginal cut-off of 0.7g/t was calculated based upon an assumed gold price of AUD$1400/oz and applicable processing, haulage and administration costs. A top cut has already been applied to the Mineral Resource Estimate eliminating the necessity for any further adjustment to the Ore Reserve estimate.
Mining factors or assumptions	*The method and assumptions used as reported in the Pre-feasibility or Feasibility Study to convert the Mineral Resource to an Ore Reserve (i.e. either by application of appropriate factors by optimisation or by preliminary or detailed design).*	The resource model used in the Mineral Resource Estimation was the basis for the generation of a range of Whittle 4X pit optimisation shells. The generation of these shells was reliant upon costs and inputs derived from current operational data and independent consultant recommendations. An appropriate shell was then selected as the basis for an iterative process of pit design work, culminating in the finalisation of a detailed pit design for the Enterprise cutback
	The choice, nature and appropriateness of the selected mining method(s) and other mining parameters including associated design issues such as pre-strip, access, etc.	Mining method to be employed will be conventional hydraulic excavator and dump truck fleet, with 120t class excavators assumed. The class of excavator employed matches those used in previous mining at Enterprise by SGM, providing good comparative cost data for financial modelling purposes, as well as a reliable database of excavation and performance rates. The pit will be mined as a single cutback, extending the existing pit to the south.
	The assumptions made regarding geotechnical parameters (e.g. pit slopes, stope sizes, etc.), grade control, and pre-production drilling.	Geotechnical recommendations were made by Peter O'Bryan & Associates (geotechnical consultants) following numerous site visits, inspection of drill core, and a review of the geotechnical data gathered during earlier operations. Peter O'Bryan & Associates were engaged by Saracen to oversee geotechnical risk during the mining of the previous pit at Enterprise. The Grade control method to be employed at Enterprise will utilise RC grade control sampling methods due to the proven success of this method in earlier mined stages of the pit.
	The major assumptions made and Mineral Resource model used for pit and stope optimisation (if appropriate).	Planned mining dilution & mining recoveries are factored into the model used in the Mineral Resource Estimation assuming the use of 120t class hydraulic excavators and based on previous and current mining experience.
	The mining dilution factors used.	Unplanned mining dilution has been assumed at 15%
	The mining recovery factors used.	Unplanned mining recovery has been assumed at 95%

Section 4: Estimation and Reporting of Ore Reserves		
Criteria	**JORC Code Explanation**	**Commentary**
	Any minimum mining widths used	A minimum mining width of 30m has been adopted for the main excavation fleet. Where 'pinch-points' occur along the interface with the existing pit it has been assumed that a smaller more versatile excavator will be employed, with appropriate costings for these areas applied.
	The manner in which inferred Mineral resources are utilised in mining studies and the sensitivity of the outcome to their inclusion.	No inferred resources are contained within the final pit design boundaries, therefore the project has no sensitivity to the possible inclusion of that resource category. Pit optimisation and mining studies excluded any inferred mineral resources.
	The infrastructure requirements of the selected mining methods.	The selected mining method for the pit is conventional for this style of mineralisation and no specialised infrastructure is required to accommodate this method of mining
Metallurgical factors or assumptions	*The metallurgical process proposed and the appropriateness of that process to the style of mineralisation*	The ore reserve will be treated at the established Carosue Dam processing facility. The Carosue Dam Process Plant is a CIP plant incorporating a gravity circuit which is appropriate for the extraction of gold from free milling gold ores. An average plant processing recovery of 92.0% has been assumed in the Ore Reserve Estimate which was derived from the long term average recovery data collected at the Carosue Plant. Historically, Enterprise ore was often blended with other ore sources through the Carosue plant, however, no significant variations in metallurgical recovery were experienced during that time, hence the adoption of the average recovery.
	Whether the metallurgical process is well-tested technology or novel in nature.	The method of ore processing and extraction proposed utilises well tried and proven technology dating back to the 1960's and practiced extensively around the world.
	The nature, amount and representiveness of metallurgical test work undertaken, the nature of the metallurgical domaining applied and the corresponding metallurgical recovery factors applied.	An average plant processing recovery of 92.0% has been assumed in the Ore Reserve Estimate which was derived from the long term average recovery data collected at the Carosue Plant. Historically, Enterprise ore was often blended with other ore sources through the Carosue plant, however, no significant variations in metallurgical recovery were experienced during that time, hence the adoption of the average recovery. Approximately two years of processing of the Enterprise ore through this plant have resulted in a solid understanding of the metallurgical parameters of the ore. Oxide, transitional and fresh ore have all been processed through this plant during the previous operational period.
	Any assumptions or allowances made for deleterious elements.	There are no known deleterious elements present in Enterprise ore.
	The existence of any bulk sample or pilot scale test work and the degree to which such samples are considered representative of the ore body as a whole.	Over 400,000 tonnes of the Enterprise ore were processed over a two year period commencing in the second quarter of FY11, representing a sizeable bulk sample/pilot test. The ore contained in the Ore reserve estimate would be processed through the same facility.
	For minerals that are defined by a specification, has the ore reserve estimation been based on the appropriate mineralogy to meet the specifications.	N/A
Environmental factors or assumptions	*The status of studies of potential environmental impacts of the mining and processing operation. Details of waste rock characterisation and the*	The mine is currently on 'care and maintenance'. Prior to the re-commenecement of mining at Enterprise, a mining proposal will be required to be submitted for approval. A current clearing permit is in place, and works approvals are in place to cover the extraction of water from Enterprise and it's

Section 4: Estimation and Reporting of Ore Reserves

Criteria	JORC Code Explanation	Commentary
	consideration of potential sites, status of design options considered and, where applicable, the status of approvals for process residue storage and waste dumps should be reported.	discharge into the adjacent Margarets pit. The existing Carosue Dam processing facility at which the Enterprise ore will be processed, and the accommodation village all lay on granted mining leases. The road haulage network footprint is underpinned by a combination of miscellaneous licences and granted mining leases
Infrastructure	*The existence of appropriate infrastructure: availability of land for plant development, power, water, transportation (particularly for bulk commodities), labour, accommodation; or the ease with which the infrastructure can be provided, or accessed.*	The Enterprise deposit has little infrastructure, however, when Enterprise was previously mined minimal infrastructure was required to facilitate this satellite operation. All of the required processing facilities are in place and fully operational at Carosue Dam. Power is generated from a powerhouse containing diesel generators and processing water is sourced by dewatering old pits. Potable water is sourced from borefields and then processed through a reverse osmosis plant. A modern well appointed accommodation camp is in place and fully operational at Carosue Dam. Access to the site for FIFO workers is via commercial flights in and out of Kalgoorlie regional airport and then via road to Carosue Dam.
Costs	*The derivation of, or assumptions made, regarding projected capital costs in the study.*	Capital costs relating to the commencement of this operation are low, with monthly allowances made in the financial analysis for sustaining capital
	The methodology used to estimate operating costs.	Operating costs for open pit mining have been derived from a combination of actual costs from SGM's Carosue Dam Operations and costs supplied by an independent industry consultant. Operating costs for ore processing, haulage and administration have been derived from known parameters at Carosue Dam.
	Allowances made for the content of deleterious elements	Previous operational experience at Enterprise did not reveal any deleterious elements within the ore or waste that required any additional cost allowances.
	The derivation of assumptions made of metal or commodity price(s), for the principal minerals and co-products	An assumed gold price of AUD$1,400/oz has been adopted for financial modelling
	The source of exchange rates used in study	All revenue and cost calculations have been made in AUD, so the use of exchange rates or assumptions have not been necessary
	Derivation of transportation charges	Costs associated with bullion transportation have been derived from existing contractual arrangements at Carouse Dam
	The basis for forecasting or source of treatment and refining charges, penalties for failure to meet specification, etc.	Costs associated with refining have been derived from existing contractual arrangements at Carouse Dam
	The allowances made for royalties payable, both Government and private.	Royalty costs are the WA state government 2.5% royalty, and a 1.5% royalty payable to IRC
Revenue Factors	*The derivation of, or assumptions made, regarding revenue factors including head grade, metal or commodity price(s) exchange rates, transportation and treatment charges, penalties, net smelter*	For the purposes of reserve estimation it has been assumed that there is no gold hedging. All gold production will be sold at spot price to the Perth Mint.

Section 4: Estimation and Reporting of Ore Reserves		
Criteria	**JORC Code Explanation**	**Commentary**
	returns, etc.	
	The derivation of assumptions made of metal or commodity price(s), for the principal metals, minerals and co-products	An assumed gold price of AUD$1,400/oz has been adopted for financial modelling
Market Assessment	*The demand, supply and stock situation for the particular commodity, consumption trends and factors likely to affect supply and demand into the future.*	There is a transparent quoted market for the sale of gold
	A customer and competitor analysis along with the identification of likely market windows for the product.	There is a transparent quoted market for the sale of gold
	Price and volume forecasts and the basis for these forecasts.	There is a transparent quoted market for the sale of gold
	For industrial minerals the customer specification, testing and acceptance requirements prior to a supply contract.	N/A
Economic	*The inputs to the economic analysis to produce the net present value (NPV) in the study, the source and confidence of these economic inputs including estimated inflation, discount rate, etc.*	An optimal pit shell based upon an AUD$1,350/oz gold price was the basis for the pit design adopted in the Ore Reserve Estimate. Due to the short duration of mining (less than 12 months) a discount rate has not been applied to cash flow calculations.
	NPV ranges and sensitivity to variations in the significant assumptions and inputs.	A full financial model was developed with sensitivities applied to all key inputs and assumptions (+/-15%), which is appropriate to the level of study undertaken (pre-feasibility). Undiscounted cash flows remained positive for all of the key sensitivities conducted, with the exception of revenue. The revenue levers are gold price, grade and mining recovery. A gold price of $1,400/oz has been assumed in all modelling, a 15% sensitivity reduction in that price would give a resultant price of $1,190/oz, which compared to an average spot price of $1,500/oz over the last 12 months, would equate to almost a 20% sensitivity. Saracen also has gold hedging of 140koz at an average price of $1,520 for CDO, none of which has been included in any of the financial modelling for the Ore Reserve Estimate. The sensitivity testing of grade and mining recovery are largely mitigated by the incorporation of the reconciliation data from Saracen's mining of the previous stage of the pit in 2011-2012, during the construction of the current geological resource model. This reconciliation data was also the basis for determining the dilution and ore loss factors for inclusion in the Ore Reserve Estimate. The combination of gold hedging and the use of the reconciliation data have de-risked the 15% downside sensitivity to the revenue stream for Enterprise.
Social	*The status of agreements with key stakeholders and matters leading to social licence to operate*	When Enterprise was previously in operation, Saracen experienced good relations with neighbouring stakeholders, including engagement with the local pastoralists and the traditional owners, and have no reason to think that this would change in the future. The mine is located on leasehold pastoral land with compensation agreements in place with the local pastoralist. Granted mining leases cover all of the proposed mining and processing assets and there are no Native title claims pending.
Other	*To the extent relevant, the impact of the following on the project and/or on the estimation and classification of the Ore Reserves:*	

Section 4: Estimation and Reporting of Ore Reserves

Criteria	JORC Code Explanation	Commentary
	Any identified material naturally occurring risks	Water inrush is the only naturally occurring risk identified, and was addressed by the construction of appropriate water diversion bunds as part of normal mining operations the last time that Enterprise was mined. The costs associated with some minor extension of the bund have been factored into waste mining haulage.
	The status of material legal agreements and marketing arrangements	A royalty of 1.5% of production is payable to IRC.
	The status of governmental agreements and approvals critical to the viability of the project, such as mineral tenement status, and government and statutory approvals. There must be reasonable grounds to expect that all necessary government approvals will be received within the timeframes anticipated in the Pre-Feasibility or Feasibility study. Highlight and discuss the materiality of any unresolved matter that is dependent on a third party on which extraction of the reserve is contingent.	Gold produced from the Enterprise Mine will be sold on the spot market. A royalty of 2.5% is payable to the W.A. State government, with a royalty of 1.5% of production payable to IRC. Government approvals will need to be sought relating to this Ore Reserve Estimate, namely for mining, waste dumping, diversion of surface run-off. All of the approvals being sought have previously been in place for the previous operation of the mine by Saracen in 2011, and the best opinion available suggests that this will be a likely outcome once again.
Classification	*The basis for the classification of the Ore Reserve into varying confidence categories*	The Ore Reserve Estimate classification for Enterprise has been in accordance with the JORC code 2012. All of the Ore Reserve Estimate was classified as being Probable with all of the Ore Reserve Estimate being derived from that portion of the Mineral Resource classified as measured or indicated. Approximately 50% of the ounces contained in the Ore Reserve Estimate were derived from that portion of the Mineral Resource classified as measured.
	Whether the result appropriately reflects the Competent Person's view of the deposit.	Cost assumptions and inputs applied to the pit optimisation and subsequent design were derived from current operational data relating to Carosue Dam Operations, and expert recommendations from industry consultants. Results of these optimisations and the resultant analysis reflect the views of Chris Burton regarding the Enterprise deposit.
	The proportion of Probable Ore Reserves that have been derived from Measured Mineral Resources (if any)	Approximately 50% of the Ore Reserve Estimate has been derived that portion of the Mineral Resource classified as measured, within the pit design that formed the physical extent of the ore reserve estimate.
Audits or reviews	*The results of any audits or reviews of Ore Reserve estimates*	All of the parameters assumed and adopted, as well as the financial analysis completed, have been the subject to peer review.
Discussion of relative accuracy/confidence	*Where appropriate a statement of the relative accuracy and confidence level in the Ore Reserve estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geo-statistical procedures to quantify the relative accuracy of the reserve within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors which could affect the relative accuracy and confidence of the estimate.*	The ore reserve estimate was derived from the mineral resource estimate which in turn was reliant upon a resource block model whose estimation was derived from drill-hole data of sufficient continuity and spacing to satisfy the requirements for an indicated resource. The interpretation and estimation process integrated an allowance for a selective mining unit, effectively building in planned dilution to the Mineral resource estimate. Given the gentle plunging, moderately dipping nature of the repetitious lodes this had the impact of diluting the margins of the ore zones through addition of waste and lowering the grade. Saracen has made certain assumptions regarding mining and processing costs, mining dilution and recoveries, geotechnical parameters, and metallurgical recoveries. All of these have been documented and are based upon known parameters either at Enterprise whilst previously in operation, or in existence at Saracen's other operations, or have been recommended by reputable industry consultants.

Section 4: Estimation and Reporting of Ore Reserves

Criteria	JORC Code Explanation	Commentary
	The statement should specify whether it relates to global or local estimates, and if local, state the relevant tonnages which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the procedures used. *Accuracy and confidence discussions should extend to specific discussions of any applied modifying factors that may have a material impact on Ore Reserve viability, or for which there are remaining areas of uncertainty ay the current study stage.* *It is recognised that this may not be possible or appropriate in all circumstances. These statements or relative accuracy and confidence of the estimate should be compared with production data, where available.*	All of the parameters assumed and adopted, as well as the financial analysis completed, have been the subject to peer review.

Safari Bore District

Safari Bore

Section 1: Sampling Techniques and Data		
Criteria	**JORC Code Explanation**	**Commentary**
Sampling Techniques	*Nature and quality of sampling (e.g. cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc.). These examples should not be taken as limiting the broad meaning of sampling.*	Saracen has undertaken reverse circulation drilling (RC) at Safari Bore. Historic methods conducted since 1968 have included aircore (AC), rotary air blast (RAB), reverse circulation and diamond drillholes.
	Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used	Sampling for RC drilling is carried out as specified within Saracen sampling and QAQC procedures as per industry standard. RC chips provide high quality representative samples for analysis. RC, RAB, AC and DD core drilling was completed by previous holders to industry standard at that time (1968- 2004).
	Aspects of the determination of mineralisation that are Material to the Public Report. In cases where 'industry standard' work has been done this would be relatively simple (e.g. 'reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30 g charge for fire assay'). In other cases more explanation may be required, such as where there is coarse gold that has inherent sampling problems. *Unusual commodities or mineralisation types (e.g. submarine nodules) may warrant disclosure of detailed information*	RC chips are cone split and sampled into 1m intervals with total sample weights less than 3 kg. Samples are selected to weigh less than 3 kg to ensure total sample inclusion at the pulverisation stage. Saracen chip samples are crushed, dried and pulverised to a nominal 90% passing 75µm to produce a 50g sub sample for analysis by FA/AAS. Historical AC, RAB, RC and diamond sampling was carried out to industry standard at that time. Analysis methods include fire assay, aqua regia, atomic absorption spectroscopy and unspecified methods.
Drilling Techniques	*Drill type (e.g. core, reverse 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.).*	The deposit was initially sampled by 161 AC holes, 452 RAB holes, 690 RC holes (assumed standard 5 ¼ ''bit size) and 66 surface diamond HQ core and unknown diameter holes. Saracen has completed 25 RC drillholes. It is unknown if historic diamond drill core was oriented.
Drill Sample Recovery	*Method of recording and assessing core and chip sample recoveries and results assessed*	RC sampling recoveries are recorded as a percentage based on a visual weight estimate; limited historic recoveries have been recorded.
	Measures taken to maximise sample recovery and ensure representative nature of the samples	During RC campaigns daily rig inspections are carried out to check splitter condition, general site and address general issues. Historic AC, RAB, RC and diamond drilling to industry standard at that time.

Section 1: Sampling Techniques and Data

Criteria	JORC Code Explanation	Commentary
	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.	There is no known relationship between sample recovery and grade for RC drilling. Any historical relationship is not known.
Logging	*Whether core and chip samples have been geologically and geotechnically logged to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies.* *Whether logging is qualitative or quantitative in nature.* *Core (or costean, channel, etc) photography.*	Logging of RC chips records lithology, mineralogy, texture, mineralisation, weathering, alteration, veining and other features. Chips from all RC holes are stored in chip trays for future reference. Qualitative and quantitative logging of historic data varies in its completeness.
	The total length and percentage of the relevant intersections logged	All exploration RC samples are cone split. Occasional wet samples are encountered; increased air capacity is routinely used to aid in keeping the sample dry when water is encountered. Historic AC, RAB and RC drilling was sampled using cone, riffle and unknown methods.
Sub-sampling techniques and sample preparation	*If core, whether cut or sawn and whether quarter, half or all core taken.*	Saracen has not carried out diamond drilling. Historic diamond drilling has been half core sampled or sampled via unknown methods.
	If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry.	All exploration RC samples are cone split. Occasional wet samples are encountered; increased air capacity is routinely used to aid in keeping the sample dry when water is encountered. Historic AC, RAB and RC drilling was sampled using cone, riffle and unknown methods.
	For all sample types, the nature, quality and appropriateness of the sample preparation technique.	The sampling techniques for exploration RAB, RC and DD drilling are unknown, best practice is assumed. The sample preparation of RC grade control drilling and blast hole sampling involved oven drying, coarse crushing and total grinding in an LM5.
	Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.	All subsampling activities are carried out by commercial laboratory and are considered to be satisfactory. Sampling by previous holders assumed to be industry standard at the time.
	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.	Duplicate sampling is carried out at a rate of 1:10 for exploration drilling, with the duplicate being sampled directly from the on-board splitter on the rig. These are submitted for the same assay process as the original samples and the laboratory are unaware of such submissions. Sampling by previous holders assumed to be industry standard at the time.
	Whether sample sizes are appropriate to the grain size of the material being sampled.	Sample sizes are considered to be appropriate given the grainsize (90% passing 75 microns) of the material being sampled.
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.*	RC chip samples are analysed by external laboratories using a 50g fire assay with AAS finish. This method is considered suitable for determining gold concentrations in rock and is a total digest method. Historic sampling includes fire assay, aqua regia, atomic absorption spectroscopy and unknown methods.
	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 geophysical tools have been utilised for reporting gold mineralisation at Whirling Dervish.
	Nature of quality control procedures adopted (e.g.	Certified reference material (standards and blanks) with a wide range of values are inserted into every

Section 1: Sampling Techniques and Data

Criteria	JORC Code Explanation	Commentary
	standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (i.e. lack of bias) and precision have been established.	drillhole at a rate of 1:25 for exploration RC drilling. These are not identifiable to the laboratory. QAQC data returned are checked against pass/fail limits with the SQL database and are passed or failed on import. A report is generated and reviewed by the geologist as necessary upon failure to determine further action. QAQC data is reported monthly. Sample preparation checks for fineness are carried out to ensure a grindsize of 90% passing 75 microns. The laboratory performs a number of internal processes including standards, blanks, repeats and checks. QAQC data analysis demonstrates sufficient accuracy and precision. Industry best practice is assumed for previous holders.
Verification of sampling and assaying	*The verification of significant intersections by either independent or alternative company personnel.*	Significant intercepts are verified by the Geology Manager and corporate personnel.
	The use of twinned holes.	No specific twinned holes have been drilled at Safari Bore.
	Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols	Primary data is collated in a set of excel templates utilising lookup codes. This data is forwarded to the Database Administrator for entry into a secure acQuire database with inbuilt validation functions. Data from previous owners was taken from a database compilation and validated as much as practicable before entry into the Saracen acQuire database.
	Discuss any adjustment to assay data.	No adjustments have been made to assay data. First gold assay is utilised for resource estimation.
Location of data points	*Accuracy and quality of surveys used to locate drillholes (collar and down-hole surveys), trenches, mine workings and other locations used in Mineral Resource estimation.*	Exploration drillholes are located using a Leica 1200 GPS with an accuracy of +/- 10mm. Downhole surveys are carried out using an Eastman single shot camera at regular intervals (usually 30m). Previous holders' survey accuracy and quality is unknown
	Specification of the grid system used.	A local grid system (Safari Bore) is used. The two point conversion to MGA_GDA94 zone 51 is SBEast SBNorth RL MGAEast MGANorth RL Point 1 51000 34000 0 451137.753 6734157.921 0 Point 2 51000 30000 0 451137.890 6730157.896 0 Historic data is converted to the Safari Bore local grid upon export from the database.
	Quality and adequacy of topographic control.	Topographic control originally used site based survey pickups in addition to Kevron aerial photogrammetric surveys with +/- 5m resolution. Pre mining, new and more detailed topography has since been captured and will be used in future updates and for subsequent planning purposes.
Data spacing and distribution	*Data spacing for reporting of Exploration Results.*	The nominal spacing for exploration drilling ranges from 20 m x 20 m
	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.	Data spacing and distribution are sufficient to establish the degree of geological and grade continuity appropriate for JORC classifications applied.
Orientation of data in relation to geological structure	*Whether sample compositing has been applied.*	Sample compositing is not applied until the estimation stage. Some historic RAB and RC sampling was composited into 3-4m samples with areas of interest re-sampled to 1m intervals. It is unknown at what threshold this occurred.

Section 1: Sampling Techniques and Data

Criteria	JORC Code Explanation	Commentary
	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 drillholes are positioned to achieve optimum intersection angles to the ore zone as are practicable.
	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.	No significant sampling bias is thought to occur due to orientation of drilling in regards to mineralised structures.
Sample security	*The measures taken to ensure sample security.*	Samples are prepared on site under supervision of Saracen geological staff. Samples are selected, bagged into tied numbered calico bags then grouped into secured cages and collected by the laboratory personnel. Sample submissions are documented via laboratory tracking systems and assays are returned via email
Audits or reviews	*The results of any audits or reviews of sampling techniques and data.*	An internal review of companywide sampling methodologies was conducted to create the current sampling and QAQC procedures.

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 Safari Bore resource is located on M39/307. Near mine exploration extends onto M39/639. The tenements are held 100% by Saracen Gold Mines Pty Ltd, a wholly owned subsidiary of Saracen Mineral Holdings Limited. Mining Leases M39/307 have a 21 year life (held until 2015 and 2024, respectively). The tenements are renewable for a further 21 years on a continuing basis. Mining Leases M39/307 and M39/639 are each subject to one royalty agreement and one associated caveat (144H/067 and 150H/067, respectively). M39/307 is subject to a bank mortgage (415495). All production is subject to a Western Australian state government NSR royalty of 2.5%. Mining Leases M39/307 and M39/639 are subject to the Edjudina Pastoral Compensation Agreement. M39/307 is subject to the Yundamindera Pastoral Compensation Agreement. There are no registered Aboriginal Heritage sites within M39/307 and M39/639.
	The security of the tenure held at the time of reporting along with any known impediments to obtaining a licence to operate in the area.	The tenements are in good standing and there are no known impediments to obtaining a licence to operate.
Exploration done by other parties	*Acknowledgment and appraisal of exploration by other parties.*	Unsuccessful nickel exploration was carried out in the Mount Celia project area in which Safari Bore is located in the 1960's and 1970's. Pancontinental Mining pegged the ground in 1988 and began gold exploration beginning with a soil geochemistry survey (deemed ineffective due to depth of cover) followed by regional RAB then targeted RC drilling of anomalous areas. Further RC and diamond drilling was carried out to define the Safari Bore resource. PanCon entered into a joint venture with Goldfields in 1995. Extensive regional RAB and RC drilling were carried out along with RC and diamond resource infill drilling. Sons of Gwalia purchased the project from Goldfields in 2001 and completed further regional RAB and

Section 2: Reporting of Exploration Results

Criteria	JORC Code Explanation	Commentary
		RC drilling along with resource definition RC and diamond drilling before mining commenced in 2003. St Barbara acquired the project following the collapse of Sons of Gwalia. No further exploration activities took place and mining operations were suspended in 2005.
Geology	*Deposit type, geological setting and style of mineralisation.*	The Safari Bore deposit is located within the eastern part of the Norseman-Wiluna greenstone belt in the Eastern Goldfields province of the Archaean Yilgarn Craton. The deposit sits within the Pinjin fault, a major NNW trending regional lineament and comprises a sub vertically WSW dipping NNW striking package of intensely deformed and altered intermediate to mafic intrusive and extrusive rocks and sediments intruded by felsic porphyry. Mineralisation within this sequence occurs in multiple structural and lithological settings, in four discreet lodes (red, green, purple and Serengeti), all associated with quartz-carbonate-albite hydraulic breccia veins. Serengeti and red lodes lie within the margins of gently southerly plunging felsic porphyry. Green and purple lodes are sub vertical sheets oriented sub-parallel to foliation.
Drillhole 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 does not detract from the understanding of the report, the Competent Person should clearly explain why this is the case.*	All significant exploration results released by Saracen are documented in ASX statements.
Data aggregation methods	*In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (e.g. cutting of high grades) and cut-off grades are usually Material and should be stated.*	All significant intercepts have been length weighted with a minimum Au grade of 1ppm. No high grade cut off has been applied.
	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.	Intercepts are aggregated with minimum width of 1m and maximum width of 3m for internal dilution. Where stand out higher grade zone exist with in the broader mineralised zone, the higher grade interval is reported also.
	The assumptions used for any reporting of metal equivalent values should be clearly stated.	Metal equivalent values are not reported
Relationship between	*These relationships are particularly important in the*	There are no exploration results to report with this document.

Section 2: Reporting of Exploration Results

Criteria	JORC Code Explanation	Commentary
mineralisation widths 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 (eg 'down hole length, true width not known').*	
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.*	All significant exploration results released by Saracen are accompanied by the appropriate diagrams and maps at the time of the release.
Balanced Reporting	*Where comprehensive reporting of all Exploration Results are not practicable, representative reporting of both low and high grades and/or widths should be practiced to avoid misleading reporting of Exploration Results.*	All results from the recent campaign have been reported, irrespective of success or not
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.*	No substantive data acquisition has been completed in recent times.
Further work	*The nature and scale of planned further work (eg tests for lateral extensions or depth extensions or large-scale step-out drilling).* *Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive*	Safari Bore is currently under review and exploration targeting will focus on areas with economic gain.

Section 3: Estimation and Reporting of Mineral Resources

Criteria	JORC Code Explanation	Commentary
Database Integrity	*Measures taken to ensure that data has not been corrupted by, for example, transcription or keying errors, between its initial collection and its use for Mineral Resource estimation purposes.*	The database used for the estimate an extract from an acquire SQL database. The primary database is regulated by a locked framework called the acquire data model which fixes the relationships between tables. The data model minimises the potential for data collection and data usage errors through pre-determined look up tables, storage and export functions.

Section 3: Estimation and Reporting of Mineral Resources

Criteria	JORC Code Explanation	Commentary
		User defined permissions also regulate the ability to add, edit or extract data. Primary data is recorded using typical manual translation of logging and data capture from written logs and direct import of csv tables through a data import scheme where data is validated upon import or direct data entry options into the database using predefined look up values.
	Data validation procedures used.	The rigid structure of the acquire data model is such that predefined rules and look up tables are applied to all data entry. Data that does not meet the criteria are highlighted and moved to a buffer area until the data is rectified to meet the passing rules.
Site Visits	*Comment on any site visits undertaken by the Competent Person and the outcome of those visits.*	The competent person together with other Saracen's geology personnel have carried out site visits to the Safari Bore deposit on numerous occasions. The competent has inspected the deposit and has built a sound understanding of the deposit geology. All geological processes undertaken by Saracen concerning Safari Bore Resource have been done using Saracen's standard operating procedures.
	If no site visits have been undertaken indicate why this is the case.	Not applicable
Geological Interpretation	*Confidence in (or conversely, the uncertainty of) the geological interpretation of the mineral deposit.*	The confidence in the geological interpretation of the Safari Bore deposit considered good. The interpretation has been based on the detailed geological work completed by Saracen previous owners of the project. This knowledge is based on extensive geological logging of drill core, RC chips, detailed open pit mapping and assay data. The Safari Bore deposit sits within the Pinjin Fault, a major NNW-trending regional lineament dividing the western low-metamorphic-grade Edjudina Domain from the eastern low- to high-metamorphic grade Linden Domain, although within the area of the Safari Bore Deposit both domains display green schist facies assemblages. Mineralisation occurs in four discrete lodes, from west to east Serengeti, Red, Green and Purple Lodes. All lodes are associated with quartz-carbonate-albite hydraulic breccia veins. Red Lode and Serengeti Mineralisation lies within and at the margins of a gently southerly plunging felsic porphyry. The Serengeti porphyry and associated mineralisation may be either a southern structural repetition of the Red Lode Porphyry and mineralisation, or separate sub-parallel primary shoots. In contrast to Red Lode and the Serengeti mineralisation, Green and Purple Lodes are sub vertical sheets lying sub-parallel to foliation. Wider and higher grade shoots within Green and Purple Lodes plunge gently south, mirroring the plunge of the Red and Serengeti zones. As for the other lodes higher grade Mineralisation is associated with zones of hydraulic quartz-carbonate-albite brecciation.
	Nature of the data used and any assumptions made.	The interpretations have been constructed using all available geological logging descriptions including but not limited to, stratigraphy, lithology, texture, structure and alteration. Interpreted cross cutting faults have been observed and have been use to guide disruptions in the position of the key mineralised domains.
	The affect, if any, of alternative interpretations on Mineral Resource estimation.	The Safari Bore deposit is generally sub vertical in geometry, with clear well defined zones that show the tenor of the mineralisation. Saracen considers the current interpretation to be robust based on all the examined geological data.
	The use of geology in guiding and controlling the Mineral Resource estimation.	Geological controls and relationships were used to define mineralised domains. Mineralisation occurs in four discrete lodes, from west to east Serengeti, Red, Green and Purple Lodes. All lodes are associated with quartz-carbonate-albite hydraulic breccia veins. Red Lode and Serengeti Mineralisation lies within and at the margins of a gently southerly plunging felsic porphyry. The Serengeti

Section 3: Estimation and Reporting of Mineral Resources

Criteria	JORC Code Explanation	Commentary
		porphyry and associated mineralisation may be either a southern structural repetition of the Red Lode Porphyry and mineralisation, or separate sub-parallel primary shoots. In contrast to Red Lode and the Serengeti mineralisation, Green and Purple Lodes are sub vertical sheets lying sub-parallel to foliation. Wider and higher grade shoots within Green and Purple Lodes plunge gently south, mirroring the plunge of the Red and Serengeti zones. As for the other lodes higher grade mineralisation is associated with zones of hydraulic quartz-carbonate-albite brecciation.
	The factors affecting continuity both of grade and geology.	Gold mineralisation at Safari Bore is transgressive to lithology and occurs within multiple structural and alteration settings. Although the setting of mineralisation is variable, the distribution of gold Mineralisation may be explained by a single mechanism. In plan view the broad distribution of gold at Safari Bore is consistent with mineralisation within a sinistral oblique strike-slip regime. If the central felsic porphyry and the dioritic sheets are considered to lie sub-parallel to the local D (foliation) orientation then gold mineralisation lies within the R, T and P orientations of a sinistral strike slip regime. The variability in the style of gold mineralisation throughout Safari Bore may be attributed to variations in the orientation of the host lithology, and variable physical and chemical properties.
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 gold mineralisation at Safari Bore strikes about 1.3 km in length spanning over an area with 300m in width. The mineralisation extends to below 280m below surface.
Estimation and modelling techniques	*The nature and appropriateness of the estimation technique(s) applied and key assumptions, including treatment of extreme grade values, domaining, interpolation parameters and maximum distance of extrapolation from data points.*	Grade estimation using Ordinary Kriging (OK) was completed for Safari Bore. Micromine software was used to estimate gold grades into 5m x10m x5m size parent blocks. Drill grid spacing ranges from 20 m by 20 m to 40 m x 40 m. Drill hole sample data was flagged using domain codes generated from three dimensional mineralisation domains and oxidation surfaces. Sample data was composited to one metre downhole length. Over 97% of the sample intervals are 1m. Intervals with no assays were excluded from the compositing routine. The influence of extreme sample distribution outliers was reduced by top-cutting where required. The top-cut levels were determined using a combination of top-cut analysis tools (grade histograms, log probability plots and CVs). Top-cuts were reviewed and applied on a domain basis. Due to the flexures in the mineralised envelopes, the estimation process was in unfolded space. The blocks are relocated back to their original space after the estimation. Variography was conducted in unfolded space using Geo Access software.
	The availability of check estimates, previous estimates and/or mine production records and whether the Mineral Resource estimate takes appropriate account of such data.	No comparison have been done with previous estimates
	The assumptions made regarding recovery of by-products.	No assumptions have been made with respect to the recovery of by-products.
	Estimation of deleterious elements or other non-grade variables of economic significance (e.g. sulphur for acid mine drainage characterisation).	There has been no estimate at this point of deleterious elements. Saracen is unaware if any elements other than gold have been assayed. Arsenic may have been assayed; however this data has not been made available.
	In the case of block model interpolation, the block	A single block model for Safari Bore was constructed using a 5 mE by 10 mN by 5 mRL parent block

Section 3: Estimation and Reporting of Mineral Resources

Criteria	JORC Code Explanation	Commentary
	size in relation to the average sample spacing and the search employed.	size with sub-celling to 1 mE by 1 mN by 1 mRL for domain volume resolution. All estimation was completed at the parent cell size scale. Search ellipses and passes and minimum and maximum search number parameters are detailed below. The search strategy was set up such that the first search pass would fill blocks informed by the typical drill spacing. The second search used search ellipse multiplied by a factor of 2, while the third search increased the dimensions by a factor of 5 to ensure filling of all blocks. With the very limited across structure variogram range, a limit of 4 composites per drill hole was set. The first search pass used a maximum of 16 and a minimum of 16 samples. The second search pass used a maximum of 16 with a minimum of 8 samples while the third search pass used a maximum of 16 with a minimum of 1 sample.
	Any assumptions behind modelling of selective mining units.	No selective mining units have been assumed.
	Any assumptions about correlation between variables.	No assumptions have been made regarding correlation between variables.
	Description of how the geological interpretation was used to control the resource estimates.	Geological controls and relationships were used to define mineralised domains. Mineralisation occurs in four discrete lodes, from west to east Serengeti, Red, Green and Purple Lodes. All lodes are associated with quartz-carbonate-albite hydraulic breccia veins. Red Lode and Serengeti Mineralisation lies within and at the margins of a gently southerly plunging felsic porphyry. The Serengeti porphyry and associated mineralisation may be either a southern structural repetition of the Red Lode porphyry and mineralisation, or separate sub-parallel primary shoots. In contrast to Red Lode and the Serengeti mineralisation, Green and Purple Lodes are sub vertical sheets lying sub-parallel to foliation. Wider and higher grade shoots within Green and Purple Lodes plunge gently south, mirroring the plunge of the Red and Serengeti zones. As for the other lodes higher grade Mineralisation is associated with zones of hydraulic quartz-carbonate-albite brecciation.
	Discussion of basis for using or not using grade cutting or capping.	A top cut was used in each sub-zone both within the main domains and according to regolith, based on a review of the histogram, log probability plot, and a summary graph of the effects of top-cutting for each domain combination. A top cut was selected to minimise the effects of isolated high grade outliers, without cutting a large proportion of the data or contained metal within the domain.
	The process of validation, the checking process used, the comparison of model data to drill hole data, and use of reconciliation data if available.	Validation of the block model carried out a volumetric comparison of the resource wireframes to the block model volumes. Validating the estimate compared block model grades to the input data using tables of values, and swath plots showing northing, easting and elevation comparisons. Visual validation of grade trends and metal distributions was carried out. Reconciliation studies for Safari Bore show that the model is conservative in its upper levels and this can be corroborated from the grade control data where there appears to be a different orientation to the resource interpretation.
Moisture	*Whether the tonnages are estimated on a dry basis or with natural moisture, and the method of determination of the moisture content.*	All tonnages are estimated on a dry basis.
Cut-off parameters	*The basis of the adopted cut-off grade(s) or quality parameters applied.*	Based on Saracen's current economic operations at Carosue Dam, and the natural grade distinction above background, a grade of 0.7g/t has been chosen.
Mining factors or assumptions	*Assumptions made regarding possible mining methods, minimum mining dimensions and internal (or, if applicable, external) mining dilution. It is*	Mining of the Safari Bore at this stage deposit will be by Open pit mining methods involving mechanised mining techniques. Open pit mining will most likely by a cut-back on the existing Safari Bore Pit. Some of the factor used in consideration of the mining method include, proximity of the mineralisation to

Section 3: Estimation and Reporting of Mineral Resources

Criteria	JORC Code Explanation	Commentary
	always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential mining methods, but the assumptions made regarding mining methods and parameters when estimating Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the mining assumptions made.	surface, geotechnical and hydrogeological factors, prevailing gold price, planned mining dilution and mining recoveries and the average plant processing recoveries.
Metallurgical factors or assumptions	*The basis for assumptions or predictions regarding metallurgical amenability. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential metallurgical methods, but the assumptions regarding metallurgical treatment process and parameters made when reporting Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the metallurgical assumptions made.*	Metallurgical test work was conducted on composite samples from Safari Bore. The test-work was aimed at further defining the metallurgical characteristics of the Safari deposit including gravity gold content, gold recovery, viscosity, oxygen demand, comminution characteristics, and mineralogy. The conclusions from the test work are as follows: Red Lode oxide and fresh material generally produced consistent results throughout the test work programs, with moderate to high gravity recoveries and overall 24 hour recoveries ranging from 87% to 97%. The lower Red Lode recoveries were due to low head grades, and therefore analysis of the data at appropriate ore deposit grades produces a recovery of approximately 95% for both oxide and fresh material. Purple Lode (transitional) material contained a high gravity recoverable component with a 24 hour recovery of 97% (head grade of 3.0 g/t). Limited tests have been conducted on this lode, and therefore further confirmatory test work will be completed. Conflicting results were obtained for the Green Lode composites tested. Two of the three test work programs for the Green Lode material generally yielded moderate gravity recoverable components, and lower overall 24 hour recoveries compared to the Red Lode material at approximately 92%. Some results also suggested that this material may be sensitive to grind size with additional gold locked in the coarser size fractions. Gold recovery was shown to be independent of grind size for the Red Lode material tested. Further analysis of this relationship is warranted, especially for the Green Lode material which tended to exhibit sensitivity to grind size. Oxygen demand test work conducted on the Red Lode material showed minimal oxygen uptake after one hour of sparging, indicating plant oxygen demand should not be significant. Pulp viscosity test work conducted on both oxide and fresh Red Lode samples indicated that no pumping or screening issues should be observed with this material. Abrasion indices for the Red Lode Oxide material were 0.17 increasing to 0.35 for the Red Lode Fresh material. Bond ball mill work indices for the Red Lode Oxide and Fresh composites were 14.3 kWh/t and 17.8 kWh/t respectively. Further confirmatory test work is planned to be conducted on Safari Bore to further validate the metallurgical recoveries obtained, and to generate additional information for areas with limited results.
Environmental factors or assumptions	*Assumptions made regarding possible waste and process residue disposal options. It is always necessary as part of the process of determining*	There have been previous mining activities at Safari Bore and a number of environmental factors have been considered. These factors include: ***Ground water management***- Dewatering of an estimated 360 kl/day will be required.

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Criteria	JORC Code Explanation	Commentary
	reasonable prospects for eventual economic extraction to consider the potential environmental impacts of the mining and processing operation. While at this stage the determination of potential environmental impacts, particularly for a greenfields project, may not always be well advanced, the status of early consideration of these potential environmental impacts should be reported. Where these aspects have not been considered this should be reported with an explanation of the environmental assumptions made.	This water will be pumped from one or two bores around the pit and from sumps within the pit to a turkey nest dam. The dam will be used to hold water for dust suppression and as a supply for the proposed Reverse Osmosis plant. This usage, together with losses from evaporation, is expected to account for the total volumes pumped. No off-site discharge of mine water is expected to be required. ***Waste Rock Disposal and Characterisation***- A waste rock control strategy was put in place to minimise the impact ARD (Acid Rain Drainage). ***Flora and Fauna***- Minimise disturbance of flora and Fauna and rehabilitation programs to be implemented to ensure regeneration of the flora fauna. ***Aboriginal Heritage Protection***- Identified archaeological sites should be avoided at all costs. Saracen will consider the above factors and others to meet the requirements of the current legislation.
Bulk Density	*Whether assumed or determined. If assumed, the basis for the assumptions. If determined, the method used, whether wet or dry, the frequency of the measurements, the nature, size and representativeness of the samples.*	Previous owners have taken routine density measurements when drilling diamond core. The method of calculation is the water displacement technique. Density in the current model has been assigned based on oxidation state, using a total of 892 historical measurements. An analysis of both logged density and density as assigned by regolith surfaces was carried out
	The bulk density for bulk material must have been measured by methods that adequately account for void spaces (vugs, porosity, etc), moisture and differences between rock and alteration zones within the deposit.	The frequency and distribution is unknown at this point in time. It has assumed from the good reconciliation performance from mine to mill that the determined density assignments from the mine are accurate.
	Discuss assumptions for bulk density estimates used in the evaluation process of the different materials.	Average mean of densities collected for each lithological and weathering profile has been uniformly applied to the modelled geological units. This includes the primary fresh lithologies as well as the weathered oxide and transitional zones.
Classification	*The basis for the classification of the Mineral Resources into varying confidence categories.*	The mineral resource has been classified into Measured, Indicated and Inferred categories based on drill hole spacing, geological confidence, and grade continuity and estimation quality. The combination of these factors together guides the construction of wireframes which select and codes the appropriate blocks with the nominated resource classification category.
	Whether appropriate account has been taken of all the relevant factors (ie relative confidence in tonnage/grade estimations, reliability of input data, confidence in continuity of geology and metal values, quality, quantity and distribution of the data).	The input data is comprehensive in its coverage of the mineralisation and does not favour or misrepresent in-situ mineralisation. Mineralisation occurs in four discrete lodes, from west to east Serengeti, Red, Green and Purple Lodes. The definition of mineralised zones is based on a high level of geological understanding producing a robust model of mineralised domains. The validation of the block model shows good correlation of the input data to the estimated grades.
	Whether the result appropriately reflects the Competent Person's view of the deposit.	The geological model and the mineral resource estimate reflect the competent person's view of the deposit.
Audits or reviews	*The results of any audits or reviews of Mineral Resource estimates.*	Saracen has adopted a process for geological modelling, estimation and reporting of mineral resources that meets high industry standards. The Safari Bore Resource model was completed by an external consultant under guidance from Saracen geology personnel. Saracen has reviewed the resource estimates and is satisfied that they are a true reflection of the global insitu resources for Safari Bore.

Section 3: Estimation and Reporting of Mineral Resources		
Criteria	**JORC Code Explanation**	**Commentary**
Discussion of relative accuracy/confidence	*Where appropriate a statement of the relative accuracy and confidence level in the Mineral Resource estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the resource within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors that could affect the relative accuracy and confidence of the estimate.*	The relative accuracy of the Mineral Resource estimate is reflected in the reporting of the Mineral Resource as per the guidelines of the 2012 JORC Code. The resource estimates have undergone a robust validation process, and as such, the competent person is satisfied that the resources estimated in the block model are a true representation of the global insitu resources.
	The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonnages, which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the procedures used.	The statements relate to a global estimate of tonnes and grade.
	These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.	The Safari Bore resource model was completed by an external consultant and reviewed by Saracen geology personnel. The model has been validated thoroughly and the competent person is satisfied that the estimated gold grades give a true reflection of the global insitu resources. Reconciliation studies for Safari Bore show that the model is conservative in its upper levels and this can be corroborated from the grade control data where there appears to be a different orientation to the resource interpretation.

Deep South

Section 1: Sampling Techniques and Data		
Criteria	**JORC Code Explanation**	**Commentary**
Sampling Techniques	*Nature and quality of sampling (e.g. cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc.). These examples should not be taken as limiting the broad meaning of sampling.*	Saracen has recently completed a biogeochemical sampling program at Deep South involving the sampling of new leaf growth on established *Acacia* trees on a 100m x 800m spacing. Other sampling methods undertaken by Saracen at Deep South previously have included reverse circulation drillholes (RC), diamond drillholes (DD) and RC grade control drilling within the pit. Historic sampling methods conducted since 1983 have included rotary air blast (RAB), reverse circulation and diamond drillholes.
	Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used	Samples were collected from trees of a consistent species and height. Sampling for diamond and RC drilling is carried out as specified within Saracen sampling and QAQC procedures as per industry standard. RC chips and diamond core provide high quality representative samples for analysis. RC, RAB and DD core drilling was completed by previous holders to industry standard at that time (1983- 2004).
	Aspects of the determination of mineralisation that are Material to the Public Report. In cases where	The biogeochemical program was an orientation survey only and results will not be used in any calculation of mineralisation. The leaves were washed, dried and pulverised followed by an aqua regia

Section 1: Sampling Techniques and Data

Criteria	JORC Code Explanation	Commentary
	'industry standard' work has been done this would be relatively simple (e.g. 'reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30 g charge for fire assay'). In other cases more explanation may be required, such as where there is coarse gold that has inherent sampling problems. *Unusual commodities or mineralisation types (e.g. submarine nodules) may warrant disclosure of detailed information*	digest for multielement determination. RC chips are cone or riffle split and sampled into 1m intervals with total sample weights under 3kg Diamond core is NQ sized, sampled to 1m intervals or geological boundaries where necessary and cut into half core to give sample weights under 3 kg. Samples are selected to weigh less than 3 kg to ensure total sample inclusion at the pulverisation stage. Saracen core and chip samples are crushed, dried and pulverised to a nominal 90% passing 75µm to produce a 40g or 50 g sub sample for analysis by FA/AAS. Some grade control RC chips were analysed in the Saracen on site laboratory using a PAL (pulverise and leach) method. Historical RAB, RC and diamond sampling was carried out to industry standard at that time. Analysis methods include fire assay, aqua regia, atomic absorption spectroscopy and unspecified methods.
Drilling Techniques	*Drill type (e.g. core, reverse 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.).*	The deposit was initially sampled by 114 RAB holes, 211 RC holes (assumed standard 5 ¼ ''bit size) and 29 surface HQ and unknown diameter diamond core holes. Saracen has previously completed 12 surface RC precollars with NQ diamond tail drill holes (precollars averaging 185m, diamond tails averaging 140m) , 3 geotechnical surface diamond NQ drillholes, 57 RC holes from surface and 107 grade control RC holes within the pit. Diamond tails were oriented using an Ezi-mark tool. A limited amount of historic surface diamond drill core appears to have been oriented by unknown methods.
Drill Sample Recovery	*Method of recording and assessing core and chip sample recoveries and results assessed*	RC sampling recoveries are recorded in the database as a percentage based on a visual weight estimate; limited historic recoveries have been recorded. Diamond core recovery percentages calculated from measured core versus drilled intervals are logged and recorded in the database. Recoveries average >98%. Limited historic diamond recoveries have been recorded.
	Measures taken to maximise sample recovery and ensure representative nature of the samples	During RC drilling daily rig inspections are carried out to check splitter condition, general site and address general issues. Diamond core is reconstructed into continuous runs on an angle iron cradle for orientation marking. Depths are checked against depth given on the core blocks. During GC campaigns the sample bags weight versus bulk reject weight are compared to ensure adequate and even sample recovery. Historical RAB, RC and diamond drilling to industry standard at that time.
	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.	There is no known relationship between sample recovery and grade for RC drilling. Diamond drilling has high recoveries meaning loss of material is minimal. Any historical relationship is not known.
Logging	*Whether core and chip samples have been geologically and geotechnically logged to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies.* *Whether logging is qualitative or quantitative in nature.* *Core (or costean, channel, etc) photography.*	Logging of RC chips and diamond drill core records lithology, mineralogy, texture, mineralisation, weathering, alteration and veining. Geotechnical and structural logging is carried out on all diamond holes to record recovery, RQD, defect number, type, fill material, shape and roughness and alpha and beta angles. Chips from all RC holes (exploration and GC) are stored in chip trays for future reference while remaining core is stored in core trays and archived on site. Core is photographed in both dry and wet state. Qualitative and quantitative logging of historic data varies in its completeness.

Section 1: Sampling Techniques and Data

Criteria	JORC Code Explanation	Commentary
	The total length and percentage of the relevant intersections logged	All RC and diamond drillholes and grade control holes are logged in full. Historical logging is complete.
Sub-sampling techniques and sample preparation	*If core, whether cut or sawn and whether quarter, half or all core taken.*	All drill core is cut in half onsite using an automatic core saw. Samples are always collected from the same side. Some historic drillcore was half core sampled, or sampled via unknown methods.
	If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry.	All exploration and grade control RC samples are cone or riffle split. Occasional wet samples are encountered; increased air capacity is routinely used to aid in keeping the sample dry when water is encountered. Historic RAB and RC drilling was sampled using riffle and unknown methods.
	For all sample types, the nature, quality and appropriateness of the sample preparation technique.	The sample preparation of diamond core and RC chips adhere to industry best practice. It is conducted by a commercial laboratory or onsite laboratory and involves oven drying, coarse crushing then total grinding to a size of 90% passing 75 microns. Best practice is assumed at the time of historic sampling.
	Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.	All subsampling activities are carried out by commercial laboratory or onsite laboratory and are considered to be satisfactory. Sampling by previous holders assumed to be industry standard at the time.
	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.	RC field duplicate samples are carried out at a rate of 1:20 and are sampled directly from the on-board splitter on the rig. These are submitted for the same assay process as the original samples and the laboratory are unaware of such submissions. Sampling by previous holders assumed to be industry standard at the time.
	Whether sample sizes are appropriate to the grain size of the material being sampled.	Sample sizes of 3kg are considered to be appropriate given the grain size (90% passing 75 microns) of the material sampled.
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.*	RC chip samples and diamond core are analysed by external laboratories using a 50g fire assay with AAS finish. This method is considered suitable for determining gold concentrations in rock and is a total digest method. GC samples were analysed in the Saracen onsite laboratory using a pulverise and leach method. This method is a partial digest. Historic sampling includes fire assay, aqua regia, atomic absorption spectroscopy and unspecified methods.
	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 geophysical tools have been utilised for reporting gold mineralisation.
	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.	Certified reference material (standards and blanks) with a wide range of values are inserted into every drillhole at a rate of 1:25 for exploration RC and DD, and 1:40 for GC drilling. These are not identifiable to the laboratory. QAQC data returned are checked against pass/fail limits with the SQL database and are passed or failed on import. A report is generated and reviewed by the geologist as necessary upon failure to determine further action. QAQC data is reported monthly. Sample preparation checks for fineness are carried out to ensure a grindsize of 90% passing 75 microns.

Section 1: Sampling Techniques and Data

Criteria	JORC Code Explanation	Commentary
		The laboratory performs a number of internal processes including standards, blanks, repeats and checks. QAQC data analysis demonstrates sufficient accuracy and precision. Industry best practice is assumed for previous holders.
Verification of sampling and assaying	*The verification of significant intersections by either independent or alternative company personnel.*	Significant intercepts are verified by the Geology Manager and corporate personnel.
	The use of twinned holes.	No specific twinned holes have been drilled at Deep South but grade control drilling has confirmed the width and grade of previous exploration drilling.
	Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols	Primary data is collated in a set of excel templates utilising lookup codes. This data is forwarded to the Database Administrator for entry into a secure acQuire database with inbuilt validation functions. Data from previous owners was taken from a database compilation and validated as much as practicable before entry into the Saracen acQuire database.
	Discuss any adjustment to assay data.	No adjustments have been made to assay data. First gold assay is utilised for resource estimation.
Location of data points	*Accuracy and quality of surveys used to locate drillholes (collar and down-hole surveys), trenches, mine workings and other locations used in Mineral Resource estimation.*	Exploration drillholes are located using a Leica 1200 GPS with an accuracy of +/- 10mm. Drillhole collars within the pit and immediate surrounds are picked up by company surveyors using a Trimble R8 GNSS (GPS) with an expected accuracy of +/-8mm. Downhole surveys are carried out on RC and diamond drillholes using an Eastman single shot camera at regular intervals (usually 30m). A number of drillholes have also been gyroscopically surveyed. Grade control drilling was not downhole surveyed due to short hole lengths. Previous holders' survey accuracy and quality is unknown
	Specification of the grid system used.	A local grid system (Safari Bore) is used at Deep South. The two point conversion to MGA_GDA94 zone 51 is: SBEast SBNorth RL MGAEast MGANorth RL Point 1 51000 34000 0 451137.753 6734157.921 0 Point 2 51000 30000 0 451137.896 6730157.896 0 Historic data is converted to the Safari Bore local grid upon export from the database.
	Quality and adequacy of topographic control.	Topographic control originally used site based survey pickups in addition to Kevron aerial photogrammetric surveys with +/- 5m resolution. Pre mining, new and more detailed topography has since been captured and will be used in future updates and for subsequent planning purposes.
Data spacing and distribution	*Data spacing for reporting of Exploration Results.*	The nominal spacing for drilling is 20m x 40m and 40m x 40m
	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.	Data spacing and distribution are sufficient to establish the degree of geological and grade continuity appropriate for JORC classifications applied.
Orientation of data in relation to geological structure	*Whether sample compositing has been applied.*	Sample compositing is not applied until the estimation stage. Some historic RAB and RC sampling was composited into 3-4m samples with areas of interest re-sampled to 1m intervals. It is unknown at what threshold this occurred.
	Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the	The majority of drillholes are positioned to achieve optimum intersection angles to the ore zone as are practicable.

Section 1: Sampling Techniques and Data		
Criteria	**JORC Code Explanation**	**Commentary**
	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.	No significant sampling bias has been recognised due to orientation of drilling in regards to mineralised structures.
Sample security	*The measures taken to ensure sample security.*	Samples are prepared on site under supervision of Saracen geological staff. Samples are selected, bagged into tied numbered calico bags then grouped into secured cages and collected by the laboratory personnel. Sample submissions are documented via laboratory tracking systems and assays are returned via email
Audits or reviews	*The results of any audits or reviews of sampling techniques and data.*	An internal review of companywide sampling methodologies was conducted to create the current sampling and QAQC procedures. No external audits or reviews have been conducted.

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 Deep South pit is located on M39/740. The tenement is held 100% by Saracen Gold Mines Pty Ltd, a wholly owned subsidiary of Saracen Mineral Holdings Limited. Mining Lease M39/740 has a 21 year life (held until 2024) and is renewable for a further 21 years on a continuing basis. Mining Lease M39/740 is subject to one royalty agreement, one caveat (151H/067) and a bank mortgage (415495). All production is subject to a Western Australian state government NSR royalty of 2.5%. Mining Lease M39/740 is subject to the Edjudina Pastoral Compensation Agreement. There are no registered Aboriginal Heritage sites within Mining Lease M39/740.
	The security of the tenure held at the time of reporting along with any known impediments to obtaining a licence to operate in the area.	The tenement is in good standing and the licence to operate already exists
Exploration done by other parties	*Acknowledgment and appraisal of exploration by other parties.*	Exploration in the vicinity of Deep South commenced in the 1980's with drilling around the historic Deep Well workings 500m north of Deep South, as well as regional RC drilling carried out by Western Mining Corporation. Initial auger sampling carried out over Deep South by Pancontinental Mining in 1994 failed to detect mineralisation due to the transported material overlying the deposit. Wide spaced east angled RAB drilling carried out by Goldfields in 1999 intersected mineralisation, but results were not repeated in further drilling and the project area was sold to Sons of Gwalia. Sons of Gwalia completed extensive RC and diamond drilling to define the Deep South resource, with mining operations undertaken in 2004 before their collapse and takeover by St Barbara.
Geology	*Deposit type, geological setting and style of mineralisation.*	Deep South lies on the eastern margin of the Norseman – Wiluna greenstone belt. This belt is differentiated into numerous structural-stratigraphic domains separated by major regional structures, with Deep South located within the narrow NNW trending Linden Domain. The lithology comprises metasedimentary and felsic volcaniclastic rocks with an ultramafic and high magnesium basalt layer.

Section 2: Reporting of Exploration Results		
Criteria	**JORC Code Explanation**	**Commentary**
		Mineralisation occurs in two loads concordant to geology, the Butler and Scarlett lodes, and is confined between layered metasedimentary and felsic volcaniclastic units on both the hangingwall and footwall. The two lodes are separated by a high magnesium basalt and an ultramafic unit. The Butler lode is located in the hangingwall and is strongly silica and pyrrhotite-pyrite altered, and well laminated (appearing like a BIF within the oxidise portion). The contrasting physical properties of this unit to the surrounding unit have created fluid pathways and traps, as well as the high iron content of the unit providing a chemical trap, for gold deposition The Scarlett lode is strongly weathered in the upper oxide portion to a gossanous material comprising hematite, goethite and quartz fragments. Weathering at Deep South has been preferential along Scarlett lode due to its high carbonate content. Where fresh, the lode is a fine grained banded carbonate unit with variable pyrrhotite, pyrite and magnetite. It is weakly foliated in line with the regional foliation.
Drillhole 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 does not detract from the understanding of the report, the Competent Person should clearly explain why this is the case.*	All material data is periodically released on the ASX: 23/07/2013, 10/10/2012, 31/07/2012, 03/06/2011, 29/07/2010 Future drill hole data will be periodically released or when a results materially change the economic value of the project. Exclusion of the drilling information will not detract from the reader's view of the report.
Data aggregation methods	*In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (e.g. cutting of high grades) and cut-off grades are usually Material and should be stated.*	All significant intercepts have been length weighted with a minimum Au grade of 1ppm. No high grade cut off has been applied.
	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.	Intercepts are aggregated with minimum width of 1m and maximum width of 3m for internal dilution. Where stand out higher grade zone exist with in the broader mineralised zone, the higher grade interval is reported also.
	The assumptions used for any reporting of metal equivalent values should be clearly stated.	There are no metal equivalents reported in this release.
Relationship between mineralisation widths	*These relationships are particularly important in the reporting of Exploration Results.*	Previous announcement included sufficient detail to clearly illustrate the geometry of the mineralisation and the recent drilling. All results are reported as downhole lengths. This remains consistent with other

Section 2: Reporting of Exploration Results		
Criteria	**JORC Code Explanation**	**Commentary**
and intercept lengths	*If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.* *If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (eg 'down hole length, true width not known').*	announcements.
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.*	All significant exploration results released by Saracen are accompanied by the appropriate diagrams and maps at the time of the release.
Balanced Reporting	*Where comprehensive reporting of all Exploration Results are not practicable, representative reporting of both low and high grades and/or widths should be practiced to avoid misleading reporting of Exploration Results.*	All results from the recent campaign have been reported, irrespective of success or not.
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.*	A small geochemical program was undertaken in 2013 to determine the key features associated with mineralisation. The program gave some insight into the local characteristics of the Scarlett and Butler lodes. More work is needed to fully appreciate the geochemical signature associated with the mineralisation. A detailed gravity survey was recently completed at Deep South on a 400m x 100m grid to assist in the interpretation of the basement geology. The data is currently being processed and interpreted.
Further work	*The nature and scale of planned further work (eg tests for lateral extensions or depth extensions or large-scale step-out drilling).* *Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive*	The initial results from the biogeochemical sampling were encouraging and further expansion of the survey area is currently being planned. Currently there are no immediate plans for drilling at Deep South. The most recent drill program carried out in 2013 was suspended until further work had been completed on the underground feasibility.

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Criteria	**JORC Code Explanation**	**Commentary**
Database Integrity	*Measures taken to ensure that data has not been corrupted by, for example, transcription or keying*	Saracen utilises AcQuire software on an SQL server database to securely store and manage all drillhole and sample information. Data integrity protocols are built into the system to ensure data validity and

Section 3: Estimation and Reporting of Mineral Resources

Criteria	JORC Code Explanation	Commentary
	errors, between its initial collection and its use for Mineral Resource estimation purposes.	minimise errors are built into the data entry and import processes.
	Data validation procedures used.	Data that is captured in the field is entered into Excel templates which are checked on import into the database for errors. Assay jobs are dispatched electronically to the lab to minimise the chance of data entry errors. Assay results from the lab are received in CSV format and are checked for errors on import into the database. Data is regularly validated using the mining software. The data validation process is overseen by the Database Administrator.
Site Visits	*Comment on any site visits undertaken by the Competent Person and the outcome of those visits.*	The Competent Person has visited the site during drilling operations and mining operations. All operations were to a high standard and processes have been established to track and monitor progress.
	If no site visits have been undertaken indicate why this is the case.	
Geological Interpretation	*Confidence in (or conversely, the uncertainty of) the geological interpretation of the mineral deposit.*	The interpretation has been based on the detailed geological work completed by a series of previous owners of the project. This knowledge is based on extensive geological logging of drill core, RC chips, detailed open pit mapping and assay data. The gross architecture of the deposit is very simple and the interpretation is robust.
	Nature of the data used and any assumptions made.	The interpretations have been constructed using all available geological logging descriptions including but not limited to, stratigraphy, lithology, texture, and alteration. Open pit mapping had been included in the interpretation, however only affects the location of the domain boundaries inside the previously mined open pit. Cross sectional interpretations of the mineralisation have been created and from the basic framework through which the 3D wireframe solid is built.
	The affect, if any, of alternative interpretations on Mineral Resource estimation.	Due to the simplistic nature of the mineralisation no alternative interpretations have been considered. Over the life of the project several different sources have interpreted the mineralisation and all agree on the same basic interpretation. The mineralisation is very discrete and bound to specific geological units.
	The use of geology in guiding and controlling the Mineral Resource estimation.	The geology has heavily influenced the domains controlling the mineral resource estimation. The main mineralised Scarlett Lode has been confined to the geologically logged Carbonate unit. Similarly the Butler lode has been defined by the highly siliceous BIF horizon.
	The factors affecting continuity both of grade and geology.	Mineralisation and lithology are both highly continuous. The stratigraphic horizons that host the mineralisation extend over a length of 15km. Grade is affected by the presence of sulphides and quartz carbonate veining. A northerly plunge in both the lodes is thought to be controlled by very subtle changes in strike.
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.*	Both mineralised lodes at Deep South have continuity over 500m along strike, 400m down dip. The Scarlett lode averages 5m in width and the Butler lode averages 2m in width. Both lodes strike North north-west and dip steeply at 75 degrees to the west. The higher grade plunge direction is to the north, pitching 70 degrees.
Estimation and modelling techniques	*The nature and appropriateness of the estimation technique(s) applied and key assumptions, including treatment of extreme grade values, domaining, interpolation parameters and maximum distance of extrapolation from data points.*	Block estimation has been completed in Datamine software. All wireframes have been constructed in Datamine. The estimation uses these wireframes as hard boundaries. Estimation of parent blocks are interpolated, and assigned to sub-cells. The maximum distance of extrapolation is less than 50m. Univariate statistical analysis of length weighted, (1m), domain coded downhole composites have been completed for all domains and top-cuts applied where applicable. Extreme grades are not common in the data set and all domains have been analysed individually to determine specific top-cut values.

Section 3: Estimation and Reporting of Mineral Resources

Criteria	JORC Code Explanation	Commentary
		Variogram modelling was completed with GeoAccess Professional software. This defined the spatial continuity with in the domains. The parameters determined from this analysis were used in the interpolation process.
	The availability of check estimates, previous estimates and/or mine production records and whether the Mineral Resource estimate takes appropriate account of such data.	The ordinary kriged resource estimate has been cross checked with an inverse distance squared estimate. The variance between the two estimates was less than 3%. Historical mine production and mill reconciliation records suggest that the estimation method and parameters used result in a conservative estimate of the resource. The resource has been mined twice through open pit methods and reconciliation of the mined material suggests that the modelling was conservative with more ounces produced than estimated in the model.
	The assumptions made regarding recovery of by-products.	No assumptions have been made with respect to the recovery of by-products.
	Estimation of deleterious elements or other non-grade variables of economic significance (e.g. sulfur for acid mine drainage characterisation).	There has been no estimate at this point of deleterious elements. Saracen is unaware if any elements other than gold have been assayed on a routine basis. Nor is this planned for future sampling.
	In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed.	The parent block sizes for the resource model are X (10m) by Y (20m) by Z (5m). These are deemed appropriate for the majority of the resource, where drill spacing is in the order of 40m x 40m or better. Parent blocks have been sub-celled to X (0.5m) by Y (0.5m) by Z (0.5m) to ensure that the wireframe boundaries are honoured and preserve the location and shape of the mineralisation. Search ranges have been informed by variogram modelling and knowledge of the drill spacing and the known mineralisation geometry including direction of maximum continuity. Three search estimation runs are used with the aim to satisfy the minimum sample criteria in the first search range where possible.
	Any assumptions behind modelling of selective mining units.	No selective mining units have been assumed.
	Any assumptions about correlation between variables.	No assumptions have been made regarding correlation between variables.
	Description of how the geological interpretation was used to control the resource estimates.	The geological interpretation strongly correlates with the mineralised domains. All wireframe boundaries including those where lithology and mineralisation correspond, hard boundaries are enforced.
	Discussion of basis for using or not using grade cutting or capping.	Statistical analysis of all domains highlight that there are very few grades in the domain populations that require top-cutting. Top-cut have been employed to eliminate the risk of overestimating in the local areas where a few high grade sample exist. A sensitivity analysis was carried out on the data, by relaxing the top-cut values. This demonstrated that the grade would appreciate by 1.0g/t on average with higher topcuts.
	The process of validation, the checking process used, the comparison of model data to drill hole data, and use of reconciliation data if available.	Several key model validation steps have been taken to validate the resource estimate. The mineral resource model has been stepped through visually in sectional and plan view to appreciate the composite grades used in the estimate and the resultant block grades. This has also been carried out in 3D with the composite grades and a point cloud of the model grades. Easting, Northing and Elevation swathe plots have been constructed to evaluate the composited assay means verses the mean block estimates. The mineral resource model has been constructed to include kriging efficiency and the slope of regression values. These values are used to measure the quality of the estimate. Natural deterioration of the quality is observed at the perimeter of the modelled areas where data density is lower.

Section 3: Estimation and Reporting of Mineral Resources

Criteria	JORC Code Explanation	Commentary
		The estimate was checked against previously reconciled production records with tonnes being even with production but grade being lower than actual production.
Moisture	*Whether the tonnages are estimated on a dry basis or with natural moisture, and the method of determination of the moisture content.*	All tonnages are estimated on a dry basis.
Cut-off parameters	*The basis of the adopted cut-off grade(s) or quality parameters applied.*	Based on Saracen's current economic operations at Carosue Dam, and the natural grade distinction above background, a grade of 0.5g/t has been chosen.
Mining factors or assumptions	*Assumptions made regarding possible mining methods, minimum mining dimensions and internal (or, if applicable, external) mining dilution. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential mining methods, but the assumptions made regarding mining methods and parameters when estimating Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the mining assumptions made.*	The Deep South deposit is amenable to mining by both open pit and underground methods. The deposit has successfully been mined by open pit most recently in 2012/2013. Beneath the previously mined pit is a portion of the mineral resource that has potential to be extracted by a long hole open stoping underground approach. Where the lodes are close together there may not be enough width to leave a pillar. In this case both lodes may need to be extracted together.
Metallurgical factors or assumptions	*The basis for assumptions or predictions regarding metallurgical amenability. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential metallurgical methods, but the assumptions regarding metallurgical treatment process and parameters made when reporting Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the metallurgical assumptions made.*	Deep South has previously been treated through the Carosue Dam treatment plant. On both occasions recovery has been around 85%. Recent test work demonstrates that recoveries between 82% and 88% are achievable. The ore is relatively soft and the majority of the gold is free milling. The ore also has a predictable grind dependency / leach recovery relationship. The test work also highlights that the ore is not chemically refractory and contains no preg robbing properties.
Environmental factors or assumptions	*Assumptions made regarding possible waste and process residue disposal options. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider the potential environmental impacts of the mining and processing operation. While at this stage the determination of potential environmental impacts, particularly for a greenfields project, may not always be well advanced, the status of early consideration of these potential environmental impacts should be reported. Where these aspects have not been considered this should be reported with an explanation of the*	Waste rock characterisation has been conducted on the deposit with no environmental issues identified. Tailings from the deposit are stored in an appropriate licensed tailings facility and closure plan in place.

Section 3: Estimation and Reporting of Mineral Resources

Criteria	JORC Code Explanation	Commentary
	environmental assumptions made.	
Bulk Density	*Whether assumed or determined. If assumed, the basis for the assumptions. If determined, the method used, whether wet or dry, the frequency of the measurements, the nature, size and representativeness of the samples.*	The bulk densities for Deep South were determined via testing of representative intervals from diamond drillholes, regular sampling via grab samples from the pit development. The sample size is generally between 0.5 and 1.5kg and the method of calculation is the water displacement technique. Measurements have been recorded in the acquire database and extraction schemes pair this data with the major lithology code for statistical analysis.
	The bulk density for bulk material must have been measured by methods that adequately account for void spaces (vugs, porosity, etc), moisture and differences between rock and alteration zones within the deposit.	From the very good tonnage reconciliation performance from mine to mill it has been determined density assignments from the sampling is accurate.
	Discuss assumptions for bulk density estimates used in the evaluation process of the different materials.	An average mean of densities collected for each lithological type has been uniformly applied to the modelled geological units. This includes the primary fresh lithologies as well as the weathered oxide and transitional zones.
Classification	*The basis for the classification of the Mineral Resources into varying confidence categories.*	The mineral resource has been classified into Measured, Indicated and Inferred categories based on drill hole spacing, geological confidence, and grade continuity and estimation quality. The combination of these factors together guide the digitising of a "cookie cutter" string in long section view which selects and codes the appropriate blocks with the nominated resource classification category.
	Whether appropriate account has been taken of all the relevant factors (ie relative confidence in tonnage/grade estimations, reliability of input data, confidence in continuity of geology and metal values, quality, quantity and distribution of the data).	All care has been taken to account for relevant factors influencing the mineral resource estimate. Confidence in the predicted tonnes and grade estimated in the model is high and previous mining performance suggests that the input data and geological continuity are such that a robust resource estimate can achieved.
	Whether the result appropriately reflects the Competent Person's view of the deposit.	The geological model and the mineral resource estimate reflect the competent person's view of the deposit.
Audits or reviews	*The results of any audits or reviews of Mineral Resource estimates.*	At the completion of a resource estimation Saracen Gold Mines undertake an extensive review of the model that covers model inventory and comparisons to previous models, geological interpretation, wireframing, domain selection, statistics by domain, assay evaluation, parent cell sizes, data compositing, variography, search strategy, estimation and QKNA and finally model validation and resource categorisation are all discussed and scrutinized by the geological and mine planning teams.
Discussion of relative accuracy/confidence	*Where appropriate a statement of the relative accuracy and confidence level in the Mineral Resource estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the resource within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors that could affect the relative accuracy and confidence of the estimate.*	The Mineral Resource has been reported in accordance with the guidelines of the JORC 2012 edition of the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves. Saracen Gold Mine uses a standard approach to resource estimation and the procedure requires the systematic completion of the Saracen Resource Estimation Document that is thoroughly investigated and assessed in the Model review process, as stated above. It was identified that further work on QKNA for block size and search ellipses would help to further improve the optimisation of the block model.
	The statement should specify whether it relates to	The statements relate to a global estimate of tonnes and grade.

Section 3: Estimation and Reporting of Mineral Resources

Criteria	JORC Code Explanation	Commentary
	global or local estimates, and, if local, state the relevant tonnages, which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the procedures used.	
	These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.	Previous Mineral Resource estimates have had a positive reconciliation against mill figures.

Section 4: Estimation and Reporting of Ore Reserves

Criteria	JORC Code Explanation	Commentary
Mineral Resource estimate for conversion to Ore Reserves	*Description of the Mineral resource Estimate used as a basis for the conversion to an Ore Reserve.*	The Mineral Resource estimate for the Deep South gold deposit used as a basis for conversion to the Ore Reserve estimate was compiled by Saracen. The data included drilling and assay data, geological mapping and historical mining records to validate the model against and solid interpretation wireframes of the geology. This information was used to construct a model estimated by ordinary kriging.
	Clear statement as to whether the Mineral Resources are reported additional to. Or inclusive of, the Ore Reserves.	The Mineral Resource reported is inclusive of the Ore Reserve.
Site Visits	*Comment on any site visits undertaken by the Competent Person and the outcome of those visits.*	The competent person is based at the Carosue Dam Operations (CDO) mine site. Deep South is part of CDO located 90kms north. Consultant geotechnical engineers have visited Deep South to gather data through inspection of the open pit and logging of drill core, used in the preparation of geotechnical reports to define parameters for underground mining.
	If no site visits have been undertaken indicate why this is the case.	N/A
Study status	*The type and level of study undertaken to enable Mineral Resources to be converted to Ore Reserves*	The Deep South deposit was originally mined by Sons of Gwalia commencing in 2004. Saracen recently completed a pit cutback during 20012/2013. The Stage 2 open pit was completed in April 2013. Ore from Deep South open pit was treated at the Carosue Dam processing facility. An underground feasibility study has been undertaken, with a detailed mine design and an economic analysis, to define the ore reserve.
	The Code requires that a study to at least Pre-Feasibility Study level has been undertaken to convert Mineral Resources to Ore Reserves. Such studies will have been carried out and will have	Modifying factors have been applied to the study to ensure the rigor of the financial analysis. All of the parameters assumed and adopted, as well as the financial analysis completed, have been the subject to peer review.

Section 4: Estimation and Reporting of Ore Reserves

Criteria	JORC Code Explanation	Commentary
	determined a mine plan that is technically achievable and economically viable, and that material Modifying Factors have been considered.	
Cut-off parameters	*The basis of the cut-off grade(s) or quality parameters applied*	For the purpose of Ore Reserve Estimate a cut-off grade of 2.5g/t was calculated based upon an assumed gold price of AUD$1500/Oz and applicable processing, haulage and administration costs. A top cut has already been applied to the Mineral Resource Estimate eliminating the necessity for any further adjustment to the Ore Reserve estimate.
Mining factors or assumptions	*The method and assumptions used as reported in the Pre-feasibility or Feasibility Study to convert the Mineral Resource to an Ore Reserve (i.e. either by application of appropriate factors by optimisation or by preliminary or detailed design).*	The Deep South underground ore reserve has been estimated using detailed mine development and stope designs. Modifying factors for dilution and recovery have been applied to the economic analysis of the design to generate the ore reserve.
	The choice, nature and appropriateness of the selected mining method(s) and other mining parameters including associated design issues such as pre-strip, access, etc.	Underground mechanised mining for development, ground support, and open stoping have been selected for Deep South. Mining and geotechnical studies have determined open stoping with remnant pillars is appropriate for the deposit. Similar methods are currently utilised at the Red October and Karari underground mines at Carosue Dam Operations.
	The assumptions made regarding geotechnical parameters (e.g. pit slopes, stope sizes, etc.), grade control, and pre-production drilling.	Analysis of geotechnical conditions and recommendations were made by geotechnical consultants Dempers and Seymour following site visits, logging of drill core from drilling and a review of the historical drill database including digital photographs. Hydraulic radius recommendations were given for different domains of the ore body, which were used in the design of stopes. A review of the previous analysis and assessment of the designed stopes was performed by Peter Andrews (geotechnical consultant – Andrews Rock Mechanics) and found to be acceptable. A grade control program with associated development for drilling platforms, grade control drilling designs, and sampling costs have been include in the economic analysis.
	The major assumptions made and Mineral Resource model used for pit and stope optimisation (if appropriate).	N/A
	The mining dilution factors used.	An allowance for mining dilution was incorporated into the mine design. An additional dilution factor of 5% has been assumed for all stopes.
	The mining recovery factors used.	A mining recovery factor of 97% has been assumed for all stopes.
	Any minimum mining widths used	A minimum stope width of 2.5m was adopted in the design process.
	The manner in which inferred Mineral resources are utilised in mining studies and the sensitivity of the outcome to their inclusion.	Minor volumes (2%) of inferred resources are contained within underground mine design. A grade of 0g/t has been assigned to all inferred resources within the design. Therefore inferred resources contribute no metal to the estimated reserve, and hence the reserve has no sensitivity to the inclusion of

Section 4: Estimation and Reporting of Ore Reserves

Criteria	JORC Code Explanation	Commentary
		inferred resources.
	The infrastructure requirements of the selected mining methods.	Standard underground infrastructure is designed and will be provided, including a decline for access and truck haulage, ventilation fans, escape-way ladders, electrical reticulation, mine services (air and water), and mine dewatering infrastructure. No specialised infrastructure is required to accommodate this method of mining.
Metallurgical factors or assumptions	*The metallurgical process proposed and the appropriateness of that process to the style of mineralisation*	The ore reserve will be treated at the established Carosue Dam processing facility. The Carosue Dam Process Plant is a CIL cyanide leach plant incorporating a gravity circuit which is appropriate for the extraction of gold from free milling gold ores. An average plant processing recovery of 88% has been assumed in the Ore Reserve Estimate which is consistent with historical plant recoveries for Deep South ore.
	Whether the metallurgical process is well-tested technology or novel in nature.	The method of ore processing and extraction proposed utilises well tried and proven technology dating back to the 1960's and practiced extensively around the world.
	The nature, amount and representiveness of metallurgical test work undertaken, the nature of the metallurgical domaining applied and the corresponding metallurgical recovery factors applied.	In September 2014 a review of the Deep South open pit ore processing performance was conducted and metallurgical test work was carried out determine the continuity of processing performance from underground ore. No evidence was found to indicate any changes in the processing performance from underground ore to the historical performance from open pit ore.
	Any assumptions or allowances made for deleterious elements.	No deleterious elements have been identified during the processing of Deep South ores.
	The existence of any bulk sample or pilot scale test work and the degree to which such samples are considered representative of the ore body as a whole.	Ore from the Deep South open pit has been treated at the Carosue Dam processing facility since 2004 during both Stage 1 (Sons of Gwalia) and Stage 2 (Saracen). The open pit fresh rock ore processed is considered representative of the ore expected from underground.
	For minerals that are defined by a specification, has the ore reserve estimation been based on the appropriate mineralogy to meet the specifications.	N/A
Environmental factors or assumptions	*The status of studies of potential environmental impacts of the mining and processing operation. Details of waste rock characterisation and the consideration of potential sites, status of design options considered and, where applicable, the status of approvals for process residue storage and waste dumps should be reported.*	Open pit mining operations ceased during April 2013, however all approvals (clearing permit, works approval and Mining Proposals) have been granted for ongoing mining and processing at Carosue Dam. In August 2015 the Deep South Project Management Plan was approved by the DMP. The existing Deep South mine including surrounding infra-structure, and the accommodation village (Red October) all lay on granted mining leases. The following studies have been completed and provided to support for the required statutory approvals: Flora surveys of areas to be cleared, waste rock characterisation studies, and surface water studies.
Infrastructure	*The existence of appropriate infrastructure: availability of land for plant development, power,*	Carosue Dam Operations are well established, with mining activities being conducted by Saracen since 2009. The operation extends from the south (CDO plant, admin, mines WD & KA) to the North (Red

Section 4: Estimation and Reporting of Ore Reserves

Criteria	**JORC Code Explanation**	**Commentary**
	water, transportation (particularly for bulk commodities), labour, accommodation; or the ease with which the infrastructure can be provided, or accessed.	October and Deep South) and is connected via a private haulage road. The CDO operation comprises at 2.4mtpa CIL ore processing facility, associated tailings storage facilities, several power stations, water supply, workshops, and administration offices. The Red October accommodation camp is a modern facility situated 50kms to the north of the Deep South mine site. A 70km gravel access road links Carosue Dam Operations to the gravel section of Yarri Road. Both the Saracen and Shire of Kalgoorlie gravel roads are well maintained. The Deep South mine site is ~200km Northeast off Yarri Road leading from Kalgoorlie.
Costs	*The derivation of, or assumptions made, regarding projected capital costs in the study.*	Capital costs relate to establishment of capital infra-structure and continuing expansion of capital works for Deep South underground. The cost estimates are based on historical costs for similar work undertaken at Carosue Dam for the establishment and operation of the Red October and Karari underground mines.
	The methodology used to estimate operating costs.	Operating costs for underground mining have been derived from a combination of actual costs from Carosue Dam Operations and tendered contract costs supplied by independent mining contractors. Operating costs for ore processing have been derived from known parameters at Carosue Dam, with additional costs such as labour sourced from current operational data.
	Allowances made for the content of deleterious elements	Previous operational experience on the Deep South deposit at Carouse Dam did not reveal any deleterious elements within the ore or waste that required any additional cost allowances.
	The derivation of assumptions made of metal or commodity price(s), for the principal minerals and co-products	An assumed gold price of AUD$1,500/oz has been adopted for financial modelling.
	The source of exchange rates used in study	All revenue and cost calculations have been made in AUD, so no exchange rate usage or assumptions have been necessary.
	Derivation of transportation charges	Costs associated with bullion transportation have been derived from existing contractual arrangements at Carouse Dam Operations.
	The basis for forecasting or source of treatment and refining charges, penalties for failure to meet specification, etc.	Costs associated with refining have been derived from existing contractual arrangements at Carouse Dam Operations.
	The allowances made for royalties payable, both Government and private.	Royalty costs are a 2.5% royalty payable to the Western Australian state government, and a 1.5% royalty payable to IRC.
Revenue Factors	*The derivation of, or assumptions made, regarding revenue factors including head grade, metal or*	N/A

Section 4: Estimation and Reporting of Ore Reserves		
Criteria	**JORC Code Explanation**	**Commentary**
	commodity price(s) exchange rates, transportation and treatment charges, penalties, net smelter returns, etc.	
	The derivation of assumptions made of metal or commodity price(s), for the principal metals, minerals and co-products	An assumed gold price of AUD$1,500/oz has been adopted for financial modelling.
Market Assessment	*The demand, supply and stock situation for the particular commodity, consumption trends and factors likely to affect supply and demand into the future.*	There is a transparent quoted market for the sale of gold.
	A customer and competitor analysis along with the identification of likely market windows for the product.	There is a transparent quoted market for the sale of gold.
	Price and volume forecasts and the basis for these forecasts.	There is a transparent quoted market for the sale of gold.
	For industrial minerals the customer specification, testing and acceptance requirements prior to a supply contract.	N/A
Economic	*The inputs to the economic analysis to produce the net present value (NPV) in the study, the source and confidence of these economic inputs including estimated inflation, discount rate, etc.*	Cost assumptions have been made using a combination of historical performance at Carosue Dam and contract mining costs from an experienced mining contractor. The economic analysis is viewed as representative of the current market conditions.
	NPV ranges and sensitivity to variations in the significant assumptions and inputs.	An economic analysis was modelled with sensitivities applied to all key inputs and assumptions (+/-10%), which is appropriate to the level of study undertaken (feasibility). Undiscounted cash flows remained positive for all of the key sensitivities conducted.
Social	*The status of agreements with key stakeholders and matters leading to social licence to operate*	Carosue Dam is currently operating and has good relationships with neighbouring stakeholders, including engagement with the local pastoralists and the traditional owners. The mine is located on leasehold pastoral land with compensation agreements in place with the local pastoralist. Granted mining leases cover all of the proposed mining and processing assets and there are no Native title claims pending.
Other	*To the extent relevant, the impact of the following on the project and/or on the estimation and classification of the Ore Reserves:*	
	Any identified material naturally occurring risks	Water inrush is the only naturally occurring risk identified. Inrush from regional surface water flows has been addressed by the construction of appropriate water diversion bunds as part of previous open pit mining operations. A containment pond and dewatering infrastructure has provided for in the mine design and capital costs to mitigate water inrush from rainfall captured within the existing open pit.

Section 4: Estimation and Reporting of Ore Reserves

Criteria	JORC Code Explanation	Commentary
	The status of material legal agreements and marketing arrangements	Contracts are in place for all critical goods and services to operate Carosue Dam Operations. A mining contract will be tendered for Deep South underground prior to the commencement of mining.
	The status of governmental agreements and approvals critical to the viability of the project, such as mineral tenement status, and government and statutory approvals. There must be reasonable grounds to expect that all necessary government approvals will be received within the timeframes anticipated in the Pre-Feasibility or Feasibility study. Highlight and discuss the materiality of any unresolved matter that is dependent on a third party on which extraction of the reserve is contingent.	Carosue Dam Operations is in production with all required government statutory permits and approvals in place for the three operating mines and processing plant. The required statutory approvals for Deep South have been submitted and approved (August 2015) by the DMP.
Classification	*The basis for the classification of the Ore Reserve into varying confidence categories*	The Ore Reserve Estimate classification for Deep South underground has been in accordance with the JORC code 2012. The estimated Ore Reserve is classified as being Probable with the majority of the reserve being derived from that portion of the Mineral Resource classified as indicated. Minor volumes (2%) of the underground ore are designed in Mineral Resource classified as inferred. The grade of this material was assigned as 0g/t, thus no metal is reported in the Ore Reserve Estimate from Mineral Resource classified as inferred. No material in the estimated Ore Reserve is classified as Proven, as no material is derived from that portion of the Mineral Resource classified as measured.
	Whether the result appropriately reflects the Competent Person's view of the deposit.	Cost assumptions and inputs factors applied to the underground project were derived from a combination of historical site data, current operational data relating to Carouse Dam Operations, mining costs supplied by independent mining contractors, and recommendations from industry consultants. Results of the detailed design and analysis reflect the views of Competent Person regarding the Deep South deposit.
	The proportion of Probable Ore Reserves that have been derived from Measured Mineral Resources (if any)	There were no Measured Mineral Resources within the underground mine design that formed the physical extent of the estimated Ore Reserve.
Audits or reviews	*The results of any audits or reviews of Ore Reserve estimates*	There have been no external reviews of this Ore reserve estimate.

Deep Well

Section 1: Sampling Techniques and Data		
Criteria	**JORC Code Explanation**	**Commentary**
Sampling Techniques	*Nature and quality of sampling (e.g. cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc.). These examples should not be taken as limiting the broad meaning of sampling.*	Sampling methods undertaken by Saracen at Deep Well have included reverse circulation drillholes (RC) and RC grade control drilling from surface. Historic sampling methods conducted since 1984 have included rotary air blast (RAB) and RC drillholes.
	Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used	Sampling for diamond and RC drilling is carried out as specified within Saracen sampling and QAQC procedures as per industry standard. RC chips provide high quality representative samples for analysis. RC, RAB and DD core drilling was completed by previous holders to industry standard at that time (1980- 2004).
	Aspects of the determination of mineralisation that are Material to the Public Report. In cases where 'industry standard' work has been done this would be relatively simple (e.g. 'reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30 g charge for fire assay'). In other cases more explanation may be required, such as where there is coarse gold that has inherent sampling problems. *Unusual commodities or mineralisation types (e.g. submarine nodules) may warrant disclosure of detailed information*	RC chips are cone split and sampled into 1m intervals with total sample weights under 3kg Samples are selected to weigh less than 3 kg to ensure total sample inclusion at the pulverisation stage. Saracen exploration chip samples are crushed, dried and pulverised to a nominal 90% passing 75µm to produce a 50 g sub sample for analysis by FA/AAS. Grade control RC chips were analysed in the Saracen on site laboratory using a PAL (pulverise and leach) method. Historical RAB and RC sampling was carried out to industry standard at that time. Analysis methods include fire assay, atomic absorption spectroscopy and unspecified methods.
Drilling Techniques	*Drill type (e.g. core, reverse 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.).*	The deposit was initially sampled by 15 RAB holes and 103 RC holes (assumed standard 5 ¼ ''bit size). Saracen has completed 53 surface RC drill holes and 52 grade control RC holes from surface utilising a standard 5 ¼ ''bit with a face sampling hammer.
Drill Sample Recovery	*Method of recording and assessing core and chip sample recoveries and results assessed*	RC sampling recoveries are recorded in the database as a percentage based on a visual weight estimate; no historic recoveries have been recorded.
	Measures taken to maximise sample recovery and ensure representative nature of the samples	During RC drilling daily rig inspections are carried out to check splitter condition, general site and address general issues. During GC campaigns the sample bags weight versus bulk reject weight are compared to ensure adequate and even sample recovery. Historical RAB and RC drilling to industry standard at that time.

Section 1: Sampling Techniques and Data

Criteria	JORC Code Explanation	Commentary
	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.	There is no known relationship between sample recovery and grade for RC drilling. Any historical relationship is not known.
Logging	*Whether core and chip samples have been geologically and geotechnically logged to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies.* *Whether logging is qualitative or quantitative in nature.* *Core (or costean, channel, etc) photography.*	Logging of RC chips records lithology, mineralogy, texture, mineralisation, weathering, alteration and veining. Chips from all RC holes (exploration and GC) are stored on site in chip trays for future reference. Qualitative and quantitative logging of historic data varies in its completeness.
	The total length and percentage of the relevant intersections logged	All RC and grade control holes are logged in full. Historical logging is complete.
Sub-sampling techniques and sample preparation	*If core, whether cut or sawn and whether quarter, half or all core taken.*	No diamond drilling has been completed at Deep Well
	If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry.	All exploration and grade control RC samples are cone split. Occasional wet samples are encountered; increased air capacity is routinely used to aid in keeping the sample dry when water is encountered. Historic RAB and RC drilling was sampled using riffle and unknown methods.
	For all sample types, the nature, quality and appropriateness of the sample preparation technique.	The sample preparation of RC chips adheres to industry best practice. It is conducted by a commercial laboratory or onsite laboratory and involves oven drying, coarse crushing then total grinding to a size of 90% passing 75 microns. Best practice is assumed at the time of historic sampling.
	Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.	All subsampling activities are carried out by commercial laboratory or onsite laboratory and are considered to be satisfactory. Sampling by previous holders assumed to be industry standard at the time.
	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.	RC field duplicate samples are carried out at a rate of 1:20 and are sampled directly from the on-board splitter on the rig. These are submitted for the same assay process as the original samples and the laboratory are unaware of such submissions. Sampling by previous holders assumed to be industry standard at the time.
	Whether sample sizes are appropriate to the grain size of the material being sampled.	Sample sizes of 3kg are considered to be appropriate given the grain size (90% passing 75 microns) of the material sampled.
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.*	RC chip samples are analysed by external laboratories using a 50g fire assay with AAS finish. This method is considered suitable for determining gold concentrations in rock and is a total digest method. GC samples were analysed in the Saracen onsite laboratory using a pulverise and leach method. This method is a partial digest. Historic sampling includes fire assay, atomic absorption spectroscopy and unspecified methods.
	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 geophysical tools have been utilised for reporting gold mineralisation.
	Nature of quality control procedures adopted (e.g.	Certified reference material (standards and blanks) with a wide range of values are inserted into every

Section 1: Sampling Techniques and Data

Criteria	JORC Code Explanation	Commentary
	standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (i.e. lack of bias) and precision have been established.	drillhole at a rate of 1:25 for exploration RC and 1:40 for GC drilling. These are not identifiable to the laboratory. QAQC data returned are checked against pass/fail limits with the SQL database and are passed or failed on import. A report is generated and reviewed by the geologist as necessary upon failure to determine further action. QAQC data is reported monthly. Sample preparation checks for fineness are carried out to ensure a grindsize of 90% passing 75 microns. The laboratory performs a number of internal processes including standards, blanks, repeats and checks. QAQC data analysis demonstrates sufficient accuracy and precision. Industry best practice is assumed for previous holders.
Verification of sampling and assaying	*The verification of significant intersections by either independent or alternative company personnel.*	Significant intercepts are verified by the Geology Manager and corporate personnel.
	The use of twinned holes.	No specific twinned holes have been drilled at Deep Well but grade control drilling has confirmed the width and grade of previous exploration drilling.
	Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols	Primary data is collated in a set of excel templates utilising lookup codes. This data is forwarded to the Database Administrator for entry into a secure acQuire database with inbuilt validation functions. Data from previous owners was taken from a database compilation and validated as much as practicable before entry into the Saracen acQuire database.
	Discuss any adjustment to assay data.	No adjustments have been made to assay data. First gold assay is utilised for resource estimation.
Location of data points	*Accuracy and quality of surveys used to locate drillholes (collar and down-hole surveys), trenches, mine workings and other locations used in Mineral Resource estimation.*	Exploration drillholes are located using a Leica 1200 GPS with an accuracy of +/- 10mm. Drillhole collars within the pit footprint and immediate surrounds are picked up by company surveyors using a Trimble R8 GNSS (GPS) with an expected accuracy of +/-8mm. Downhole surveys were carried out on RC drillholes using an electronic multishot at 5m intervals. Grade control drilling was not downhole surveyed due to short hole lengths. Previous holders' survey accuracy and quality is unknown
	Specification of the grid system used.	A local grid system (Deep Well) is used at Deep Well. The two point conversion to MGA_GDA94 zone 51 is: DWEast DWNorth RL MGAEast MGANorth RL Point 1 1507.00 5865.00 0 455804.62 6733624.61 0 Point 2 617.00 4439.00 0 455516.65 6731971.50 0 Historic data is converted to the Deep Well local grid upon export from the database.
	Quality and adequacy of topographic control.	Topographic control originally used site based survey pickups in addition to Kevron aerial photogrammetric surveys with +/- 5m resolution. Pre mining, new and more detailed topography has since been captured and will be used in future updates and for subsequent planning purposes.
Data spacing and distribution	*Data spacing for reporting of Exploration Results.*	The nominal spacing for drilling is 20m x 20m.
	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.	Data spacing and distribution are sufficient to establish the degree of geological and grade continuity appropriate for JORC classifications applied.

Section 1: Sampling Techniques and Data

Criteria	JORC Code Explanation	Commentary
Orientation of data in relation to geological structure	*Whether sample compositing has been applied.*	Sample compositing is not applied until the estimation stage.
	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 drillholes are positioned to achieve optimum intersection angles to the ore zone as are practicable.
	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.	No significant sampling bias has been recognised due to orientation of drilling in regards to mineralised structures.
Sample security	*The measures taken to ensure sample security.*	Samples are prepared on site under supervision of Saracen geological staff. Samples are selected, bagged into tied numbered calico bags then grouped into secured cages and collected by the laboratory personnel. Sample submissions are documented via laboratory tracking systems and assays are returned via email
Audits or reviews	*The results of any audits or reviews of sampling techniques and data.*	An internal review of companywide sampling methodologies was conducted to create the current sampling and QAQC procedures. No external audits or reviews have been conducted.

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 Deep Well resource is located on M39/129. The tenement is held 100% by Saracen Gold Mines Pty Ltd, a wholly owned subsidiary of Saracen Mineral Holdings Limited. Mining Lease M39/129 has a 21 year life (held until 2030) and is renewable for a further 21 years on a continuing basis. Mining Lease M39/129 is subject to one royalty agreement. All production is subject to a Western Australian state government NSR royalty of 2.5%. Mining Lease M39/129 is subject to the Edjudina Pastoral Compensation Agreement. There are no registered Aboriginal Heritage sites within Mining Lease M39/129.
	The security of the tenure held at the time of reporting along with any known impediments to obtaining a licence to operate in the area.	The tenement is in good standing and there are no known impediments to obtaining a licence to operate.
Exploration done by other parties	*Acknowledgment and appraisal of exploration by other parties.*	Gold exploration began in the vicinity of Deep Well in the 1980's by Pennzoil. Rock chip sampling, mapping and ground magnetics were carried out before a series of RAB holes intersected variable gold mineralisation within an auriferous banded iron formation (BIF). Pennzoil believed the deposit did not have any potential for bulk tonnage and carried out no further work. Picon acquired the ground in 1985 and carried out detailed ground magnetics, geochemical surveying and exploration and infill RC drilling to define an ore reserve. They too deemed the deposit to be sub-economic. Redback Mining drilled a series of RC holes in 1997 and 1998 aimed at extending the mineralisation and targeting an anomaly to the west of the main BIF, returning anomalous and sub-economic gold values.

Section 2: Reporting of Exploration Results

Criteria	JORC Code Explanation	Commentary
		Redback Mining sold the project to Yilgarn Mining in 2003, who then conducted aeromagnetics and RC drilling targeting the footwall, central and hangingwall BIF units, and the western anomaly. Results from the western anomaly were encouraging while the footwall and hangingwall BIF units returned no anomalous results.
Geology	*Deposit type, geological setting and style of mineralisation.*	The Deep Well Project lies on the eastern margin of the Norseman-Wiluna greenstone belt within the narrow NNW- trending, low to high metamorphic grade Linden Domain. The domain is characterised by basalt, meta-sedimentary and felsic volcaniclastic rocks, ultramafics and minor banded iron formations (BIF). Bedrock geology within the project area is poorly exposed but comprises three distinct BIF horizons within a sequence of felsic volcaniclastic rocks intruded by gabbro and dacitic porphyry. Mineralisation appears to be mostly confined to the oxidised sulphidic central BIF. The immediate hangingwall to the central BIF is metamorphosed high-Mg basalt, while the footwall varies between basalt, ultramafic, biotite schist, dolerite and dacitic porphyry. The eastern BIF is predominantly a silicified pyritic black shale/chert unit with extensive massive quartz veining. The western BIF a magnetite rich unit within felsic schists.
Drillhole 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 does not detract from the understanding of the report, the Competent Person should clearly explain why this is the case.*	A total of 146 holes have been used in the mineral resource and are deemed to be material. This material was reported in prior ASX releases. Future drill hole data will be periodically released or when a results materially change the economic value of the project. Exclusion of the drilling information will not detract from the reader's view of the report.
Data aggregation methods	*In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (e.g. cutting of high grades) and cut-off grades are usually Material and should be stated.*	All significant intercepts have been length weighted with a minimum Au grade of 1ppm. No high grade cut off has been applied.
	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.	Intercepts are aggregated with minimum width of 1m and maximum width of 3m for internal dilution. Where stand out higher grade zone exist with in the broader mineralised zone, the higher grade interval is reported also.

Section 2: Reporting of Exploration Results

Criteria	JORC Code Explanation	Commentary
	The assumptions used for any reporting of metal equivalent values should be clearly stated.	Metal equivalent values are not reported
Relationship between mineralisation widths and intercept lengths	*These relationships are particularly important in the reporting of Exploration Results.* *If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.* *If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (eg 'down hole length, true width not known').*	Previous announcements included sufficient detail to clearly illustrate the geometry of the mineralisation and the drilling. All results were reported as downhole lengths.
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.*	All significant exploration results released by Saracen are accompanied by the appropriate diagrams and maps at the time of the release.
Balanced Reporting	*Where comprehensive reporting of all Exploration Results are not practicable, representative reporting of both low and high grades and/or widths should be practiced to avoid misleading reporting of Exploration Results.*	All results from the recent campaign have been reported, irrespective of success or not.
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.*	No substantive data acquisition has been completed in recent times
Further work	*The nature and scale of planned further work (eg tests for lateral extensions or depth extensions or large-scale step-out drilling).* *Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive*	No further drilling is currently planned. Open pit evaluation work is ongoing.

Section 3: Estimation and Reporting of Mineral Resources

Criteria	JORC Code Explanation	Commentary
Database Integrity	*Measures taken to ensure that data has not been corrupted by, for example, transcription or keying errors, between its initial collection and its use for Mineral Resource estimation purposes.*	Saracen utilises AcQuire software on an SQL server database to securely store and manage all drillhole and sample information. Data integrity protocols are built into the system to ensure data validity and minimise errors are built into the data entry and import processes.
	Data validation procedures used.	Data that is captured in the field is entered into Excel templates which are checked on import into the database for errors. Assay jobs are dispatched electronically to the lab to minimise the chance of data entry errors. Assay results from the lab are received in CSV format and are checked for errors on import into the database. Data is regularly validated using the mining software. The data validation process is overseen by the Database Administrator.
Site Visits	*Comment on any site visits undertaken by the Competent Person and the outcome of those visits.*	The Competent Person has visited the site during drilling operations. All operations were to a high standard and processes have been established to track and monitor progress.
	If no site visits have been undertaken indicate why this is the case.	
Geological Interpretation	*Confidence in (or conversely, the uncertainty of) the geological interpretation of the mineral deposit.*	The interpretation has been based on the detailed geological work completed by a series of previous owners of the project. This knowledge is based on geological logging of RC chips from both historical drilling carried out by previous owners and more recent drilling completed by Saracen.
	Nature of the data used and any assumptions made.	The interpretations have been constructed using all available geological logging descriptions including but not limited to, stratigraphy, lithology, texture, and alteration. Cross sectional interpretations of the mineralisation have been created and from the basic framework through which the 3D wireframe solid is built.
	The affect, if any, of alternative interpretations on Mineral Resource estimation.	Due to the simplistic nature of the mineralisation no alternative interpretations have been considered. Over the life of the project several different sources have interpreted the mineralisation and all agree on the same basic interpretation. The mineralisation is very discrete and bound to a specific geological unit.
	The use of geology in guiding and controlling the Mineral Resource estimation.	The geology has heavily influenced the domains controlling the mineral resource estimation. The main mineralised lode is the northern continuation of the Butler Lode from Deep South. The main controlling unit is a strongly silicified BIF horizon.
	The factors affecting continuity both of grade and geology.	Mineralisation and lithology are both highly continuous. The stratigraphic horizon that host the mineralisation extend over a length of 15km. Grade is affected by the presence of sulphides and quartz carbonate veining. There is no discernible plunge orientation evident in the data.
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 mineralised lode at Deep Well has continuity over 350m along strike, and 100m down dip. The lode averages 3m in width, but can be as wide as 7m. The lode strikes North north-west and dip steeply at 75 degrees to the west.
Estimation and modelling techniques	*The nature and appropriateness of the estimation technique(s) applied and key assumptions, including treatment of extreme grade values, domaining, interpolation parameters and maximum distance of extrapolation from data points.*	Block estimation has been completed in Datamine software. All wireframes have been constructed in Datamine. The estimation uses these wireframes as hard boundaries. Estimation of parent blocks are interpolated, and assigned to sub-cells. The maximum distance of extrapolation is less than 50m. Univariate statistical analysis of length weighted, (1m), domain coded downhole composites have been completed for all domains and top-cuts applied where applicable. Extreme grades are not common in the data set and all domains have been analysed individually to determine specific top-cut values.

Section 3: Estimation and Reporting of Mineral Resources

Criteria	JORC Code Explanation	Commentary
		Variogram modelling was completed with GeoAccess Professional software. This defined the spatial continuity with in the domains. The parameters determined from this analysis were used in the interpolation process.
	The availability of check estimates, previous estimates and/or mine production records and whether the Mineral Resource estimate takes appropriate account of such data.	The ordinary kriged resource estimate has been cross checked with an inverse distance squared estimate. The variance between the two estimates was less than 3%. Historical mine production and mill reconciliation records suggest that the estimation method and parameters used result in a conservative estimate of the resource. The resource has been mined twice through open pit methods and reconciliation of the mined material suggests that the modelling was conservative with more ounces produced than estimated in the model.
	The assumptions made regarding recovery of by-products.	No assumptions have been made with respect to the recovery of by-products.
	Estimation of deleterious elements or other non-grade variables of economic significance (e.g. sulfur for acid mine drainage characterisation).	There has been no estimate at this point of deleterious elements. Saracen is unaware if any elements other than gold have been assayed on a routine basis. Nor is this planned for future sampling.
	In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed.	The parent block sizes for the resource model are X (10m) by Y (20m) by Z (5m). These are deemed appropriate for the majority of the resource, where drill spacing is in the order of 40m x 40m or better. Parent blocks have been sub-celled to X (0.5m) by Y (0.5m) by Z (0.5m) to ensure that the wireframe boundaries are honoured and preserve the location and shape of the mineralisation. Search ranges have been informed by variogram modelling and knowledge of the drill spacing and the known mineralisation geometry including direction of maximum continuity. Three search estimation runs are used with the aim to satisfy the minimum sample criteria in the first search range where possible.
	Any assumptions behind modelling of selective mining units.	No selective mining units have been assumed.
	Any assumptions about correlation between variables.	No assumptions have been made regarding correlation between variables.
	Description of how the geological interpretation was used to control the resource estimates.	The geological interpretation strongly correlates with the mineralised domains. All wireframe boundaries including those where lithology and mineralisation correspond, hard boundaries are enforced.
	Discussion of basis for using or not using grade cutting or capping.	Statistical analysis of all domains highlight that there are very few grades in the domain populations that require top-cutting. Top-cut have been employed to eliminate the risk of overestimating in the local areas where a few high grade sample exist. A sensitivity analysis was carried out on the data, by relaxing the top-cut values. This did not have a material effect on the resultant grades in the model.
	The process of validation, the checking process used, the comparison of model data to drill hole data, and use of reconciliation data if available.	Several key model validation steps have been taken to validate the resource estimate. The mineral resource model has been stepped through visually in sectional and plan view to appreciate the composite grades used in the estimate and the resultant block grades. This has also been carried out in 3D with the composite grades and a point cloud of the model grades. Easting, Northing and Elevation swathe plots have been constructed to evaluate the composited assay means verses the mean block estimates. The mineral resource model has been constructed to include kriging efficiency and the slope of regression values. These values are used to measure the quality of the estimate. Natural deterioration of the quality is observed at the perimeter of the modelled areas where data density is lower. The estimate was checked against previously reconciled production records with tonnes being even with

Section 3: Estimation and Reporting of Mineral Resources

Criteria	JORC Code Explanation	Commentary
		production but grade being lower than actual production.
Moisture	*Whether the tonnages are estimated on a dry basis or with natural moisture, and the method of determination of the moisture content.*	All tonnages are estimated on a dry basis.
Cut-off parameters	*The basis of the adopted cut-off grade(s) or quality parameters applied.*	Based on Saracen's current economic operations at Carosue Dam, and the natural grade distinction above background, a grade of 0.5g/t has been chosen.
Mining factors or assumptions	*Assumptions made regarding possible mining methods, minimum mining dimensions and internal (or, if applicable, external) mining dilution. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential mining methods, but the assumptions made regarding mining methods and parameters when estimating Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the mining assumptions made.*	The Deep Well deposit is amenable to mining by open pit methods. Currently the definition of the resource does not highlight any potential future for underground mining operations.
Metallurgical factors or assumptions	*The basis for assumptions or predictions regarding metallurgical amenability. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential metallurgical methods, but the assumptions regarding metallurgical treatment process and parameters made when reporting Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the metallurgical assumptions made.*	Deep Well has not previously been treated through the Carosue Dam treatment plant. Given the geological similarities between Deep South and Deep Well it has been assumed that metallurgical properties are also similar. Recent test work of Deep South ore demonstrates that recoveries between 82% and 88% are achievable. The ore is relatively soft and the majority of the gold is free milling. The ore also has a predictable grind dependency / leach recovery relationship. The test work also highlights that the ore is not chemically refractory and contains no preg robbing properties.
Environmental factors or assumptions	*Assumptions made regarding possible waste and process residue disposal options. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider the potential environmental impacts of the mining and processing operation. While at this stage the determination of potential environmental impacts, particularly for a greenfields project, may not always be well advanced, the status of early consideration of these potential environmental impacts should be reported. Where these aspects have not been considered this should be reported with an explanation of the environmental assumptions made.*	No specific waste rock characterisation has been conducted at Deep Well. This test work will be completed if the resource is converted into a reserve. Waste rock characterisation carried out at Deep South (similar geology to Deep Well) identified no environmental issues. Tailings from the deposit would be stored in an appropriate licensed tailings facility and closure plan in place if mined and processed in the future.

Section 3: Estimation and Reporting of Mineral Resources

Criteria	JORC Code Explanation	Commentary
Bulk Density	*Whether assumed or determined. If assumed, the basis for the assumptions. If determined, the method used, whether wet or dry, the frequency of the measurements, the nature, size and representativeness of the samples.*	The bulk densities for Deep Well were determined via testing of transitional rock samples from the limited outcrop, with most densities being assumed from the nearby Deep South deposit. The sample size is generally between 0.5 and 1.5kg and the method of calculation is the water displacement technique. Measurements have been recorded in the acquire database and extraction schemes pair this data with the major lithology code for statistical analysis.
	The bulk density for bulk material must have been measured by methods that adequately account for void spaces (vugs, porosity, etc), moisture and differences between rock and alteration zones within the deposit.	Data spacing is well distributed and in some locations, infill "grade control" patterns have been drilled to confirm continuity and grade. In these areas confidence is very good.
	Discuss assumptions for bulk density estimates used in the evaluation process of the different materials.	An average mean of densities collected for each lithological type has been uniformly applied to the modelled geological units. This includes the primary fresh lithologies as well as the weathered oxide and transitional zones. These samples are from the nearby Deep South deposit as there is no diamond core available for Deep Well at this point. It has been determined that the two mineralised systems are similar enough to draw this assumption.
Classification	*The basis for the classification of the Mineral Resources into varying confidence categories.*	The mineral resource has been classified into Measured, Indicated and Inferred categories based on drill hole spacing, geological confidence, and grade continuity and estimation quality. The combination of these factors together guide the digitising of a "cookie cutter" string in long section view which selects and codes the appropriate blocks with the nominated resource classification category.
	Whether appropriate account has been taken of all the relevant factors (ie relative confidence in tonnage/grade estimations, reliability of input data, confidence in continuity of geology and metal values, quality, quantity and distribution of the data).	All care has been taken to account for relevant factors influencing the mineral resource estimate. Confidence in the predicted tonnes and grade estimated in the model is high given the density of data controlling the mineralised domains and the relative simplicity of the geology.
	Whether the result appropriately reflects the Competent Person's view of the deposit.	The geological model and the mineral resource estimate reflect the competent person's view of the deposit.
Audits or reviews	*The results of any audits or reviews of Mineral Resource estimates.*	At the completion of a resource estimation Saracen Gold Mines undertake an extensive review of the model that covers model inventory and comparisons to previous models, geological interpretation, wireframing, domain selection, statistics by domain, assay evaluation, parent cell sizes, data compositing, variography, search strategy, estimation and QKNA and finally model validation and resource categorisation are all discussed and scrutinized by the geological and mine planning teams.
Discussion of relative accuracy/confidence	*Where appropriate a statement of the relative accuracy and confidence level in the Mineral Resource estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the resource within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors that could affect the relative accuracy and confidence of the estimate.*	The Mineral Resource has been reported in accordance with the guidelines of the JORC 2012 edition of the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves. Saracen Gold Mine uses a standard approach to resource estimation and the procedure requires the systematic completion of the Saracen Resource Estimation Document that is thoroughly investigated and assessed in the Model review process, as stated above. It was identified that further work on QKNA for block size and search ellipses would help to further improve the optimisation of the block model.

Section 3: Estimation and Reporting of Mineral Resources		
Criteria	**JORC Code Explanation**	**Commentary**
	The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonnages, which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the procedures used.	The statements relate to a global estimate of tonnes and grade.
	These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.	There is one small shaft at Deep Well, which from probe drilling has very limited extents. No production data is available at this time.

Red October District

Red October

Section 1: Sampling Techniques and Data		
Criteria	**JORC Code Explanation**	**Commentary**
Sampling Techniques	*Nature and quality of sampling (e.g. cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc.). These examples should not be taken as limiting the broad meaning of sampling.*	Sampling activities conducted at Red October by Saracen include reverse circulation (RC), surface and underground diamond drilling (DD) and underground face chip sampling. Historic sampling methods conducted since 1989 have included aircore (AC), rotary air blast (RAB), RC and surface and underground DD holes.
	Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used	Sampling for RC, DD and face chip sampling is carried out as specified within Saracen sampling and QAQC procedures as per industry standard. RC chips and NQ diamond core provide high quality representative samples for analysis. RC, RAB, AC and surface DD drilling completed by previous holders is assumed to adhere to industry standard at that time (1989- 2004).
	Aspects of the determination of mineralisation that are Material to the Public Report. In cases where 'industry standard' work has been done this would be relatively simple (e.g. 'reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30 g charge for fire assay'). In other cases more explanation may be required, such as where there is coarse gold that has inherent sampling problems. *Unusual commodities or mineralisation types (e.g. submarine nodules) may warrant disclosure of detailed information*	Saracen sampling activities have been carried out to industry standard. Reverse circulation drilling is used to obtain 1m samples, diamond core is sampled to geological intervals (0.2m to 1.2m) and cut into half core and UG faces are chip sampled to geological intervals (0.2 to 1m), with all methods producing representative samples weighing less than 3kg. Samples are selected to weigh less than 3 kg to ensure total sample inclusion at the pulverisation stage. Saracen core and chip samples are crushed, dried and pulverised to a nominal 90% passing 75µm to produce a 40 g sub sample for analysis by FA/AAS. Visible gold is occasionally encountered in drillcore and face samples. Historical AC, RAB, RC and diamond sampling is assumed to have been carried out to industry standard at that time. Analysis methods include fire assay, aqua regia and unspecified methods.

Section 1: Sampling Techniques and Data		
Criteria	**JORC Code Explanation**	**Commentary**
Drilling Techniques	*Drill type (e.g. core, reverse 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.).*	The deposit was initially sampled by 495 AC holes, 73 RAB holes, 391 RC holes (assumed standard 5 ¼'' bit size) and 159 surface diamond NQ and HQ core holes. 5 RC holes were drilled using a 143mm diameter bit with a face sampling hammer. The rig was equipped with an external auxiliary/ booster. Saracen has previously completed 6 reverse circulation drillholes, 9 surface HQ and NQ diamond drillholes, 710 underground NQ diamond drill holes and sampled 2032 underground faces. Diamond drill core has been oriented using several different methods which include Ezi-Mark, ACT, and more recently Ori-Finder. Some historic surface diamond drill core appears to have been oriented by unknown methods.
Drill Sample Recovery	*Method of recording and assessing core and chip sample recoveries and results assessed*	RC chip recoveries are recorded in the database as a percentage based on a visual weight estimate. Underground and surface diamond core recoveries are recorded as percentages calculated from measured core versus drilled metres, and intervals are logged and recorded in the database. Diamond core recoveries average >90%. Limited historic surface sampling and surface diamond recoveries have been recorded.
	Measures taken to maximise sample recovery and ensure representative nature of the samples	During RC drilling daily rig inspections are carried out to check splitter condition, general site and address general issues. Ground condition concerns led to extensive hole conditioning meaning contamination was minimised and particular attention was paid to sample recovery. Diamond core is reconstructed into continuous runs on an angle iron cradle for orientation marking. Depths are checked against depth given on the core blocks. UG faces are sampled left to right across the face allowing a representative sample to be taken due to the vertical nature of the orebody. Historical AC, RAB, RC and diamond drilling to industry standard at that time.
	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.	There is no known relationship between sample recovery and grade for RC drilling. Diamond drilling has high recoveries due to the competent nature of the ground meaning loss of material is minimal. Any historical relationship is not known.
Logging	*Whether core and chip samples have been geologically and geotechnically logged to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies.* *Whether logging is qualitative or quantitative in nature.* *Core (or costean, channel, etc) photography.*	Logging of all RC chips and diamond drill core is carried out. Logging records lithology, mineralogy, texture, mineralisation, weathering, alteration and veining. Logging is both qualitative and quantitative in nature. Geotechnical and structural logging is carried out on all diamond core holes to record recovery, RQD, defect number, type, fill material, shape and roughness and alpha and beta angles. Core is photographed in both dry and wet state. All faces are photographed and mapped. Qualitative and quantitative logging of historic data varies in its completeness. Some surface diamond drill photography has been preserved.
	The total length and percentage of the relevant intersections logged	All RC and diamond drillholes are logged in full and all faces are mapped. Historical logging is approximately 95% complete, some AC, RAB and RC pre-collar information is unavailable.
Sub-sampling techniques and sample preparation	*If core, whether cut or sawn and whether quarter, half or all core taken.*	All diamond core is cut in half onsite using an automatic core saw. Samples are always collected from the same side.
	If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry.	RC drilling has been cone split and was dry sampled. UG faces are chip sampled using a hammer.

Section 1: Sampling Techniques and Data		
Criteria	**JORC Code Explanation**	**Commentary**
		AC, RAB and RC drilling has been sampled using spear, grab, riffle and unknown methods.
	For all sample types, the nature, quality and appropriateness of the sample preparation technique.	The sample preparation of RC chips, diamond core and UG face chips adhere to industry best practice. It is conducted by a commercial laboratory and involves oven drying, coarse crushing then total grinding using an LM5 to a grind size of 90% passing 75 microns. Best practice is assumed at the time of historic sampling.
	Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.	All subsampling activities are carried out by commercial laboratory and are considered to be satisfactory. Sampling by previous holders is assumed to adhere to industry standard at the time.
	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.	RC field duplicate samples are carried out at a rate of 1:20 and are sampled directly from the on-board splitter on the rig. These are submitted for the same assay process as the original samples and the laboratory are unaware of such submissions. No duplicates have been taken of UG diamond core , face samples are duplicated on ore structures. Sampling by previous holders assumed to be industry standard at the time.
	Whether sample sizes are appropriate to the grain size of the material being sampled.	Sample sizes of 3kg are considered to be appropriate given the grain size (90% passing 75 microns) of the material sampled.
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.*	A 40 gram fire assay with AAS finish is used to determine the gold concentration for RC chip, UG diamond core and face chip samples. This method is considered one of the most suitable for determining gold concentrations in rock and is a total digest method. Historic sampling includes fire assay, aqua regia and unknown methods.
	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 geophysical tools were utilised for reporting gold mineralisation.
	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.	Certified reference material (standards and blanks) with a wide range of values are inserted into every RC, diamond drillhole(1 in 30) and UG face jobs to assess laboratory accuracy and precision and possible contamination. These are not identifiable to the laboratory. Blanks are also included at a rate of 1 in 30 for diamond drill core and one per lab dispatch for face samples. Feldspar flush samples are requested after each sample with visible gold, or estimated high grade. QAQC data returned are checked against pass/fail limits with the SQL database and are passed or failed on import. A report is generated and reviewed by the geologist as necessary upon failure to determine further action. QAQC data is reported monthly and demonstrates sufficient levels of accuracy and precision. Sample preparation checks for fineness are carried out to ensure a grind size of 90% passing 75 microns. The laboratory performs a number of internal processes including standards, blanks, repeats and checks. Industry best practice is assumed for previous holders. Historic QAQC data is stored in the database but not reviewed.
Verification of sampling and assaying	*The verification of significant intersections by either independent or alternative company personnel.*	Significant intercepts are verified by the Geology Manager and corporate personnel.
	The use of twinned holes.	No specific twinned holes have been drilled at Red October but underground diamond drilling has confirmed the width and grade of previous exploration drilling.

Section 1: Sampling Techniques and Data

Criteria	JORC Code Explanation	Commentary
	Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols	Primary data is collated in a set of excel templates utilising lookup codes. This data is forwarded to the Database Administrator for entry into a secure acQuire database with inbuilt validation functions. Chips from RC drillholes are stored in chip trays for future reference. Remaining half core is stored in core trays and archived on site Hard copies of face mapping, backs mapping and sampling records are kept on site. Digital scans are also kept on the corporate server. Data from previous owners was taken from a database compilation and was validated as much as practicable before entry into the Saracen acQuire database.
	Discuss any adjustment to assay data.	No adjustments have been made to assay data. First gold assay is utilised for resource estimation. Reassays carried out due to failed QAQC will replace original results, though both are stored in the database.
Location of data points	*Accuracy and quality of surveys used to locate drillholes (collar and down-hole surveys), trenches, mine workings and other locations used in Mineral Resource estimation.*	All drillhole collars are picked up by company surveyors using a Leica TS15i (total station) with an expected accuracy of +/-2mm. Underground faces are located using a Leica D5 disto with and accuracy of +/- 1mm from a known survey point. Exploration RC holes have been gyroscopically downhole surveyed by ABIMS where possible once drilling is completed. Surveys are carried out every 30m downhole during RC and diamond drilling using an Eastman single shot camera. Previous holders' survey accuracy and quality is generally unknown.
	Specification of the grid system used.	A local grid system (Red October) is used. It is rotated 44.19 degrees east of MGA_GDA94. The two point conversion to MGA_GDA94 zone 51 is ROEast RONorth RL MGAEast MGANorth RL Point 1 5890.71 10826.86 0 444223.25 6767834.66 0 Point 2 3969.83 9946.71 0 442233.31 6768542.17 0 Historic data is converted to Red October local grid on export from the database.
	Quality and adequacy of topographic control.	DGPS survey has been used to establish a topographic surface.
Data spacing and distribution	*Data spacing for reporting of Exploration Results.*	The nominal spacing for the reported results are not uniform and therefore a definitive drill spacing will not be quoted
	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.	Not all data reported meets the required continuity measures to be considered for inclusion in a resource estimate. Holes reported inside or with in 40m of the resource will be incorporated into the resource model, or if sufficient density of data confirms continuity, it will be considered for inclusion in the resource.
Orientation of data in relation to geological structure	*Whether sample compositing has been applied.*	RC drillholes are sampled to 1m intervals and underground core and faces are sampled to geological intervals; compositing is not applied until the estimation stage. Some historic RAB and RC sampling was composited into 3-4m samples with areas of interest re-sampled to 1m intervals. It is unknown at what threshold this occurred.
	Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.	RC drilling was carried out at the most appropriate angle possible. The mineralisation is intersected at closely as possible to perpendicular. The steeply dipping nature of the mineralisation means that most holes pass through mineralisation at lower angles than ideal. Production reconciliation and underground observations indicate that there is limited sampling bias. Underground diamond drilling is designed to intersect the orebody in the best possible orientation given the constraints of underground drill locations.

Section 1: Sampling Techniques and Data

Criteria	JORC Code Explanation	Commentary
		UG faces are sampled left to right across the face allowing a representative sample to be taken due to the vertical nature of the orebody
	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.	No significant sampling bias has been recognised due to orientation of drilling in regards to mineralised structures
Sample security	*The measures taken to ensure sample security.*	Samples are prepared on site under supervision of Saracen geological staff. Samples are selected, bagged into tied numbered calico bags then grouped into larger secured bags and delivered to the laboratory by Saracen personnel.
Audits or reviews	*The results of any audits or reviews of sampling techniques and data.*	An internal review of companywide sampling methodologies was conducted to create the current sampling and QAQC procedures. No external audits or reviews have been conducted.

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.*	Red October is wholly located within Mining Lease M39/412. Mining Lease M39/412 is held 100% by Saracen Gold Mines Pty Ltd a wholly owned subsidiary of Saracen Mineral Holdings Limited. Mining Lease M39/412 has a 21 year life (held until 2019) and is renewable for a further 21 years on a continuing basis. There is one Registered Native Title Claim over M39/412 for the Kurrku group (WC10/18), lodged December 2010. Mining Lease M39/412 was granted prior to registration of the Claim and is not affected by the Claim. Aboriginal Heritage sites within the tenement (Site Numbers WO 2442, 2447, 2448, 2451, 2452 and 2457) are not affected by current mining practices. Third party royalties are payable on the tenement: • A Royalty is payable under Royalty Deed M39/411, 412, 413 based on a percentage of deemed revenue (minus allowable costs) on gold produced in excess of 160,000 ounces • A Royalty is payable based on a percentage of proceeds of sale or percentage of mineral value. All production is subject to a Western Australian state government NSR royalty of 2.5%.
	The security of the tenure held at the time of reporting along with any known impediments to obtaining a licence to operate in the area.	The tenement is in good standing and the licence to operate already exists.
Exploration done by other parties	*Acknowledgment and appraisal of exploration by other parties.*	Mount Martin carried out exploration including RAB and RC drilling in 1989. This along with ground magnetics was used to delineate a number of anomalies on islands to the immediate north and south of Red October. Mount Burgess Gold Mining identified a north east trending magnetic anomaly on Lake Carey between the islands considered analogous to Sunrise Dam in 1993. Aircore and RC drilling was carried out to define what would become the Red October pit. Sons of Gwalia entered into a joint venture with Mount Burgess, carrying out RC and diamond drilling to define a pittable reserve before purchasing Mount Burgess' remaining equity. Extension RC and diamond drilling from within and around the pit defined the potential underground resource.

Section 2: Reporting of Exploration Results

Criteria	JORC Code Explanation	Commentary
Geology	*Deposit type, geological setting and style of mineralisation.*	Red October gold mine is situated within an Archaean greenstone belt of the Laverton Tectonic Zone. The stratigraphic sequence consists of footwall tholeiitic basalts, mineralised shale (containing ductile textures defined by pyrite mineralisation) and a hangingwall dominated by ultramafic flows interbedded with high-Mg basalts. Prehnite- pumpellyite facies are evident within both the tholeiitic basalts and komatiite flows. Sulphide mineralisation is hypothesised to have been caused from interaction with an auriferous quartz vein, which has caused the intense pyrite-defined ductile textures of the shale in the upper levels. The fluid is believed to have been sourced from the intruding granitoid to the south of the deposit
Drillhole 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 does not detract from the understanding of the report, the Competent Person should clearly explain why this is the case.*	All material data is periodically released on the ASX: 25/05/2015, 10/03/2015,25/05/2015.16/01/2014, 14/10/2013, 23/07/2013, 17/04/2013, 25/01/2013, 14/06/2012, 27/04/2012, 28/07/2011, 03/06/2011
Data aggregation methods	*In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (e.g. cutting of high grades) and cut-off grades are usually Material and should be stated.*	All significant intercepts have been length weighted with a lower cut-off Au grade of 2.5ppm. No high grade cut is applied
	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.	Intercepts are aggregated with minimum width of 1m and maximum width of 3m for internal dilution. Where stand out higher grade zone exist with in the broader mineralised zone, the higher grade interval is reported also.
	The assumptions used for any reporting of metal equivalent values should be clearly stated.	No metal equivalents are reported
Relationship between mineralisation widths and intercept lengths	*These relationships are particularly important in the reporting of Exploration Results.* *If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be*	No exploration results have been reported in this release. The geometry of the mineralisation is highly variable and the complex nature of the ore bodies makes the definitive calculation of true thickness difficult.

Section 2: Reporting of Exploration Results		
Criteria	**JORC Code Explanation**	**Commentary**
	reported. *If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (eg 'down hole length, true width not known').*	Drilling has been orientated to intersect the various ore bodies at most optimum angle where possible. This has not always been achieved. Where holes have drilled parallel to or within a lode, additional holes have been drilled at a more suitable orientation to account for the poor angle.
Diagrams	*Appropriate maps and sections (with scales) and tabulations of intercepts should be included for any significant discovery being reported These should include, but not be limited to a plan view of drill hole collar locations and appropriate sectional views.*	No diagrams are referenced in this release.
Balanced Reporting	*Where comprehensive reporting of all Exploration Results are not practicable, representative reporting of both low and high grades and/or widths should be practiced to avoid misleading reporting of Exploration Results.*	All results from the recent campaign have been reported.
Other substantive exploration data	*Other exploration data, if meaningful and material, should be reported including (but not limited to): geological observations; geophysical survey results;* *geochemical survey results; bulk samples – size and* *method of treatment; metallurgical test results; bulk density, groundwater, geotechnical and rock characteristics; potential deleterious or contaminating substances.*	Dr John McLellan from GMEX Pty Ltd was contracted to carry out a stress modelling study on the Red October deposit. A data set of structural observations from core and field mapping was compiled and used to create a three dimensional mesh of the deposit. A series of regional scale stress fields of varying deformational stages and strengths were applied to the mesh to predict the behaviour of the Red October deposit and highlight areas of increased stress and strain and thus likely mineralisation. Two targets were drilled in the recent RC campaign with results supporting John's findings. Model Earth Pty was engaged to conduct a structural review of the Red October camp area in May 2015. Several local and regional scale targets were identified for follow-up.
Further work	*The nature and scale of planned further work (eg tests for lateral extensions or depth extensions or large-scale step-out drilling).* *Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive*	The exploration effort continues at Red October. The focus remains in the near mine scale areas to extend and build the resource base.

Section 3: Estimation and Reporting of Mineral Resources		
Criteria	**JORC Code Explanation**	**Commentary**
Database Integrity	*Measures taken to ensure that data has not been corrupted by, for example, transcription or keying errors, between its initial collection and its use for Mineral Resource estimation purposes.*	Saracen utilises AcQuire software on an SQL server database to securely store and manage all drillhole and sample information. Data integrity protocols are built into the system to ensure data validity and minimise errors are built into the data entry and import processes.
	Data validation procedures used.	Data that is captured in the field is entered into Excel templates which are checked on import into the database for errors. Assay jobs are dispatched electronically to the lab to minimise the chance of data

Section 3: Estimation and Reporting of Mineral Resources

Criteria	JORC Code Explanation	Commentary
		entry errors. Assay results from the lab are received in CSV format and are checked for errors on import into the database. Data is regularly validated using the mining software. The data validation process is overseen by the Database Administrator.
Site Visits	*Comment on any site visits undertaken by the Competent Person and the outcome of those visits.*	The Competent Person regularly visits site (Monthly and more so when the geological work is more complex and demanding) to assess geological competency and ensure integrity across all geological disciplines.
	If no site visits have been undertaken indicate why this is the case.	
Geological Interpretation	*Confidence in (or conversely, the uncertainty of) the geological interpretation of the mineral deposit.*	The resource categories assigned to the model directly reflect the confidence in the geological interpretation that is built using structural, mineral, and alteration geology obtained from UG mapping, core logging and drill results. Confidence in the interpretation improved with increased data density from close-spaced grade control drilling at 20m X 20m and UG drive mapping.
	Nature of the data used and any assumptions made.	The geological interpretation has considered all available geological information from drill core and UG mapping. It includes rock types, mineral association as well as alteration and veining assemblage information gathered from all sources to help define the mineralised domains and regolith boundaries.
	The effect, if any, of alternative interpretations on Mineral Resource estimation.	The geological wireframes defining the mineralised zones are considered to be robust. Alternative interpretations were trialled earlier and had a negative effect on the estimation process with zones becoming less robust.
	The use of geology in guiding and controlling the Mineral Resource estimation.	The wireframed domains are estimated as hard boundaries during the Mineral Resource Estimation. They are constructed using all available geological information (as stated above) and terminate along known structures. Mineralisation styles, geological homogeneity, and grade distributions for each domain (used to highlight any potential for bimodal populations) are all assessed to ensure effective estimation of the domains.
	The factors affecting continuity both of grade and geology.	"Grade continuity is affected by both structural and lithological controls. Higher grades (nuggety gold) are associated with vertical N-S striking (mine) quartz breccia structures plunging along the northern contacts of NE (mine) dipping fault zones. Where these zones interact with the main Shale contact, high grade shoots tend to occur with steep northerly plunges internal of the shale contact. Structurally the quartz breccia and shale units are offset by the NE dipping fault zones."
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.*	Mineralization at Red October occurs over 900m along strike and to a depth of 700m. Mineralization is hosted in vertical quartz breccia zones as well as where they intersect the primary host of graphitic black shales sitting on a Mafic/ultramafic contact. Inside the primary ore zone ore is seen as nuggetty visible gold and moving away from these zones mineralization is patchy with continuity along strike of between 5-20m and sub mineralization outside zones of silica flooding/brecciation.
Estimation and modelling techniques	*The nature and appropriateness of the estimation technique(s) applied and key assumptions, including treatment of extreme grade values, domaining, interpolation parameters and maximum distance of extrapolation from data points.*	The mineralised ore domains were wireframed based on geological homogeneity, grade populations, mineralisation styles and orientation of grade continuity. The domain wireframes were estimated as hard boundaries during the estimation process. RAB, Air-core and grab samples were excluded from the estimation process due to the unreliability of results. Negative gold grades were replaced with a grade of 0.001 g/t and null gold grades were excluded from the estimation process. Drillhole assays were composited to 1m intervals with a minimum length of 0.3m that best conformed to the sample length of the majority of the RC/DD data. High grades within each domain were identified and top cuts were applied where necessary. Variograms were produced to determine the directional influence of each sample during the estimation process. The Mineral Resource Estimate was interpolated using Ordinary Kriging in Micromine.

Section 3: Estimation and Reporting of Mineral Resources

Criteria	JORC Code Explanation	Commentary
	The availability of check estimates, previous estimates and/or mine production records and whether the Mineral Resource estimate takes appropriate account of such data.	The Mineral Resource Estimation is checked against the previous block model estimations and reconciled production numbers.
	The assumptions made regarding recovery of by-products.	No assumptions have been made regarding the recovery of by-products for this Mineral Resource Estimation.
	Estimation of deleterious elements or other non-grade variables of economic significance (e.g. sulphur for acid mine drainage characterisation).	No estimation of deleterious elements or non-grade variables is required
	In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed.	The model has been created using a parent cell size of 2.5m (East- West) x 10m (North-South) x 10m (vertical). Sub-cells have been used to a resolution of 0.25m x 1m x 1m to ensure high resolution at ore boundaries. The search distances are variable and are adjusted according to the directional ranges calculated from the variograms, and the geological understanding of Au and geometry continuity for each domain. Search ellipsoids are variable and reflect individual domain conditions and are extended in later search passes with a decreased number of minimum samples where data is spares.
	Any assumptions behind modelling of selective mining units.	No assumptions have been made regarding the modelling of selective mining units for this Mineral Resource Estimation.
	Any assumptions about correlation between variables.	No assumptions have been made regarding the correlation between variables for this Mineral Resource Estimation.
	Description of how the geological interpretation was used to control the resource estimates.	Mineralised domains were wireframed within the context of the known local and structural geology which was supported by the geological mapping UG and the geology logging of drillholes. Correlations between rock type, texture, alteration, and gold mineralisation were investigated.
	Discussion of basis for using or not using grade cutting or capping.	Samples with extreme high grades that bias the mean grade and positively skew the grade population within each mineralised domains are top cut to reduce the influence high grade outliers. The geostatistical analysis to determine top cuts includes log probability plots and the coefficient of variation.
	The process of validation, the checking process used, the comparison of model data to drill hole data, and use of reconciliation data if available.	A number of statistical and visual measures are used to validate the accuracy of the estimation. The mean grade of the block model is compared to the mean grade of composites by domain. These are then further investigated by appropriate northing, easting and bench intervals in the form of swathe plots. The volume variance between the wireframed domains and block model domains are assessed. Kriging efficiency, and slope results give an indication of the quality of the estimate. A visual inspection of the drillhole assay results are compared to the estimated block model in section.
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.
Cut-off parameters	*The basis of the adopted cut-off grade(s) or quality parameters applied.*	A cut-off grade of 2 g/t was chosen after economic considerations for the reporting of the Red October Mineral Resource
Mining factors or assumptions	*Assumptions made regarding possible mining methods, minimum mining dimensions and internal (or, if applicable, external) mining dilution. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential mining methods, but the assumptions made regarding*	"No assumptions have been made as to possible mining methods or dilution factors due to the variable nature of the dip and thickness of the ore body. Current mining methods employed at Red October utilize both air legging and long hole production rigs and is determined by ore body dimensions. Dilution is calculated using a low grade wireframe encompassing the ore domains which typically grades at 0.01g/t. "

Section 3: Estimation and Reporting of Mineral Resources		
Criteria	**JORC Code Explanation**	**Commentary**
	mining methods and parameters when estimating Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the mining assumptions made.	
Metallurgical factors or assumptions	*The basis for assumptions or predictions regarding metallurgical amenability. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential metallurgical methods, but the assumptions regarding metallurgical treatment process and parameters made when reporting Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the metallurgical assumptions made.*	"Red October has a variable recovery in certain zones dependant on the mineralized host. The lowest recoveries are in domain 110, which has a high refractory component with most ore locked in arsenopyrite, and in the unbreacciated primary shale unit which has recorded up to 2% active carbon causing it to have a preg robbing nature. Both are between 45-65% recovery. The quartz breccia has a high gravity gold component and most mineralization hosted in pyrite with recoveries varying between 80-93%. The average recovery applied to Red October and seen through the mill is 84%."
Environmental factors or assumptions	*Assumptions made regarding possible waste and process residue disposal options. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider the potential environmental impacts of the mining and processing operation. While at this stage the determination of potential environmental impacts, particularly for a greenfields project, may not always be well advanced, the status of early consideration of these potential environmental impacts should be reported. Where these aspects have not been considered this should be reported with an explanation of the environmental assumptions made.*	Waste rock characterisation has been conducted on the deposit with no environmental issues identified except dispersive oxidised material and waste dump construction plan in place to manage. Tailings from the deposit are stored in an appropriate licensed tailings facility and closure plan in place at Carosue Dam.
Bulk Density	*Whether assumed or determined. If assumed, the basis for the assumptions. If determined, the method used, whether wet or dry, the frequency of the measurements, the nature, size and representativeness of the samples.*	The bulk densities for Red October were determined via testing of representative intervals from diamond drillholes, regular sampling via grab samples from the pit development. The sample size is generally between 0.5 and 1.5kg and the method of calculation is the water displacement technique. Measurements have been recorded in the acquire database and extraction schemes pair this data with the major lithology code for statistical analysis.
	The bulk density for bulk material must have been measured by methods that adequately account for void spaces (vugs, porosity, etc), moisture and differences between rock and alteration zones within the deposit.	Ore zones predominantly exist in fresh non porous material, so additional measures to reduce moisture intake during the water displacement method is unnecessary at this stage. Coating more friable oxides and sediments (to reduce moisture loss or moisture gain during the process) is considered on a deposit by deposit basis.
	Discuss assumptions for bulk density estimates used in the evaluation process of the different materials.	An average mean of densities collected for each lithological type has been uniformly applied to the modelled geological units. The oxide and transitional zones have an assumed density based on regional work in similar deposits and general goldfields region.

Section 3: Estimation and Reporting of Mineral Resources

Criteria	JORC Code Explanation	Commentary
Classification	*The basis for the classification of the Mineral Resources into varying confidence categories.*	Resource classifications were defined by a combination of data; drill hole spacing, estimation quality (search pass, Kriging Effeciency and Slope results), geological confidence and Au continuity of domains. Based on these factors hard boundaries were wireframed for measured, indicated and inferred material. Measured material exhibits high confidence defined by development drives and closed spaced GC drilling, with estimates in the first search and Kriging Efficiency and Slope results >80%. Indicated material is defined by close spaced drilling, having good geological continuity along strike and down dip and in such is reflected with good KE and Slope results. Inferred classification is given to the estimate outside the mineable area with more sparse drill intercepts (>25m X 25m) and having poorer estimation quality.
	Whether appropriate account has been taken of all the relevant factors (ie relative confidence in tonnage/grade estimations, reliability of input data, confidence in continuity of geology and metal values, quality, quantity and distribution of the data).	All relevant factors have been taken into account and are validated through thorough QAQC of the drill hole database and geological knowledge and interpretation of the Red October deposit. Thorough model validations and reviews ensure the integrity of the final estimation and the grade and tonnage numbers.
	Whether the result appropriately reflects the Competent Person's view of the deposit.	The reviewing process allows the Competent Person's to assess and sign off on the model.
Audits or reviews	*The results of any audits or reviews of Mineral Resource estimates.*	At the completion of resource estimation Saracen Gold Mines undertake an extensive review of the model that covers model inventory and comparisons to previous models. Geological interpretation, wireframing, domain selection, statisitics by domain, assay evaluation, parent cell sizes, data compositing, variography, search strategy, estimation and Kriging Neighbourhood Analysis and finally model validation and resource categorisation are all discussed and scrutinized by the geological and mine planning teams.
Discussion of relative accuracy/confidence	*Where appropriate a statement of the relative accuracy and confidence level in the Mineral Resource estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the resource within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors that could affect the relative accuracy and confidence of the estimate.*	The Mineral Resource has been reported in accordance with the guidelines of the 2012 edition of the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves. Saracen Gold Mine uses a standard approach to resource estimation and the procedure requires the systematic completion of the Saracen Resource Estimation Document that is thoroughly investigated and assessed in the Model review process, as stated above.
	The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonnages, which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the procedures used.	The statement relates to global estimates.
	These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.	Previous Mineral Resource estimates have had on average a positive reconciliation against mill figures.

Section 4: Estimation and Reporting of Ore Reserves		
Criteria	**JORC Code Explanation**	**Commentary**
Mineral Resource estimate for conversion to Ore Reserves	*Description of the Mineral resource Estimate used as a basis for the conversion to an Ore Reserve.*	The Mineral Resource estimate for the Red October gold deposit used as a basis for conversion to the Ore Reserve estimate was compiled by Saracen. The data included drilling and assay data, geological mapping and historical mining records to validate the model against and solid interpretation wireframes of the geology. This information was used to construct a model estimated by ordinary kriging.
	Clear statement as to whether the Mineral Resources are reported additional to. Or inclusive of, the Ore Reserves.	The Mineral Resource reported is inclusive of the Ore Reserve.
Site Visits	*Comment on any site visits undertaken by the Competent Person and the outcome of those visits.*	The competent person is based at the Carosue Dam Operations (CDO) mine site. Red October is part of CDO located 140kms north. Consultant geotechnical engineers have visited Red October to gather data through inspection of the existing underground and logging of drill core.
	If no site visits have been undertaken indicate why this is the case.	N/A
Study status	*The type and level of study undertaken to enable Mineral Resources to be converted to Ore Reserves*	The Red October deposit was originally mined by Sons of Gwalia commencing in 1999. Saracen commenced the existing underground operation in October 2011. Ore from Red October open pit continues to be treated at the Carosue Dam processing facility. Red October is an active underground operation with a detailed mine design and an economic analysis, to define the ore reserve.
	The Code requires that a study to at least Pre-Feasibility Study level has been undertaken to convert Mineral Resources to Ore Reserves. Such studies will have been carried out and will have determined a mine plan that is technically achievable and economically viable, and that material Modifying Factors have been considered.	Modifying factors have been applied to the mine design, as well as a financial analysis completed, both of these have been the subject to peer review.
Cut-off parameters	*The basis of the cut-off grade(s) or quality parameters applied*	For the purpose of Ore Reserve Estimate a cut-off grade of 3.0g/t was calculated based upon an assumed gold price of AUD$1500/Oz and applicable processing, haulage and administration costs. A top cut has already been applied to the Mineral Resource Estimate eliminating the necessity for any further adjustment to the Ore Reserve estimate.
Mining factors or assumptions	*The method and assumptions used as reported in the Pre-feasibility or Feasibility Study to convert the Mineral Resource to an Ore Reserve (i.e. either by*	The Red October underground ore reserve has been estimated using detailed mine development and stope designs. Modifying factors for dilution and recovery have been applied to the economic analysis of

Section 4: Estimation and Reporting of Ore Reserves

Criteria	JORC Code Explanation	Commentary
	application of appropriate factors by optimisation or by preliminary or detailed design).	the design to generate the ore reserve.
	The choice, nature and appropriateness of the selected mining method(s) and other mining parameters including associated design issues such as pre-strip, access, etc.	Underground mechanised mining for development, ground support, and open stoping have historically been successful at Red October. A continuation of these activities has been used in this ore reserve estimate.
	The assumptions made regarding geotechnical parameters (e.g. pit slopes, stope sizes, etc.), grade control, and pre-production drilling.	Assumptions are based upon actual mining conditions. A review of the previous analysis and assessment of the designed stopes was performed by Peter Andrews (geotechnical consultant – Andrews Rock Mechanics) and found to be acceptable. A grade control program with associated development for drilling platforms, grade control drilling designs, and sampling costs have been include in the mine design, mine schedule and economic analysis.
	The major assumptions made and Mineral Resource model used for pit and stope optimisation (if appropriate).	N/A
	The mining dilution factors used.	An allowance for mining dilution has been incorporated into the mine designs. An additional dilution allowance of 15% has been applied for stoping, and 7% for development. Both of these factors are based on actual mine performance.
	The mining recovery factors used.	A mining recovery factor of 97% has been assumed for all stopes, and 100% for development.
	Any minimum mining widths used	A minimum stope width of 1.5m was adopted in the design process.
	The manner in which inferred Mineral resources are utilised in mining studies and the sensitivity of the outcome to their inclusion.	Minor volumes (<1% of ounces) of inferred resources are contained within underground mine design. A grade of 0.1g/t has been assigned to all inferred resources within the design. Therefore inferred resources contribute <1% of metal to the estimated reserve, and hence the reserve has no sensitivity to the inclusion of inferred resources.
	The infrastructure requirements of the selected mining methods.	Standard underground infrastructure is currently operational; this includes a decline for access and truck haulage, ventilation fans, escape-way ladders, electrical reticulation, mine services (air and water), and mine dewatering infrastructure. No specialised infrastructure is required to accommodate this method of mining.
Metallurgical factors or assumptions	*The metallurgical process proposed and the appropriateness of that process to the style of mineralisation*	The ore reserve will be treated at the established Carosue Dam processing facility. The Carosue Dam Process Plant is a CIL cyanide leach plant incorporating a gravity circuit which is appropriate for the extraction of gold from free milling gold ores. An average plant processing recovery of 85% has been assumed in the Ore Reserve Estimate which is consistent with historical plant recoveries for Red October ore.
	Whether the metallurgical process is well-tested	The method of ore processing and extraction proposed utilises well tried and proven technology dating

Section 4: Estimation and Reporting of Ore Reserves

Criteria	**JORC Code Explanation**	**Commentary**
	technology or novel in nature.	back to the 1960's and practiced extensively around the world.
	The nature, amount and representiveness of metallurgical test work undertaken, the nature of the metallurgical domaining applied and the corresponding metallurgical recovery factors applied.	Several processing performance reports have been completed on Red October ores during the previous 4 years of operation. The metallurgical modifying factors are based on historical experienced gained during this period.
	Any assumptions or allowances made for deleterious elements.	No deleterious elements have been identified during the processing of Red October ores since 2010.
	The existence of any bulk sample or pilot scale test work and the degree to which such samples are considered representative of the ore body as a whole.	Ore from the Red October underground has been treated at the Carosue Dam processing facility since 2012. Current underground ore is considered representative of the ongoing ore expected from underground.
	For minerals that are defined by a specification, has the ore reserve estimation been based on the appropriate mineralogy to meet the specifications.	N/A
Environmental factors or assumptions	*The status of studies of potential environmental impacts of the mining and processing operation. Details of waste rock characterisation and the consideration of potential sites, status of design options considered and, where applicable, the status of approvals for process residue storage and waste dumps should be reported.*	Red October is currently compliant with all legal and regulatory requirements. All approvals (clearing permit, works approval and Mining Proposals) have been granted for ongoing mining and processing at Carosue Dam. The site currently holds and Environmental Protection Act Licence 7465/1999/8 for processing, mine dewatering and power generation. The existing Carosue Dam mine, including the area of Karari underground mine, and the accommodation village all lay on granted mining leases. The following studies have been completed and provided to support for the required statutory approvals: Flora surveys of areas to be cleared, waste rock characterisation studies, surface water studies and tailings storage facility documentation.
Infrastructure	*The existence of appropriate infrastructure: availability of land for plant development, power, water, transportation (particularly for bulk commodities), labour, accommodation; or the ease with which the infrastructure can be provided, or accessed.*	Carosue Dam Operations are well established, with mining activities being conducted by Saracen since 2009. The operation extends from the south (CDO plant, admin, mines WD & KA) to the North (Red October and Deep South) and is connected via a private haulage road. The CDO operation comprises at 2.4mtpa CIL ore processing facility, associated tailings storage facilities, Power station, water supply, workshops, and administration offices. Red October is located 140kms north of Carosue Dam and has its own modern accommodation camp, situated within a few kilometres of the mine and offices. A 70km gravel access road links Carosue Dam Operations to the gravel section of Yarri Road. Both the Saracen and Shire of Kalgoorlie gravel roads are well maintained.

Section 4: Estimation and Reporting of Ore Reserves

Criteria	**JORC Code Explanation**	**Commentary**
		The Red October mine site is ~260km from the sealed section or Yarri Road leading to Kalgoorlie.
Costs	*The derivation of, or assumptions made, regarding projected capital costs in the study.*	Actual mine operating and capital costs used.
	The methodology used to estimate operating costs.	Operating costs for underground mining have been derived from a combination of actual costs from Red October and tendered contract costs supplied by independent mining contractors. Operating costs for ore processing have been derived from known parameters at Carosue Dam, with additional costs such as labour sourced from current operational data.
	Allowances made for the content of deleterious elements	Previous operational experience on the Red October deposit at Carouse Dam did not reveal any deleterious elements within the ore or waste that required any additional cost allowances.
	The derivation of assumptions made of metal or commodity price(s), for the principal minerals and co-products	An assumed gold price of AUD$1,500/oz has been adopted for financial modelling.
	The source of exchange rates used in study	All revenue and cost calculations have been made in AUD, so no exchange rate usage or assumptions have been necessary.
	Derivation of transportation charges	Costs associated with bullion transportation have been derived from existing contractual arrangements at Carouse Dam Operations.
	The basis for forecasting or source of treatment and refining charges, penalties for failure to meet specification, etc.	Costs associated with refining have been derived from existing contractual arrangements at Carouse Dam Operations.
	The allowances made for royalties payable, both Government and private.	Royalty costs are a 2.5% royalty payable to the Western Australian state government, a 1.5% royalty payable to IRC, and 1.75% royalty payable to Franco Nevada.
Revenue Factors	*The derivation of, or assumptions made, regarding revenue factors including head grade, metal or commodity price(s) exchange rates, transportation and treatment charges, penalties, net smelter returns, etc.*	N/A
	The derivation of assumptions made of metal or commodity price(s), for the principal metals, minerals and co-products	An assumed gold price of AUD$1,500/oz has been adopted for financial modelling.
Market Assessment	*The demand, supply and stock situation for the particular commodity, consumption trends and factors likely to affect supply and demand into the future.*	There is a transparent quoted market for the sale of gold.
	A customer and competitor analysis along with the identification of likely market windows for the product.	There is a transparent quoted market for the sale of gold.

Section 4: Estimation and Reporting of Ore Reserves		
Criteria	**JORC Code Explanation**	**Commentary**
	Price and volume forecasts and the basis for these forecasts.	There is a transparent quoted market for the sale of gold.
	For industrial minerals the customer specification, testing and acceptance requirements prior to a supply contract.	N/A
Economic	*The inputs to the economic analysis to produce the net present value (NPV) in the study, the source and confidence of these economic inputs including estimated inflation, discount rate, etc.*	All costs assumptions are made based on a combination of historical performance at Carosue Dam and Red October mine. The economic analysis is viewed as representative of the current market conditions.
	NPV ranges and sensitivity to variations in the significant assumptions and inputs.	Sensitivities were not assessed
Social	*The status of agreements with key stakeholders and matters leading to social licence to operate*	Carosue Dam is currently operating and has good relationships with neighbouring stakeholders, including engagement with the local pastoralists and the traditional owners. The mine is located on leasehold pastoral land with compensation agreements in place with the local pastoralist. Granted mining leases cover all of the proposed mining and processing assets and there are no Native title claims pending.
Other	*To the extent relevant, the impact of the following on the project and/or on the estimation and classification of the Ore Reserves:*	
	Any identified material naturally occurring risks	Water inrush is the only naturally occurring risk identified. Inrush from regional surface water flows has been addressed by the construction of appropriate water diversion bunds as part of previous open pit mining operations. A containment pond and dewatering infrastructure has provided for in the mine design and capital costs to mitigate water inrush from rainfall captured within the existing open pit.
	The status of material legal agreements and marketing arrangements	Contracts are in place for all critical goods and services to operate Carosue Dam Operations. A mining contract will be tendered for Red October underground prior to the commencement of mining.
	The status of governmental agreements and approvals critical to the viability of the project, such as mineral tenement status, and government and statutory approvals. There must be reasonable grounds to expect that all necessary government approvals will be received within the timeframes anticipated in the Pre-Feasibility or Feasibility study. Highlight and discuss the materiality of any unresolved matter that is dependent on a third party on which extraction of the reserve is contingent.	Carosue Dam Operations is in production with all required government statutory permits and approvals in place for the three operating mines and processing plant. The required statutory approvals for Red October have been granted.
Classification	*The basis for the classification of the Ore Reserve into varying confidence categories*	The Ore Reserve Estimate classification for Red October underground has been in accordance with the JORC code 2012. The estimated Ore Reserve is classified as being Probable with the majority of the

Section 4: Estimation and Reporting of Ore Reserves		
Criteria	**JORC Code Explanation**	**Commentary**
		reserve being derived from that portion of the Mineral Resource classified as indicated. Minor volumes (<1% of ounces) of the underground ore is designed in Mineral Resource classified as inferred. The grade of this material was assigned as 0.1g/t, thus <1% of metal is reported in the Ore Reserve Estimate from Mineral Resource classified as inferred. No material in the estimated Ore Reserve is classified as Proven, as no material is derived from that portion of the Mineral Resource classified as measured.
	Whether the result appropriately reflects the Competent Person's view of the deposit.	Cost assumptions and inputs factors applied to the underground project were derived from a combination of historical site data, current operational data relating to Carouse Dam Operations, actual mining costs, and recommendations from industry consultants. Results of the detailed design and analysis reflect the views of Competent Person regarding the Red October deposit.
	The proportion of Probable Ore Reserves that have been derived from Measured Mineral Resources (if any)	There were no Measured Mineral Resources within the underground mine design that formed the physical extent of the estimated Ore Reserve.
Audits or reviews	*The results of any audits or reviews of Ore Reserve estimates*	There have been no external reviews of this Ore reserve estimate.

Section 4: Estimation and Reporting of Ore Reserves

Criteria	JORC Code Explanation	Commentary
Discussion of relative accuracy/confidence	*Where appropriate a statement of the relative accuracy and confidence level in the Ore Reserve estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geo-statistical procedures to quantify the relative accuracy of the reserve within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors which could affect the relative accuracy and confidence of the estimate.* *The statement should specify whether it relates to global or local estimates, and if local, state the relevant tonnages which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the procedures used.* *Accuracy and confidence discussions should extend to specific discussions of any applied modifying factors that may have a material impact on Ore Reserve viability, or for which there are remaining areas of uncertainty at the current study stage.* *It is recognised that this may not be possible or appropriate in all circumstances. These statements or relative accuracy and confidence of the estimate should be compared with production data, where available.*	The Ore Reserve estimate has been prepared within the guidelines of the 2012 JORC Code. The relative confidence of the estimate complies with the criteria of Probable Ore Reserves. Based upon the resource model, and current mine and reconciliation performance, the Ore Reserve Estimate is considered reasonable. Estimates are global but will be reasonably accurate on a local scale. The complete mine design with all of the modifying factors assumed and adopted, and financial analysis used in the estimated Ore Reserve have been the subject to peer review internally, and the Competent Person is confident that it is an accurate estimation of the current Red October reserve. Reconciliation results from past and current mining at Red October have been considered and factored into the reserve assumptions where appropriate.

Thin Lizzy

Section 1: Sampling Techniques and Data		
Criteria	**JORC Code Explanation**	**Commentary**
Sampling Techniques	*Nature and quality of sampling (e.g. cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc.). These examples should not be taken as limiting the broad meaning of sampling.*	Saracen has not completed any sampling activities at Thin Lizzy. Historic sampling methods conducted by previous owners since 1984 have included aircore (AC), rotary air blast (RAB), and reverse circulation (RC) drillholes.
	Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used	RC, RAB and AC drilling was completed by previous holders to industry standard at that time (1984-2002).
	Aspects of the determination of mineralisation that are Material to the Public Report. In cases where 'industry standard' work has been done this would be relatively simple (e.g. 'reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30 g charge for fire assay'). In other cases more explanation may be required, such as where there is coarse gold that has inherent sampling problems. *Unusual commodities or mineralisation types (e.g. submarine nodules) may warrant disclosure of detailed information*	Historical AC, RAB, and RC sampling was carried out to industry standard at that time. Sampling methods for RC drilling included cone and riffle splitting. Methods for RAB and AC remain unknown. Analysis methods include fire assay, aqua regia and unspecified methods.
Drilling Techniques	*Drill type (e.g. core, reverse 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.).*	The deposit has been sampled by 8 AC holes, 61 RAB holes and 149 RC holes (assumed standard 5 ¼ ''bit size).
Drill Sample Recovery	*Method of recording and assessing core and chip sample recoveries and results assessed*	No historic sampling recoveries have been recorded.
	Measures taken to maximise sample recovery and ensure representative nature of the samples	It is unknown what, if any, measures were taken to ensure sample recovery and representivity.
	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.	Any historical relationship is not known.
Logging	*Whether core and chip samples have been geologically and geotechnically logged to a level of detail to support appropriate Mineral Resource*	Historical logging of RC, RAB and AC has recorded lithology, mineralogy, texture, mineralisation, weathering, alteration and veining. Qualitative and quantitative logging of historic data varies in its completeness.

Section 1: Sampling Techniques and Data

Criteria	JORC Code Explanation	Commentary
	estimation, mining studies and metallurgical studies. *Whether logging is qualitative or quantitative in nature.* *Core (or costean, channel, etc) photography.*	
	The total length and percentage of the relevant intersections logged	All drillholes appear to have been logged in full.
Sub-sampling techniques and sample preparation	*If core, whether cut or sawn and whether quarter, half or all core taken.*	No diamond drilling has been completed at Thin Lizzy.
	If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry.	Historic RC samples were cone or riffle split. The sampling methods for AC and RAB are unknown. It is unknown if wet samples were encountered.
	For all sample types, the nature, quality and appropriateness of the sample preparation technique.	The sampling techniques for historic drilling are unknown, best practice is assumed.
	Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.	Sampling by previous holders assumed to be industry standard at the time.
	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.	It is unknown if historic duplicate sampling was performed.
	Whether sample sizes are appropriate to the grain size of the material being sampled.	It is assumed historic sample sizes were appropriate to the grainsize of material being sampled.
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.*	RC, RAB and AC samples were analysed using fire assay and aqua regia methods. These methods are considered suitable for determining gold concentrations in rock and are total digest methods. Some samples were analysed using unknown methods
	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 geophysical tools have been utilised for reporting gold mineralisation.
	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.	Historic RAB, AC and RC drilling is assumed to have been carried out to industry standard regarding QAQC procedures.
Verification of sampling and assaying	*The verification of significant intersections by either independent or alternative company personnel.*	It is unknown if historic intercepts were verified by alternative company personnel.
	The use of twinned holes.	No specific twinned holes have been drilled at Thin Lizzy
	Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols	Data from previous owners was taken from a database compilation and validated as much as practicable before entry into the Saracen acQuire database.
	Discuss any adjustment to assay data.	No adjustments have been made to assay data. First gold assay is utilised for resource estimation.

Section 1: Sampling Techniques and Data

Criteria	JORC Code Explanation	Commentary
Location of data points	*Accuracy and quality of surveys used to locate drillholes (collar and down-hole surveys), trenches, mine workings and other locations used in Mineral Resource estimation.*	Previous holders' survey accuracy and quality is unknown.
	Specification of the grid system used.	MGA Zone 51 grid system is used in the Thin Lizzy area.
	Quality and adequacy of topographic control.	Kevron Geomatic Services flew and processed aerial photography and provided orthoimages at 1:5000 scale over the Thunderbox deposit and environs.
Data spacing and distribution	*Data spacing for reporting of Exploration Results.*	No exploration results reported in this release
	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.	Data spacing and distribution are sufficient to establish the degree of geological and grade continuity appropriate for JORC classifications applied.
Orientation of data in relation to geological structure	*Whether sample compositing has been applied.*	Some historic RAB, AC and RC sampling was composited into 3-4m samples with areas of interest re-sampled to 1m intervals. It is unknown at what threshold this occurred.
	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 drillholes are positioned to achieve optimum intersection angles to the ore zone as are practicable.
	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.	No significant sampling bias has been recognised due to orientation of drilling in regards to mineralised structures.
Sample security	*The measures taken to ensure sample security.*	It is unknown what measures were taken to ensure sample security, best practice is assumed.
Audits or reviews	*The results of any audits or reviews of sampling techniques and data.*	It is unknown if any audits or reviews were completed.

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 Thin Lizzie resource is located on M39/120. The tenement is held 100% by Saracen Gold Mines Pty Ltd, a wholly owned subsidiary of Saracen Mineral Holdings Limited. Mining Lease M39/120 has a 21 year life (held until 2030) and is renewable for a further 21 years on a continuing basis. Mining Lease M39/120 is subject to three royalty agreements and two associated caveats (138H/067 and 323785). All production is subject to a Western Australian state government NSR royalty of 2.5%. Mining Lease M39/120 is subject to the Yundamindera Pastoral Compensation Agreement. There are no registered Aboriginal Heritage sites within the tenement.
	The security of the tenure held at the time of reporting along with any known impediments to obtaining a licence to operate in the area.	The tenement is in good standing and there are no known impediments to obtaining a licence to operate.
Exploration done by other parties	*Acknowledgment and appraisal of exploration by other parties.*	Exploration began in the Camelback area near the Thin Lizzy deposit in the 1980's, with WMC carrying out surface geochemical and drilling activities. Further drilling and sampling was completed by Newmont, Newcrest and Consex before the Thin Lizzy resource was delineated by Sons of Gwalia in 1995. They carried out further near deposit drilling and surface sampling until their collapse and takeover by St Barbara in 2004.
Geology	*Deposit type, geological setting and style of mineralisation.*	Gold mineralisation occurs within the Thin Lizzie deposit as a wide variety of vein and veinlet types within BIF chert zone. The main mineralisation is characterised by NS strike and 70° – 80° easterly dip.
Drillhole 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 does not detract from the understanding of the report, the Competent Person should clearly explain why this is the case.*	It is not practical to summarise all of the holes deemed material in this release. Exclusion of the drilling information will not detract from the reader's view of the report.
Data aggregation methods	*In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (e.g. cutting of high grades) and cut-off grades are usually Material and should be stated.*	No exploration results are reported in this release.
	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	No exploration results are reported in this release.

Section 2: Reporting of Exploration Results

Criteria	JORC Code Explanation	Commentary
	examples of such aggregations should be shown in detail.	
	The assumptions used for any reporting of metal equivalent values should be clearly stated.	There are no metal equivalents reported in this release.
Relationship between mineralisation widths and intercept lengths	*These relationships are particularly important in the reporting of Exploration Results.* *If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.* *If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (eg 'down hole length, true width not known').*	Saracen has not previously reported any exploration results for Thin Lizzy, nor are any included in this release.
Diagrams	*Appropriate maps and sections (with scales) and tabulations of intercepts should be included for any significant discovery being reported These should include, but not be limited to a plan view of drill hole collar locations and appropriate sectional views.*	No exploration results are reported in this release.
Balanced Reporting	*Where comprehensive reporting of all Exploration Results are not practicable, representative reporting of both low and high grades and/or widths should be practiced to avoid misleading reporting of Exploration Results.*	Saracen has not previously reported exploration results at Thin Lizzy, nor are any included in this release.
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.*	No substantive data acquisition has been completed in recent times.
Further work	*The nature and scale of planned further work (eg tests for lateral extensions or depth extensions or large-scale step-out drilling).* *Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive*	Further work at Thin Lizzie is currently under review. Economic factors play an important role in the priority given to this deposit.

Section 3: Estimation and Reporting of Mineral Resources

Criteria	JORC Code Explanation	Commentary
Database Integrity	*Measures taken to ensure that data has not been corrupted by, for example, transcription or keying errors, between its initial collection and its use for Mineral Resource estimation purposes.*	Saracen utilises AcQuire software on an SQL server database to securely store and manage all drillhole and sample information. Data integrity protocols are built into the system to ensure data validity and minimise errors.
	Data validation procedures used.	Data that is captured in the field is entered into Excel templates which are checked on import into the database for errors. Assay jobs are dispatched electronically to the lab to minimise the chance of data entry errors. Assay results from the lab are received in CSV format and are checked for errors on import into the database. Data is regularly validated using the mining software. The data validation process is overseen by the Database Administrator.
Site Visits	*Comment on any site visits undertaken by the Competent Person and the outcome of those visits.*	At the time of exploration and review (2010) of the deposit the Competent Persons visited the geological area frequently to assess geological competency and ensure integrity across all geological disciplines.
	If no site visits have been undertaken indicate why this is the case.	
Geological Interpretation	*Confidence in (or conversely, the uncertainty of) the geological interpretation of the mineral deposit.*	A combination of exploration mapping, geophysical surveys, both exploration and grade control drill hole information and geological data, including mapping, has resulted in a reasonable geological interpretation.
	Nature of the data used and any assumptions made.	The interpretations have been constructed using all available geological logging descriptions including but not limited to, stratigraphy, lithology, texture, and alteration. Most information was obtained from drill hole results and some historic mapping from Sons of Gwalia production.
	The affect, if any, of alternative interpretations on Mineral Resource estimation.	Due to the simplicity of the model, there are no alternative models at this stage.
	The use of geology in guiding and controlling the Mineral Resource estimation.	The geology has heavily influenced the extent of the domains controlling the mineral resource estimation. Gold mineralisation occurs within the Thin Lizzie deposit as a wide variety of vein and veinlet types within BIF chert zone. The main mineralisation is characterised by NS strike and 70° – 80° easterly dip. All mineralised domains were wireframed with hard boundaries. The wireframes for the current model were generated in Micromine based on a cut-off of 0.25 g/t of gold in individual sections of drill holes.
	The factors affecting continuity both of grade and geology.	The continuity of this inferred, thin and low grade deposit is considered open in all directions however it is relatively unexplored due to its lower economic viability.
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.*	At Thin Lizzie deposit, a total of 14 sections at 50m spacing were interpreted from 6,400N to 7,050N. The interpretation and wireframes were generated based on a 50m × 20m exploration drilling patterns.
Estimation and modelling techniques	*The nature and appropriateness of the estimation technique(s) applied and key assumptions, including treatment of extreme grade values, domaining, interpolation parameters and maximum distance of extrapolation from data points.*	A conventional 3D Ordinary Kriging modelling technique has been used, with an unfolding methodology applied to provide a dynamic element to the allocation of search ellipses. The modelling technique is suitable to the domains being estimated allowing reasonable expectation of mining selectivity across the mineralised domain. OK Block estimation has been completed using Datamine software. All compositing, wireframes, surfaces, rock and domain models were constructed in Micromine. All estimation uses these wireframes as hard boundaries.

Section 3: Estimation and Reporting of Mineral Resources

Criteria	JORC Code Explanation	Commentary
		Estimation of parent blocks are interpolated, and assigned to sub-cells. The maximum distance of extrapolation is less than 50m. Univariate statistical analysis of length weighted, (1m), domain and regolith coded downhole composites have been completed for all domains. More than 80% of the sample data used in the estimation was 1m in length with the average for the entire sample set at 1.40m. Composites were broken where there was a change of mineralisation domain code or regolith code. Clusters of higher grade outliers that could bias the mean were identified by domain by the use of log probability plots. High grade outliers were used to determine specific top-cut values for each domain. Estimations used only used RC and Diamond Drill results, negative Au grades were replaced with a value of 0.001g/t, and null assays were excluded from the sample data. Unfolding was carried out prior to variography and estimation to remove the local variances in dip and strike observed in the domains. Variogram modelling was completed with GeoAccess Professional software. This defined the sample continuity and nugget value for each domain. Nugget effect in the major domains is typically 25% to 35%, which is moderate for a gold deposit and illustrates the robustness of the unfolded coordinate system as used for variogram calculation. The parameters determined from this analysis were used in the interpolation process.
	The availability of check estimates, previous estimates and/or mine production records and whether the Mineral Resource estimate takes appropriate account of such data.	Comparatively this estimate remains unchanged in the tonnage value as the mineralised domains were left unadjusted from the previous interpretation done by SGW in 2000. However the current estimate places the global grade 0.40g/t lower the previous 2000 estimate. Unfortunately the numbers from the 2000 estimate seem erroneous with a mismatch between the grade and the ounces calculation.
	The assumptions made regarding recovery of by-products.	No assumptions have been made with respect to the recovery of by-products.
	Estimation of deleterious elements or other non-grade variables of economic significance (e.g. sulfur for acid mine drainage characterisation).	There has been no estimate at this point of deleterious elements. Saracen is unaware if any elements other than gold have been assayed.
	In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed.	The parent block sizes for the resource model are X (5m) by Y (5m) by Z (1m). Drillhole data spacing, mining selectivity and mineralised lode geometry are among the primary considerations for the determination of the estimation block size. Drilling data at Thin Lizzie is primarily on a 50 x 25 metre drilling pattern, grading to a 60 x 30 to 80 x 50 metre patterns at depth. Parent blocks have been sub-celled to X (1.0m) by Y (1.0m) by Z (1.0m) to ensure that the wireframe boundaries were honoured and preserved the location and shape of the mineralisation. Search ranges have been informed by variogram modelling and knowledge of the drill spacing and the known mineralisation geometry including direction of maximum continuity. Three search estimation runs are used with the aim to satisfy the minimum sample criteria in the first search range where possible. Major ranges varied from 60m to 100m, with a limited range across the mineralisation of typically 15 to

Section 3: Estimation and Reporting of Mineral Resources

Criteria	JORC Code Explanation	Commentary
		30m. Down plunge ranges can be limited to 5m to 10m in some cases. The majority of the mineralised domains have data spacing that is well within the variogram ranges.
	Any assumptions behind modelling of selective mining units.	No selective mining units have been assumed.
	Any assumptions about correlation between variables.	No assumptions have been made regarding correlation between variables.
	Description of how the geological interpretation was used to control the resource estimates.	The geological interpretation strongly correlates with the mineralised domains. Hard wireframes were used to define all the mineralised domains.
	Discussion of basis for using or not using grade cutting or capping.	Linear interpolation methods such as Ordinary Kriging are sensitive to the presence of high-grade outliers that positively skew the data and bias the mean. Domain histogram and Log probability plots were used to determine appropriate top cuts for each domain. Not all domains required top cutting.
	The process of validation, the checking process used, the comparison of model data to drill hole data, and use of reconciliation data if available.	Several key model validation steps have been taken to validate the resource estimate. The mineral resource model has been stepped through visually in sectional and plan view to appreciate the composite grades used in the estimate and the resultant block grades. The mean average composite grade and block model grade by deposit and domain were compared. QQ and scatter plots for the averaged sample data vs. block model results were also plotted. Easting, Northing and Elevation swathe plots have been constructed to evaluate the declustered composited assay means versus the mean block estimates.
Moisture	*Whether the tonnages are estimated on a dry basis or with natural moisture, and the method of determination of the moisture content.*	All tonnages are estimated on a dry basis.
Cut-off parameters	*The basis of the adopted cut-off grade(s) or quality parameters applied.*	Based on Saracen's current economic status the natural grade distinction above background for the Thin Lizzie deposit was at a grade of 0.8g/t.
Mining factors or assumptions	*Assumptions made regarding possible mining methods, minimum mining dimensions and internal (or, if applicable, external) mining dilution. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential mining methods, but the assumptions made regarding mining methods and parameters when estimating Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the mining assumptions made.*	If the Thin Lizzie deposit is deemed economical it would be amenable to mining by open pit methods. There has not been any serious mining at Thin Lizzie. There are reasonable grounds to assume that in the future this deposit will be mined by conventional open pit methods given the close proximity to surface of the mineralisation.
Metallurgical factors or assumptions	*The basis for assumptions or predictions regarding metallurgical amenability. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential metallurgical methods, but the*	There is limited information with regards to metallurgical factors for the Thin Lizzie deposit. It is assumed that this deposit would have very similar results to that of Crimson Belle given they are hosted and exist in the same geological regime. Metallurgical testing of a transition/fresh composite shows gravity recovery of 73% and total recovery of 79%.

Section 3: Estimation and Reporting of Mineral Resources

Criteria	JORC Code Explanation	Commentary
	assumptions regarding metallurgical treatment process and parameters made when reporting Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the metallurgical assumptions made.	
Environmental factors or assumptions	*Assumptions made regarding possible waste and process residue disposal options. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider the potential environmental impacts of the mining and processing operation. While at this stage the determination of potential environmental impacts, particularly for a greenfields project, may not always be well advanced, the status of early consideration of these potential environmental impacts should be reported. Where these aspects have not been considered this should be reported with an explanation of the environmental assumptions made.*	Environmental considerations are captured by Program of Work (PoW) requirements. Operations on these tenements are purely exploratory in nature to date.
Bulk Density	*Whether assumed or determined. If assumed, the basis for the assumptions. If determined, the method used, whether wet or dry, the frequency of the measurements, the nature, size and representativeness of the samples.*	The density values applied to the Thin Lizzie Deposit estimation are largely based on historic density measures from similar rock types known to the geological area.
	The bulk density for bulk material must have been measured by methods that adequately account for void spaces (vugs, porosity, etc), moisture and differences between rock and alteration zones within the deposit.	It is unknown how the historic bulk densities were measured. Any future bulk density measurements follow the Saracens Metals standardised procedures. Most ore zones predominantly exist in transitional to fresh non porous material, however additional measures are taken to reduce moisture intake during the water displacement process if the coating is made of more friable oxides and sediments. This latter method aims to reduce moisture loss or moisture gain during the process and is considered on a deposit by deposit basis.
	Discuss assumptions for bulk density estimates used in the evaluation process of the different materials.	Density values are allocated uniformly to each lithological and regolith type. This includes the primary fresh lithologies as well as the weathered oxide and transitional zones.
Classification	*The basis for the classification of the Mineral Resources into varying confidence categories.*	Information from the estimation process, including search pass, number of composites used in the search ellipse and Kriging variance are all used in conjunction with drill spacing to finalise classification domains. Thin Lizzie blocks are all classified as Inferred category according to the 2004 JORC Code.
	Whether appropriate account has been taken of all the relevant factors (ie relative confidence in tonnage/grade estimations, reliability of input data, confidence in continuity of geology and metal values, quality, quantity and distribution of the	All care has been taken to account for relevant factors influencing the mineral resource estimate. The diligent Saracen Metals Resource review process ensures that data reliability and geological and metal confidence and continuity are reflected in the resource classification.

Section 3: Estimation and Reporting of Mineral Resources

Criteria	JORC Code Explanation	Commentary
	data).	
	Whether the result appropriately reflects the Competent Person's view of the deposit.	The geological model and the mineral resource estimate reflect the competent person's view of the deposit.
Audits or reviews	*The results of any audits or reviews of Mineral Resource estimates.*	This model was reviewed at the time of completion to the JORC 2004 standards. At the time the quality of the estimate was deemed appropriate and robust as a global estimate. Saracen Metals undertake an extensive review of the model that covers; Model inventory and comparisons to previous and budget models if in existence Geological interpretation, wireframing, domain selection, statisitics by domain, assay and metal evaluation, parent cell sizes, data compositing, variography, search strategy, estimation and KNA Model validation – swathe plots, visual checks, volume comparisons, composite to model metal comparisons. Due to its simple geological geometry, external audits were deemed unnecessary at the time.
Discussion of relative accuracy/confidence	*Where appropriate a statement of the relative accuracy and confidence level in the Mineral Resource estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the resource within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors that could affect the relative accuracy and confidence of the estimate.*	The mineral resource has been reported in accordance with the guidelines established in the 2004 edition of the JORC code. A standardised approach has been implemented for this estimation and the result is a robust model with appropriately defined resource categories. The validation process is also thorough suggesting the estimate has a reasonable level of confidence. The resource estimate is a good global estimate however locally there is room for improvement particularly in the selection of optimal block size. The review of the estimate identified that; Further testing on the bulk density values would be invaluable, and The use of KNA for optimal block size, minimum and maximum number of samples, search ellipse dimension, and discretisation would help to further improve the optimisation of the block model on a local scale.
	The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonnages, which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the procedures used.	The statements relate to a global estimate of tonnes and grade.
	These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.	An historic pit exits over Thin Lizzie, however there is no link to historic production.

Tin Dog

Section 1: Sampling Techniques and Data		
Criteria	**JORC Code Explanation**	**Commentary**
Sampling Techniques	*Nature and quality of sampling (e.g. cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc.). These examples should not be taken as limiting the broad meaning of sampling.*	Saracen has undertaken reverse circulation (RC) drilling at Tin Dog. Historic methods conducted since 1986 have included aircore (AC), rotary air blast (RAB) and reverse circulation drilling.
	Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used	Sampling of RC drilling was carried out as specified within Saracen sampling and QAQC procedures as per industry standard. RC chips provide high quality representative samples for analysis. RC, RAB and, AC drilling was completed by previous holders to industry standard at that time (1986-2002).
	Aspects of the determination of mineralisation that are Material to the Public Report. In cases where 'industry standard' work has been done this would be relatively simple (e.g. 'reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30 g charge for fire assay'). In other cases more explanation may be required, such as where there is coarse gold that has inherent sampling problems. *Unusual commodities or mineralisation types (e.g. submarine nodules) may warrant disclosure of detailed information*	RC chips were cone split and sampled into 1m intervals with total sample weights under 3kg Samples were selected to weigh less than 3 kg to ensure total sample inclusion at the pulverisation stage. A select number of samples were composited into 4m lengths and sampled in the Saracen onsite laboratory using a PAL (pulverise and leach) method as a first pass indicator. Any samples exceeding 0.2ppm Au were then resampled into 1m intervals and assayed via commercial laboratory where they were crushed, dried and pulverised to a nominal 90% passing 75µm to produce a 50 g sub sample for analysis by FA/AAS. Historical AC, RAB, and RC sampling was carried out to industry standard at that time. Analysis methods include fire assay, aqua regia and unspecified methods.
Drilling Techniques	*Drill type (e.g. core, reverse 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.).*	The deposit was initially sampled by 4 AC holes, 551 RAB holes and 43 RC holes (assumed standard 5 ¼'' bit size). Saracen has completed 16 RC drillholes utilising a 5 ¼'' diameter bit with face sampling hammer.
Drill Sample Recovery	*Method of recording and assessing core and chip sample recoveries and results assessed*	RC sampling recoveries are recorded as a percentage based on a visual weight estimate; no historic recoveries have been recorded.
	Measures taken to maximise sample recovery and ensure representative nature of the samples	During RC campaigns daily rig inspections are carried out to check splitter condition, general site and address general issues. Historical AC, RAB and RC to industry standard at that time.
	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.	There is no known relationship between sample recovery and grade for RC drilling. Any historical relationship is not known.
Logging	*Whether core and chip samples have been*	Logging of RC chips records lithology, mineralogy, texture, mineralisation, weathering, alteration, veining

Section 1: Sampling Techniques and Data

Criteria	JORC Code Explanation	Commentary
	geologically and geotechnically logged to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies. *Whether logging is qualitative or quantitative in nature.* *Core (or costean, channel, etc) photography.*	and other features. Chips from all RC holes are stored in chip trays for future reference. Qualitative and quantitative logging of historic data varies in its completeness.
	The total length and percentage of the relevant intersections logged	All Saracen RC drill holes are logged in full. Historical logging is approximately 95% complete.
Sub-sampling techniques and sample preparation	*If core, whether cut or sawn and whether quarter, half or all core taken.*	No diamond drilling has been completed at Tin Dog
	If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry.	All RC samples were cone split. Occasional wet samples were encountered; increased air capacity was routinely used to aid in keeping the sample dry when water was encountered. Historic AC, RAB and RC drilling was sampled using spear, riffle and unknown methods.
	For all sample types, the nature, quality and appropriateness of the sample preparation technique.	The sample preparation of RC chips adheres to industry best practice. It was conducted by a commercial or onsite laboratory and involved oven drying, coarse crushing then total grinding to a size of 90% passing 75 microns. Best practice is assumed at the time of historic sampling.
	Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.	All subsampling activities were carried out by commercial or onsite laboratory and are considered to be satisfactory. Sampling by previous holders assumed to be industry standard at the time.
	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.	Duplicate sampling was carried out at a rate of 1:10 for exploration drilling and was sampled directly from the on-board splitter on the rig. These were submitted for the same assay process as the original samples and the laboratory were unaware of such submissions. Sampling by previous holders assumed to be industry standard at the time.
	Whether sample sizes are appropriate to the grain size of the material being sampled.	Sample sizes are considered to be appropriate given the grainsize (90% passing 75um) of the material sampled.
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.*	RC chip samples were analysed by an external laboratory using a 50g fire assay with AAS finish. This method is considered suitable for determining gold concentration in rock and is a total digest method. Some RC samples were analysed in the Saracen onsite laboratory using a pulverise and leach method. This method is a partial digest. Historic sampling includes fire assay, aqua regia and unknown methods.
	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 geophysical tools have been utilised for reporting gold mineralisation at Tin Dog.
	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.	Certified reference material (standards and blanks) with a wide range of values were inserted into every drillhole at a rate of 1:25 for exploration RC drilling. These were not identifiable to the laboratory. QAQC data returned were checked against pass/fail limits with the SQL database and were passed or failed on import. A report was generated and reviewed by the geologist as necessary upon failure to determine further action. QAQC data was reported monthly.

Section 1: Sampling Techniques and Data

Criteria	JORC Code Explanation	Commentary
		Sample preparation checks for fineness were carried out to ensure a grindsize of 90% passing 75 microns. The laboratory performed a number of internal processes including standards, blanks, repeats and checks. QAQC data analysis demonstrates sufficient accuracy and precision. Industry best practice is assumed for previous holders.
Verification of sampling and assaying	*The verification of significant intersections by either independent or alternative company personnel.*	Significant intercepts are verified by the Geology Manager and corporate personnel.
	The use of twinned holes.	No specific twinned holes have been drilled at Tin Dog.
	Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols	Primary data was collated in a set of excel templates utilising lookup codes. This data was forwarded to the Database Administrator for entry into a secure acQuire database with inbuilt validation functions. Data from previous owners was taken from a database compilation and validated as much as practicable before entry into the Saracen acQuire database.
	Discuss any adjustment to assay data.	No adjustments have been made to assay data. First gold assay is utilised for resource estimation.
Location of data points	*Accuracy and quality of surveys used to locate drillholes (collar and down-hole surveys), trenches, mine workings and other locations used in Mineral Resource estimation.*	Exploration drillholes were located using a Leica 1200 GPS with an accuracy of +/- 10mm. Downhole surveys were carried out using an Eastman multi shot camera at regular intervals (usually 30m). Previous holders' survey accuracy and quality is unknown.
	Specification of the grid system used.	A local grid system (Tin Dog Local Grid) is used. The one point conversion to MGA_GDA94 zone 51 is TDLGEast TDLGNorth RL MGAEast MGANorth RL Point 1 10000 50000 0 438291.149 6748659.094 0 Historic data is converted to Tin Dog local grid upon export from the database.
	Quality and adequacy of topographic control.	Topographic control originally used site based survey pickups in addition to Kevron aerial photogrammetric surveys with +/- 5m resolution.
Data spacing and distribution	*Data spacing for reporting of Exploration Results.*	The nominal spacing for exploration drilling is 50mN x 25mE to 100mN x 25mE
	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.	Data spacing and distribution are sufficient to establish the degree of geological and grade continuity appropriate for JORC classifications applied.
Orientation of data in relation to geological structure	*Whether sample compositing has been applied.*	A select number of samples were composited into 4m lengths and sampled in the Saracen onsite laboratory as a first pass indicator. Any samples exceeding 0.2ppm Au were then resampled into 1m intervals and assayed via commercial laboratory. Some historic RAB and RC sampling was composited into 3-4m samples with areas of interest re-sampled to 1m intervals. It is unknown at what threshold this occurred.
	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 drillholes are positioned to achieve optimum intersection angles to the ore zone as are practicable.
	If the relationship between the drilling orientation and the orientation of key mineralised structures is considered to have introduced a sampling bias, this	No significant sampling bias is thought to occur due to orientation of drilling in regards to mineralised structures.

Section 1: Sampling Techniques and Data

Criteria	JORC Code Explanation	Commentary
	should be assessed and reported if material.	
Sample security	*The measures taken to ensure sample security.*	Samples are prepared on site under supervision of Saracen geological staff. Samples are selected, bagged into tied numbered calico bags then grouped into secured cages and collected by the laboratory personnel. Sample submissions are documented via laboratory tracking systems and assays are returned via email
Audits or reviews	*The results of any audits or reviews of sampling techniques and data.*	An internal review of companywide sampling methodologies was conducted to create the current sampling and QAQC procedures.

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 Tin Dog project is located on M39/588 with near mine exploration extending onto M39/589. The tenement is held 100% by Saracen Gold Mines Pty Ltd, a wholly owned subsidiary of Saracen Mineral Holdings Limited.
	The security of the tenure held at the time of reporting along with any known impediments to obtaining a licence to operate in the area.	The tenements are in good standing and the licence to operate already exists
Exploration done by other parties	*Acknowledgment and appraisal of exploration by other parties.*	Pennzoil carried out limited exploration in the Tin Dog project area in the early 1980's consisting of mapping, rock chip sampling and RAB drilling. Results were not encouraging and the project was relinquished. Billiton acquired the ground and carried out soil sampling and RAB drilling and identified broad zones of low grade mineralisation before entering into a JV with Newmont. RAB, RC and diamond drilling along with geophysics and surface sampling were completed. Goldfields Exploration entered into the Keith-Kilkenny JV and carried out RAB and RC drilling to confirm the continuity of mineralisation associated with the shearing and synenites in the area. They found the results to be disappointing and sold the project area to Sons of Gwalia. Further drilling and geophysics were carried out before St Barbara acquired the ground upon the collapse of Sons of Gwalia.
Geology	*Deposit type, geological setting and style of mineralisation.*	Mineralisation occurs in close proximity to the felsic/intermediate volcanic and syenite contact that are intercalated with carbonaceous shales, along with minor BIF and chert. A wide variety of quartz dominated vein and veinlet types are associated with gold mineralisation
Drillhole 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*	It is not practical to summarise all of the holes deemed material in this release. Exclusion of the drilling information will not detract from the reader's view of the report. Future drill hole data will be periodically released or when a results materially change the economic value of the project.

Section 2: Reporting of Exploration Results

Criteria	JORC Code Explanation	Commentary
	- down hole length and interception depth *- hole length.* *• If the exclusion of this information is justified on the basis that the information is not Material and this exclusion does not detract from the understanding of the report, the Competent Person should clearly explain why this is the case.*	
Data aggregation methods	*In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (e.g. cutting of high grades) and cut-off grades are usually Material and should be stated.*	All significant intercepts have been length weighted with a minimum Au grade of 1ppm. No high grade cut off has been applied.
	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.	Intercepts are aggregated with minimum width of 1m and maximum width of 3m for internal dilution. Where stand out higher grade zone exist with in the broader mineralised zone, the higher grade interval is reported also.
	The assumptions used for any reporting of metal equivalent values should be clearly stated.	There are no metal equivalents reported in this release.
Relationship between mineralisation widths and intercept lengths	*These relationships are particularly important in the reporting of Exploration Results.* *If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.* *If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (eg 'down hole length, true width not known').*	Previous announcements included sufficient detail to clearly illustrate the geometry of the mineralisation and the recent drilling. All results were reported as downhole lengths.
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.*	All significant exploration results released by Saracen are accompanied by the appropriate diagrams and maps at the time of the release.
Balanced Reporting	*Where comprehensive reporting of all Exploration Results are not practicable, representative reporting of both low and high grades and/or widths should be practiced to avoid misleading reporting of Exploration Results.*	All results from the drilling campaigns have been reported, irrespective of success or not
Other substantive exploration data	*Other exploration data, if meaningful and material, should be reported including (but not limited to): geological observations; geophysical survey*	No substantive data acquisition has been completed in recent times.

Section 2: Reporting of Exploration Results

Criteria	JORC Code Explanation	Commentary
	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 planned further work (eg tests for lateral extensions or depth extensions or large-scale step-out drilling).* *Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive*	In the current economic climate, exploration activities at Tin Dog have been given a lower priority.

Section 3: Estimation and Reporting of Mineral Resources

Criteria	JORC Code Explanation	Commentary
Database Integrity	*Measures taken to ensure that data has not been corrupted by, for example, transcription or keying errors, between its initial collection and its use for Mineral Resource estimation purposes.*	Saracen utilises AcQuire software on an SQL server database to securely store and manage all drillhole and sample information. Data integrity protocols are built into the system to ensure data validity and minimise errors.
	Data validation procedures used.	95% Data for this deposit was inherited from SOG's database during the acquisition in 2006. This data was imported into the Saracen AcQuire Database and in the process was validated by internal processes and systems. The process was overseen by the Database Administrator. Data collected by Saracen personnel that is captured in the field is entered into Excel templates which are checked on import into the database for errors. Assay jobs are dispatched electronically to the lab to minimise the chance of data entry errors. Assay results from the lab are received in CSV format and are checked for errors on import into the database. Data is regularly validated using the mining software. The data validation process is overseen by the Database Administrator.
Site Visits	*Comment on any site visits undertaken by the Competent Person and the outcome of those visits.*	There have been no recent visits to the Tin Dog deposit by the competent person. Exploration personnel and geological managers have covered the ground since its acquisition from SOG's in 2006, and the resource was updated in 2010 to reflect their findings.
	If no site visits have been undertaken indicate why this is the case.	
Geological Interpretation	*Confidence in (or conversely, the uncertainty of) the geological interpretation of the mineral deposit.*	The resource category of Inferred was assigned to the whole model as it directly reflects the confidence in the geological interpretation that is built using mineral, and alteration geology obtained from mapping, logging, (50mN x 25mE to 100mN x 25mE drill spacing), drill results and geophysics.
	Nature of the data used and any assumptions made.	The geological interpretation and delineation of the mineralisation was predominantly constructed by grade and where possible alteration type, alteration intensity and veining. A cut-off grade of 0.25g/t was used to delineate the ore zones.

Section 3: Estimation and Reporting of Mineral Resources

Criteria	JORC Code Explanation	Commentary
		Magnetic geophysical surveys and mapping also assisted in the interpretation of Tin Dog Cross sectional interpretations of the mineralisation have been created and from this basic framework a 3D wireframe solid is built.
	The affect, if any, of alternative interpretations on Mineral Resource estimation.	Over the life of the project several different sources have interpreted the mineralisation and all agree on the same basic interpretation.
	The use of geology in guiding and controlling the Mineral Resource estimation.	Mineralisation occurs in close proximity to the felsic/intermediate volcanic and syenite contact that are intercalated with carbonaceous shales, along with minor BIF and chert. A wide variety of quartz dominated vein and veinlet types are associated with gold mineralisation. Such geological details influence the domaining that controls the mineral resource estimation.
	The factors affecting continuity both of grade and geology.	On the lease M3900588, a lack of drilling affects confidence in geological and grade continuity.
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.*	Tin Dog mineralisation extends from 49800mN to 51000mN, 49400mE to 50800mE and to 300 meters below surface; however Saracen has only reported the metal located on the lease M3900588. This is the northern extent of the deposit. The lodes in lease M3900588 vary in orientation from a North – South to NW-SE strike, dipping steeply to moderately to the west or gently to the east following structural and lithological controls.
Estimation and modelling techniques	*The nature and appropriateness of the estimation technique(s) applied and key assumptions, including treatment of extreme grade values, domaining, interpolation parameters and maximum distance of extrapolation from data points.*	The estimation of Tin Dog was completed using all data available including that information from the JV lease. Block estimation has been completed in Datamine software. All wireframes have been constructed in Micromine and were used as hard boundaries for the estimation. Estimation of parent blocks are interpolated with block discretisation points set to 5 x 5 x 5. The maximum distance of extrapolation is less than 150m. Univariate statistical analysis of length weighted, (1m), domain coded downhole composites have been completed for all domains and top-cuts applied where applicable. Minor clusters of high grades were apparent in the data set and the lodes were analysed individually to determine specific top-cut values. Only RC data was used, negative Au grades replaced with a value of 0.001g/t, null assays were excluded from the sample data. Unfolding was carried out prior to variography and interpolation to remove the variable dip and strike typically associated with the mineralised domains. Variogram modelling was completed with GeoAccess Professional software. This defined the sample continuity with in the domains. The parameters determined from this analysis were used in the interpolation process.
	The availability of check estimates, previous estimates and/or mine production records and whether the Mineral Resource estimate takes appropriate account of such data.	As an inferred resource there has been no production reported for the Tin Dog deposit on the lease M3900588.
	The assumptions made regarding recovery of by-products.	No assumptions have been made with respect to the recovery of by-products.
	Estimation of deleterious elements or other non-grade variables of economic significance (e.g. sulfur for acid mine drainage characterisation).	There has been no estimate at this point of deleterious elements. Saracen is unaware if any elements other than gold have been assayed.

Section 3: Estimation and Reporting of Mineral Resources

Criteria	JORC Code Explanation	Commentary
	In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed.	The parent block sizes for the resource model are X (5m) by Y (10m) by Z (5m). Globally these are reasonable for this **Inferred** only resource, where drill spacing is in the order of 50mN x 25mE to 100mN x 25mE. Mining selectivity and mineralised lode geometry also influenced the estimation block size. Parent blocks have been sub-celled to X (1m) by Y (1m) by Z (1m) to ensure that the wireframe boundaries are honoured and preserve the location and shape of the mineralisation. Search ranges have been informed by variogram modelling and knowledge of the drill spacing and the known mineralisation geometry including direction of maximum continuity. Three search estimation runs were used with the aim to satisfy the minimum sample criteria in the first search range where possible.
	Any assumptions behind modelling of selective mining units.	No selective mining units have been assumed.
	Any assumptions about correlation between variables.	No assumptions have been made regarding correlation between variables.
	Description of how the geological interpretation was used to control the resource estimates.	The geological interpretation correlates with the mineralised domains. All wireframe boundaries including those where lithology and mineralisation correspond, hard boundaries are enforced. There were no internal geological features identified that could help shape the estimation.
	Discussion of basis for using or not using grade cutting or capping.	Individual analysis of the domains indicates small clusters of high grade outliers for 5 out of Tin Dog's 16 domains. Top-cuts have been employed to eliminate the risk of overestimating in the local areas and bring those outliers in line with the majority of the population.
	The process of validation, the checking process used, the comparison of model data to drill hole data, and use of reconciliation data if available.	Several key model validation steps have been taken to validate the resource estimate. The mineral resource model has been stepped through visually in sectional and plan view to appreciate the composite grades used in the estimate and the resultant block grades. Easting, Northing and Elevation swathe plots have been constructed to evaluate the composited assay means and declustered mean versus the mean block estimates. These showed good agreement. QQ and scatter plots for the averaged sample data vs. block model results were completed and showed a slight yet expected deviation from the 45° line. Moving from sample size data to a much bigger volume resulted in a slight overstatement of the low grades and an understatement of high grades.
Moisture	*Whether the tonnages are estimated on a dry basis or with natural moisture, and the method of determination of the moisture content.*	All tonnages are estimated on a dry basis.
Cut-off parameters	*The basis of the adopted cut-off grade(s) or quality parameters applied.*	Based on Saracen's current economic profile, and the natural grade distinction above background, a grade of 0.8/t has been chosen
Mining factors or assumptions	*Assumptions made regarding possible mining methods, minimum mining dimensions and internal (or, if applicable, external) mining dilution. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential mining methods, but the assumptions made regarding mining methods and parameters when estimating Mineral Resources may not always be rigorous. Where this is the case, this should be reported with*	At this stage there have been no mining assumptions or factors for the Tin Dog deposit on lease M3900588. There are reasonable grounds to assume that in the future this deposit will be mined by conventional open pit methods given the close proximity to surface of the mineralisation.

Section 3: Estimation and Reporting of Mineral Resources

Criteria	JORC Code Explanation	Commentary
	an explanation of the basis of the mining assumptions made.	
Metallurgical factors or assumptions	*The basis for assumptions or predictions regarding metallurgical amenability. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential metallurgical methods, but the assumptions regarding metallurgical treatment process and parameters made when reporting Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the metallurgical assumptions made.*	At this stage of the project there has been no metallurgical testing.
Environmental factors or assumptions	*Assumptions made regarding possible waste and process residue disposal options. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider the potential environmental impacts of the mining and processing operation. While at this stage the determination of potential environmental impacts, particularly for a greenfields project, may not always be well advanced, the status of early consideration of these potential environmental impacts should be reported. Where these aspects have not been considered this should be reported with an explanation of the environmental assumptions made.*	Environmental considerations are captured by Program of Work (PoW) requirements. Operations on these tenements are purely exploratory in nature to date.
Bulk Density	*Whether assumed or determined. If assumed, the basis for the assumptions. If determined, the method used, whether wet or dry, the frequency of the measurements, the nature, size and representativeness of the samples.*	The density values applied to the Tin Dog estimation were based on historic density measures for similar lithological units in the same geological zones. At this stage there is no new Bulk Density data collected and measured by Saracen.
	The bulk density for bulk material must have been measured by methods that adequately account for void spaces (vugs, porosity, etc), moisture and differences between rock and alteration zones within the deposit.	It is unknown how the historic bulk densities were measured. Any future bulk density measurements will follow the Saracens Metals standardised procedures.
	Discuss assumptions for bulk density estimates used in the evaluation process of the different materials.	Density values are allocated uniformly to each lithological and regolith type. This includes the primary fresh lithologies as well as the weathered oxide and transitional zones.
Classification	*The basis for the classification of the Mineral Resources into varying confidence categories.*	The mineral resource has been classified as an Inferred category only, based on the variable drill spacing and the lower confidence in geological continuity.
	Whether appropriate account has been taken of all	All care has been taken to account of all available relevant information that could influence the mineral

Section 3: Estimation and Reporting of Mineral Resources		
Criteria	**JORC Code Explanation**	**Commentary**
	the relevant factors (ie relative confidence in tonnage/grade estimations, reliability of input data, confidence in continuity of geology and metal values, quality, quantity and distribution of the data).	resource estimate.
	Whether the result appropriately reflects the Competent Person's view of the deposit.	The geological model and the mineral resource estimate reflect the competent person’s view of the deposit.
Audits or reviews	*The results of any audits or reviews of Mineral Resource estimates.*	There has been no new information or updates of the 2010 Tin Dog mineral resource which was reported according to the 2004 JORC standards. Due to the simplicity of the deposit, no external audits have been conducted at this stage.
Discussion of relative accuracy/confidence	*Where appropriate a statement of the relative accuracy and confidence level in the Mineral Resource estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the resource within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors that could affect the relative accuracy and confidence of the estimate.*	Saracen Gold Mine uses a standard approach to resource estimation and the procedure requires the systematic completion of the Saracen Resource Estimation Document that is thoroughly investigated and assessed. It was identified that; Further work on KNA for block size, minimum and maximum number of samples, search ellipses would help to further improve the optimisation of the block model. It is recommended to use optimised pit shells or designs as a guide to create drilling programmes that maximise the conversion from inferred to indicated category. And it is recommended to initiate a bulk density programme with sufficient samples from the oxide and transitional layer to test the assumed values used in the estimate.
	The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonnages, which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the procedures used.	The statements relate to a global estimate of tonnes and grade.
	These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.	Mining production has not ensued at the Tin Dog Deposit on lease M3900588.

Bulldog

Section 1: Sampling Techniques and Data		
Criteria	**JORC Code Explanation**	**Commentary**
Sampling Techniques	*Nature and quality of sampling (e.g. cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc.). These examples should not be taken as limiting the broad meaning of sampling.*	Saracen has not undertaken any sampling activities at Bulldog. Historic sampling methods conducted since 1985 have included aircore (AC), rotary air blast (RAB), reverse circulation (RC) and diamond drillholes (DD).
	Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used	RC, RAB, AC and DD core drilling is assumed to have been completed by previous holders to industry standard at that time (1985- 2002).
	Aspects of the determination of mineralisation that are Material to the Public Report. In cases where 'industry standard' work has been done this would be relatively simple (e.g. 'reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30 g charge for fire assay'). In other cases more explanation may be required, such as where there is coarse gold that has inherent sampling problems. *Unusual commodities or mineralisation types (e.g. submarine nodules) may warrant disclosure of detailed information*	Historical AC, RAB,RC and DD sampling was carried out to industry standard at that time. Sampling methods for RC drilling included riffle splitting and unknown methods. Methods for RAB and AC remain unknown. Diamond core was half core sampled. Analysis methods include fire assay, aqua regia and unspecified methods.
Drilling Techniques	*Drill type (e.g. core, reverse 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.).*	The deposit has been sampled by 134 AC holes, 120 RAB holes, 52 RC holes (assumed standard 5 ¼ ''bit size) and 1 unknown diameter diamond core hole. It is unknown if the diamond drillhole was oriented.
Drill Sample Recovery	*Method of recording and assessing core and chip sample recoveries and results assessed*	No historic recoveries have been recorded.
	Measures taken to maximise sample recovery and ensure representative nature of the samples	It is unknown what, if any, measures were taken to ensure sample recovery and representivity.
	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.	Any historical relationship is not known.
Logging	*Whether core and chip samples have been*	Logging of AC, RAB, RC and diamond drill holes has recorded lithology, mineralogy, texture,

Section 1: Sampling Techniques and Data

Criteria	JORC Code Explanation	Commentary
	geologically and geotechnically logged to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies. *Whether logging is qualitative or quantitative in nature.* *Core (or costean, channel, etc) photography.*	mineralisation, weathering, alteration and veining. Qualitative and quantitative logging of historic data varies in its completeness. It is unknown if drill core was photographed.
	The total length and percentage of the relevant intersections logged	All drillholes appear to have been logged in full.
Sub-sampling techniques and sample preparation	*If core, whether cut or sawn and whether quarter, half or all core taken.*	Historic diamond drilling has been half core sampled.
	If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry.	Sampling methods have included rifle split and unknown methods. It is unknown if wet samples were encountered.
	For all sample types, the nature, quality and appropriateness of the sample preparation technique.	The sampling techniques for historic drilling are unknown, best practice is assumed.
	Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.	Sampling by previous holders assumed to be industry standard at the time
	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.	It is unknown if historic duplicate was performed.
	Whether sample sizes are appropriate to the grain size of the material being sampled.	It is assumed historic sample sizes were appropriate given the grain size of the material sampled.
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.*	AC, RAB, RC and DD samples were analysed using fire assay and aqua regia methods. These methods are considered suitable for determining gold concentrations in rock and are total digest methods. Some samples have been assayed via unknown methods.
	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 geophysical tools have been utilised for reporting gold mineralisation.
	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.	Historic RAB, DD and RC drilling is assumed to have been carried out to industry standard regarding QAQC procedures.
Verification of sampling and assaying	*The verification of significant intersections by either independent or alternative company personnel.*	It is unknown if historic intercepts were verified by alternative company personnel.
	The use of twinned holes.	No specific twinned holes have been drilled at Bulldog
	Documentation of primary data, data entry	Data from previous owners was taken from a database compilation and validated as much as

Section 1: Sampling Techniques and Data

Criteria	JORC Code Explanation	Commentary
	procedures, data verification, data storage (physical and electronic) protocols	practicable before entry into the Saracen acQuire database.
	Discuss any adjustment to assay data.	No adjustments have been made to assay data. First gold assay is utilised for resource estimation.
Location of data points	*Accuracy and quality of surveys used to locate drillholes (collar and down-hole surveys), trenches, mine workings and other locations used in Mineral Resource estimation.*	Previous holders' survey accuracy and quality is unknown
	Specification of the grid system used.	MGA Zone 51 grid system is used in the Bulldog area.
	Quality and adequacy of topographic control.	The quality and accuracy of topographic control is unknown for historic data. Detailed topography has been captured and will be used in future updates and for subsequent planning purposes.
Data spacing and distribution	*Data spacing for reporting of Exploration Results.*	No exploration results reported in this release
	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.	Data spacing and distribution are sufficient to establish the degree of geological and grade continuity appropriate for JORC classifications applied.
Orientation of data in relation to geological structure	*Whether sample compositing has been applied.*	Some historic RAB and RC sampling was composited into 3-4m samples
	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 drillholes are positioned to achieve optimum intersection angles to the ore zone as are practicable.
	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.	No significant sampling bias has been recognised due to orientation of drilling in regards to mineralised structures.
Sample security	*The measures taken to ensure sample security.*	Information on sample security measures has not been provided
Audits or reviews	*The results of any audits or reviews of sampling techniques and data.*	No evidence of external reviews has been supplied. QAQC procedures appear to have been regularly internally reviewed and updated.

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 Bulldog resource is located on M39/591. The tenement is held 100% by Saracen Gold Mines Pty Ltd, a wholly owned subsidiary of Saracen Mineral Holdings Limited. Mining Lease M39/591 has a 21 year life (held until 2030) and is renewable for a further 21 years on a continuing basis. Mining Lease M39/591 is subject to one royalty agreement and one associated caveat (404249). All production is subject to a Western Australian state government NSR royalty of 2.5%. Mining Lease M39/591 is subject to the Yundamindera Pastoral Compensation Agreement. There are no registered Aboriginal Heritage sites within the tenement.
	The security of the tenure held at the time of reporting along with any known impediments to obtaining a licence to operate in the area.	The tenement is in good standing and there are no known impediments to obtaining a licence to operate.
Exploration done by other parties	*Acknowledgment and appraisal of exploration by other parties.*	BHP conducted exploration in the Mount Howe district, including in the Bulldog area, in 1985. Work included drilling, mapping and geophysical surveys. No mineralisation was encountered and the area was surrendered. Pancontinental acquired the ground but concentrated on other prospects within the project area. Goldfields entered into a JV with Pancon in 1995 and conducted a magnetic survey, highlighting the Bulldog anomaly. RAB and AC drilling of the anomaly confirmed broad zones of gold mineralisation and was followed by RC drilling to delineate the resource. A single DD hole was drilled into the magnetic high. Results were anomalous but not significant. Sons of Gwalia purchased the tenements and carried out minor aircore and RC drilling before the collapse of the company. The project was acquired by St Barbara following this.
Geology	*Deposit type, geological setting and style of mineralisation.*	The gold mineralisation at the Bulldog deposit extends approximately 4 km along strike with the significant mineralisation occurring in two narrow north-northwest trending zones over a length of 650m. The deposit is hosted in the southern extension of the Tin Dog/Mt Hornett shear zone within a sequence of graphitic shales, BIFs, sediments and felsic volcanic rocks. The main mineralization occurs in highly sheared and silicified/carbonatized quartz-sericite ± chlorite schists with intercalated carbonaceous shales, along with minor BIF, chert, chloritic schist and, in places weakly sheared intermediate and felsic metavolcanic rocks. Quartz veining and narrow zones of pyrite were observed in the gold-bearing intervals.
Drillhole 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 does not detract from the understanding of the report, the Competent Person*	It is not practical to summarise all of the holes deemed material in this release. Exclusion of the drilling information will not detract from the reader's view of the report. Future drill hole data will be periodically released or when a results materially change the economic value of the project.

Section 2: Reporting of Exploration Results

Criteria	JORC Code Explanation	Commentary
	should clearly explain why this is the case.	
Data aggregation methods	*In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (e.g. cutting of high grades) and cut-off grades are usually Material and should be stated.*	No exploration results are reported in this release.
	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.	No exploration results are reported in this release.
	The assumptions used for any reporting of metal equivalent values should be clearly stated.	There are no metal equivalents reported in this release.
Relationship between mineralisation widths and intercept lengths	*These relationships are particularly important in the reporting of Exploration Results.* *If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.* *If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (eg 'down hole length, true width not known').*	Saracen has not previously reported any exploration results for Bulldog, nor are any included in this release.
Diagrams	*Appropriate maps and sections (with scales) and tabulations of intercepts should be included for any significant discovery being reported These should include, but not be limited to a plan view of drill hole collar locations and appropriate sectional views.*	No exploration results are reported in this release.
Balanced Reporting	*Where comprehensive reporting of all Exploration Results are not practicable, representative reporting of both low and high grades and/or widths should be practiced to avoid misleading reporting of Exploration Results.*	Saracen has not previously reported exploration results at Bulldog, nor are any included in this release.
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*	No substantive data acquisition has been completed in recent times.

Section 2: Reporting of Exploration Results

Criteria	JORC Code Explanation	Commentary
	contaminating substances.	
Further work	*The nature and scale of planned further work (eg tests for lateral extensions or depth extensions or large-scale step-out drilling).* *Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive*	In the current economic climate, exploration activities at Bull Dog have been given a lower priority.

Section 3: Estimation and Reporting of Mineral Resources

Criteria	JORC Code Explanation	Commentary
Database Integrity	*Measures taken to ensure that data has not been corrupted by, for example, transcription or keying errors, between its initial collection and its use for Mineral Resource estimation purposes.*	Saracen utilises AcQuire software on an SQL server database to securely store and manage all drillhole and sample information. Data integrity protocols are built into the system to ensure data validity and minimise errors.
	Data validation procedures used.	Data for this deposit was inherited from SOG's database during the acquisition in 2006. This data was imported into the Saracen AcQuire Database and in the process was validated by internal processes and systems. The process was overseen by the Database Administrator.
Site Visits	*Comment on any site visits undertaken by the Competent Person and the outcome of those visits.*	There have been no recent visits to the Bulldog deposit by the competent person. Exploration personnel and geological managers have covered the ground since its acquisition from SOG's in 2006, and the resource was updated in 2010 to reflect their findings.
	If no site visits have been undertaken indicate why this is the case.	
Geological Interpretation	*Confidence in (or conversely, the uncertainty of) the geological interpretation of the mineral deposit.*	The resource category of Inferred was assigned to the whole model as it directly reflects the confidence in the geological interpretation that is built using mineral, and alteration geology obtained from mapping, logging, (100mN x 40mE drill spacing), drill results and geophysics.
	Nature of the data used and any assumptions made.	The geological interpretation and delineation of the mineralisation was predominantly constructed by grade and where possible alteration type, alteration intensity and veining. A cut-off grade of 0.25g/t was used to delineate the ore zones. Interpretations were based on the drilling results provided by SOG's. Saracen Metals have not drilled any additional holes to this deposit. Magnetic geophysical surveys and mapping also assisted in the interpretation of Bulldog. Cross sectional interpretations of the mineralisation have been created and from this basic framework a 3D wireframe solid is built.
	The affect, if any, of alternative interpretations on Mineral Resource estimation.	Due to the simplistic nature of the mineralisation no alternative interpretations have been considered. Over the life of the project several different sources have interpreted the mineralisation and all agree on the same basic interpretation.
	The use of geology in guiding and controlling the Mineral Resource estimation.	The main mineralization occurs in highly sheared and silicified/carbonatized quartz-sericite ± chlorite schists with intercalated carbonaceous shales, along with minor BIF, chert, chloritic schist and, in places weakly sheared intermediate and felsic metavolcanic rocks. Quartz veining and narrow zones of pyrite were observed in the gold-bearing intervals and these influenced the domaining that controls the mineral

Section 3: Estimation and Reporting of Mineral Resources

Criteria	JORC Code Explanation	Commentary
		resource estimation. The western (flatter) mineralised lode is hosted by a massive- to weakly foliated porphyritic metabasalt unit showing local evidence of brittle deformation and variable silicification and carbonatisation.
	The factors affecting continuity both of grade and geology.	Late stage faults that cross cut the lithological and structural grain occur throughout the project area that potentially result in the local change in strike of the mineralised lodes, every 900 – 1000m. The northern and southern termination is dictated more by the lack drilling in those directions. Drill spacing and depth makes it difficult to conclude accurate factors influencing continuity. Hence the appropriate assignment of Inferred to this resource.
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.*	Bulldog mineralisation extends from 41000mN to 44000mN, 50500mE to 51000mE and to 150 meters below surface. There are two defining Bulldog Shears, the main shear strikes NNW-SSE and dips 50° towards the NE whilst lode 2 strikes N-S and is subhorizontal with a slight dip to the east.
Estimation and modelling techniques	*The nature and appropriateness of the estimation technique(s) applied and key assumptions, including treatment of extreme grade values, domaining, interpolation parameters and maximum distance of extrapolation from data points.*	Block estimation has been completed in Datamine software. All wireframes have been constructed in Micromine and were used as hard boundaries for the estimation. Estimation of parent blocks are interpolated with block discretisation points set to 5 x 5 x 5. The maximum distance of extrapolation is less than 100m. Univariate statistical analysis of length weighted, (1m), domain coded downhole composites have been completed for all domains and top-cuts applied where applicable. Minor clusters of high grades were apparent in the data set and the two lodes were analysed individually to determine specific top-cut values of 3.0g/t. RAB and Aircore Drill data was excluded from the dataset, negative Au grades replaced with a value of 0.001g/t and null assays were excluded from the sample data. Unfolding was carried out prior to variography and interpolation to remove the variable dip and strike typically associated with the mineralised domains. Variogram modelling was completed with GeoAccess Professional software. This defined the sample continuity with in the domains. The parameters determined from this analysis were used in the interpolation process.
	The availability of check estimates, previous estimates and/or mine production records and whether the Mineral Resource estimate takes appropriate account of such data.	As an inferred resource there has been no production reported for the Bulldog deposit. There were no previous historic models of this deposit to make a comparison.
	The assumptions made regarding recovery of by-products.	No assumptions have been made with respect to the recovery of by-products.
	Estimation of deleterious elements or other non-grade variables of economic significance (e.g. sulfur for acid mine drainage characterisation).	There has been no estimate at this point of deleterious elements. Saracen is unaware if any elements other than gold have been assayed.
	In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed.	The parent block sizes for the resource model are X (5m) by Y (10m) by Z (5m). Globally these are reasonable for this **Inferred** only resource, where drill spacing is in the order of 100m x 40m. Mining selectivity and mineralised lode geometry also influenced the estimation block size. Parent blocks have been sub-celled to X (1m) by Y (1m) by Z (1m) to ensure that the wireframe boundaries are honoured and preserve the location and shape of the mineralisation. Search ranges have been informed by variogram modelling and knowledge of the drill spacing and the known mineralisation geometry including direction of maximum continuity.

Section 3: Estimation and Reporting of Mineral Resources

Criteria	JORC Code Explanation	Commentary
		Three search estimation runs were used with the aim to satisfy the minimum sample criteria in the first search range where possible.
	Any assumptions behind modelling of selective mining units.	No selective mining units have been assumed.
	Any assumptions about correlation between variables.	No assumptions have been made regarding correlation between variables.
	Description of how the geological interpretation was used to control the resource estimates.	The geological interpretation correlates with the mineralised domains. All wireframe boundaries including those where lithology and mineralisation correspond, hard boundaries are enforced. There were no internal geological features identified that could help shape the estimation.
	Discussion of basis for using or not using grade cutting or capping.	Individual analysis of the two domains indicates small clusters of high grade outliers that bias the mean grade and positively skew the grade population. Top-cuts (3.0g/t) have been employed to eliminate the risk of overestimating in the local areas and bring those outliers in line with the majority of the population.
	The process of validation, the checking process used, the comparison of model data to drill hole data, and use of reconciliation data if available.	Several key model validation steps have been taken to validate the resource estimate. The mineral resource model has been stepped through visually in sectional and plan view to appreciate the composite grades used in the estimate and the resultant block grades. Easting, Northing and Elevation swathe plots have been constructed to evaluate the composited assay means and declustered mean versus the mean block estimates. These showed good agreement. QQ and scatter plots for the averaged sample data vs. block model results were completed and showed a slight yet expected deviation from the 45° line. Moving from sample size data to a much bigger volume resulted in a slight overstatement of the low grades and an understatement of high grades.
Moisture	*Whether the tonnages are estimated on a dry basis or with natural moisture, and the method of determination of the moisture content.*	All tonnages are estimated on a dry basis.
Cut-off parameters	*The basis of the adopted cut-off grade(s) or quality parameters applied.*	Based on Saracen's current economic operations at Carosue Dam, and the natural grade distinction above background, a grade of 0.8g/t has been selected.
Mining factors or assumptions	*Assumptions made regarding possible mining methods, minimum mining dimensions and internal (or, if applicable, external) mining dilution. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential mining methods, but the assumptions made regarding mining methods and parameters when estimating Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the mining assumptions made.*	At this stage there have been no mining assumptions or factors for the Bulldog deposit.
Metallurgical factors or assumptions	*The basis for assumptions or predictions regarding metallurgical amenability. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to*	There are no metallurgical factors at this stage of the project.

Section 3: Estimation and Reporting of Mineral Resources		
Criteria	**JORC Code Explanation**	**Commentary**
	consider potential metallurgical methods, but the assumptions regarding metallurgical treatment process and parameters made when reporting Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the metallurgical assumptions made.	
Environmental factors or assumptions	*Assumptions made regarding possible waste and process residue disposal options. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider the potential environmental impacts of the mining and processing operation. While at this stage the determination of potential environmental impacts, particularly for a greenfields project, may not always be well advanced, the status of early consideration of these potential environmental impacts should be reported. Where these aspects have not been considered this should be reported with an explanation of the environmental assumptions made.*	Environmental considerations are captured by Program of Work (PoW) requirements. To date operations on these tenements is purely exploratory in nature.
Bulk Density	*Whether assumed or determined. If assumed, the basis for the assumptions. If determined, the method used, whether wet or dry, the frequency of the measurements, the nature, size and representativeness of the samples.*	The density values applied to the Bulldog estimation were based on historic density measures for similar lithological units in the same geological zones. At this stage there is no new Bulk Density data collected and measured by Saracen.
	The bulk density for bulk material must have been measured by methods that adequately account for void spaces (vugs, porosity, etc), moisture and differences between rock and alteration zones within the deposit.	It is unknown how the historic bulk densities were measured. Any future bulk density measurements will follow the Saracens Metals standardised procedures.
	Discuss assumptions for bulk density estimates used in the evaluation process of the different materials.	Density values are allocated uniformly to each lithological and regolith type. This includes the primary fresh lithologies as well as the weathered oxide and transitional zones.
Classification	*The basis for the classification of the Mineral Resources into varying confidence categories.*	The mineral resource has been classified as an Inferred category only based on the 100m x 40m drill hole spacing and the resulting lower confidence in geological continuity.
	Whether appropriate account has been taken of all the relevant factors (ie relative confidence in tonnage/grade estimations, reliability of input data, confidence in continuity of geology and metal values, quality, quantity and distribution of the data).	All care has been taken to account of all available relevant information that could influence the mineral resource estimate.
	Whether the result appropriately reflects the	The geological model and the mineral resource estimate reflect the competent person's view of the

Section 3: Estimation and Reporting of Mineral Resources		
Criteria	**JORC Code Explanation**	**Commentary**
	Competent Person's view of the deposit.	deposit.
Audits or reviews	*The results of any audits or reviews of Mineral Resource estimates.*	There has been no new information or updates of the 2010 Bulldog mineral resource which was reported according to the 2004 JORC standards. Due to the simple geological setting and inferred classification of the Bulldog Deposit no external audits have been conducted at this stage.
Discussion of relative accuracy/confidence	*Where appropriate a statement of the relative accuracy and confidence level in the Mineral Resource estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the resource within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors that could affect the relative accuracy and confidence of the estimate.*	Saracen Gold Mine uses a standard approach to resource estimation and the procedure requires the systematic completion of the Saracen Resource Estimation Document that is thoroughly investigated and assessed. It was identified that; Further work on KNA for block size, minimum and maximum number of samples, search ellipses would help to further improve the optimisation of the block model. It is recommended to use optimised pit shells or designs as a guide to create drilling programmes that maximise the conversion from inferred to indicated category. And it is recommended to initiate a bulk density programme with sufficient samples from the oxide and transitional layer to test the assumed values used in the estimate.
	The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonnages, which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the procedures used.	The statements relate to a global estimate of tonnes and grade.
	These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.	Mining production has not ensued at the Bulldog Deposit.

Crimson Belle

Section 1: Sampling Techniques and Data		
Criteria	**JORC Code Explanation**	**Commentary**
Sampling Techniques	*Nature and quality of sampling (e.g. cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc.). These examples should not be taken as limiting the broad meaning of sampling.*	Saracen has undertaken reverse circulation drilling (RC) at Crimson Belle. Historic methods conducted since 1984 have included aircore (AC), rotary air blast (RAB), reverse circulation and diamond drillholes..
	Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems	Sampling for RC drilling was carried out as specified within Saracen sampling and QAQC procedures as per industry standard. RC chips provide high quality representative samples for analysis.

Section 1: Sampling Techniques and Data

Criteria	JORC Code Explanation	Commentary
	used	RC, RAB, AC and DD core drilling was completed by previous holders to industry standard at that time (1984- 2000).
	Aspects of the determination of mineralisation that are Material to the Public Report. In cases where 'industry standard' work has been done this would be relatively simple (e.g. 'reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30 g charge for fire assay'). In other cases more explanation may be required, such as where there is coarse gold that has inherent sampling problems. *Unusual commodities or mineralisation types (e.g. submarine nodules) may warrant disclosure of detailed information*	RC chips were cone split and sampled into 1m intervals with total sample weights less than 3 kg. Samples were selected to weigh less than 3 kg to ensure total sample inclusion at the pulverisation stage. Saracen chip samples were crushed, dried and pulverised to a nominal 90% passing 75µm to produce a 50g sub sample for analysis by FA/AAS. Historical AC, RAB, RC and diamond sampling was carried out to industry standard at that time. Analysis methods include fire assay, aqua regia and unspecified methods.
Drilling Techniques	*Drill type (e.g. core, reverse 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.).*	The deposit was initially sampled by 9 AC holes, 13 RAB holes, 231 RC holes (assumed standard 5 ¼ ''bit size) and 3 surface diamond unknown diameter holes. Saracen has completed 28 RC drillholes utilising a 5 ¼ '' face sampling hammer. It is unknown if historic diamond drill core was oriented.
Drill Sample Recovery	*Method of recording and assessing core and chip sample recoveries and results assessed*	RC sampling recoveries were recorded as a percentage based on a visual weight estimate; no historic recoveries have been recorded.
	Measures taken to maximise sample recovery and ensure representative nature of the samples	During RC campaigns daily rig inspections are carried out to check splitter condition, general site and address general issues. Historic AC, RAB, RC and diamond drilling to industry standard at that time.
	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.	There is no known relationship between sample recovery and grade for RC drilling. Any historical relationship is not known.
Logging	*Whether core and chip samples have been geologically and geotechnically logged to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies.* *Whether logging is qualitative or quantitative in nature.* *Core (or costean, channel, etc) photography.*	Logging of RC chips recorded lithology, mineralogy, texture, mineralisation, weathering, alteration, veining and other features. Chips from all RC holes were stored in chip trays for future reference. Qualitative and quantitative logging of historic data varies in its completeness.
	The total length and percentage of the relevant intersections logged	All exploration RC holes were logged in full. Historical logging is complete.
Sub-sampling techniques and sample preparation	*If core, whether cut or sawn and whether quarter, half or all core taken.*	Saracen has not carried out diamond drilling at Crimson Belle. Historic diamond drilling has been sampled via unknown methods.
	If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry.	All exploration RC samples were cone split. Occasional wet samples were encountered; increased air capacity was routinely used to aid in keeping the sample dry when water was encountered.

Section 1: Sampling Techniques and Data		
Criteria	**JORC Code Explanation**	**Commentary**
		Historic AC, RAB and RC drilling was sampled using spear, riffle and unknown methods.
	For all sample types, the nature, quality and appropriateness of the sample preparation technique.	The sample preparation of RC chips adhered to industry best practice. It was conducted by a commercial laboratory and involved oven drying, coarse crushing then total grinding to a size of 90% passing 75 microns. Best practice is assumed at the time of historic sampling.
	Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.	All subsampling activities were carried out by commercial laboratory and are considered to be satisfactory. Sampling by previous holders assumed to be industry standard at the time.
	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.	Duplicate sampling was carried out at a rate of 1:10 for exploration drilling, with the duplicate being sampled directly from the on-board splitter on the rig. These were submitted for the same assay process as the original samples and the laboratory were unaware of such submissions. Sampling by previous holders assumed to be industry standard at the time.
	Whether sample sizes are appropriate to the grain size of the material being sampled.	Sample sizes are considered to be appropriate given the grainsize (90% passing 75 microns) of the material sampled..
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.*	RC chip samples were analysed by external laboratories using a 50g fire assay with AAS finish. This method is considered suitable for determining gold concentrations in rock and is a total digest method. Historic sampling includes fire assay, aqua regia and unknown methods.
	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 geophysical tools have been utilised for reporting gold mineralisation at Crimson Belle.
	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.	Certified reference material (standards and blanks) with a wide range of values were inserted into every drillhole at a rate of 1:25 for exploration RC drilling. These were not identifiable to the laboratory. QAQC data returned were checked against pass/fail limits with the SQL database and were passed or failed on import. A report was generated and reviewed by the geologist as necessary upon failure to determine further action. QAQC data was reported monthly. Sample preparation checks for fineness are carried out to ensure a grindsize of 90% passing 75 microns. The laboratory performed a number of internal processes including standards, blanks, repeats and checks. QAQC data analysis demonstrates sufficient accuracy and precision. Industry best practice is assumed for previous holders.
Verification of sampling and assaying	*The verification of significant intersections by either independent or alternative company personnel.*	Significant intercepts are verified by the Geology Manager and corporate personnel.
	The use of twinned holes.	No specific twinned holes have been drilled at Crimson Belle.
	Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols	Primary data was collated in a set of excel templates utilising lookup codes. This data was forwarded to the Database Administrator for entry into a secure acQuire database with inbuilt validation functions. Data from previous owners was taken from a database compilation and validated as much as practicable before entry into the Saracen acQuire database.
	Discuss any adjustment to assay data.	No adjustments have been made to assay data. First gold assay is utilised for resource estimation.
Location of data points	*Accuracy and quality of surveys used to locate*	Exploration drillholes were located using a Leica 1200 GPS with an accuracy of +/- 10mm.

Section 1: Sampling Techniques and Data

Criteria	JORC Code Explanation	Commentary
	drillholes (collar and down-hole surveys), trenches, mine workings and other locations used in Mineral Resource estimation.	Downhole surveys were carried out using an electronic multishot tool at 5m intervals. Previous holders' survey accuracy and quality is unknown
	Specification of the grid system used.	A local grid system (CamelBack) is used. The two point conversion to MGA_GDA94 zone 51 is CBEast CBNorth RL MGAEast MGANorth RL Point 1 8000 5775 0 433743.35 6764980.48 0 Point 2 8000 6249.75 0 433633.80 6765442.59 0 Historic data is converted to the CamelBack local grid upon export from the database.
	Quality and adequacy of topographic control.	Topographic control originally used site based survey pickups in addition to Kevron aerial photogrammetric surveys with +/- 5m resolution.
Data spacing and distribution	*Data spacing for reporting of Exploration Results.*	The nominal spacing for exploration drilling is 40m x 20m drilling pattern, grading to a 50m x 30m to 50m x 50m patterns at depth.
	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.	Data spacing and distribution are sufficient to establish the degree of geological and grade continuity appropriate for JORC classifications applied.
Orientation of data in relation to geological structure	*Whether sample compositing has been applied.*	Sample compositing is not applied until the estimation stage. Some historic RAB and RC sampling was composited into 3-4m samples.
	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 drillholes are positioned to achieve optimum intersection angles to the ore zone as are practicable.
	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.	No significant sampling bias is thought to occur due to orientation of drilling in regards to mineralised structures.
Sample security	*The measures taken to ensure sample security.*	Samples were prepared on site under supervision of Saracen geological staff. Samples were selected, bagged into tied numbered calico bags then grouped into secured cages and collected by the laboratory personnel. Sample submissions are documented via laboratory tracking systems and assays are returned via email
Audits or reviews	*The results of any audits or reviews of sampling techniques and data.*	An internal review of companywide sampling methodologies was conducted to create the current sampling and QAQC procedures.

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 Crimson Belle resource is located on M39/120. Near mine exploration has been carried out on M39/118 and E39/1410. The tenements are held 100% by Saracen Gold Mines Pty Ltd, a wholly owned subsidiary of Saracen Mineral Holdings Limited. Mining Leases M39/118 and M39/120 have a 21 year life (held until 2030) and are renewable for a further 21 years on a continuing basis. Mining Lease M39/118 is subject to three royalty agreements and three associated caveats (1154H/967, 136H/067 and 323783). Mining Lease M39/120 is subject to three royalty agreements and two associated caveats (138H/067 and 323785). Exploration Licence E39/1410 is subject to one royalty and one associated caveat (410509). All production is subject to a Western Australian state government NSR royalty of 2.5%. Mining Leases M39/118 and M39/120, and Exploration Licence E39/1410 are subject to the Yundamindera Pastoral Compensation Agreement. There are no registered Aboriginal Heritage sites within the tenements.
	The security of the tenure held at the time of reporting along with any known impediments to obtaining a licence to operate in the area.	The tenements are in good standing and there are no known impediments to obtaining a licence to operate. Exploration Licence E39/1410 expired in July 2014. An extension of term was submitted on July 22, 2014.
Exploration done by other parties	*Acknowledgment and appraisal of exploration by other parties.*	The Camelback prospect, in near vicinity to Crimson Bell, was discovered by WMC in the 1970's through a rock chip campaign. Drilling was initially carried out in 1984 and intersected variable gold grades. Further drilling and geochemical activities were continued through the 1980's and 1990's by WMC, Windarra Nickel, Consex, Newmont, Dominion, Plutonic and Mount Burgess. Drilling carried out by Sons of Gwalia in 1995 following their JV with Mount Burgess delineated the Crimson Belle resource.
Geology	*Deposit type, geological setting and style of mineralisation.*	Gold mineralisation at Crimson Belle is hosted within a 15-30m wide shear zone dipping 50-80 degrees to the east, within a sedimentary sequence containing abundant chert. Mineralisation occurs in two lodes associated with quartz-sulphide veining hosted within the silicified gossanous chert and extends for approximately 600m along a north-south strike.
Drillhole 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 does not detract from the understanding of the report, the Competent Person should clearly explain why this is the case.*	All material data is periodically released on the ASX: 25/01/2013. Future drill hole data will be periodically released or when a results materially change the economic value of the project. Exclusion of the drilling information will not detract from the reader's view of the report.
Data aggregation	*In reporting Exploration Results, weighting*	All significant intercepts have been length weighted with a minimum Au grade of 1ppm. No high grade

Section 2: Reporting of Exploration Results		
Criteria	**JORC Code Explanation**	**Commentary**
methods	*averaging techniques, maximum and/or minimum grade truncations (e.g. cutting of high grades) and cut-off grades are usually Material and should be stated.*	cut off has been applied.
	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.	Intercepts are aggregated with minimum width of 1m and maximum width of 3m for internal dilution. Where stand out higher grade zone exist with in the broader mineralised zone, the higher grade interval is reported also.
	The assumptions used for any reporting of metal equivalent values should be clearly stated.	There are no metal equivalents reported in this release.
Relationship between mineralisation widths and intercept lengths	*These relationships are particularly important in the reporting of Exploration Results.* *If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.* *If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (eg 'down hole length, true width not known').*	This announcement includes sufficient detail to clearly illustrate the geometry of the mineralisation and the recent drilling. All results are reported as downhole lengths. This remains consistent with previous announcements.
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.*	All significant exploration results released by Saracen are accompanied by the appropriate diagrams and maps at the time of the release.
Balanced Reporting	*Where comprehensive reporting of all Exploration Results are not practicable, representative reporting of both low and high grades and/or widths should be practiced to avoid misleading reporting of Exploration Results.*	All results from the recent campaign have been reported, irrespective of success or not.
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.*	No substantive data acquisition has been completed in recent times.
Further work	*The nature and scale of planned further work (eg*	Crimson Belle is a prospective resource with exploration potential. Further Exploration activity for this

Section 2: Reporting of Exploration Results

Criteria	JORC Code Explanation	Commentary
	tests for lateral extensions or depth extensions or large-scale step-out drilling). *Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive*	deposit is currently under review.

Section 3: Estimation and Reporting of Mineral Resources

Criteria	JORC Code Explanation	Commentary
Database Integrity	*Measures taken to ensure that data has not been corrupted by, for example, transcription or keying errors, between its initial collection and its use for Mineral Resource estimation purposes.*	Saracen utilises AcQuire software on an SQL server database to securely store and manage all drillhole and sample information. Data integrity protocols are built into the system to ensure data validity and minimise errors.
	Data validation procedures used.	Data that is captured in the field is entered into Excel templates which are checked on import into the database for errors. Assay jobs are dispatched electronically to the lab to minimise the chance of data entry errors. Assay results from the lab are received in CSV format and are checked for errors on import into the database. Data is regularly validated using the mining software. The data validation process is overseen by the Database Administrator.
Site Visits	*Comment on any site visits undertaken by the Competent Person and the outcome of those visits.*	At the time of exploration and review (2010) of the deposit, the Competent Persons visited the geological area frequently to assess geological competency and ensure integrity across all geological disciplines.
	If no site visits have been undertaken indicate why this is the case.	
Geological Interpretation	*Confidence in (or conversely, the uncertainty of) the geological interpretation of the mineral deposit.*	A combination of exploration mapping, geophysical surveys, both exploration and grade control drill hole information and geological data, including mapping, has resulted in a reasonable geological interpretation.
	Nature of the data used and any assumptions made.	The interpretations have been constructed using all available geological logging descriptions including but not limited to, stratigraphy, lithology, texture, and alteration. Most information was obtained from drill hole results and some historic mapping. There is strong correlation between mineralisation and the BIF unit and this was used as the main driver for interpretation.
	The affect, if any, of alternative interpretations on Mineral Resource estimation.	Due to the simplicity of the model, there are no alternative models at this stage.
	The use of geology in guiding and controlling the Mineral Resource estimation.	The geology has heavily influenced the extent of the domains controlling the mineral resource estimation. Gold mineralisation occurs within the Crimson Belle deposit as a wide variety of vein and veinlet types within a NNW-striking and west-dipping sequence of sandstone, siltstone, shale and cherty banded iron formation (BIF), (although basalt and ultramafic schist have been intersected in some drillholes). The main mineralisation is confined to the BIF unit and is characterised by NNW strike and 70° – 80° easterly dip. All mineralised domains were wireframed with hard boundaries. The wireframes for the current model

Section 3: Estimation and Reporting of Mineral Resources

Criteria	JORC Code Explanation	Commentary
		were generated in Micromine based on a cut-off of 0.25 g/t of gold in individual sections of drill holes. The continuity of grade is largely related to the occurrence BIF, and AU mineralisation is found within it and close to other rock type contacts. The cross-sectional interpretation indicates mineralisation is continuous and still open at depth and along strike.
	The factors affecting continuity both of grade and geology.	
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.*	A total of 21 sections at 40m spacing were interpreted from 10,150N to 10,920N, 4500mE to 5100mE, covering the extent of the mineralisation in Crimson Belle deposit area. The interpretation and wireframes were generated based on a 40m × 15m and 40m × 20m exploration drilling patterns.
Estimation and modelling techniques	*The nature and appropriateness of the estimation technique(s) applied and key assumptions, including treatment of extreme grade values, domaining, interpolation parameters and maximum distance of extrapolation from data points.*	A conventional 3D Ordinary Kriging modelling technique has been used, with an unfolding methodology applied to provide a dynamic element to the allocation of search ellipses. The modelling technique is suitable to the domains being estimated allowing reasonable expectation of mining selectivity across the mineralised domain. OK Block estimation has been completed using Datamine software. All compositing, wireframes, surfaces, rock and domain models were constructed in Micromine. All estimation uses these wireframes as hard boundaries. Estimation of parent blocks are interpolated, and assigned to sub-cells. The maximum distance of extrapolation is less than 50m. Univariate statistical analysis of length weighted, (1m), domain and regolith coded downhole composites have been completed for all domains. Over 95% of the sample data used in the estimation was 1m in length with the average for the entire sample set at 1.00m. Composites were broken where there was a change of mineralisation domain code or regolith code. For each domain, log probability plots identified clusters of higher grade outliers that could bias the mean. High grade outliers were used to determine specific top-cut values for each domain. Estimations used only RC and Diamond Drill results; negative Au grades were replaced with a value of 0.001g/t, and null assays were excluded from the sample data. Unfolding was carried out prior to variography and estimation to remove the local variances in dip and strike observed in the domains. Variogram modelling was completed with GeoAccess Professional software. This defined the sample continuity and nugget value for each domain. Nugget effect in the major domains is typically 25% to 35%, which is moderate for a gold deposit and illustrates the robustness of the unfolded coordinate system as used for variogram calculation. Major ranges varied from 60m to 100m, with a limited range across the mineralisation of typically 15 to 30m. Down plunge ranges can be limited to 5m to 10m in some cases. The majority of the mineralised domains have data spacing that is well within the variogram ranges. The parameters determined from this analysis were used in the interpolation process.
	The availability of check estimates, previous estimates and/or mine production records and whether the Mineral Resource estimate takes	To validate the estimation a rerun of the estimation using ID2 was completed yielding a 2% variance in the global ounces. Compared to SGW 2000 model, this estimate has 9% more tonnes for 14% drop in grade and a 6%

Section 3: Estimation and Reporting of Mineral Resources

Criteria	JORC Code Explanation	Commentary
	appropriate account of such data.	overall loss in ounces. The result is due to the broadening the ore zones to a 0.25g/t value.
	The assumptions made regarding recovery of by-products.	No assumptions have been made with respect to the recovery of by-products.
	Estimation of deleterious elements or other non-grade variables of economic significance (e.g. sulfur for acid mine drainage characterisation).	There has been no estimate at this point of deleterious elements. Saracen is unaware if any elements other than gold have been assayed.
	In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed.	The parent block sizes for the resource model are X (5m) by Y (10m) by Z (5m). Drillhole data spacing, mining selectivity and mineralised lode geometry are among the primary considerations for the determination of an appropriate estimation block size. Drilling data at Crimson Belle is primarily on a 40 x 20 metre drilling pattern, grading to a 50 x 30 to 50 x 50 metre patterns at depth. Parent blocks have been sub-celled to X (1.0m) by Y (1.0m) by Z (1.0m) to ensure that the wireframe boundaries were honoured and preserved the location and shape of the mineralisation. Search ranges have been informed by variogram modelling and knowledge of the drill spacing and the known mineralisation geometry including direction of maximum continuity Three search estimation runs are used with the aim to satisfy the minimum sample criteria in the first search range where possible. Major ranges varied from 60m to 100m, with a limited range across the mineralisation of typically 15 to 30m. Down plunge ranges can be limited to 5m to 10m in some cases. The majority of the mineralised domains have data spacing that is well within the variogram ranges.
	Any assumptions behind modelling of selective mining units.	No selective mining units have been assumed.
	Any assumptions about correlation between variables.	No assumptions have been made regarding correlation between variables.
	Description of how the geological interpretation was used to control the resource estimates.	The geological interpretation strongly correlates with the mineralised domains. Hard wireframes were used to define all the mineralised domains.
	Discussion of basis for using or not using grade cutting or capping.	Linear interpolation methods such as Ordinary Kriging are sensitive to the presence of high-grade outliers that positively skew the data and bias the mean. Domain histogram and Log probability plots were used to determine appropriate top cuts for each domain. Not all domains required top cutting.
	The process of validation, the checking process used, the comparison of model data to drill hole data, and use of reconciliation data if available.	Several key model validation steps have been taken to validate the resource estimate. The mineral resource model has been stepped through visually in sectional and plan view to appreciate the composite grades used in the estimate and the resultant block grades. The mean average composite grade and block model grade by deposit and domain were compared. QQ and scatter plots for the averaged sample data vs. block model results were also plotted. Easting, Northing and Elevation swathe plots have been constructed to evaluate the declustered composited assay means versus the mean block estimates.
Moisture	*Whether the tonnages are estimated on a dry basis or with natural moisture, and the method of determination of the moisture content.*	All tonnages are estimated on a dry basis.

Section 3: Estimation and Reporting of Mineral Resources

Criteria	JORC Code Explanation	Commentary
Cut-off parameters	*The basis of the adopted cut-off grade(s) or quality parameters applied.*	Based on Saracen's current economic status the natural grade distinction above background for the Crimson Belle deposit was at a grade of 0.8g/t.
Mining factors or assumptions	*Assumptions made regarding possible mining methods, minimum mining dimensions and internal (or, if applicable, external) mining dilution. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential mining methods, but the assumptions made regarding mining methods and parameters when estimating Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the mining assumptions made.*	The Crimson Belle deposit is amenable to mining by open pit methods. There has not been any serious mining at Crimson Belle. There are reasonable grounds to assume that in the future this deposit will be mined by conventional open pit methods given the close proximity of the mineralisation to surface.
Metallurgical factors or assumptions	*The basis for assumptions or predictions regarding metallurgical amenability. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential metallurgical methods, but the assumptions regarding metallurgical treatment process and parameters made when reporting Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the metallurgical assumptions made.*	Limited metallurgical information is available for Crimson Belle. Metallurgical testing of a transition/fresh composite shows gravity recovery of 73% and total recovery of 79%.
Environmental factors or assumptions	*Assumptions made regarding possible waste and process residue disposal options. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider the potential environmental impacts of the mining and processing operation. While at this stage the determination of potential environmental impacts, particularly for a greenfields project, may not always be well advanced, the status of early consideration of these potential environmental impacts should be reported. Where these aspects have not been considered this should be reported with an explanation of the environmental assumptions made.*	Environmental considerations are captured by Program of Work (PoW) requirements. Operations on these tenements are purely exploratory in nature to date.
Bulk Density	*Whether assumed or determined. If assumed, the basis for the assumptions. If determined, the method used, whether wet or dry, the frequency of the measurements, the nature, size and*	The density values applied to the Crimson Belle Deposit estimation are largely based on historic density measures from similar rock types known to the geological area.

Section 3: Estimation and Reporting of Mineral Resources

Criteria	JORC Code Explanation	Commentary
	representativeness of the samples.	
	The bulk density for bulk material must have been measured by methods that adequately account for void spaces (vugs, porosity, etc), moisture and differences between rock and alteration zones within the deposit.	It is unknown how the historic bulk densities were measured. Any future bulk density measurements will follow the Saracens Metals standardised procedures.
	Discuss assumptions for bulk density estimates used in the evaluation process of the different materials.	Density values are allocated uniformly to each lithological and regolith type. This includes the primary fresh lithologies as well as the weathered oxide and transitional zones
Classification	*The basis for the classification of the Mineral Resources into varying confidence categories.*	Information from the estimation process, including search pass, number of composites used in the search ellipse and Kriging variance are all used in conjunction with drill spacing to finalise classification domains. Crimson Belle was classified into Indicated, Inferred and unclassified categories according to the 2004 JORC Code.
	Whether appropriate account has been taken of all the relevant factors (ie relative confidence in tonnage/grade estimations, reliability of input data, confidence in continuity of geology and metal values, quality, quantity and distribution of the data).	All care has been taken to account for relevant factors influencing the mineral resource estimate. The diligent Saracen Metals Resource review process ensures that data reliability and geological and metal confidence and continuity are reflected in the resource classification.
	Whether the result appropriately reflects the Competent Person's view of the deposit.	The geological model and the mineral resource estimate reflect the competent person's view of the deposit.
Audits or reviews	*The results of any audits or reviews of Mineral Resource estimates.*	This model was reviewed at the time of completion to the JORC 2004 standards. At the time the quality of the estimate was deemed appropriate and robust as a global estimate. Saracen Metals undertake an extensive review of the model that covers; • Model inventory and comparisons to previous and budget models if in existence • Geological interpretation, wireframing, domain selection, statisitics by domain, assay and metal evaluation, parent cell sizes, data compositing, variography, search strategy, estimation and KNA • Model validation – swathe plots, visual checks, volume comparisons, and composite to model metal comparisons. Due to its simple geological geometry, external audits were deemed unnecessary at the time.
Discussion of relative accuracy/confidence	*Where appropriate a statement of the relative accuracy and confidence level in the Mineral Resource estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the resource within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors that could affect the relative accuracy and confidence of the estimate.*	The mineral resource has been reported in accordance with the guidelines established in the 2004 edition of the JORC code. A standardised approach has been implemented for this estimation and the result is a robust model with appropriately defined resource categories. The validation process is also thorough suggesting the estimate has a reasonable level of confidence. The resource estimate is good global estimate however locally there is room for improvement particularly in the selection of optimal block size. The review of the estimate identified that; Further testing on the bulk density values would be invaluable, and The use of KNA for optimal block size, minimum and maximum number of samples, search ellipse dimension, and discretisation would help to further improve the optimisation of the block model on a

Section 3: Estimation and Reporting of Mineral Resources		
Criteria	**JORC Code Explanation**	**Commentary**
		local scale.
	The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonnages, which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the procedures used.	The statements relate to a global estimate of tonnes and grade.
	These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.	An historic pit (quarry) exits over Crimson Belle, however there is no link to historic production.

Butcher Well

Section 1: Sampling Techniques and Data		
Criteria	**JORC Code Explanation**	**Commentary**
Sampling Techniques	*Nature and quality of sampling (e.g. cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc.). These examples should not be taken as limiting the broad meaning of sampling.*	Sampling methods undertaken by Saracen in the Butcher Well project area have included reverse circulation (RC) and RC grade control drilling within two pits. Historic methods conducted since 1988 have included aircore (AC), rotary air blast (RAB), reverse circulation and diamond drillholes.
	Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used	Sampling for RC exploration and grade control drilling was carried out as specified within Saracen sampling and QAQC procedures as per industry standard. RC chips provide high quality representative samples for analysis. RC, RAB, AC and DD core drilling was completed by previous holders to industry standard at that time (1988- 2004).
	Aspects of the determination of mineralisation that are Material to the Public Report. In cases where 'industry standard' work has been done this would be relatively simple (e.g. 'reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30 g charge for fire assay'). In other cases more explanation may be required, such as where there is coarse gold that has inherent sampling problems. *Unusual commodities or mineralisation types (e.g. submarine nodules) may warrant disclosure of detailed information*	RC chips were riffle or cone split and sampled into 1m intervals with total sample weights less than 3kg. Samples were selected to weigh less than 3 kg to ensure total sample inclusion at the pulverisation stage. Saracen chip samples were crushed, dried and pulverised to a nominal 90% passing 75µm to produce a 40g or 50 g sub sample for analysis by FA/AAS. Historical AC, RAB, RC and diamond sampling was carried out to industry standard at that time. Analysis methods include fire assay, aqua regia, atomic absorption spectroscopy and unspecified methods.
Drilling Techniques	*Drill type (e.g. core, reverse circulation, open-hole*	The project area was initially sampled by 130 AC holes, 800 RAB holes, 1404 RC holes (assumed

Section 1: Sampling Techniques and Data

Criteria	JORC Code Explanation	Commentary
	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.).	standard 5 ¼ ''bit size) and 49 surface diamond core HQ, NQ, PQ and unknown diameter holes. Saracen has completed 172 surface RC holes and 159 grade control RC holes within the Sizzler and Old Camp pits. It is unknown if historic diamond drill core was oriented.
Drill Sample Recovery	*Method of recording and assessing core and chip sample recoveries and results assessed*	RC sampling recoveries were recorded as a percentage based on a visual weight estimate; no historic recoveries have been recorded.
	Measures taken to maximise sample recovery and ensure representative nature of the samples	During RC exploration and grade control campaigns daily rig inspections were carried out to check splitter condition, general site and address general issues. The sample bag's weight versus bulk reject weight was compared to ensure adequate and even sample recovery. Historical AC, RAB, RC and diamond drilling to industry standard at that time.
	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.	There is no known relationship between sample recovery and grade for RC drilling. Any historical relationship is not known.
Logging	*Whether core and chip samples have been geologically and geotechnically logged to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies.* *Whether logging is qualitative or quantitative in nature.* *Core (or costean, channel, etc) photography.*	Logging of RC chips records lithology, mineralogy, texture, mineralisation, weathering, alteration, veining and other features. Chips from all RC holes (exploration and GC) are stored in chip trays for future reference. Qualitative and quantitative logging of historic data varies in its completeness..
	The total length and percentage of the relevant intersections logged	All exploration RC holes were logged in full. Every second drill line was logged in grade control programs with infill logging carried out as necessary. Historical logging is approximately 95% complete.
Sub-sampling techniques and sample preparation	*If core, whether cut or sawn and whether quarter, half or all core taken.*	Saracen has not completed any diamond drilling at Butcher Well. Historic diamond drilling was quarter core sampled or sampled via unknown methods.
	If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry.	All exploration and grade control RC samples were cone or riffle split. Occasional wet samples were encountered; increased air capacity was routinely used to aid in keeping the sample dry when water was encountered. Historic AC, RAB and RC drilling was sampled using spear, grab, riffle and unknown methods.
	For all sample types, the nature, quality and appropriateness of the sample preparation technique.	The sample preparation of RC chips adhered to industry best practice. It was conducted by a commercial laboratory and involved oven drying, coarse crushing then total grinding to a size of 90% passing 75 microns. Best practice is assumed at the time of historic sampling
	Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.	All subsampling activities were carried out by commercial laboratory and are considered to be satisfactory. Sampling by previous holders assumed to be industry standard at the time.
	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.	Duplicate sampling was carried out at a rate of 1:10 for exploration drilling and 1:20 for GC drilling and was sampled directly from the on-board splitter on the rig. These were submitted for the same assay process as the original samples and the laboratory were unaware of such submissions. Sampling by previous holders assumed to be industry standard at the time.

Section 1: Sampling Techniques and Data

Criteria	JORC Code Explanation	Commentary
	Whether sample sizes are appropriate to the grain size of the material being sampled.	Sample sizes are considered to be appropriate give n the grainsize (90% passing 75 microns) of the material sampled.
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.*	RC chip samples and grade control chip samples were analysed by external laboratories using a 40g or 50g fire assay with AAS finish. These methods are considered suitable for determining gold concentrations in rock and are total digest methods. Historic sampling includes fire assay, aqua regia, atomic absorption spectroscopy and unspecified methods
	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 geophysical tools have been utilised for reporting gold mineralisation at Butcher Well.
	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.	Certified reference material (standards and blanks) with a wide range of values were inserted into every drillhole at a rate of 1:25 for exploration RC and 1:40 for GC drilling. These were not identifiable to the laboratory. QAQC data returned were checked against pass/fail limits with the SQL database and were passed or failed on import. A report was generated and reviewed by the geologist as necessary upon failure to determine further action. QAQC data was reported monthly. Sample preparation checks for fineness were carried out to ensure a grind size of 90% passing 75 microns. The laboratory performed a number of internal processes including standards, blanks, repeats and checks. QAQC data analysis demonstrates sufficient accuracy and precision. Industry best practice is assumed for previous holders.
Verification of sampling and assaying	*The verification of significant intersections by either independent or alternative company personnel.*	Significant intercepts were verified by the Geology Manager and corporate personnel.
	The use of twinned holes.	Saracen has not drilled any specific twinned holes at Butcher Well but grade control drilling has confirmed the width and grade of previous exploration drilling. Mount Burgess carried out a twinning program to confirm previous (Billiton) results, and test ore zone repeatability.
	Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols	Primary data was collated in a set of excel templates utilising lookup codes. This data was forwarded to the Database Administrator for entry into a secure acQuire database with inbuilt validation functions. Data from previous owners was taken from a database compilation and validated as much as practicable before entry into the Saracen acQuire database
	Discuss any adjustment to assay data.	No adjustments have been made to assay data. First gold assay is utilised for resource estimation.
Location of data points	*Accuracy and quality of surveys used to locate drillholes (collar and down-hole surveys), trenches, mine workings and other locations used in Mineral Resource estimation.*	Exploration drillholes were located using a Leica 1200 GPS with an accuracy of +/- 10mm. Drillhole collars within the pits and immediate surrounds were picked up by company surveyors using a Trimble R8 GNSS (GPS) with an expected accuracy of +/-8mm. Downhole surveys were carried out using an Eastman single shot or multishot camera at regular intervals (usually 30m). A number of drillholes were also gyroscopically surveyed. Previous holders' survey accuracy and quality is unknown
	Specification of the grid system used.	A local grid system (Butcher Well) is used.

Section 1: Sampling Techniques and Data		
Criteria	**JORC Code Explanation**	**Commentary**
		The two point conversion to MGA_GDA94 zone 51 is BWEast BWNorth RL MGAEast MGANorth RL Point 1 18877.20 10507.60 0 434331.81 6764334.45 0 Point 2 18698.30 10552.30 0 434147.44 6764339.35 0 Historic data is converted to the Butcher Well local grid upon export from the database.
	Quality and adequacy of topographic control.	Topographic control originally used site based survey pickups in addition to Kevron aerial photogrammetric surveys with +/- 5m resolution.
Data spacing and distribution	*Data spacing for reporting of Exploration Results.*	The nominal spacing for exploration drilling is 50m
	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.	Data spacing and distribution are sufficient to establish the degree of geological and grade continuity appropriate for JORC classifications applied.
Orientation of data in relation to geological structure	*Whether sample compositing has been applied.*	Sample compositing is not applied until the estimation stage. Some historic aircore, RAB and RC sampling was composited into 3-4m samples with areas of interest re-sampled to 1m intervals. It is unknown at what threshold this occurred.
	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 drillholes were positioned to achieve optimum intersection angles to the ore zone as was practicable.
	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.	No significant sampling bias was thought to occur due to orientation of drilling in regards to mineralised structures.
Sample security	*The measures taken to ensure sample security.*	Samples were prepared on site under supervision of Saracen geological staff. Samples were selected, bagged into tied numbered calico bags then grouped into secured cages and collected by the laboratory personnel. Sample submissions were documented via laboratory tracking systems and assays were returned via email
Audits or reviews	*The results of any audits or reviews of sampling techniques and data.*	An internal review of companywide sampling methodologies was conducted to create the current sampling and QAQC procedures

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*	The Butcher Well resources are located on M39/165, M39/166 and M39/230. The tenements are held 100% by Saracen Gold Mines Pty Ltd, a wholly owned subsidiary of Saracen Mineral Holdings Limited. Mining Leases M39/165 and M39/166 have a 21 year life and are held until 2030. Mining Lease M39/230 has a 21 year life and is held until 2032. All are renewable for a further 21 years on a continuing basis.

Section 2: Reporting of Exploration Results

Criteria	JORC Code Explanation	Commentary
	park and environmental settings.	Mining Leases M39/165, M39/166 and M39/230 are each subject to two royalty agreements and one associated caveat (139H/067, 140H/067 and 141H/067, respectively). All are subject to a mortgage. All production is subject to a Western Australian state government NSR royalty of 2.5%. Mining Leases M39/165, M39/166 and M39/230 are subject to the Yundamindera Pastoral Compensation Agreement. There are no registered Aboriginal Heritage sites within any of the tenements.
	The security of the tenure held at the time of reporting along with any known impediments to obtaining a licence to operate in the area.	The tenements are in good standing and the license to operate already exists.
Exploration done by other parties	*Acknowledgment and appraisal of exploration by other parties.*	Gold exploration over the Butcher Well project area began in 1988 with Billiton embarking on an extensive exploration program including geophysics, costeaning, and RAB, RC and diamond drilling, delineating the Enigmatic, Hronsky and Butcher Well prospects. Mount Burgess purchased the project in 1990 carrying out further diamond and RC drilling, including a twinning program to confirm Billiton results and repeatability of ore zones, and geochemical sampling. Infill drilling resulted in resources being calculated at the Enigmatic, Butcher Well and Hronsky deposits. Mining at the three resources commenced in 1993. Drilling in the vicinity of these deposits led to the delineation of the Old Camp, Marchelayo and Sizzler prospects. Mount Burgess entered into a joint venture with Sons of Gwalia in 1994. Exploration continued in the project area including geochemical sampling, geophysics, RAB, diamond and RC drilling. Sons of Gwalia purchased Mount Burgess' share to wholly control the project in 1999. Reconnaissance RAB and aircore drilling to the north of Butcher well resulted in the discovery of the Jericho prospect, which was confirmed with RC drilling. Exploration activities in the project area continued until Son of Gwalia's collapse and takeover by St Barbara
Geology	*Deposit type, geological setting and style of mineralisation.*	Gold mineralisation at the Butcher Well group of deposits occurs as a wide variety of vein and veinlet types (that are identified in mapping and logging) within the Mount Hornet shear zone. The Butcher Well South deposits (Enigmatic, Hronsky, Sizzler and Old Camp) are controlled by deformed, altered "blocky" basalt on the margins of sheared syenite stocks and dykes and at the contact with mafic schist. The alteration assemblage is carbonate-silica-sericite-pyrite arsenopyrite. A short distance along strike at Butcher Well North, gold mineralisation occurs with a similar alteration assemblage but is hosted by silicified, commonly brecciated intermediate volcaniclastics.
Drillhole 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 does not detract from the*	All material data is periodically released on the ASX: 27/01/2012, 06/01/2012, 28/07/2011. Future drill hole data will be periodically released or when a results materially change the economic value of the project. Exclusion of the drilling information will not detract from the reader's view of the report.

Section 2: Reporting of Exploration Results

Criteria	JORC Code Explanation	Commentary
	understanding of the report, the Competent Person should clearly explain why this is the case.	
Data aggregation methods	*In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (e.g. cutting of high grades) and cut-off grades are usually Material and should be stated.*	All significant intercepts have been length weighted with a minimum Au grade of 1ppm. No high grade cut off has been applied.
	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.	Intercepts are aggregated with minimum width of 1m and maximum width of 3m for internal dilution. Where stand out higher grade zone exist with in the broader mineralised zone, the higher grade interval is reported also.
	The assumptions used for any reporting of metal equivalent values should be clearly stated.	There are no metal equivalents reported in this release.
Relationship between mineralisation widths and intercept lengths	*These relationships are particularly important in the reporting of Exploration Results.* *If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.* *If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (eg 'down hole length, true width not known').*	This announcement includes sufficient detail to clearly illustrate the geometry of the mineralisation and the recent drilling. All results are reported as downhole lengths. This remains consistent with previous announcements
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.*	This release illustrates in long section and in cross section views the nature of the drilling and its relationship to the mineralisation.
Balanced Reporting	*Where comprehensive reporting of all Exploration Results are not practicable, representative reporting of both low and high grades and/or widths should be practiced to avoid misleading reporting of Exploration Results.*	All results from the recent campaign have been reported, irrespective of success or not
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*	No substantive data acquisition has been completed in recent times.

Section 2: Reporting of Exploration Results

Criteria	JORC Code Explanation	Commentary
	characteristics; potential deleterious or contaminating substances.	
Further work	*The nature and scale of planned further work (eg tests for lateral extensions or depth extensions or large-scale step-out drilling).* *Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive*	In the current economic climate, exploration activities at Butcher Well are under review to highlight areas of greatest potential.

Section 3: Estimation and Reporting of Mineral Resources

Criteria	JORC Code Explanation	Commentary
Database Integrity	*Measures taken to ensure that data has not been corrupted by, for example, transcription or keying errors, between its initial collection and its use for Mineral Resource estimation purposes.*	Saracen utilises AcQuire software on an SQL server database to securely store and manage all drillhole and sample information. Data integrity protocols are built into the system to ensure data validity and minimise errors.
	Data validation procedures used.	Data that is captured in the field is entered into Excel templates which are checked on import into the database for errors. Assay jobs are dispatched electronically to the lab to minimise the chance of data entry errors. Assay results from the lab are received in CSV format and are checked for errors on import into the database. Data is regularly validated using the mining software. The data validation process is overseen by the Database Administrator.
Site Visits	*Comment on any site visits undertaken by the Competent Person and the outcome of those visits.*	At the time of renewed exploration and mining activities in 2011 & 2012 the Competent Persons visited the geological area to assess geological competency and ensure integrity across all exploration geological disciplines.
	If no site visits have been undertaken indicate why this is the case.	
Geological Interpretation	*Confidence in (or conversely, the uncertainty of) the geological interpretation of the mineral deposit.*	A combination of well documented historic geology and structural information, exploration mapping, geophysical surveys, sufficient drill hole information and geological data collected during historic production at Butcher Well North, Enigmatic and Old Camp has resulted in a confident geological interpretation.
	Nature of the data used and any assumptions made.	Geological interpretation was centred around historic and where possible in pit mapping that corresponds to grade mineralisation. This helped to define the domains for each deposit. Lithology and where possible alteration type, alteration intensity and veining from drill logs were also utilised. The wireframes for the current model were generated in Micromine based on a cut-off of 0.40 g/t of gold in individual sections of drill holes. The cut-off level reduced internal dilution within domains and also allowed for clearer ore definition from one section to the next creating ore zones of greater continuity. For the purpose of the estimation the data was rotated into the Butcherwell local grid to ensure the holes (now east-west) intersected mineralisation at right angles to remove sampling bias.
	The affect, if any, of alternative interpretations on Mineral Resource estimation.	Over time the model for the Butcherwell deposit has improved with the gathering of more geological information. The latest iteration is a culmination of all available geological data and this is considered a

Section 3: Estimation and Reporting of Mineral Resources

Criteria	JORC Code Explanation	Commentary
		robust interpretation. Thus alternative interpretations have not been considered at this stage.
	The use of geology in guiding and controlling the Mineral Resource estimation.	The geology has heavily influenced the geometry of the domains controlling the mineral resource estimation. In particular known geological mapping was incorporated into the ore definition process, at Butcher Well, Butcher Well North and Enigmatic (inc North) and helped to define the major cross cutting structures, that displace or truncate the ore. Gold mineralisation at the Butcher Well group of deposits occurs as a wide variety of vein and veinlet types (that are identified in mapping and logging) within the Mount Hornet shear zone. The Butcher Well South deposits (Enigmatic, Hronsky, Sizzler and Old Camp) are controlled by deformed, altered “blocky” basalt on the margins of sheared syenite stocks and dykes and at the contact with mafic schist. The alteration assemblage is carbonate-silica-sericite-pyrite arsenopyrite. A short distance along strike at Butcher Well North, gold mineralisation occurs with a similar alteration assemblage but is hosted by silicified, commonly brecciated intermediate volcaniclastics. All geological information, from historic and current resources was considered and incorporated into the modelling. All mineralised domains were wireframed with hard boundaries.
	The factors affecting continuity both of grade and geology.	Continuity of mineralisation and geology varies by deposit. Butcherwell North – NW trending shears terminate the strike extent of the main lodes of this deposit, however Au is remobilised along these NW shears to form less significant domains. Au is also anomalous adjacent to a cross cutting porphyry. Drilling indicates a hiatus of Au mineralisation at 300mRL. Machelayo and Jericho – the strike extents of these deposits could be terminated by similar NW trending shears however the hypothesis are inconclusive due to a lack of drilling. Old camp, Engimatic. Hronsky and Sizzler –these deposits are intricately linked by offsetting shear zones and syenite intrusions, both of which cause anomalous Au near these geological features, but also terminate their strike extents. In all deposits, down dip extents are largely open and untested.
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 Butcher Well gold project hosts a group of gold deposits, including Old Camp, Enigmatic, Hronsky, Enigmatic North, Sizzler, Butcher Well North, Marchelayo and Jericho, all of which are situated within a 4.5Km strike in north-south direction. A total of 185 sections at 25m spacing were interpreted from 8,400mN to 13,350mN.
Estimation and modelling techniques	*The nature and appropriateness of the estimation technique(s) applied and key assumptions, including treatment of extreme grade values, domaining, interpolation parameters and maximum distance of extrapolation from data points.*	Block estimation has been completed using Datamine software. All compositing, wireframes, surfaces, rock and domain models were constructed in Micromine. All estimation uses these wireframes as hard boundaries. Estimation of parent blocks are interpolated, and assigned to sub-cells. The maximum distance of extrapolation varies between deposits based on geological confidence and drill density. Where extrapolation was greater than 50m the resource category of Potential (4) came into play and highlighted areas for exploration. Univariate statistical analysis of length weighted, (1m, minimum of 0.3m), domain and regolith coded downhole composites have been completed for all domains. 95% of the sample data used in the estimation is 1m in length. A composite interval of 1m also allowed the differentiation of both the lodes and the high grade zones within the individual lodes. Clusters of higher grade outliers that could bias the mean were identified by domain by the use of log

Section 3: Estimation and Reporting of Mineral Resources

Criteria	JORC Code Explanation	Commentary
		probability plots and/or normal histogram plots. These were used to determine specific top-cut values for each domain. Butcherwell North & Machelayo - Estimations used only used RC and Diamond Drill results, with at least 91% of the data being RC. Jericho - Estimations used Diamond, RC and AC drill results, where AC made up 30% of the dataset. As a result this deposit was categorised as Inferred to Potential. Old Camp, Enigmatic, Hronsky & Sizzler – Estimations used combinations of RC, Diamond, and RAB drill results, where RAB made up less than 18% of the dataset for each deposit. Negative assays which were determined to be below detection were replaced with a positive value of 0.001 g/t; Missing assays which were due to incomplete samples, or missing core/chips were left as null samples. These will have no impact on interpolation, and the assumption is that the grade of these missing values is similar to that of neighbouring samples, and that local block interpolation will generate representative estimates based on neighbouring data contained in the search ellipse; Zero grade values were replaced with nulls if determined to be true missing data, or a below detection positive value (0.001) otherwise. Unfolding was carried out prior to variography and estimation to remove the local variances in dip and strike observed in the domains. Variogram modelling was completed with GeoAccess Professional software. This defined the sample continuity and nugget value for each domain. The parameters determined from this analysis were used in the interpolation process.
	The availability of check estimates, previous estimates and/or mine production records and whether the Mineral Resource estimate takes appropriate account of such data.	Previous estimates from 2009 were deemed too liberal and unconstrained based upon a simplified geological interpretation and loose resource category boundaries. The current model that utilises all geological information is far more constrained and results are indicative of these changes. 33% of the Indicated tonnes were reallocated to the Inferred category with the recognition that more drilling would be required to improve confidence. On the upside this model highlights great exploration potential.
	The assumptions made regarding recovery of by-products.	No assumptions have been made with respect to the recovery of by-products.
	Estimation of deleterious elements or other non-grade variables of economic significance (e.g. sulfur for acid mine drainage characterisation).	There has been no estimate at this point of deleterious elements. Saracen is unaware if any elements other than gold have been assayed.
	In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed.	The parent block sizes for the resource model are 10mE × 12.5mN × 5mRL. These are deemed appropriate for the majority of the resource, where drill spacing is in the order of 25m × 12.5m and 25m × 25m and to a 30m x 30m up to 50m x 50m patterns at depth. Parent blocks have been sub-celled to X (1.0m) by Y (1.25m) by Z (1.0m) to ensure that the wireframe boundaries are honoured and preserve the location and shape of the mineralisation. Search ranges have been informed by variogram modelling and knowledge of the drill spacing and the known mineralisation geometry including direction of maximum continuity. Three search estimation runs are used with the aim to satisfy the minimum sample criteria in the first

Section 3: Estimation and Reporting of Mineral Resources		
Criteria	**JORC Code Explanation**	**Commentary**
		search range where possible. Minimum number of samples, numbers of drill holes, and search distances were determined by drill pattern spacing, and the geometry of the mineralised lodes. In the southern deposits major mineralisation occurs in relatively thick tabular lodes, often 10 - 20 meters in width, so a minimum of 12 samples per drill hole, in 4 drill holes was selected for the first search pass. The subsequent passes are set to lower minimums while increasing the search distances to find sufficient samples where drilling density decreases. A similar approach to the northern deposits was taken, however due the thin undulating nature of the ore zones the maximum number of samples was increased to 32 and the minimum for the first search pass was dropped to 10. This improved the number of samples obtained in the first pass without a significant increase in negative weights.
	Any assumptions behind modelling of selective mining units.	Subcelling to X (1.0m) by Y (1.25m) by Z (1.0m) allows for the 5m and 10m selective mining units explored as options by Saracens.
	Any assumptions about correlation between variables.	No assumptions have been made regarding correlation between variables.
	Description of how the geological interpretation was used to control the resource estimates.	The geological interpretation strongly correlates with the mineralised domains. Hard wireframes were used to define all the mineralised domains.
	Discussion of basis for using or not using grade cutting or capping.	Linear interpolation methods such as Ordinary Kriging are sensitive to the presence of high-grade outliers that positively skew the data and bias the mean. Domain histogram and Log probability plots were used to determine appropriate top cuts, (if necessary) for every single domain for each deposit.
	The process of validation, the checking process used, the comparison of model data to drill hole data, and use of reconciliation data if available.	Several key model validation steps have been taken to validate the resource estimate. The mineral resource model has been stepped through visually in sectional and plan view to appreciate the composite grades used in the estimate and the resultant block grades. The mean average composite grade and block model grade by deposit and domain were compared. Easting, Northing and Elevation swathe plots have been constructed to evaluate the composited assay means versus the mean block estimates. The mineral resource model has been constructed to include kriging efficiency and the slope of regression values. These values are used to measure the quality of the estimate. Natural deterioration of the quality is observed in areas where data density is lower.
Moisture	*Whether the tonnages are estimated on a dry basis or with natural moisture, and the method of determination of the moisture content.*	All tonnages are estimated on a dry basis.
Cut-off parameters	*The basis of the adopted cut-off grade(s) or quality parameters applied.*	Based on Saracen's current economic status the natural grade distinction above background for the suite of Butcherwell deposits is set at a grade of 0.8g/t.
Mining factors or assumptions	*Assumptions made regarding possible mining methods, minimum mining dimensions and internal (or, if applicable, external) mining dilution. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential mining methods, but the assumptions made regarding mining methods and parameters when estimating Mineral Resources may not always be rigorous.*	Extensive Open Pit mining has occurred at the Butcherwell deposits. There are reasonable grounds to assume that in the future the remaining resources from the Butcherwell suite of deposits will be mined by conventional open pit methods given the close proximity to surface and the mean grade of the mineralisation.

Section 3: Estimation and Reporting of Mineral Resources

Criteria	JORC Code Explanation	Commentary
	Where this is the case, this should be reported with an explanation of the basis of the mining assumptions made.	
Metallurgical factors or assumptions	*The basis for assumptions or predictions regarding metallurgical amenability. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential metallurgical methods, but the assumptions regarding metallurgical treatment process and parameters made when reporting Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the metallurgical assumptions made.*	Metallurgical investigations identified that high metallurgical recoveries are possible in the oxide & transition zones (>90%) with recovery reducing at depth. Metallurgical testing of primary ores shows the presence of refractory gold. Previous mining/processing of deeper ores by Mount Burgess Mining ceased due to low plant recoveries.
Environmental factors or assumptions	*Assumptions made regarding possible waste and process residue disposal options. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider the potential environmental impacts of the mining and processing operation. While at this stage the determination of potential environmental impacts, particularly for a greenfields project, may not always be well advanced, the status of early consideration of these potential environmental impacts should be reported. Where these aspects have not been considered this should be reported with an explanation of the environmental assumptions made.*	No processing or benefication of ore expected on these tenements, as ore is hauled to Carosue Dam Minesite for Processing. Waste is characterised by highly dispsersive and saline oxide materials, which have been addressed by Waste Dump design. Rehabilitation trials are currently underway to assess the redesign of batter slopes to lower gradients to prevent future erosion. Waste Rock Dump (WRD) monitoring is carried out annually on all WRD's.
Bulk Density	*Whether assumed or determined. If assumed, the basis for the assumptions. If determined, the method used, whether wet or dry, the frequency of the measurements, the nature, size and representativeness of the samples.*	No new Bulk Density data was collected and measured by Saracen at the time of the resource review in 2011. Densities used in the current model are based on data collected by Sons of Gwalia Exploration and Resource Development departments. Data consists of 35 samples collected by regolith zone. The bulk density data was imported into the AcQuire database.
	The bulk density for bulk material must have been measured by methods that adequately account for void spaces (vugs, porosity, etc), moisture and differences between rock and alteration zones within the deposit.	It is unclear of the exact method used by Sons of Gwalia Exploration to determine bulk density values. Any future density measurements will adhere to Saracens Metals standardised procedures for bulk density testing.
	Discuss assumptions for bulk density estimates used in the evaluation process of the different materials.	Where bulk density measures are taken an average mean of densities collected for each lithological type is uniformly applied to the modelled geological units. This includes the primary fresh lithologies as well as the weathered oxide and transitional zones.
Classification	*The basis for the classification of the Mineral Resources into varying confidence categories.*	The mineral resource has been classified into Indicated, Inferred and Potential categories based on drill hole spacing, drill hole type and quality (in the case of Jericho), geological confidence, and grade

Section 3: Estimation and Reporting of Mineral Resources

Criteria	JORC Code Explanation	Commentary
		continuity and estimation quality. The combination of these factors together guided the hard boundary wireframe used to define the Indicated and Inferred zones. Ore zones outside this wireframe were coded with the possible category of 4. Measured material was not defined for this estimation as QAQC data was lacking from the database.
	Whether appropriate account has been taken of all the relevant factors (ie relative confidence in tonnage/grade estimations, reliability of input data, confidence in continuity of geology and metal values, quality, quantity and distribution of the data).	All care has been taken to account for relevant factors influencing the mineral resource estimate. The diligent Saracen Metals Resource review process ensures that data reliability and geological and metal confidence and continuity are reflected in the resource classification.
	Whether the result appropriately reflects the Competent Person's view of the deposit.	The geological model and the mineral resource estimate reflect the competent person's view of the deposit.
Audits or reviews	*The results of any audits or reviews of Mineral Resource estimates.*	Saracen has adopted a process for geological modelling, estimation and reporting of mineral resources that meets high industry standards. At the completion of resource estimation Saracen Metals undertake an extensive review of the model that covers; • Model inventory and comparisons to previous and budget models if in existence • Geological interpretation, wireframing, domain selection, statisitics by domain, assay and metal evaluation, parent cell sizes, data compositing, variography, search strategy, estimation and KNA • Model validation – swathe plots, visual checks, volume comparisons, composite to model metal comparisons. In the final stages the model and resource categorisation are all discussed and scrutinized by the geological and mine planning teams.
Discussion of relative accuracy/confidence	*Where appropriate a statement of the relative accuracy and confidence level in the Mineral Resource estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the resource within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors that could affect the relative accuracy and confidence of the estimate.*	The mineral resource has been reported in accordance with the guidelines established in the 2004 edition of the JORC code. Saracen Gold Mine uses a standard approach to resource estimation and the procedure requires the systematic completion of the Saracen Resource Estimation Document that is thoroughly investigated and assessed in the Model review process, as stated above. It was identified that; Comparative bulk density measurements are necessary to confirm SOG's density values. Further work on KNA for block size, minimum and maximum number of samples, search ellipses and declustering of the composite data would help to further improve the optimisation of the block model.
	The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonnages, which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the procedures used.	The statements relate to a global estimate of tonnes and grade.
	These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.	The confidence in the model is reflected by the designation of Resource categories. Given the thorough geological analysis of this area and adequate drilling definition, it is a good estimation of all the resources at Butcherwell. Jericho, an Inferred resource, has far less drilling and a third of that is AC

Section 3: Estimation and Reporting of Mineral Resources		
Criteria	**JORC Code Explanation**	**Commentary**
		data. Actual Production from the Sizzler and Old Camp deposits reconciled well with the resource estimate. Sizzler reported a 12% increase in tonnes for a 12% loss in grade for no change in the total ounces. Old Camp reported a 7% increase in total ounces as a result of improved tonnages.

Thunderbox District

Thunderbox

Section 1: Sampling Techniques and Data		
Criteria	**JORC Code Explanation**	**Commentary**
Sampling Techniques	*Nature and quality of sampling (e.g. cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc.). These examples should not be taken as limiting the broad meaning of sampling.*	Sampling methods undertaken by Saracen at Thunderbox include diamond drilling (DD) and reverse circulation (RC) drilling. Sampling methods undertaken by previous owners have included rotary air blast (RAB), DD and RC drilling and blast hole sampling within the pit. Limited historical data has been provided by previous owners.
	Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used	Sampling for diamond and RC drilling is carried out as specified within Saracen sampling and QAQC procedures as per industry standard. RC chips and diamond core provide high quality representative samples for analysis Historic RC, RAB, and DD core drilling is assumed to have been completed by previous holders to industry standard at that time (1999- 2007).
	Aspects of the determination of mineralisation that are Material to the Public Report. In cases where 'industry standard' work has been done this would be relatively simple (e.g. 'reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30 g charge for fire assay'). In other cases more explanation may be required, such as where there is coarse gold that has inherent sampling problems. *Unusual commodities or mineralisation types (e.g. submarine nodules) may warrant disclosure of detailed information*	RC chips are cone split and sampled into 4m or 1m intervals with total sample weights under 3kg Diamond core is NQ or HQ sized, sampled to 1m intervals or geological boundaries where necessary and cut into half core to give sample weights under 3 kg. Samples are selected to weigh less than 3 kg to ensure total sample inclusion at the pulverisation stage. Saracen core and chip samples are crushed, dried and pulverised to a nominal 90% passing 75µm to produce a 40g sub sample for analysis by FA/AAS. All historic RAB, RC and DD and sampling is assumed to have been carried out to industry standard at that time. RC grade control drilling was used to obtain 1m samples or 2m composite samples from which 3 kg was pulverised to create a 50g charge for fire assay, while blast hole samples were composited into 2.5m before a 3kg sample was obtained for pulverising to a final 50g charge for fire assay.
Drilling Techniques	*Drill type (e.g. core, reverse circulation, open-hole*	The deposit was initially sampled by 470 RAB holes. Further drilling included 306 RC holes (assumed

Section 1: Sampling Techniques and Data

Criteria	JORC Code Explanation	Commentary
	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.).	standard 5 ¼ ''bit size) , 216 HQ, NQ and PQ diamond drillholes , approximately 15,400 blast holes and 2,400 RC grade control holes. Some diamond drilling carried out for geotechnical studies was oriented (the method is unknown), it is unknown if other core was oriented. Saracen completed 21RC drillholes, 8 diamond geotechnical holes and 17 RC precollar diamond tail drillholes (precollars averaging 277m, diamond tails averaging 200m). The RC drilling was completed with a 5.5 inch diameter bit with a face sampling hammer. The rig was equipped with an external auxiliary booster. Diamond drilling was HQ or NQ diameter. Drill core was oriented utilising an ACT II core orientation tool.
Drill Sample Recovery	*Method of recording and assessing core and chip sample recoveries and results assessed*	Recoveries for RC drillholes and precollars are recorded as a percentage based on a visual weight estimate. Recoveries for some grade control drilling and blast hole sampling have been recorded based on a visual weight estimate. No other recoveries have been provided, it is unknown if they were recorded
	Measures taken to maximise sample recovery andensure representative nature of the samples	During RC drilling daily rig inspections are carried out to check splitter condition, general site and address general issues. Measures were taken to supress groundwater. Diamond core is reconstructed into continuous runs on an angle iron cradle for orientation marking. Depths are checked against depth given on the core blocks. Historical drilling is assumed completed to industry standard at that time
	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.	There is no known relationship between sample recovery and grade for RC drilling. Diamond drilling has high recoveries meaning loss of material is minimal. Any historical relationship is not known.
Logging	*Whether core and chip samples have been geologically and geotechnically logged to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies.* *Whether logging is qualitative or quantitative in nature.* *Core (or costean, channel, etc) photography.*	Logging of RC chips and diamond drill core records lithology, mineralogy, texture, mineralisation, weathering, alteration and veining. Geotechnical and structural logging is carried out on all diamond holes to record recovery, RQD, defect number, type, fill material, shape and roughness and alpha and beta angles. Chips from all RC holes are stored in chip trays for future reference while remaining core is stored in core trays and archived on site. Core is photographed in both dry and wet state. Qualitative and quantitative logging of historic data varies in its completeness.
	The total length and percentage of the relevant intersections logged	All drillholes completed by Saracen have been logged in full.
Sub-sampling techniques and sample preparation	*If core, whether cut or sawn and whether quarter, half or all core taken.*	All drill core is cut in half onsite using an automatic core saw. Duplicate core samples are quarter cored. Samples are always collected from the same side.
	If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry.	All exploration RC samples are cone split. Occasional wet samples are encountered. The sampling method for historic RAB and RC drilling is unknown. Grade control RC drilling has been cone split while blast hole sampling has been riffle split. Wet drilling was rarely encountered, and extra care was taken to clean the splitter after encountering wet samples. Drillholes in puggy, wet clays were abandoned and redrilled once dewatering of the pit had commenced. Care was taken to adjust the splitter orifice for grade control drilling to ensure the sample weight did not exceed 3kg, meaning no subsampling was needed at the preparation stage.
	For all sample types, the nature, quality and appropriateness of the sample preparation	The sample preparation of diamond core and RC chips adhere to industry best practice. It is conducted by a commercial laboratory and involves oven drying, coarse crushing then total grinding to a size of

Section 1: Sampling Techniques and Data

Criteria	JORC Code Explanation	Commentary
	technique.	90% passing 75 microns. The sampling techniques for historic exploration RAB, RC and DD drilling are unknown, best practice is assumed. The sample preparation of RC grade control drilling and blast hole sampling involved oven drying, coarse crushing and total grinding in an LM5.
	Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.	All subsampling activities are carried out by commercial laboratory and are considered to be satisfactory. Best practice is assumed at the time of historic RAB, DD and RC sampling. Procedures adopted to ensure sample representivity for RC grade control and blast hole sampling included weight analysis to determine split ratio (at least 2 holes per program) and sizing analysis of every 25^{th} sample, with an expected return of 90% passing 75um.
	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.	RC field duplicate samples are carried out at a rate of 1:20 and are sampled directly from the on-board splitter on the rig. These are submitted for the same assay process as the original samples and the laboratory are unaware of such submissions. It is unknown if duplicate sampling was performed on historic exploration RAB, RC and DD drilling. Field duplicates were carried out on RC grade control drilling at a rate of one per hole, collected from the second sample port on the cone splitter. Duplicates were carried out at a rate of 1 in 20 for blast hole sampling.
	Whether sample sizes are appropriate to the grain size of the material being sampled.	Analysis of data determined sample sizes were considered to be appropriate.
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.*	RC chip samples and diamond core are analysed by an external laboratory using a 40g fire assay with AAS finish. This method is considered suitable for determining gold concentrations in rock and is a total digest method. A 50 gram fire assay with AAS finish was used to determine the gold concentration for all grade control samples. This method is considered suitable for determining gold concentrations in rock and is a total digest method. Methods for exploration RC, RAB and DD drilling included fire assay with AAS finish, BAAS and unknown methods.
	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.	The clay mineralogy of the deposit was investigated using PIMA (Portable Infra-red Microscopic Analyser) analysis to assist with geological interpretation. This data was not used in the estimation process.
	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.	Certified reference material (standards and blanks) with a wide range of values are inserted into every drillhole at a rate of 1:25 for exploration RC and DD. These are not identifiable to the laboratory. QAQC data returned are checked against pass/fail limits with the SQL database and are passed or failed on import. A report is generated and reviewed by the geologist as necessary upon failure to determine further action. QAQC data is reported monthly. Sample preparation checks for fineness are carried out to ensure a grindsize of 90% passing 75 microns. The laboratory performs a number of internal processes including standards, blanks, repeats and checks. QAQC data analysis demonstrates sufficient accuracy and precision. Industry best practice is assumed for previous holders.

Section 1: Sampling Techniques and Data

Criteria	JORC Code Explanation	Commentary
Verification of sampling and assaying	*The verification of significant intersections by either independent or alternative company personnel.*	Significant intercepts are verified by the Geology Manager and corporate personnel
	The use of twinned holes.	A number of exploration RC holes were drilled to twin original RAB holes and verify results.
	Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols	Primary data is collated in a set of excel templates utilising lookup codes. This data is forwarded to the Database Administrator for entry into a secure acQuire database with inbuilt validation functions. Data from previous owners was taken from a database compilation and validated as much as practicable before entry into the Saracen acQuire database
	Discuss any adjustment to assay data.	No adjustments have been made to assay data. First gold assay is utilised for resource estimation.
Location of data points	*Accuracy and quality of surveys used to locate drillholes (collar and down-hole surveys), trenches, mine workings and other locations used in Mineral Resource estimation.*	Exploration drillholes are located using a Leica 1200 GPS with an accuracy of +/- 10mm. Downhole surveys are carried out using a hired Reflex EZ-gyro by the respective drilling companies on a regular basis, between 10-30m.
	Specification of the grid system used.	MGA Zone 51 grid coordinate system is used
	Quality and adequacy of topographic control.	Kevron Geomatic Services flew and processed aerial photography and provided ortho images at 1:5000 scale over the Thunderbox deposit and environs.
Data spacing and distribution	*Data spacing for reporting of Exploration Results.*	The nominal spacing for drilling is varied from 20mx20m to 40mx40m
	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.	The drilling is distributed and spaced such that geological and grade continuity can be established to estimate the mineral resource and ore reserve appropriately. The mineralisation is continuous over a 2km strike length, therefore the 80m x 80m exploration drill spacing effectively defines the continuity.
Orientation of data in relation to geological structure	*Whether sample compositing has been applied.*	RC precollar sampling was composted into 4m samples. Historic RAB drilling was sampled with 4m composite samples. Grade control RC drilling was carried out on 2m composite samples, while blast hole sampling was carried out on 2.5m composites.
	Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.	The bulk of the drilling has been oriented to the east in order to provide the best intersection angles possible for the steeply west dipping orebody.
	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.	All drilling from surface has been drilled as close to perpendicular as possible. This has reduced the risk of introducing a sampling bias as far as possible.
Sample security	*The measures taken to ensure sample security.*	Samples are prepared on site under supervision of Saracen geological staff. Samples are selected, bagged into tied numbered calico bags then grouped into secured cages and collected by the laboratory personnel. Sample submissions are documented via laboratory tracking systems and assays are returned via email
Audits or reviews	*The results of any audits or reviews of sampling techniques and data.*	An internal review of companywide sampling methodologies was conducted to create the current sampling and QAQC procedures. No external audits or reviews have been conducted

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.*	M36/504, M36/512 and M36/542 form part of the Thunderbox project currently being acquired by Saracen, and are in good standing. There are no native title claims over the Thunderbox deposit. A number of heritage surveys have been undertaken with Aboriginal groups with no sites of significance identified. In addition a detailed archaeological survey has been conducted with no sites of significance identified
	The security of the tenure held at the time of reporting along with any known impediments to obtaining a licence to operate in the area.	The tenements are in good standing and the license to operate already exists.
Exploration done by other parties	*Acknowledgment and appraisal of exploration by other parties.*	Extensive nickel exploration was undertaken in the area during the 1960s and 1970s. Grassroots gold and PGE exploration was undertaken during and since the 1980s by BHP, Dominion, Dalrymple Resources and Forrestania Gold. Thunderbox was discovered in 1999.
Geology	*Deposit type, geological setting and style of mineralisation.*	Thunderbox is a mesothermal lode gold deposit located at the southern end of the Yandal greenstone belt in an area where several major shear zones converge and join with the Perseverance Fault. The shear zone dips at 30° to 60° WSW, with the exception in the vicinity of the mineralisation, where the shear is vertical to steeply dipping. Mineralisation is hosted by strongly deformed, silicified and carbonate altered albite-quartz porphyry in the hangingwall of the shear zone. The shear juxtaposes foliated basalts and intrusive porphyries in the hangingwall against sedimentary rocks in the footwall. The zone of shearing is over 200m wide. An ultramafic unit occurs within the shear, in the footwall of the deposit and is attenuated along the shear. The main gold related hydrothermal alteration assemblage comprises quartz-ankerite-arsenopyrite-pyrrhotite-galena and gold. This assemblage has been overprinted by a retrograde chlorite-epidote-white mica-biotite-quartz and pyrite assemblage. Syn-mineralisation veins have a continuum of vein textures ranging from laminated to pseudo-breccias.
Drillhole 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 does not detract from the understanding of the report, the Competent Person should clearly explain why this is the case.*	A total of 458 holes have been used in the mineral resource and are deemed to be material. It is not practical to summarise all of the holes here in this release. Exclusion of the drilling information will not detract from the reader's view of the report. All material data is periodically released on the ASX: 29/04/2015, 23/03/2015
Data aggregation methods	*In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (e.g. cutting of high grades) and cut-off grades are usually Material and should be*	All significant intercepts have been length weighted with a minimum Au grade of 0.5ppm. No high grade cut off has been applied.

Section 2: Reporting of Exploration Results

Criteria	JORC Code Explanation	Commentary
	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.	Intercepts are aggregated with minimum width of 1m and maximum width of 3m for internal dilution.
	The assumptions used for any reporting of metal equivalent values should be clearly stated.	There are no metal equivalents reported in this release.
Relationship between mineralisation widths and intercept lengths	*These relationships are particularly important in the reporting of Exploration Results.* *If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.* *If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (eg 'down hole length, true width not known').*	This announcement includes sufficient detail to clearly illustrate the geometry of the mineralisation and the recent drilling. All results are reported as downhole lengths. The geometry of the mineralisation is well known and true thickness can be calculated. Drilling intersects the mineralisation perpendicular and at an average intersection angle of 45 degrees.
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.*	Included in this release is an appropriately orientated longsection of the mineralisation, illustrating the centroids of the intercept point projected to a plane. Included also in this release are cross section views of the mineralisation which provides the visual perspective of the typical drilling angle.
Balanced Reporting	*Where comprehensive reporting of all Exploration Results are not practicable, representative reporting of both low and high grades and/or widths should be practiced to avoid misleading reporting of Exploration Results.*	All results from the recent campaign have been reported, irrespective of success or not.
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.*	Historic activities have included drilling to obtain samples for metallurgical test work, bulk density analyses and geotechnical analyses. A number of geophysical surveys including dipole-dipole IP, Gradient array IP and TEM were carried out over known mineralisation to determine effectiveness in delineating mineralisation/alteration. None were deemed effective. An environmental survey investigated the erosional characteristics of the soil, surface hydrology and groundwater and identified no issues. A partial leach soil sampling program carried out over the deposit was deemed effective in identifying anomalous gold values associated with the deposit. A detailed structural review of the mineralisation has been conducted by Model Earth
Further work	*The nature and scale of planned further work (eg tests for lateral extensions or depth extensions or large-scale step-out drilling).* *Diagrams clearly highlighting the areas of possible*	Saracen is currently working on establishing exploration opportunities which will extend the known mineralisation at depth. This will primarily focus on understanding the key geological relationships and critical continuity directions to target depth extensions.

Section 2: Reporting of Exploration Results		
Criteria	**JORC Code Explanation**	**Commentary**
	extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive	

Section 3: Estimation and Reporting of Mineral Resources		
Criteria	**JORC Code Explanation**	**Commentary**
Database Integrity	*Measures taken to ensure that data has not been corrupted by, for example, transcription or keying errors, between its initial collection and its use for Mineral Resource estimation purposes.*	Saracen stores all its data in an AcQuire SQL database. The primary database is regulated by a locked framework called the acquire data model which fixes the relationships between tables. The data model minimises the potential for data collection and data usage errors through pre-determined look up tables, storage and export functions. User defined permissions also regulate the ability to add, edit or extract data. Saracen's Database contains historical data compiled by previous owners and the methods used to process and record the primary data are unknown at this stage. Typical methods are manual translation of logging and data capture from written logs, direct import of csv tables through a data import scheme where data is validated upon import or direct data entry options into the database using predefined look up values. All the recent drilling done by Saracen at Thunderbox has been processed using the latter method.
	Data validation procedures used.	The rigid structure of the acquire data model is such that predefined rules and look up tables are applied to all data entry. Data that does not meet the criteria are highlighted and moved to a buffer area until the data is rectified to meet the passing rules.
Site Visits	*Comment on any site visits undertaken by the Competent Person and the outcome of those visits.*	The competent person together with other Saracens' geology personnel have carried out site visits to the Thunderbox deposit on numerous occasions. The competent person has inspected the deposit and has built a sound understanding of the deposit geology. All geological processes undertaken by Saracen concerning the Thunderbox Resource have been done using Saracen's standard procedures.
	If no site visits have been undertaken indicate why this is the case.	n/a
Geological Interpretation	*Confidence in (or conversely, the uncertainty of) the geological interpretation of the mineral deposit.*	The interpretation has been based on the detailed geological work completed by a series of previous owners of the project. This knowledge is based on extensive geological logging of drill core, RC chips, detailed open pit mapping and assay data. The gross architecture of the deposit is simple and the interpretation is robust. Saracen also engaged the services of an independent geological consultant to assist in creating a geological model that was used to guide the estimation of resources.
	Nature of the data used and any assumptions made.	The interpretations have been constructed using all available geological logging descriptions including but not limited to, stratigraphy, lithology, texture, and alteration. Interpreted cross cutting faults have been observed and have been use to guide disruptions in the position of the key mineralised domains. Open pit mapping had been included in the interpretation, however only affects the location of the domain boundaries inside the previously mined open pit. Cross sectional interpretations of the mineralisation have been created and from the basic framework through which the 3D wireframe solid is built.
	The affect, if any, of alternative interpretations on Mineral Resource estimation.	Due to the simplistic nature of the mineralisation no alternative interpretations have been considered. Over the life of the project several different sources have interpreted the mineralisation and all agree on

Section 3: Estimation and Reporting of Mineral Resources		
Criteria	**JORC Code Explanation**	**Commentary**
		the same basic interpretation.
	The use of geology in guiding and controlling the Mineral Resource estimation.	The wireframe domains are constructed using all available geological information (as stated above) and terminate along known structures. Mineralisation styles, geological homogeneity, and grade distributions for each domain (used to highlight any potential for bimodal populations) are all assessed to ensure effective estimation of the domains.
	The factors affecting continuity both of grade and geology.	At the deposit scale the gold distribution is uniform throughout the orebody. The mineralisation terminates abruptly at the contacts of either the felsic to intermediate porphyry or the "hybrid" zones. The distribution is the result of the pervasive brittle fracturing of the porphyry and subsequent pervasive alteration. Infrequent higher grade zones are associated with either narrow laminated quartz veins or irregular zones of intense brecciation at the contacts of the porphyry host. Gold mineralisation appears to be related to the type and abundance of sulphides and carbonate alteration. Grades are generally higher in arsenopyrite and ankerite rich zones and lower in pyrite and dolomite rich zones. Pyrite is generally coarse, euhedral and late. The presence of pre-, syn-, and post deformational sulphides suggests multi-phase episodes of deformation and mineralisation.
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.*	Thunderbox mineralisation extends from 6879000mN to 6881000mN, 304000mE to 304400mE and 500 meters below surface (MGA-Zone51). The Thunderbox shear generally strike NNW and dips 60° towards the WSW. In the vicinity of the strongest gold mineralisation the shear is vertical to steeply west dipping. The shear and mineralisation is offset across a series of dextral, NE trending faults.
Estimation and modelling techniques	*The nature and appropriateness of the estimation technique(s) applied and key assumptions, including treatment of extreme grade values, domaining, interpolation parameters and maximum distance of extrapolation from data points.*	Block estimation using ordinary kriging has been completed in Micromine. All wireframes have been constructed in Micromine, which were used as hard boundaries for the estimations. Grade was estimated into parent blocks, meaning all the sub-cells within a parent cell assumed the grade of the parent cell. Univariate statistical analysis of length weighted (1m) domain coded downhole composites have been completed for all domains and top-cuts applied where applicable. Extreme grades are not common in the data set and all domains have been analysed individually to determine specific top-cut values. Due to the lack of extreme grades the top-cut process affects only 1-2% of the data. Variogram modelling was completed with Snowden's Supervisor software. This measures the spatial variance of the gold grade within the domains. The parameters determined from this analysis were used in the interpolation process.
	The availability of check estimates, previous estimates and/or mine production records and whether the Mineral Resource estimate takes appropriate account of such data.	Historical mine production and mill reconciliation records suggest that the estimation method and parameters used result in a highly accurate estimate of the resource. Over the 6 year life, the resource reconciled at 98.5%. There is no evidence in the geology to suggest this trend would not continue.
	The assumptions made regarding recovery of by-products.	No assumptions have been made with respect to the recovery of by-products.
	Estimation of deleterious elements or other non-grade variables of economic significance (e.g. sulfur for acid mine drainage characterisation).	There has been no estimate at this point of deleterious elements. Arsenic has been found in some samples
	In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed.	The parent block sizes for the resource model are 5m(X) by 20m(Y) by 5m(Z). These are deemed appropriate for the majority of the resource, where drill spacing is in the order of 40m x 40m. Parent blocks have been sub-celled to 1m(X) by 2m(Y) by 1m(Y) to ensure that the wireframe boundaries are honoured and preserve the location and shape of the mineralisation.

Section 3: Estimation and Reporting of Mineral Resources

Criteria	JORC Code Explanation	Commentary
		Search ranges have been informed the variogram modelling and knowledge of the drill spacing and the known mineralisation geometry including direction of maximum continuity. Three search estimation runs are used with the aim to satisfy the minimum sample criteria in the first search range where possible. A kriging neighbourhood analysis study conducted ensured that the block sized and the search volume used in the resource estimate were optimal after considering all the relevant factors (i.e. drill spacing, geometry and dimensions of mineralisation).
	Any assumptions behind modelling of selective mining units.	No selective mining units have been assumed at this stage. Given the successful mining activities at Thunderbox. Saracen has studied all the historical data and is confident that it can mine the Thunderbox deposit successfully.
	Any assumptions about correlation between variables.	No assumptions have been made regarding correlation between variables. Gold is the only mineral of economic significance at Thunderbox at this stage.
	Description of how the geological interpretation was used to control the resource estimates.	The geological interpretation strongly correlates with the mineralised domains. Specifically where the mineralised domain corresponds with the felsic to intermediate porphyry intrusion. Where well known the geological unit is described in the block model. All wireframe boundaries including those where lithology and mineralisation correspond, hard boundaries are enforced.
	Discussion of basis for using or not using grade cutting or capping.	Statistical analysis of all domains highlight that there are very few grades in the domain populations that require top-cutting. Top-cuts have been employed to eliminate the risk of overestimating in the local areas where a few high grade samples exist.
	The process of validation, the checking process used, the comparison of model data to drill hole data, and use of reconciliation data if available.	Several key model validation steps have been taken to validate the resource estimate. The mineral resource model has been stepped through visually in sectional and plan view to compare the composite grades used in the estimate and the resultant block grades. This has also been carried out in 3D with the composite grades and a point cloud of the model grades. Northing and Elevation swathe plots have been constructed to evaluate the composited assay means against the mean block estimates. The mineral resource model has been constructed to include kriging efficiency and the slope of regression values. These values are used to measure the quality of the estimate. Natural deterioration of the quality is observed at the perimeter of the modelled areas where data density is lower. The estimate was checked against previously reconciled production records received during the due diligence process, which match very closely.
Moisture	*Whether the tonnages are estimated on a dry basis or with natural moisture, and the method of determination of the moisture content.*	All tonnages are estimated on a dry basis.
Cut-off parameters	*The basis of the adopted cut-off grade(s) or quality parameters applied.*	Based on Saracen's current economic operations at Carosue Dam, and the natural grade distinction above background, a grade of 0.5g/t has been chosen.
Mining factors or assumptions	*Assumptions made regarding possible mining methods, minimum mining dimensions and internal (or, if applicable, external) mining dilution. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential mining methods, but the assumptions made regarding mining methods and parameters when estimating*	The Thunderbox deposit is amenable to mining by both open pit and underground methods. The deposit has successfully been mined by open pit in the past between 2002 and 2007. There are reasonable grounds to assume that in the future this deposit will again be mined by conventional open pit load and haul operations. Beneath the previously mined pit is a portion of the mineral resource that has potential to be extracted by a bulk underground method. It has been discussed that in the thicker potions of the resource that an underground caving approach may be an efficient means of economic extraction. With supplementary traditional long hole stoping in areas with narrower widths.

Section 3: Estimation and Reporting of Mineral Resources

Criteria	JORC Code Explanation	Commentary
	Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the mining assumptions made.	
Metallurgical factors or assumptions	*The basis for assumptions or predictions regarding metallurgical amenability. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential metallurgical methods, but the assumptions regarding metallurgical treatment process and parameters made when reporting Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the metallurgical assumptions made.*	The Thunderbox gold deposit consists of free milling gold which occurs as inclusions within, and at the rims of arsenopyrite crystals, and as free gold clusters within quartz-carbonate veins. It is expected that any future mining of the Thunderbox deposit will be processed at the onsite processing facility which is currently on care and maintenance. The Thunderbox mill employs a conventional crushing, grinding and CIL leaching process to extract the gold. The mill operated successfully between 2002 and 2007, processing in excess of 9Mt of ore. The conventional plant displayed excellent performance with gold recoveries between 93.4 to 96.6 % over the life of the mine. Importantly it should be noted that no reduction in recoveries were observed when the ore changed from oxide-transitional into fresh rock.
Environmental factors or assumptions	*Assumptions made regarding possible waste and process residue disposal options. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider the potential environmental impacts of the mining and processing operation. While at this stage the determination of potential environmental impacts, particularly for a greenfields project, may not always be well advanced, the status of early consideration of these potential environmental impacts should be reported. Where these aspects have not been considered this should be reported with an explanation of the environmental assumptions made.*	As arsenic is present in the mineralogy of the deposit, the processing plant has been designed to ensure effective management of potentially harmful arsenic contamination. A 20m diameter high rate thickener is used to thicken the tails to maximise water and cyanide recovery. Process water is added to the thickener feed to create one wash stage prior to detoxification. Arsenic precipitation is effected in a stirred closed tank with air sparging. Ferric sulphate solution is metered into the reactor on the basis of dissolved arsenic concentration. The fumes from the precipitation tank are passed through a packed bed caustic scrubber before venting to the atmosphere. The precipitation tank overflow is then passed to the tails hopper.
Bulk Density	*Whether assumed or determined. If assumed, the basis for the assumptions. If determined, the method used, whether wet or dry, the frequency of the measurements, the nature, size and representativeness of the samples.*	Previous owners took routine density measurements when drilling diamond core, along with a comprehensive grab sampling regime during the mining of the pit. At this point Saracen does not have the available data to comment on the frequency and distribution of the density measurements. The method of calculation is the water displacement technique. Measurements have been recorded in the acquire database and extraction schemes pair this data with the major lithology code for statistical analysis. From the recent drilling done by Saracen 237 fresh mafic samples, 196 fresh porphyry samples, 348 fresh sedimentary rock samples and 47 tectonite shear samples were measured for bulk density. Overall the results confirm the values currently being used in the Thunderbox model. 10cm length NQ core samples were taken in one meter intervals in the ore zones and every 30m in waste zones.
	The bulk density for bulk material must have been measured by methods that adequately account for void spaces (vugs, porosity, etc), moisture and differences between rock and	The procedure the previous owners utilised, included the coating of dried samples in paraffin wax where the samples had some degree of weathering, were porous or clay rich. These coated samples were then tested using the water displacement technique as previously mentioned. Saracen has applied the same procedure in its latest round of drilling.

Section 3: Estimation and Reporting of Mineral Resources		
Criteria	**JORC Code Explanation**	**Commentary**
	alteration zones within the deposit.	
	Discuss assumptions for bulk density estimates used in the evaluation process of the different materials.	An average mean of densities collected for each lithology type has been uniformly applied to the modelled geological units. This includes the primary fresh lithologies as well as the weathered oxide and transitional zones.
Classification	*The basis for the classification of the Mineral Resources into varying confidence categories.*	The mineral resource has been classified into Measured, Indicated and Inferred categories based on drill hole spacing, geological confidence, and grade continuity and estimation quality. The combination of these factors together guide the digitising of a “cookie cutter” string in long section view which selects and codes the appropriate blocks with the nominated resource classification category.
	Whether appropriate account has been taken of all the relevant factors (ie relative confidence in tonnage/grade estimations, reliability of input data, confidence in continuity of geology and metal values, quality, quantity and distribution of the data).	All care has been taken to account for relevant factors influencing the mineral resource estimate. Confidence in the predicted tonnes and grade estimated in the model is high and previous mining performance suggests that the input data and geological continuity are such that a robust resource estimate can achieved.
	Whether the result appropriately reflects the Competent Person's view of the deposit.	The geological model and the mineral resource estimate reflect the competent person’s view of the deposit.
Audits or reviews	*The results of any audits or reviews of Mineral Resource estimates.*	At the completion of every resource estimate Saracen Gold Mines undertake an extensive review of the model that covers model inventory and comparisons to previous and budget models. Geological interpretation, wire-framing, domain selection, statistics by domain, assay evaluation, parent cell sizes, data compositing, variography, search strategy, estimation and Kriging Neighbourhood Analysis and finally model validation and resource categorisation are all discussed and scrutinized by the geological and mine planning teams.
Discussion of relative accuracy/confidence	*Where appropriate a statement of the relative accuracy and confidence level in the Mineral Resource estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the resource within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors that could affect the relative accuracy and confidence of the estimate.*	The mineral resource has been reported in accordance with the guidelines established in the 2012 edition of the JORC code. Saracen Gold Mine uses a standard approach to resource estimation and the procedure requires the systematic completion of the Saracen Resource Estimation Document that is thoroughly investigated and assessed in the Model review process, as stated above.
	The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonnages, which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the procedures used.	The statements relate to a global estimate of tonnes and grade.
	These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.	Previous mining operation reports suggest that the estimated tonnes were within 0.4% and grade within -2.3%. No substantial changes have influenced the remaining mineral resource.

Section 4: Estimation and Reporting of Ore Reserves

Criteria	**JORC Code Explanation**	**Commentary**
Mineral Resource estimate for conversion to Ore Reserves	*Description of the Mineral resource Estimate used as a basis for the conversion to an Ore Reserve.*	The Mineral Resource estimate for the Thunderbox gold deposit used as a basis for conversion to the Ore Reserve estimate was compiled by Saracen using a combination of data supplied by Norilsk Nickel Australia LTD PTY, and data compiled by Saracen. The data included drilling and assay data, limited geological mapping and historical mining records to validate the model against and solid interpretation wireframes of the geology. This information was used to construct a model estimated by ordinary kriging. The model was depleted with the last final pit survey completed in 2007.
	Clear statement as to whether the Mineral Resources are reported additional to. Or inclusive of, the Ore Reserves.	The Mineral Resource reported is inclusive of the Ore Reserve.
Site Visits	*Comment on any site visits undertaken by the Competent Person and the outcome of those visits.*	Chris Burton has conducted a site visit, accompanied by a consultant geotechnical engineer and technical representatives as part of the due diligence process in Saracen's purchase of the Thunderbox assets. The main focus of the visit was a physical inspection of the existing Thunderbox Pit. Observations were carried out of the existing pit wall conditions, overall stability, and inflow of groundwater. Six years have passed since the pit was last operational. Stability conditions in the mined pit were classified as good in the geotechnical report.
	If no site visits have been undertaken indicate why this is the case.	N/A
Study status	*The type and level of study undertaken to enable Mineral Resources to be converted to Ore Reserves*	The Thunderbox Gold Mine operated as an open pit mine and processing facility for a period of five years from 2002-2007. All operating parameters have been well documented and understood. Since acquiring the Thunderbox assets Saracen has undertaken a detailed feasibility study with mining and processing parameters updated to reflect current conditions.
	The Code requires that a study to at least Pre-Feasibility Study level has been undertaken to convert Mineral Resources to Ore Reserves. Such studies will have been carried out and will have determined a mine plan that is technically achievable and economically viable, and that material Modifying Factors have been considered.	Modifying factors have been applied to the study to ensure the rigor of the financial analysis. All of the parameters assumed and adopted, as well as the financial analysis completed, have been the subject to peer review.
Cut-off parameters	*The basis of the cut-off grade(s) or quality parameters applied*	For the purpose of Ore Reserve Estimate a marginal cut-off of 0.5g/t was calculated based upon an assumed gold price of AUD$1500/oz and applicable processing, haulage and administration costs. A top cut has already been applied to the Mineral Resource Estimate eliminating the necessity for any further adjustment to the Ore Reserve estimate.
Mining factors or assumptions	*The method and assumptions used as reported in the Pre-feasibility or Feasibility Study to convert the Mineral Resource to an Ore Reserve (i.e. either by application of appropriate factors by optimisation or by preliminary or detailed design).*	The resource model used in the Mineral Resource Estimation was the basis for the generation of a range of Whittle 4X pit optimisation shells. The generation of these shells was reliant upon costs and inputs derived from current operational data and independent consultant recommendations. An appropriate shell was then selected as the basis for an iterative process of pit design work, culminating in the finalisation of a detailed pit design for the Thunderbox cutback

Section 4: Estimation and Reporting of Ore Reserves

Criteria	JORC Code Explanation	Commentary
	The choice, nature and appropriateness of the selected mining method(s) and other mining parameters including associated design issues such as pre-strip, access, etc.	Mining method to be employed will be conventional hydraulic excavator and dump truck fleet, with 190t and 360t class excavators assumed. The class of excavator employed matches those used in previous stages at Thunderbox as well as those currently working at SGM's Carosue Dam Operations, providing good comparative cost data for financial modelling purposes, as well as a reliable database of excavation and performance rates. The pit will be mined as two cutbacks, extending the pit to the South, with a 10 month lead time between stages.
	The assumptions made regarding geotechnical parameters (e.g. pit slopes, stope sizes, etc.), grade control, and pre-production drilling.	Geotechnical recommendations were made by Will Sarunic (geotechnical consultant - Xstract) following a site visit, inspection of drill core from recent drilling and a review of the historical monthly geotechnical operational site visit reports as well as a review of several wall parameter recommendation reports during the site's previous operational period. Once the lower section of the pit is dewatered there may be some need for additional geotechnical input. Given that this zone is below the weathering horizon it is not anticipated that the condition of the walls will have deteriorated. The Grade control method to be employed at Thunderbox will utilise blast hole sampling methods due to the well-defined mineralised extents, and the proven success of this method in earlier mined stages of the pit.
	The major assumptions made and Mineral Resource model used for pit and stope optimisation (if appropriate).	Planned mining dilution & mining recoveries are factored into the model used in the Mineral Resource Estimation assuming the use of 190t and 360t class hydraulic excavators and based on previous and current mining experience.
	The mining dilution factors used.	Unplanned mining dilution has been assumed at 10%, based on wide mineralised zones and the class of excavator to be used.
	The mining recovery factors used.	Unplanned mining recovery has been assumed at 98%, based on wide mineralised zones and the class of excavator to be used.
	Any minimum mining widths used	A minimum mining width of 30m has been adopted for the main excavation fleet. Where 'pinch-points' occur along the interface with the existing pit it has been assumed that a smaller more versatile excavator will be employed, with appropriate costings for these areas applied.
	The manner in which inferred Mineral resources are utilised in mining studies and the sensitivity of the outcome to their inclusion.	No inferred resources are contained within the final pit design boundaries, therefore the project has no sensitivity to the possible inclusion of that resource category. Pit optimisation and mining studies excluded these inferred mineral resources.
	The infrastructure requirements of the selected mining methods.	The selected mining method for the pit is conventional for this style of mineralisation and no specialised infrastructure is required to accommodate this method of mining
Metallurgical factors or assumptions	*The metallurgical process proposed and the appropriateness of that process to the style of mineralisation*	The ore reserve will be treated at the established Thunderbox processing facility. The Thunderbox Process Plant is a CIL cyanide leach plant incorporating a gravity circuit which is appropriate for the extraction of gold from free milling gold ores. An average plant processing recovery of 93.9% has been assumed in the Ore Reserve Estimate which was derived from metallurgical test work in particular Ammtec Report A10519 January 2007 and are consistent with historical plant recoveries which varied from 93.4% to 95.4%.
	Whether the metallurgical process is well-tested technology or novel in nature.	The method of ore processing and extraction proposed utilises well tried and proven technology dating back to the 1960's and practiced extensively around the world.

Section 4: Estimation and Reporting of Ore Reserves

Criteria	JORC Code Explanation	Commentary
	The nature, amount and representiveness of metallurgical test work undertaken, the nature of the metallurgical domaining applied and the corresponding metallurgical recovery factors applied.	Metallurgical test work was carried out as part of the original feasibility study conducted by Lionore, prior to the construction of the processing facility in 2002. Five years of continuous processing of the Thunderbox ore through this plant have resulted in a solid understanding of the metallurgical parameters of the ore. Oxide, transitional, and fresh ore have all been processed through this plant during the previous operational period.
	Any assumptions or allowances made for deleterious elements.	Arsenopyrite is present in the ore and high levels of arsenic are solubilised in the plant solutions. The arsenic levels are reduced to acceptable levels by the addition of ferric sulphate to precipitate the arsenic as ferric arsenate thereby locking the arsenic in the plant tailings for storage.
	The existence of any bulk sample or pilot scale test work and the degree to which such samples are considered representative of the ore body as a whole.	8.2 Million tonnes of the Thunderbox ore were processed from January 2004 to September 2007 representing the best bulk sample/pilot test possible.
	For minerals that are defined by a specification, has the ore reserve estimation been based on the appropriate mineralogy to meet the specifications.	N/A
Environmental factors or assumptions	*The status of studies of potential environmental impacts of the mining and processing operation. Details of waste rock characterisation and the consideration of potential sites, status of design options considered and, where applicable, the status of approvals for process residue storage and waste dumps should be reported.*	Mining Operations recommenced on 1 July 2015, all approvals (clearing permit, works approval and Mining Proposals) have been granted for the recommencement of mining and Processing at Thunderbox, the Site currently holds and Environmental Protection Act Licence 7815/2001/11 for Processing, Mine dewatering and Power Generation. This Licence will be amended as infrastructure is constructed for use, the area is also covered by several Groundwater Licences which are currently being consolidated to simplify monitoring and reporting. The existing Thunderbox mine, the intended cutback, the Thunderbox processing facility, and the accommodation village all lay on granted mining leases. The gas spur pipeline, the bore field and the airstrip are all on granted miscellaneous licences. The following studies have been completed to support the above applications for statutory approval: Flora surveys of new areas to be cleared, waste rock characterisation studies, surface water studies and tailings storage facility documentation, detailing geotechnical requirements for future lifts.
Infrastructure	*The existence of appropriate infrastructure: availability of land for plant development, power, water, transportation (particularly for bulk commodities), labour, accommodation; or the ease with which the infrastructure can be provided, or accessed.*	The site is well established from previous mining activities between 2002 and 2007. There exists a CIL ore processing facility that is currently being refurbished and has a name plate capacity of 2.5mtpa situated adjacent to the Thunderbox pit. A modern accommodation camp is sited within a few kilometres of the pit, and a well maintained gravel airstrip services the camp. The mine site is 2km from the sealed highway linking it to Leinster, 40km to the North. The mine site is connected to the Goldfields Gas Transmission Line, and dual fuel (diesel/gas) usage has been assumed in all financial analyses.
Costs	*The derivation of, or assumptions made, regarding projected capital costs in the study.*	Capital costs relate to project acquisition, mill refurbishment, first fills, haul road construction, and village refurbishment. Costs for the mill have been based upon tenders submitted for the refurbishment work following site visits and follow up investigations. Costs for haul road construction and village

Section 4: Estimation and Reporting of Ore Reserves

Criteria	JORC Code Explanation	Commentary
		refurbishment are based upon recent contracts for similar work undertaken at SGM's Carosue Dam Operations.
	The methodology used to estimate operating costs.	Operating costs for open pit mining have been derived from a combination of actual costs from SGM's Carosue Dam Operations and costs supplied by an independent industry consultant. Operating costs for ore processing have been derived from known parameters at Thunderbox, with additional costs such as labour sourced from current operational data at SGM's Carosue Dam Operations
	Allowances made for the content of deleterious elements	Previous operational experience at Thunderbox did not reveal any deleterious elements within the ore or waste that required any additional cost allowances.
	The derivation of assumptions made of metal or commodity price(s), for the principal minerals and co-products	An assumed gold price of AUD$1,500/oz has been adopted for financial modelling
	The source of exchange rates used in study	All revenue and cost calculations have been made in AUD, so no exchange rate usage or assumptions have been necessary
	Derivation of transportation charges	Costs associated with bullion transportation have been derived from existing contractual arrangements at Carouse Dam
	The basis for forecasting or source of treatment and refining charges, penalties for failure to meet specification, etc.	Costs associated with refining have been derived from existing contractual arrangements at Carouse Dam
	The allowances made for royalties payable, both Government and private.	Royalty costs are the WA state government 2.5% royalty, and a 1.5% royalty payable to Norilsk Nickel (capped at A$17m for Thunderbox and Bannockburn projects combined).
Revenue Factors	*The derivation of, or assumptions made, regarding revenue factors including head grade, metal or commodity price(s) exchange rates, transportation and treatment charges, penalties, net smelter returns, etc.*	A Gold Hedging program of 140,000 ounces at an average price of A$1,520/oz has been entered into to underpin the initial capital investment at Thunderbox. The balance of the remaining gold production will be sold at spot price to the Perth Mint.
	The derivation of assumptions made of metal or commodity price(s), for the principal metals, minerals and co-products	An assumed gold price of AUD$1,500/oz has been adopted for financial modelling
Market Assessment	*The demand, supply and stock situation for the particular commodity, consumption trends and factors likely to affect supply and demand into the future.*	There is a transparent quoted market for the sale of gold
	A customer and competitor analysis along with the identification of likely market windows for the product.	There is a transparent quoted market for the sale of gold
	Price and volume forecasts and the basis for these	There is a transparent quoted market for the sale of gold

Section 4: Estimation and Reporting of Ore Reserves

Criteria	**JORC Code Explanation**	**Commentary**
	forecasts.	
	For industrial minerals the customer specification, testing and acceptance requirements prior to a supply contract.	N/A
Economic	*The inputs to the economic analysis to produce the net present value (NPV) in the study, the source and confidence of these economic inputs including estimated inflation, discount rate, etc.*	An optimal pit shell based upon an AUD$1,350/oz gold price was the basis for the pit design adopted in the Ore Reserve Estimate. A discount rate of 8% was assumed in all NPV calculations.
	NPV ranges and sensitivity to variations in the significant assumptions and inputs.	A full financial model was developed with sensitivities applied to all key inputs and assumptions (+/-15%), which is appropriate to the level of study undertaken (easibility). Undiscounted cash flows remained positive for all of the key sensitivities conducted.
Social	*The status of agreements with key stakeholders and matters leading to social licence to operate*	When previously in operation, Thunderbox mine operators had a good relationship with neighbouring stakeholders, including engagement with the local pastoralists and the traditional owners. The mine is located on leasehold pastoral land with compensation agreements in place with the local pastoralist. Granted mining leases cover all of the proposed mining and processing assets and there are no Native title claims pending.
Other	*To the extent relevant, the impact of the following on the project and/or on the estimation and classification of the Ore Reserves:*	
	Any identified material naturally occurring risks	Water inrush is the only naturally occurring risk identified, and will be addressed by the construction of appropriate water diversion bunds as part of normal mining operations. The costs associated with the construction of the bund have been factored into waste mining haulage.
	The status of material legal agreements and marketing arrangements	A royalty of 1.5% of production is payable to Norilsk Nickel (capped at A$17m for Thunderbox and Bannockburn projects combined).
	The status of governmental agreements and approvals critical to the viability of the project, such as mineral tenement status, and government and statutory approvals. There must be reasonable grounds to expect that all necessary government approvals will be received within the timeframes anticipated in the Pre-Feasibility or Feasibility study. Highlight and discuss the materiality of any unresolved matter that is dependent on a third party on which extraction of the reserve is contingent.	Gold produced from Thunderbox Mine will be sold on the spot market. A royalty of 2.5% is payable to the W.A. State government, with a royalty of 1.5% of production payable to Norilsk Nickel (capped at A$17m for Thunderbox and Bannockburn projects combined). Mining operations commenced on 1 July 2015, all approvals (clearing permit, works approval and Mining Proposals) have been granted for the recommencement of mining and Processing at Thunderbox, the Site currently holds and Environmental Protection Act Licence 7815/2001/11 for Processing, Mine dewatering and Power Generation. This Licence will be amended as infrastructure is constructed for use, the area is also covered by several Groundwater Licences which are currently being consolidated to simplify monitoring and reporting.
Classification	*The basis for the classification of the Ore Reserve into varying confidence categories*	The Ore Reserve Estimate classification for Thunderbox has been in accordance with the JORC code 2012. All of the Ore Reserve Estimate was classified as being Probable with all of the Ore Reserve Estimate being derived from that portion of the Mineral Resource classified as indicated. There is no measured component to the Thunderbox Mineral Resource Estimate
	Whether the result appropriately reflects the Competent Person's view of the deposit.	Strong historical reconciliation data exists between mine production and milling for the period 2002-2007. During this time the resource reconciled at 98.5%. There is no evidence in the geology to suggest this trend would not continue. Cost assumptions and inputs applied to the pit optimisation and pit design were derived from a combination of historical site data, current operational data relating to Carouse Dam

Section 4: Estimation and Reporting of Ore Reserves

Criteria	JORC Code Explanation	Commentary
		Operations, and expert recommendations from industry consultants. Results of these optimisations and the resultant design and analysis reflect the views of Chris Burton regarding the Thunderbox deposit.
	The proportion of Probable Ore Reserves that have been derived from Measured Mineral Resources (if any)	There were no Measured Mineral Resources within the pit design that formed the physical extent of the ore reserve estimate.
Audits or reviews	*The results of any audits or reviews of Ore Reserve estimates*	All of the parameters assumed and adopted, as well as the financial analysis completed, have been the subject to peer review.
Discussion of relative accuracy/confidence	*Where appropriate a statement of the relative accuracy and confidence level in the Ore Reserve estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geo-statistical procedures to quantify the relative accuracy of the reserve within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors which could affect the relative accuracy and confidence of the estimate.* *The statement should specify whether it relates to global or local estimates, and if local, state the relevant tonnages which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the procedures used.* *Accuracy and confidence discussions should extend to specific discussions of any applied modifying factors that may have a material impact on Ore Reserve viability, or for which there are remaining areas of uncertainty ay the current study stage.* *It is recognised that this may not be possible or appropriate in all circumstances. These statements or relative accuracy and confidence of the estimate should be compared with production data, where available.*	The ore reserve estimate was derived from the mineral resource estimate which in turn was reliant upon a resource block model whose estimation was derived from drill-hole data of sufficient continuity and spacing to satisfy the requirements for an indicated resource. The interpretation and estimation process integrated an allowance for a selective mining unit, effectively building in planned dilution to the Mineral resource estimate. This had the impact of eliminating some narrow zones of mineralisation through the addition of waste and a resultant grade below cut-off. Other areas of narrow mineralisation experienced a lowering of grade and increase in tonnage The Thunderbox deposit comprises of a wide, sub-vertical zone of mineralisation, typically 30-80m in width. The assumed unplanned dilution rate of 10% would equate to between 1.5m and 4.0m dilution on the margins of the ore zone. Given the size of excavator proposed for mining, this rate of dilution is conservative. The adoption of an ore recovery rate of 98% is justified by the wide mineralised zone and assumed over-mining of the margins, leaving little scope for ore loss. Strong continuity of the ore both along strike and down dip lend support to this assumption Strong mine to mill reconciliations of oxide, transitional, and fresh Thunderbox ore during previous pit stages were around 98.5% for the resource. The proposed mining plan has the same mineralised zone being mined with similarly sized and configured excavators, utilising the same grade control methods and model creation, and being processed through the same facility. Assuming that similar QA/QC standards are practiced then it is reasonable to expect to experience similar levels of reconciliation. All of the parameters assumed and adopted, as well as the financial analysis completed, have been the subject to peer review.

Mangilla

Section 1: Sampling Techniques and Data		
Criteria	**JORC Code Explanation**	**Commentary**
Sampling Techniques	*Nature and quality of sampling (e.g. cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc.). These examples should not be taken as limiting the broad meaning of sampling.*	Sampling methods undertaken at Mangilla by previous owners have included aircore (AC), rotary air blast (RAB), reverse circulation (RC) and diamond drillholes (DD). Saracen has not carried out any sampling activities at Mangilla due to only recently acquiring the deposit.
	Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used	AC, RC, RAB, and DD core drilling is assumed to have been completed by previous holders to industry standard at that time (1988- 2012).
	Aspects of the determination of mineralisation that are Material to the Public Report. In cases where 'industry standard' work has been done this would be relatively simple (e.g. 'reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30 g charge for fire assay'). In other cases more explanation may be required, such as where there is coarse gold that has inherent sampling problems. *Unusual commodities or mineralisation types (e.g. submarine nodules) may warrant disclosure of detailed information*	Limited information has been found for historic drilling so it is assumed all AC, RAB, RC and DD and sampling was carried out to industry standard at that time. More recent RAB and RC drilling has involved a total preparation sample protocol involving 4m composite or 1m samples from which a 50g charge is produced for aqua regia or fire assay digest and flame AAS finish.
Drilling Techniques	*Drill type (e.g. core, reverse 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.).*	Drilling activities at Mangilla have included 31 AC holes, 748 RAB holes, 141 RC holes (assumed standard 5 ¼'' bit size) and 4 DD holes (HQ and unknown diameter). Limited historic diamond core hole was oriented by unknown methods.
Drill Sample Recovery	*Method of recording and assessing core and chip sample recoveries and results assessed*	Recoveries for some more recent RC drilling have been recorded based on a visual weight estimate. It is unknown historic recoveries were recorded.
	Measures taken to maximise sample recovery and ensure representative nature of the samples	It is unknown what, if any, measures were taken to ensure sample recovery and representivity.
	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.	Any historical relationship is not known.
Logging	*Whether core and chip samples have been*	Logging of diamond drill core, AC, RAB and RC chips record lithology, mineralogy, texture,

Section 1: Sampling Techniques and Data

Criteria	JORC Code Explanation	Commentary
	geologically and geotechnically logged to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies. *Whether logging is qualitative or quantitative in nature.* *Core (or costean, channel, etc) photography.*	mineralisation, weathering, alteration and veining. Some diamond drilling has had limited geotechnical logging carried out. It is unknown if any diamond core was photographed.
	The total length and percentage of the relevant intersections logged	The majority of drillholes appear to have been logged in full.
Sub-sampling techniques and sample preparation	*If core, whether cut or sawn and whether quarter, half or all core taken.*	Diamond core was half core or quarter core sampled.
	If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry.	The sampling methods for much of the historic AC, RC and RAB drilling are unknown. More recent RC and RAB drilling has been riffle split or spear sampled. It is unknown if wet samples were encountered.
	For all sample types, the nature, quality and appropriateness of the sample preparation technique.	The sampling techniques for much of the historic AC, RAB, RC and DD drilling are unknown, best practice is assumed.
	Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.	Best practice is assumed at the time of historic AC, RAB, DD and RC sampling.
	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.	It is unknown if duplicate sampling was performed on the majority of historic AC, RAB, RC and DD drilling. There is evidence of field duplicate sampling being conducted in more recent campaigns.
	Whether sample sizes are appropriate to the grain size of the material being sampled.	It is assumed sample sizes were appropriate for the grain size of material being sampled. Some recent campaigns included sizing analysis (90% passing 75 microns) to ensure this.
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.*	Numerous assay techniques have been used in the history of the deposit, most commonly fire assay, fire assay with flame finish and aqua regia. These methods are considered suitable for determining gold concentrations in rock and are total digest methods. Other assay methods utilised for gold determination include BETA, atomic absorption spectrometry and unknown methods.
	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.	It is unknown if any instruments of this nature have been used at Mangilla.
	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.	QAQC information from historic Mangilla sampling data is limited therefore all drilling is assumed to have been carried out to industry standard. More recent drilling carried out at the deposit adhered to strict QAQC protocols involving weighing of samples, collection of field duplicates and insertion of blanks and standards. Laboratory repeats were also carried out. Analysis of this data displayed acceptable precision and accuracy.
Verification of sampling and assaying	*The verification of significant intersections by either independent or alternative company personnel.*	It is unknown if historic intercepts were verified by alternative company personnel.

Section 1: Sampling Techniques and Data		
Criteria	**JORC Code Explanation**	**Commentary**
	The use of twinned holes.	Specific drilling programs consisting of twinned holes are not apparent.
	Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols	Limited documentation of this nature has been provided. Data has been stored in an acQuire database.
	Discuss any adjustment to assay data.	No adjustment to assay data appears to have been made
Location of data points	*Accuracy and quality of surveys used to locate drillholes (collar and down-hole surveys), trenches, mine workings and other locations used in Mineral Resource estimation.*	The survey quality and control is unknown for the majority of historic drilling. More recent drilling has collar locations surveyed by unspecified GPS and DGPS equipment. Downhole survey methods recorded include Eastman single and multishot, gyro, inferred and unknown methods.
	Specification of the grid system used.	MGA Zone 51 grid coordinate system is used. Some historic data drilled on local grid systems has been converted to this grid system
	Quality and adequacy of topographic control.	Digital ortho-imagery of the area from Kevron Aerial Surveys was used in the early 2000s to establish topographic control.
Data spacing and distribution	*Data spacing for reporting of Exploration Results.*	No exploration results reported in this release. The nominal drillhole spacing is 20 m (northing) by 20 m (easting) in the core of the deposit, and increases to the margins of the deposit.
	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.	The mineralised domains at Mangilla have demonstrated sufficient continuity in both geological and grade continuity to support the definition of Mineral Resources, and the classifications applied under the 2012 JORC Code.
Orientation of data in relation to geological structure	*Whether sample compositing has been applied.*	Historic 1990s RAB and RC drilling was generally sampled on 3 - 4m composites with significant gold results being resampled in 1m intervals Some more recent RAB and RC drilling was composited into 4m samples with any assay >250ppb, or >500ppb in resource definition programs, resampled to 1m.
	Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.	The deposit is drilled towards grid east at angles varying from -60^0 and -90^0 to intersect the mineralised zones at a close to perpendicular relationship for the bulk of the deposit.
	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.	All drilling from surface has been drilled as close to perpendicular as possible. This has reduced the risk of introducing a sampling bias as far as possible. No orientation based sampling bias has been identified at Mangilla in the data at this point.
Sample security	*The measures taken to ensure sample security.*	Information on sample security measures has not been provided
Audits or reviews	*The results of any audits or reviews of sampling techniques and data.*	No evidence of external reviews has been supplied. Saracen has not had access to this information during the acquisition process.

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 Mangilla resource is located on M36/462, M36/421, M36/428 and M36/177. Mining Leases M36/421 and M36/462 are currently held by Norilsk Nickel Wildara Pty Ltd (54%), Dalrymple Resources Pty Ltd (36%) and Black Mountain Gold NL (10%). The tenements are the subject of a purchase agreement with Saracen Metals Pty Limited whereby Saracen has purchased a 90% share of the tenements from Norilsk and Dalrymple. Mining Lease M36/462 is subject to a joint venture agreement (Agreement 127H/012 (129675)) between Oresearch NL, Dalrymple Resources NL and Black Mountain Gold NL, as assigned to Saracen Metals Pty Limited. Mining Lease M36/462 is subject to a joint venture agreement (Agreement 127H/012 (129675)) between Oresearch NL, Dalrymple Resources NL and Black Mountain Gold NL, as assigned to Saracen Metals Pty Limited. Mining Lease M36/177 is held by Barrick (Plutonic) Limited (67.8%) and Agnew Gold Mining Company Pty Ltd (32.2%). Norilsk Nickel Wildara Pty Ltd has earned a 67.8% stake in the tenement which is the subject of a purchase agreement with Saracen Metals Pty Limited whereby Saracen has purchased the 67.8% share from Norilsk. Mining Lease M37/177 is the subject of a joint venture agreement (Agreement 163H/945 (104991)) between Plutonic Operations Ltd and Black Mountain Gold NL, as assigned to Saracen Metals Pty Limited. Mining Lease M36/428 is subject to the Spider Well Joint Venture and is held by Norilsk Nickel Wildara Pty Ltd (39%), Dalrymple Resources Pty Ltd (26%) and Devant Pty Ltd (35%). Mining Lease M36/428 is subject to a joint venture agreement (Agreement 124H/012 (129646)) between Oresearch NL, Dalrymple Resources NL, Devant Pty Ltd and Charles George Chitty. as assigned to Saracen Metals Pty Limited. The mining leases have a 21 year life: Mining Lease M36/462 is held until 2022, Mining Leases M36/421 and M36/428 are held until 2023 and Mining Lease M36/177 is held until 2032. All are renewable for a further 21 years on a continuing basis. All production is subject to a Western Australian state government NSR royalty of 2.5%. The tenements are all subject to a 1.5% royalty on all minerals which are capable of being sold or otherwise disposed of, multiplied by the Net Smelter Return, capped at $17 million, payable to Norilsk Nickel Wildara Pty Ltd. There are no caveats or bank mortgages relating to the tenements. There are no registered Aboriginal Heritage sites or pastoral compensation agreements over the tenements.
	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.	Mining Lease M36/177 is subject to forfeiture for non-compliance with survey conditions pursuant to Section 80 of the Western Australian Mining Act 1978. No known impediment to obtaining a licence to operate exists and the remainder of the tenements are in good standing.
Exploration done by other parties	*Acknowledgment and appraisal of exploration by other parties.*	Gold exploration was conducted near Mangilla in the 1950s following the discovery of the nearby Goanna Patch mineralisation. Nippon picked up the ground to the north of Mangilla in the late 1980s and intersected anomalous zones at the Otto Bore prospect, but mineralisation was not deemed extensive enough. Mangilla was discovered by Kismet in 1990 after they followed up regional RAB traverses at Goanna Patch and encountered mineralisation. It was deemed not large enough for consideration. Leader Resources picked up the area and completed RAB drilling before also deeming the area not worthy of follow up. They did however mine the nearby Double A open cut between March 1990 and May 1991 and concentrated much of the exploration in this area.

Section 2: Reporting of Exploration Results

Criteria	JORC Code Explanation	Commentary
		Forrestania and LionOre entered into a JV on the area in the early 2000s. RAB drilling following up anomalous values from historic drilling intersected mineralisation and was followed up with RC and DD drilling and the Mangilla resource was defined. Norilsk acquired the deposit but conducted no further exploration in the Mangilla region.
Geology	*Deposit type, geological setting and style of mineralisation.*	The Mangilla deposit is situated wholly within a sequence of sheared basalts. The shear zone strikes roughly north-south and dips moderately (50-60degrees) to the west. Mineralisation has been tested along a strike length of 620m.
Drillhole 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 does not detract from the understanding of the report, the Competent Person should clearly explain why this is the case.*	A total 240 holes have been used in the mineral resource and are deemed to be material. It is not practical to summarise all of the holes here in this release. Future drill hole data will be periodically released or when a results materially change the economic value of the project. Exclusion of the drilling information will not detract from the reader's view of the report.
Data aggregation methods	*In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (e.g. cutting of high grades) and cut-off grades are usually Material and should be stated.*	No exploration results are reported in this release.
	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.	No exploration results are reported in this release.
	The assumptions used for any reporting of metal equivalent values should be clearly stated.	No exploration results are reported in this release.
Relationship between mineralisation widths and intercept lengths	*These relationships are particularly important in the reporting of Exploration Results.* *If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.* *If it is not known and only the down hole lengths are*	Saracen has not previously reported exploration results nor are any included in this release.

Section 2: Reporting of Exploration Results

Criteria	JORC Code Explanation	Commentary
	reported, there should be a clear statement to this effect (e.g. 'down hole length, true width not known').	
Diagrams	*Appropriate maps and sections (with scales) and tabulations of intercepts should be included for any significant discovery being reported These should include, but not be limited to a plan view of drill hole collar locations and appropriate sectional views.*	No diagrams are referenced in this release.
Balanced Reporting	*Where comprehensive reporting of all Exploration Results are not practicable, representative reporting of both low and high grades and/or widths should be practiced to avoid misleading reporting of Exploration Results.*	Saracen has not previously reported exploration results nor are any included in this release.
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.*	Geophysical surveys including aeromagnetics and gravity have been carried out by previous owners to highlight and interpret prospective structures in the project area.
Further work	*The nature and scale of planned further work (e.g. tests for lateral extensions or depth extensions or large-scale step-out drilling). Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive*	Saracen is currently working on establishing an exploration program which will identify areas of opportunity to extend or enhance the Mangilla mineral resource.

Section 3: Estimation and Reporting of Mineral Resources

Criteria	JORC Code Explanation	Commentary
Database Integrity	*Measures taken to ensure that data has not been corrupted by, for example, transcription or keying errors, between its initial collection and its use for Mineral Resource estimation purposes.*	The database provided to Saracen was an extract from an acquire SQL database. The primary database is regulated by a locked framework called the acquire data model which fixes the relationships between tables. The data model minimises the potential for data collection and data usage errors through pre-determined look up tables, storage and export functions. User defined permissions also regulate the ability to add, edit or extract data. It is unknown at this stage how the process used to record the primary data. Typical methods are manual

Section 3: Estimation and Reporting of Mineral Resources

Criteria	JORC Code Explanation	Commentary
		translation of logging and data capture from written logs, direct import of csv tables through a data import scheme where data is validated upon import or direct data entry options into the database using predefined look up values.
	Data validation procedures used.	The rigid structure of the acquire data model is such that predefined rules and look up tables are applied to all data entry. Data that does not meet the criteria are highlighted and moved to a buffer area until the data is rectified to meet the passing rules. It is unknown at this stage how the database was managed and who was responsible for its maintenance. It is also unknown if there was any built in functionality around pass/fail checks on assay importing.
Site Visits	*Comment on any site visits undertaken by the Competent Person and the outcome of those visits.*	No site visits have taken place at this point in time by the competent person. However, a team of 12 people including Saracen technical representatives as well as industry consultants did conduct site visits. Historical drill core was inspected during the visits.
	If no site visits have been undertaken indicate why this is the case.	Given that there was no activity (drilling, mining etc.), it was deemed that a site visit during the process would not provide significant value and not materially affect the outcome of any resource estimate.
Geological Interpretation	*Confidence in (or conversely, the uncertainty of) the geological interpretation of the mineral deposit.*	The interpretation has been based on the detailed geological work completed by previous owners of the deposit. This knowledge is based on extensive geological logging of drill core, RC chips, and assay data. The confidence in the geological interpretation of the Mangilla deposit is considered good. The shear system hosting the deposit is well understood and there are other known gold mines associated with it on a regional scale.
	Nature of the data used and any assumptions made.	The interpretations have been constructed using all available geological logging descriptions including but not limited to, stratigraphy, lithology, texture, and alteration. Cross sectional interpretations of the mineralisation have been created and from the basic framework through which the 3D wireframe solids are built.
	The affect, if any, of alternative interpretations on Mineral Resource estimation.	The Mangilla deposit is generally sub-vertical in geometry, with clear boundaries which define the mineralised domains. Infill drilling done over the years supported the current interpretation which is considered to be robust. Over the life of the project several different sources have interpreted the mineralisation and all agree on the same basic interpretation.
	The use of geology in guiding and controlling the Mineral Resource estimation.	Geological controls and relationships were used to define mineralised domains. The Mangilla deposit is hosted within a sequence of sheared basalts
	The factors affecting continuity both of grade and geology.	At the deposit scale the mineralisation at Mangilla is hosted in sheared basalts. Mineralisation is mainly confined to the shear system which trends north south and becomes erratic and discontinuous away from it.
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.*	Mangilla mineralisation extends from 6888600mN to 6889200mN, 304750mE to 305000mE and 170 meters below surface. The shear system controlling mineralisation at Mangilla generally strikes North-South
Estimation and modelling techniques	*The nature and appropriateness of the estimation technique(s) applied and key assumptions, including treatment of extreme grade values, domaining, interpolation parameters and maximum distance of extrapolation from data points.*	Grade estimation using Ordinary Kriging (OK) was completed at Mangilla. Micromine software was used to estimate gold into10m x20m x5m size parent blocks . Drill grid spacing ranges from 25 m to 50 m. Drillhole sample data was flagged using domain codes generated from three dimensional mineralisation domains and oxidation surfaces. Sample data was composited to one metre downhole lengths. Over 90% of the sample intervals are 1m. Intervals with no assays were excluded from the compositing routine. The influence of extreme sample distribution outliers was reduced by top-cutting where required. The top-cut levels were determined using a combination of top-cut analysis tools (grade histograms, log probability

Section 3: Estimation and Reporting of Mineral Resources

Criteria	JORC Code Explanation	Commentary
		plots and CVs). Top-cuts were reviewed and applied on a domain basis. Variography was conducted in Snowden's supervisor software.
	The availability of check estimates, previous estimates and/or mine production records and whether the Mineral Resource estimate takes appropriate account of such data.	The ordinary kriged resource estimate has been compared with previous resource estimate done by the previous owner. The previous resource predicted more tonnes and lower grade for the total inventory resource. This resource estimate done by Saracen predicts less tonnes at higher grades. This discrepancy can be explained by the 'loose' broad mineralisation envelopes used in conjunction with the Multiple Indicator kriging methodology in the previous estimate compared with Saracen's mineralisation envelopes which were constructed using a nominal 0.5 g/t Au cut-off grade. There are no previous mining activities at Mangilla
	The assumptions made regarding recovery of by-products.	No assumptions have been made with respect to the recovery of by-products.
	Estimation of deleterious elements or other non-grade variables of economic significance (e.g. sulphur for acid mine drainage characterisation).	There has been no estimate at this point of deleterious elements. Other elements that have been assayed other than gold include Arsenic, Cobalt, Nickel, Chromium and Magnesium albeit in low levels to warrant their estimation. Arsenic occurs in low levels to be considered harmful.
	In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed.	A single block model for Mangilla was constructed using an 10 mE by 20 mN by 5 mRL parent block size with sub-celling to 1 mE by 2 mN by 1 mRL for domain volume resolution. All estimation was completed at the parent cell scale. Kriging neighbourhood analysis was carried out for Mangilla in order to optimise the block size, search distances and sample numbers used. Discretisation was set to 4 by 5 by 3 for all domains. The size of the search ellipse per domain was based on the gold variography. Three search passes were used for each domain. In general, the first pass used the ranges of the gold variogram and a minimum of 12 and maximum of 36 samples. In the second pass the search ranges were unchanged and the minimum samples reduced to 8 samples. The third pass ellipse was extended to 2 times the range of the gold variograms and the minimum number of 8 and a maximum of 32 samples were applied. A maximum of 4 samples per hole were used. In the majority of domains, most blocks were estimated in the first pass (particularly for the major domains); however, some more sparsely-sampled domains were predominantly estimated on the second or third pass. Un-estimated blocks, i.e. those outside the range of the third pass, were assigned the estimated domain mean and lower resource confidence classifications. Hard boundaries were applied between all estimation domains.
	Any assumptions behind modelling of selective mining units.	No selective mining units have been assumed.
	Any assumptions about correlation between variables.	No assumptions have been made regarding correlation between variables.
	Description of how the geological interpretation was used to control the resource estimates.	The geological interpretation strongly correlates with the mineralised domains. Specifically where the mineralised domain corresponds with sheared basalts. Where well known the geological unit is described in the block model. All wireframe boundaries including those where lithology and mineralisation correspond, hard boundaries are enforced.
	Discussion of basis for using or not using grade cutting or capping.	Statistical analysis showed the populations in some of the domains at Mangilla to generally have outliers which would if left unchecked would compromise the quality of the estimation by the smearing of grade. Where applicable top-cuts where applied to remove the influence of the outliers.
	The process of validation, the checking process	Validation of the block model carried out a volumetric comparison of the resource wireframes to the block

Section 3: Estimation and Reporting of Mineral Resources

Criteria	JORC Code Explanation	Commentary
	used, the comparison of model data to drill hole data, and use of reconciliation data if available.	model volumes. Validating the estimate compared block model grades to the input data using tables of values, and swath plots showing northing, easting and elevation comparisons. Visual validation of grade trends and metal distributions was carried out. There have not been any previous mining activities at Managilla; therefore no reconciliation data is available.
Moisture	*Whether the tonnages are estimated on a dry basis or with natural moisture, and the method of determination of the moisture content.*	All tonnages are estimated on a dry basis.
Cut-off parameters	*The basis of the adopted cut-off grade(s) or quality parameters applied.*	Based on Saracen's current economic operations at Carosue Dam, and the natural grade distinction above background, a grade of 0.5g/t has been chosen. This cut-off grade was used to define the mineralised envelopes.
Mining factors or assumptions	*Assumptions made regarding possible mining methods, minimum mining dimensions and internal (or, if applicable, external) mining dilution. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential mining methods, but the assumptions made regarding mining methods and parameters when estimating Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the mining assumptions made.*	The Mangilla deposit is amenable to mining by open pit methods. There has not been any previous mining at Mangilla. There are reasonable grounds to assume that in the future this deposit will be mined by conventional open pit methods given the close proximity to surface of the mineralisation.
Metallurgical factors or assumptions	*The basis for assumptions or predictions regarding metallurgical amenability. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential metallurgical methods, but the assumptions regarding metallurgical treatment process and parameters made when reporting Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the metallurgical assumptions made.*	It is expected that any future mining of the Mangilla deposit will be processed at the Thunderbox processing facility which is currently on care and maintenance. The Thunderbox mill employs a conventional crushing, grinding and CIL leaching process to extract the gold. The mill operated successfully between 2002 and 2007, processing in excess of 9Mt of ore. The conventional plant displayed excellent performance with gold recoveries between 93.4 to 96.6 % over the life of the mine. Test work by Armtek completed historically suggests Mangilla mineralisation should achieve similar recoveries to the mineralisation previously processed at Thunderbox.
Environmental factors or assumptions	*Assumptions made regarding possible waste and process residue disposal options. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider the potential environmental impacts of the mining and processing operation. While at this stage the determination of potential environmental impacts, particularly for a greenfields project, may not always be well advanced, the status of early consideration of these potential*	Arsenic is present in the mineralogy of the deposit albeit in low levels to be considered harmful. The processing plant has been designed to ensure effective management of potentially harmful arsenic contamination. A 20m diameter high rate thickener is used to thicken the tails to maximise water and cyanide recovery. Process water is added to the thickener feed to create one wash stage prior to detoxification. Arsenic precipitation is effected in a stirred closed tank with air sparging. Ferric sulphate solution is metered into the reactor on the basis of dissolved arsenic concentration. The fumes from the precipitation tank are passed through a packed bed caustic scrubber before venting to the atmosphere. The precipitation tank overflow is then passed to the tails hopper.

Section 3: Estimation and Reporting of Mineral Resources		
Criteria	**JORC Code Explanation**	**Commentary**
	environmental impacts should be reported. Where these aspects have not been considered this should be reported with an explanation of the environmental assumptions made.	
Bulk Density	*Whether assumed or determined. If assumed, the basis for the assumptions. If determined, the method used, whether wet or dry, the frequency of the measurements, the nature, size and representativeness of the samples.*	Previous owners have taken routine density measurements when drilling diamond core. The method of calculation is the water displacement technique. Measurements have been recorded in the acquire database and extraction schemes pair this data with the major lithology code for statistical analysis. At this point Saracen does not have the available data to comment on the frequency and distribution of the density measurements. The size and nature of the samples is also unknown to Saracen at this time.
	The bulk density for bulk material must have been measured by methods that adequately account for void spaces (vugs, porosity, etc), moisture and differences between rock and alteration zones within the deposit.	As stated above the frequency and distribution is unknown at this point in time. Saracen however assumes from the very good performance from mine to mill from the other surrounding deposits of similar geology the density assignments at Mangilla are deemed accurate.
	Discuss assumptions for bulk density estimates used in the evaluation process of the different materials.	An average mean of densities collected for each lithological type has been uniformly applied to the modelled geological units. This includes the primary fresh lithologies as well as the weathered oxide and transitional zones.
Classification	*The basis for the classification of the Mineral Resources into varying confidence categories.*	The mineral resource has been classified into Indicated and Inferred categories based on drill hole spacing, geological confidence, and grade continuity and estimation quality. The combination of these factors together guide the digitising of a “cookie cutter” string in long section view which selects and codes the appropriate blocks with the nominated resource classification category.
	Whether appropriate account has been taken of all the relevant factors (ie relative confidence in tonnage/grade estimations, reliability of input data, confidence in continuity of geology and metal values, quality, quantity and distribution of the data).	The input data is comprehensive in its coverage of the mineralisation and does not favour or misrepresent in-situ mineralisation. Geological control at Mangilla is predominantly confined to sheared basalts. The definition of mineralised zones is based on a high level of geological understanding producing a robust model of mineralised domains. Successive drilling campaigns by the previous owners have confirmed the current interpretation used in this resource model. The validation of the block model shows good correlation of the input data to the estimated grades.
	Whether the result appropriately reflects the Competent Person's view of the deposit.	The geological model and the mineral resource estimate reflect the competent person’s view of the deposit.
Audits or reviews	*The results of any audits or reviews of Mineral Resource estimates.*	Saracen has adopted a process for geological modelling, estimation and reporting of mineral resources that meets high industry standards. No external audits have been conducted, as this deposit was recently acquired, Saracen however intends have an external audit done prior to commencement of any mining activity.
Discussion of relative accuracy/confidence	*Where appropriate a statement of the relative accuracy and confidence level in the Mineral Resource estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the resource within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors that could affect the relative accuracy and confidence of the estimate.*	The relative accuracy of the Mineral Resource estimate is reflected in the reporting of the Mineral Resource as per the guidelines of the 2012 JORC Code. The resource estimates have undergone a robust validation process, and as such, the competent person is satisfied that the resources estimated in the block model are a true representation of the in-situ resources.

Section 3: Estimation and Reporting of Mineral Resources		
Criteria	**JORC Code Explanation**	**Commentary**
	The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonnages, which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the procedures used.	The statements relate to a global estimate of tonnes and grade.
	These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.	There have been no mining activities at Mangilla.

Rainbow

Section 1: Sampling Techniques and Data		
Criteria	**JORC Code Explanation**	**Commentary**
Sampling Techniques	*Nature and quality of sampling (e.g. cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc.). These examples should not be taken as limiting the broad meaning of sampling.*	Sampling methods undertaken at Rainbow by previous owners have included rotary air blast (RAB), reverse circulation (RC) and diamond drillholes (DD). Saracen has not carried out any sampling activities at Rainbow due to only recently acquiring the deposit.
	Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used	RC, RAB, and DD core drilling is assumed to have been completed by previous holders to industry standard at that time (1980- 2010).
	Aspects of the determination of mineralisation that are Material to the Public Report. In cases where 'industry standard' work has been done this would be relatively simple (e.g. 'reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30 g charge for fire assay'). In other cases more explanation may be required, such as where there is coarse gold that has inherent sampling problems. *Unusual commodities or mineralisation types (e.g. submarine nodules) may warrant disclosure of detailed information*	Limited information has been found for historic drilling so it is assumed all RAB, RC and DD and sampling was carried out to industry standard at that time. More recent RAB and RC drilling has involved a total preparation sample protocol involving 4m composite samples or 1m samples from which a 50g charge is produced for aqua regia or fire assay digest and flame AAS finish.
Drilling Techniques	*Drill type (e.g. core, reverse circulation, open-hole*	Drilling activities at Rainbow have included 308 RAB holes, 173 RC holes (assumed standard 5 ¼'' bit

Section 1: Sampling Techniques and Data		
Criteria	**JORC Code Explanation**	**Commentary**
	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.).	size) and 5 DD holes (HQ diameter). Limited historic diamond core hole was oriented by unknown methods.
Drill Sample Recovery	*Method of recording and assessing core and chip sample recoveries and results assessed*	Recoveries for some more recent RC drilling have been recorded based on a visual weight estimate. It is unknown historic recoveries were recorded.
	Measures taken to maximise sample recovery and ensure representative nature of the samples	It is unknown what, if any, measures were taken to ensure sample recovery and representivity.
	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.	Any historical relationship is not known.
Logging	*Whether core and chip samples have been geologically and geotechnically logged to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies.* *Whether logging is qualitative or quantitative in nature.* *Core (or costean, channel, etc) photography.*	Logging of diamond drill core, RAB and RC chips record lithology, mineralogy, texture, mineralisation, weathering, alteration and veining. Some diamond drilling has had limited geotechnical logging carried out. It is unknown if any diamond core was photographed.
	The total length and percentage of the relevant intersections logged	Some early drilling has not had lithology recorded in the database; the majority of more recent drillholes appear to have been logged in full.
Sub-sampling techniques and sample preparation	*If core, whether cut or sawn and whether quarter, half or all core taken.*	The method for diamond core is quarter or half core sampling.
	If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry.	The sampling methods for much of the historic RC and RAB drilling are unknown. More recent RC and RAB drilling has been riffle split or spear sampled. It is unknown if wet samples were encountered.
	For all sample types, the nature, quality and appropriateness of the sample preparation technique.	The sampling techniques for much of the historic, RAB, RC and DD drilling are unknown, best practice is assumed.
	Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.	Best practice is assumed at the time of historic RAB, DD and RC sampling.
	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.	It is unknown if duplicate sampling was performed on the majority of historic RAB, RC and DD drilling. There is evidence of field duplicate sampling being conducted in more recent RC campaigns.
	Whether sample sizes are appropriate to the grain size of the material being sampled.	It is assumed sample sizes were appropriate for the grain size of material being sampled. More recent drilling included sizing analysis (90% passing 75 micron) to confirm this.
Quality of assay data and laboratory tests	*The nature, quality and appropriateness of the assaying and laboratory procedures used and*	Numerous assay techniques have been used in the history of the deposit, most recently fire assay, fire assay with flame finish and aqua regia. These methods are considered suitable for determining gold

Section 1: Sampling Techniques and Data

Criteria	JORC Code Explanation	Commentary
	whether the technique is considered partial or total.	concentrations in rock and are total digest methods. Other assay methods utilised for gold determination include BETA and unknown methods.
	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.	It is unknown if any instruments of this nature have been used at Rainbow.
	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.	QAQC information from historic Rainbow sampling data is limited therefore all drilling is assumed to have been carried out to industry standard. More recent drilling carried out at the deposit adhered to strict QAQC protocols involving weighing of samples, collection of field duplicates and insertion of blanks and standards. Laboratory repeats were also carried out. Analysis of the data confirmed acceptable levels of precision and accuracy.
Verification of sampling and assaying	*The verification of significant intersections by either independent or alternative company personnel.*	It is unknown if historic intercepts were verified by alternative company personnel.
	The use of twinned holes.	Specific drilling programs consisting of twinned holes are not apparent.
	Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols	Limited documentation of this nature has been provided. Data has been stored in an acQuire database.
	Discuss any adjustment to assay data.	No adjustment to assay data appears to have been made
Location of data points	*Accuracy and quality of surveys used to locate drillholes (collar and down-hole surveys), trenches, mine workings and other locations used in Mineral Resource estimation.*	The survey quality and control is unknown for the majority of historic drilling. More recent drilling has collar locations surveyed by unspecified GPS and DGPS equipment. Downhole survey methods recorded include Eastman single shot, Reflex, gyro, inferred and unknown methods.
	Specification of the grid system used.	MGA Zone 51 grid coordinate system is used. Some historic data drilled on local grid systems has been converted to this grid system
	Quality and adequacy of topographic control.	LionOre purchased digital orthoimagery of the area from Kevron Aerial Surveys in the early 2000s and used this to establish topographic control.
Data spacing and distribution	*Data spacing for reporting of Exploration Results.*	No exploration results reported in this release. The nominal drillhole spacing is 25 m (northing) by 25 m (easting) in the core of the deposit, and increases to the margins of the deposit.
	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.	The mineralised domains at Rainbow have demonstrated sufficient continuity in both geological and grade continuity to support the definition of Mineral Resources and the classifications applied under the 2012 JORC Code.
Orientation of data in relation to geological structure	*Whether sample compositing has been applied.*	Historic 1990s RAB and RC drilling was generally sampled on 3 - 4m composites. More recent RAB and RC drilling was composited into 4m samples with any assay >250ppb resampled to 1m.
	Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.	The deposit is drilled towards grid east at angles varying from -60^0 and -90^0 to intersect the mineralised zones at a close to perpendicular relationship for the bulk of the deposit.

Section 1: Sampling Techniques and Data

Criteria	JORC Code Explanation	Commentary
	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.	All drilling from surface has been drilled as close to perpendicular as possible. This has reduced the risk of introducing a sampling bias as far as possible. No orientation based sampling bias has been identified at Rainbow in the data at this point.
Sample security	*The measures taken to ensure sample security.*	Information on sample security measures has not been provided
Audits or reviews	*The results of any audits or reviews of sampling techniques and data.*	No evidence of external reviews has been supplied. Saracen has not had access to this information during the acquisition process.

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 Rainbow resource is located on M36/541, with near mine exploration extending onto M36/476 and M36/462. Mining Leases M36/541 and M36/476 are held by Norilsk Nickel Wildara Pty Ltd (60%) and Dalrymple Resources Pty Ltd (40%). The tenements are subject to a purchase agreement with Saracen Metals Pty Limited whereby Saracen has purchased 100% of the tenements from Norilsk and Dalrymple. Mining Lease M36/541 and M36/476 are subject to a joint venture agreement (Agreement 65H/012 (88218)) between Oresearch NL and Dalrymple Resources NL, as assigned to Saracen Metals Pty Limited. Mining Lease M36/462 is currently held by Norilsk Nickel Wildara Pty Ltd (54%), Dalrymple Resources Pty Ltd (36%) and Black Mountain Gold NL (10%). The tenement is the subject of a purchase agreement with Saracen Metals Pty Limited whereby Saracen has purchased a 90% share of the tenement from Norilsk and Dalrymple. Mining Lease M36/462 is subject to a joint venture agreement (Agreement 127H/012 (129675)) between Oresearch NL, Dalrymple Resources NL and Black Mountain Gold NL, as assigned to Saracen Metals Pty Limited. The mining leases have a 21 year life: Mining Leases M36/541 and M36/476 are held until 2021 and Mining Leases M36/462 is held until 2022. All are renewable for a further 21 years on a continuing basis. All production is subject to a Western Australian state government NSR royalty of 2.5%. The tenements are all subject to a 1.5% royalty on all minerals which are capable of being sold or otherwise disposed of, multiplied by the Net Smelter Return and capped at $17 million. The royalty is payable to Norilsk Nickel Wildara Pty Ltd. A single Aboriginal Heritage site exists within M36/541 – Site ID 2551 Leonora-Leinster 22 artefacts and scatter. The site is not impacted by near mine exploration on the tenement. There are no other registered Aboriginal Heritage sites within the tenements. There are no caveats or bank mortgages relating to the tenements. There are no pastoral compensation agreements over the tenements.
	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.	No known impediment exists to obtaining a licence to operate and the tenements are all in good standing.

Section 2: Reporting of Exploration Results

Criteria	JORC Code Explanation	Commentary
Exploration done by other parties	*Acknowledgment and appraisal of exploration by other parties.*	Initial exploration efforts carried out in the Rainbow area in the late 1970s- early 1980s by companies including WMC, Seltrust and BP minerals concentrated on nickel sulphide mineralisation. Gold and PGE exploration in the district began in the 1980s, carried out by companies including BHP, Dominion, Dalrymple and Miralga. The Rainbow mineralisation was discovered in 1997 by Forrestania (the managing party in the Wildara JV with Dalrymple) after anomalous rock chips were followed up with soil sampling. This defined two broad zones of anomalism. RAB drilling confirmed mineralisation over a 1.2km strike length and RC drilling was carried out to test the down dip extent. RAB and RC drilling continued along the Rainbow mineralisation hosting structure, extending the mineralised strike considerably. Further RC and drilling activities occurred in order to define the resource. In 2007 Norilsk acquired the project after taking over Lionore (who had previously merged with Dalrymple). Little work was carried out after this.
Geology	*Deposit type, geological setting and style of mineralisation.*	Regionally the Rainbow deposit occurs on the southern end of the Yandal greenstone belt in an area where several major intra-greenstone shear zones converge and join with the Perseverance Fault. This shear system (the "Yandal-Melita shear") hosts the Bronzewing and Mt McClure deposits to the north of Thunderbox and continues south beyond the pinch out of the Yandal greenstone belt to the Leonora district, where it is associated with the Tarmoola, Jasper Flat, Tower Hill, Harbour Lights and Gwalia deposits. This shear system appears to be a major geological discontinuity, defining the boundary between two potentially distinct geological domains. The western domain is continuous with the Wiluna – Mt Keith – Leinster – Mt Clifford sequence and is characterised by deformed and metamorphosed ultramafic and mafic dominated greenstone stratigraphy intruded by granitoid plutons. The eastern domain is dominated by sediments, felsic volcanics and felsic intrusive complexes in addition to mafics and contains copper-zinc volcanogenic massive sulphide mineralisation (at Teutonic Bore). Locally the deposit is contained with a sheared unit with sediments in the footwall and mafics in the hanging wall. The shear dips to the west at approximately 450 and strikes 340 degrees. Gold mineralisation at Rainbow occurs in shallow west dipping quartz +/-sulphide lodes within sheared basalts/sediments. Mineralisation occurs as one main lode, however other smaller lodes are apparent as is some supergene enrichment.
Drillhole 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*	A total 601 (predominantly Diamond and RC) holes have been used in the mineral resource and are deemed to be material. It is not practical to summarise all of the holes here in this release. Future drill hole data will be periodically released or when a results materially change the economic value of the project. Exclusion of the drilling information will not detract from the reader's view of the report.

Section 2: Reporting of Exploration Results

Criteria	JORC Code Explanation	Commentary
	this exclusion does not detract from the understanding of the report, the Competent Person should clearly explain why this is the case.	
Data aggregation methods	*In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (e.g. cutting of high grades) and cut-off grades are usually Material and should be stated.*	No exploration results are reported in this release.
	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.	No exploration results are reported in this release.
	The assumptions used for any reporting of metal equivalent values should be clearly stated.	No exploration results are reported in this release.
Relationship between mineralisation widths and intercept lengths	*These relationships are particularly important in the reporting of Exploration Results.* *If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.* *If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (e.g. 'down hole length, true width not known').*	Saracen has not previously reported exploration results nor are any included in this release.
Diagrams	*Appropriate maps and sections (with scales) and tabulations of intercepts should be included for any significant discovery being reported These should include, but not be limited to a plan view of drill hole collar locations and appropriate sectional views.*	No diagrams are referenced in this release.
Balanced Reporting	*Where comprehensive reporting of all Exploration Results are not practicable, representative reporting of both low and high grades and/or widths should be practiced to avoid misleading reporting of Exploration Results.*	Saracen has not previously reported exploration results nor are any included in this release.
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*	No substantive data acquisition has been completed in recent times.

Section 2: Reporting of Exploration Results		
Criteria	**JORC Code Explanation**	**Commentary**
	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 planned further work (e.g. tests for lateral extensions or depth extensions or large-scale step-out drilling).* *Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive*	Saracen is currently working on establishing an exploration program which will identify areas of opportunity to extend or enhance the Rainbow mineral resource.

Section 3: Estimation and Reporting of Mineral Resources		
Criteria	**JORC Code Explanation**	**Commentary**
Database Integrity	*Measures taken to ensure that data has not been corrupted by, for example, transcription or keying errors, between its initial collection and its use for Mineral Resource estimation purposes.*	The database provide to Saracen was an extract from an acquire SQL database. The primary database is regulated by a locked framework called the acquire data model which fixes the relationships between tables. The data model minimises the potential for data collection and data usage errors through pre-determined look up tables, storage and export functions. User defined permissions also regulate the ability to add, edit or extract data. It is unknown at this stage how the process used to record the primary data. Typical methods are manual translation of logging and data capture from written logs, direct import of csv tables through a data import scheme where data is validated upon import or direct data entry options into the database using predefined look up values.
	Data validation procedures used.	The rigid structure of the acquire data model is such that predefined rules and look up tables are applied to all data entry. Data that does not meet the criteria are highlighted and moved to a buffer area until the data is rectified to meet the passing rules. It is unknown at this stage how the database was managed and who was responsible for its maintenance. It is also unknown if there was any built in functionality around pass/fail checks on assay importing.
Site Visits	*Comment on any site visits undertaken by the Competent Person and the outcome of those visits.*	No site visits have taken place at this point in time by the competent person. However, a team of 12 people including Saracen technical representatives as well as industry consultants did conduct site visits. Historical drill core was inspected during the visits.
	If no site visits have been undertaken indicate why this is the case.	Given that there was no activity (drilling, mining etc.), it was deemed that a site visit during the process would not provide significant value and not materially affect the outcome of any resource estimate.
Geological Interpretation	*Confidence in (or conversely, the uncertainty of) the geological interpretation of the mineral deposit.*	The interpretation has been based on the detailed geological work completed by previous owners of the deposit. This knowledge is based on extensive geological logging of drill core, RC chips, and assay data. The confidence in the geological interpretation of the Rainbow deposit is considered good. The shear system hosting the deposit is well understood and there are other known gold mines associated with it on a regional scale.
	Nature of the data used and any assumptions made.	The interpretations have been constructed using all available geological logging descriptions including but not limited to, stratigraphy, lithology, texture, and alteration. Cross sectional interpretations of the mineralisation have been created and from the basic framework

Section 3: Estimation and Reporting of Mineral Resources		
Criteria	**JORC Code Explanation**	**Commentary**
		through which the 3D wireframe solids are built.
	The affect, if any, of alternative interpretations on Mineral Resource estimation.	The Rainbow deposit is generally sub-vertical in geometry, with clear boundaries which define the mineralised domains. Infill drilling done over the years supported the current interpretation which is considered to be robust. Over the life of the project several different sources have interpreted the mineralisation and all agree on the same basic interpretation.
	The use of geology in guiding and controlling the Mineral Resource estimation.	Geological controls and relationships were used to define mineralised domains. The Rainbow deposit is within a sequence of sheared basalts
	The factors affecting continuity both of grade and geology.	At the deposit scale the mineralisation at Rainbow is hosted in sheared basalts. Mineralisation is mainly confined to the shear system which trends north south and becomes erratic and discontinuous away from it.
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.*	Rainbow mineralisation extends from 6888600mN to 6889200mN, 304750mE to 305000mE and 170 meters below surface. The shear system controlling mineralisation at Rainbow generally strikes North-South
Estimation and modelling techniques	*The nature and appropriateness of the estimation technique(s) applied and key assumptions, including treatment of extreme grade values, domaining, interpolation parameters and maximum distance of extrapolation from data points.*	Grade estimation using Ordinary Kriging (OK) was completed at Rainbow. Micromine software was used to estimate gold into10m x20m x5m size parent blocks. Drill grid spacing ranges from 25 m to 50 m. Drillhole sample data was flagged using domain codes generated from three dimensional mineralisation domains and oxidation surfaces. Sample data was composited to one metre downhole length. Over 90% of the sample intervals are 1m. Intervals with no assays were excluded from the compositing routine. The influence of extreme sample distribution outliers was reduced by top-cutting where required. The top-cut levels were determined using a combination of top-cut analysis tools (grade histograms, log probability plots and CVs). Top-cuts were reviewed and applied on a domain basis. Variography was conducted in Snowden's supervisor software.
	The availability of check estimates, previous estimates and/or mine production records and whether the Mineral Resource estimate takes appropriate account of such data.	The ordinary kriged resource estimate has been compared with previous resource estimate done by the previous owner. The previous resource predicted more tonnes and lower grade for the total inventory resource. This resource estimate done by Saracen predicts less tonnes at higher grades. This discrepancy can be explained by the 'loose' broad mineralisation envelopes used in conjunction with the Multiple Indicator kriging methodology in the previous estimate compared with Saracen's mineralisation envelopes which were constructed using a nominal 0.5 g/t Au cut-off grade. There are no previous mining activities at Rainbow
	The assumptions made regarding recovery of by-products.	No assumptions have been made with respect to the recovery of by-products.
	Estimation of deleterious elements or other non-grade variables of economic significance (e.g. sulphur for acid mine drainage characterisation).	There has been no estimate at this point of deleterious elements. Other elements that have been assayed other than gold include Arsenic, Cobalt, Nickel, Chromium and Magnesium albeit in low levels to warrant their estimation. Arsenic occurs in low levels to be considered harmful.
	In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed.	A single block model for Rainbow was constructed using a 10 mE by 20 mN by 5 mRL parent block size with sub-celling to 1 mE by 2 mN by 1 mRL for domain volume resolution. All estimation was completed at the parent cell scale. Kriging neighbourhood analysis was carried out for Rainbow in order to optimise the block size, search distances and sample numbers used. Discretisation was set to 4 by 5 by 3 for all domains. The size of the search ellipse per domain was based on the gold variography. Three search passes were used for each domain. In general, the first pass used the ranges of the gold variogram and a minimum of

Section 3: Estimation and Reporting of Mineral Resources		
Criteria	**JORC Code Explanation**	**Commentary**
		12 and maximum of 36 samples. In the second pass the search ranges were unchanged and the minimum samples reduced to 8 samples. The third pass ellipse was extended to 2 times the range of the gold variograms and the minimum number of 8 and a maximum of 32 samples were applied. A maximum of 4 samples per hole were used. In the majority of domains, most blocks were estimated in the first pass (particularly for the major domains); however, some more sparsely-sampled domains were predominantly estimated on the second or third pass. Un-estimated blocks, i.e. those outside the range of the third pass, were assigned the estimated domain mean and lower resource confidence classifications. Hard boundaries were applied between all estimation domains.
	Any assumptions behind modelling of selective mining units.	No selective mining units have been assumed.
	Any assumptions about correlation between variables.	No assumptions have been made regarding correlation between variables.
	Description of how the geological interpretation was used to control the resource estimates.	The geological interpretation strongly correlates with the mineralised domains. Specifically where the mineralised domain corresponds with sheared basalts. Where well known the geological unit is described in the block model all wireframe boundaries including those where lithology and mineralisation correspond, hard boundaries are enforced.
	Discussion of basis for using or not using grade cutting or capping.	Statistical analysis showed the populations in some of the domains at Rainbow to generally have outliers which would if left unchecked would compromise the quality of the estimation by the smearing of grade. Where applicable top-cuts where applied to remove the influence of the outliers.
	The process of validation, the checking process used, the comparison of model data to drill hole data, and use of reconciliation data if available.	Validation of the block model carried out a volumetric comparison of the resource wireframes to the block model volumes. Validating the estimate compared block model grades to the input data using tables of values, and swath plots showing northing, easting and elevation comparisons. Visual validation of grade trends and metal distributions was carried out. There have not been any previous mining activities at Rainbow; therefore no reconciliation data is available.
Moisture	*Whether the tonnages are estimated on a dry basis or with natural moisture, and the method of determination of the moisture content.*	All tonnages are estimated on a dry basis.
Cut-off parameters	*The basis of the adopted cut-off grade(s) or quality parameters applied.*	Based on Saracen's current economic operations at Carosue Dam, and the natural grade distinction above background, a grade of 0.5g/t has been chosen. This cut-off grade was used to define the mineralised envelopes.
Mining factors or assumptions	*Assumptions made regarding possible mining methods, minimum mining dimensions and internal (or, if applicable, external) mining dilution. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential mining methods, but the assumptions made regarding mining methods and parameters when estimating Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the mining assumptions made.*	The Rainbow deposit is amenable to mining by open pit methods. There has not been any previous mining at Rainbow. There are reasonable grounds to assume that in the future this deposit will be mined by conventional open pit methods given the close proximity to surface of the mineralisation.

Section 3: Estimation and Reporting of Mineral Resources		
Criteria	**JORC Code Explanation**	**Commentary**
Metallurgical factors or assumptions	*The basis for assumptions or predictions regarding metallurgical amenability. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential metallurgical methods, but the assumptions regarding metallurgical treatment process and parameters made when reporting Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the metallurgical assumptions made.*	It is expected that any future mining of the Rainbow deposit will be processed at the Thunderbox processing facility which is currently on care and maintenance. The Thunderbox mill employs a conventional crushing, grinding and CIL leaching process to extract the gold. The mill operated successfully between 2002 and 2007, processing in excess of 9Mt of ore. The conventional plant displayed excellent performance with gold recoveries between 93.4 to 96.6 % over the life of the mine. Test work by Ammtec completed historically suggests Rainbow mineralisation should achieve similar recoveries to the mineralisation previously processed at Thunderbox.
Environmental factors or assumptions	*Assumptions made regarding possible waste and process residue disposal options. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider the potential environmental impacts of the mining and processing operation. While at this stage the determination of potential environmental impacts, particularly for a greenfields project, may not always be well advanced, the status of early consideration of these potential environmental impacts should be reported. Where these aspects have not been considered this should be reported with an explanation of the environmental assumptions made.*	Arsenic is present in the mineralogy of the deposit albeit in low levels to be considered harmful. The processing plant has been designed to ensure effective management of potentially harmful arsenic contamination. A 20m diameter high rate thickener is used to thicken the tails to maximise water and cyanide recovery. Process water is added to the thickener feed to create one wash stage prior to detoxification. Arsenic precipitation is effected in a stirred closed tank with air sparging. Ferric sulphate solution is metered into the reactor on the basis of dissolved arsenic concentration. The fumes from the precipitation tank are passed through a packed bed caustic scrubber before venting to the atmosphere. The precipitation tank overflow is then passed to the tails hopper.
Bulk Density	*Whether assumed or determined. If assumed, the basis for the assumptions. If determined, the method used, whether wet or dry, the frequency of the measurements, the nature, size and representativeness of the samples.*	Previous owners have taken routine density measurements when drilling diamond core. The method of calculation is the water displacement technique. Measurements have been recorded in the acquire database and extraction schemes pair this data with the major lithology code for statistical analysis. At this point Saracen does not have the available data to comment on the frequency and distribution of the density measurements. The size and nature of the samples is also unknown to Saracen at this time.
	The bulk density for bulk material must have been measured by methods that adequately account for void spaces (vugs, porosity, etc), moisture and differences between rock and alteration zones within the deposit.	As stated above the frequency and distribution is unknown at this point in time. Saracen however assumes from the very good performance from mine to mill from the other surrounding deposits of similar geology the density assignments at Rainbow are deemed accurate.
	Discuss assumptions for bulk density estimates used in the evaluation process of the different materials.	An average mean of densities collected for each lithological type has been uniformly applied to the modelled geological units. This includes the primary fresh lithologies as well as the weathered oxide and transitional zones.
Classification	*The basis for the classification of the Mineral Resources into varying confidence categories.*	The mineral resource has been classified into Indicated and Inferred categories based on drill hole spacing, geological confidence, and grade continuity and estimation quality. The combination of these factors together guide the digitising of a “cookie cutter” string in long section view which selects and codes the appropriate blocks with the nominated resource classification category.
	Whether appropriate account has been taken of all	The input data is comprehensive in its coverage of the mineralisation and does not favour or misrepresent

Section 3: Estimation and Reporting of Mineral Resources		
Criteria	**JORC Code Explanation**	**Commentary**
	the relevant factors (ie relative confidence in tonnage/grade estimations, reliability of input data, confidence in continuity of geology and metal values, quality, quantity and distribution of the data).	in-situ mineralisation. Geological control at Rainbow is predominantly confined to sheared basalts. The definition of mineralised zones is based on a high level of geological understanding producing a robust model of mineralised domains. Successive drilling campaigns by the previous owners have confirmed the current interpretation used in this resource model. The validation of the block model shows good correlation of the input data to the estimated grades.
	Whether the result appropriately reflects the Competent Person's view of the deposit.	The geological model and the mineral resource estimate reflect the competent person's view of the deposit.
Audits or reviews	*The results of any audits or reviews of Mineral Resource estimates.*	Saracen has adopted a process for geological modelling, estimation and reporting of mineral resources that meets high industry standards. No external audits have been conducted, as this deposit was recently acquired, Saracen however intends have an external audit done prior to commencement of any mining activity.
Discussion of relative accuracy/confidence	*Where appropriate a statement of the relative accuracy and confidence level in the Mineral Resource estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the resource within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors that could affect the relative accuracy and confidence of the estimate.*	The relative accuracy of the Mineral Resource estimate is reflected in the reporting of the Mineral Resource as per the guidelines of the 2012 JORC Code. The resource estimates have undergone a robust validation process, and as such, the competent person is satisfied that the resources estimated in the block model are a true representation of the in-situ resources.
	The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonnages, which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the procedures used.	The statements relate to a global estimate of tonnes and grade.
	These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.	There have been no mining activities at Rainbow.

King of the Hills

Section 1: Sampling Techniques and Data		
Criteria	**JORC Code Explanation**	**Commentary**
Sampling Techniques	*Nature and quality of sampling (e.g. cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc.). These examples should not be taken as limiting the*	Sampling methods undertaken at King of the Hills by previous owners have included rotary air blast (RAB), reverse circulation (RC), aircore (AC) and diamond drillholes (DD). Limited historical data has been provided by previous owners. Saracen has not carried out any sampling activities at King of the Hills as the project has only recently been acquired.

Section 1: Sampling Techniques and Data		
Criteria	**JORC Code Explanation**	**Commentary**
	broad meaning of sampling.	
	Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used	RC, RAB, AC and DD core drilling is assumed to have been completed by previous holders to industry standard at that time (1984- 2014).
	Aspects of the determination of mineralisation that are Material to the Public Report. In cases where 'industry standard' work has been done this would be relatively simple (e.g. 'reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30 g charge for fire assay'). *In other cases more explanation may be required, such as where there is coarse gold that has inherent sampling problems.* *Unusual commodities or mineralisation types (e.g. submarine nodules) may warrant disclosure of detailed information*	All RAB, RC, AC and DD and sampling is assumed to have been carried out to industry standard at that time. The majority of recent drillholes have been sampled to 1m intervals to provide a 2.5-3 kg sample for analysis via fire assay and atomic absorption spectroscopy. Historical analysis and sampling methods are unknown.
Drilling Techniques	*Drill type (e.g. core, reverse 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.).*	The number of holes intersecting the current resource is 2,072 amounting to 159,956 m. The holes include both RC and Diamond holes. RC drilling is mainly concentrated mainly in the upper parts of the deposit, while diamond drilling is mainly concentrated in the deeper levels. Overall there are 87,989 reverse circulation samples, and 72,049 Diamond core samples.
Drill Sample Recovery	*Method of recording and assessing core and chip sample recoveries and results assessed*	It has been noted that recoveries for recent diamond drilling were rarely less than 100% although recovery data has not been provided. Minor core loss was most likely due to drilling conditions and not ground conditions. Historic recovery is unknown.
	Measures taken to maximise sample recovery and ensure representative nature of the samples	It is unknown what, if any, measures were taken to ensure sample recovery and representivity.
	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.	Any historical relationship is not known.
Logging	*Whether core and chip samples have been geologically and geotechnically logged to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies.* *Whether logging is qualitative or quantitative in nature.* *Core (or costean, channel, etc) photography.*	Logging of diamond drill core, RAB, RC and AC drillholes has recorded lithology, mineralogy, texture, mineralisation, weathering, alteration and veining. Some diamond drilling has been geotechnically logged to provide data for geotechnical studies. Recent diamond core was photographed.
	The total length and percentage of the relevant intersections logged	All recent drillholes appear to have been logged in full. Historic logging varies in its completeness.
Sub-sampling techniques and sample preparation	*If core, whether cut or sawn and whether quarter, half or all core taken.*	The sampling method for recent drill core is half core sampling, with the right had side of the core routinely submitted.

Section 1: Sampling Techniques and Data		
Criteria	**JORC Code Explanation**	**Commentary**
	If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry.	Various sampling methods for historic RAB, AC and RC drilling have been carried out including scoop, spear, riffle and cyclone split. It is unknown if wet sampling was carried out.
	For all sample types, the nature, quality and appropriateness of the sample preparation technique.	The sampling techniques for historic RAB, RC, AC and DD drilling are unknown, best practice is assumed.
	Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.	Best practice is assumed at the time of historic RAB, DD, AC and RC sampling. Procedures adopted to ensure sample representivity for more recent drilling included sizing analysis, with an expected return of 90% passing 75um.
	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.	It is unknown if duplicate sampling was performed on historic RAB, RC, AC and DD drilling.
	Whether sample sizes are appropriate to the grain size of the material being sampled.	Analysis of data determined sample sizes were considered to be appropriate.
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.*	More recent sampling has been analysed using a 40 gram fire assay with AAS finish to determine the gold concentration. This method is considered suitable for determining gold concentrations in rock and is a total digest method. Methods for historic RC, RAB, AC and DD drilling included fire assay, aqua regia and unknown methods.
	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 geophysical tools have been utilised at the King of the Hills project
	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.	Historic RAB, DD, AC and RC drilling is assumed to have been carried out to industry standard regarding QAQC procedures. More recent drilling included the insertion of 4 commercial standards blank control samples at the rate of 1 per 15 samples. Barren flush material was used between designated high grade samples during the pulverising stage. A number of pulps were retrieved, renumbered and resubmitted to the original laboratory as well as being submitted to an external laboratory as a further check. Analysis showed acceptable repeatability with no bias. Analysis of QAQC data determined acceptable levels of accuracy with no bias existing in the dataset.
Verification of sampling and assaying	*The verification of significant intersections by either independent or alternative company personnel.*	It is unknown if historic intercepts were verified by alternative company personnel.
	The use of twinned holes.	There is no record of any twinning of holes
	Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols	Limited documentation of this nature has been provided. More recent drilling data was recorded electronically ensuring only valid non overlapping data can be recorded.
	Discuss any adjustment to assay data.	It appears no adjustment was made to assay data.
Location of data points	*Accuracy and quality of surveys used to locate drillholes (collar and down-hole surveys), trenches, mine workings and other locations used in Mineral Resource estimation.*	Historic drilling was located using mine surveyors and standard survey equipment; more recent surface drilling has been surveyed using a DGPS system. Underground drillholes were located surveyed with a Total Station (Leica TCRA 1203+R400) The majority of downhole surveys for historic RAB, RC, AC and DD drilling are estimates only. More

Section 1: Sampling Techniques and Data		
Criteria	**JORC Code Explanation**	**Commentary**
		recent (post 1990) drilling has been surveyed with downhole survey toolsat regular intervals including DEMS, gyroscope and camera.
	Specification of the grid system used.	MGA Zone 51 grid coordinate system is used
	Quality and adequacy of topographic control.	DTM surveys were obtained for the project area from Kevron Aerial Surveys.
Data spacing and distribution	*Data spacing for reporting of Exploration Results.*	No exploration results reported in this release
	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.	Data spacing is nominally 20m N-S by 30m E-W in indicated areas of the deposit and sparser in inferred areas of the deposit. 10m N-S by 15m E-W grade control drilling is available over mined areas. Drilling data is sufficient to establish continuity of the main lode.
Orientation of data in relation to geological structure	*Whether sample compositing has been applied.*	Some historic RAB and AC drilling was sampled with 3-4m composite samples. Anomalous zones were resampled at 1m intervals in some cases; it is unknown at what threshold this occurred.
	Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.	Sampling has been conducted in most cases perpendicular to the lode orientations where the mineralisation controls are well understood. It however possible that there is still mineralisation in this deposit that has not been optimally intersected, given that that not all the mineralisation controls are well understood.
	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.	There is no record of any sample bias that has been introduced because of the relationship between the orientation of the drilling and that of the mineralised structures.
Sample security	*The measures taken to ensure sample security.*	In more recent drilling programs only company employees and approved contractors were allowed on drill sites, drill samples were removed from site by approved contractors and delivered to a secure core logging and processing facility. Upon completion of logging and sampling core is consigned to accredited laboratories for sample preparation and analysis.
Audits or reviews	*The results of any audits or reviews of sampling techniques and data.*	Regular reviews of the logging and sampling methods and laboratory inspections have been completed during recent drilling campaigns.

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.*	On 19 August 2015 Saracen Mineral Holdings Limited (SMH), Saracen Metals Pty Ltd (SM) and St Barbara Limited entered an Agreement for the sale and purchase of the King of the Hills and Kailis projects (Agreement). Please see SMH's ASX announcement dated 20 August 2015. All conditions precedent under the Agreement have been satisfied and completion is expected to take place on 15 October 2015, upon and following which SM will take ownership of the King of the Hills and Kailis projects and the following will apply: The King of the Hill pit and near mine exploration are located on M37/67, M37/76, M37/90, M37/201 and M37/248 which expire between 2028 and 2031. All mining leases have a 21 year life and are renewable for a further 21 years on a continuing basis. The mining leases are 100% held and managed by Saracen Metals Pty Limited, a wholly owned subsidiary of Saracen Minerals Holdings Limited. The mining leases are subject to a 1.5% 'IRC' royalty. All production is subject to a Western Australian state government 'NSR' royalty of 2.5%. All bonds have been retired across these mining leases and they are all currently subject to the conditions imposed by the MRF. There are currently no native title claims applied for or determined across these mining leases. However, an agreement for Heritage Protection between St Barbara Mines Ltd and the Wutha People still applies. Lodged aboriginal heritage site (Place ID: 1741), which is an Other Heritage Place referred to as the "Lake Raeside/Sullivan Creek" site, is located in M37/90.
	The security of the tenure held at the time of reporting along with any known impediments to obtaining a licence to operate in the area.	The tenements are in good standing and the license to operate already exists.
Exploration done by other parties	*Acknowledgment and appraisal of exploration by other parties.*	The King of the Hills prospect was mined sporadically from 1898-1918. Modern exploration in the Leonora area was triggered by the discovery of the Habour Lights and Tower Hill prospects in the early 1980s, with regional mapping indicating the King of the Hills prospect area was worthy of further investigation. Various companies (Esso, Ananconda, BP Minerals. Kulim) carried out sampling, mapping and drilling activities delineating gold mineralisation. Kulim mined two small open pits in JV with Sons of Gwalia during 1986 and 1987. Arboynne took over Kulim's interest and outlined a new resource while Mount Edon carried out exploration on the surrounding tenements. Mining commenced but problems lead to Mount Edon acquiring the whole project area from Kulim, leading to the integration of the King of the Hills, KOTH West and KOTH Extended into the Tarmoola Project. Pacmin bought out Mount Edon and were subsequently taken over by Sons of Gwalia. St Barbara acquired the project after taking over Sons of Gwalia in 2005.
Geology	*Deposit type, geological setting and style of mineralisation.*	Gold mineralisation is associated with sheeted quartz vein sets within a hosting granodiorite stock and pervasively carbonate altered ultramafic rocks. Mineralisation is thought to have occurred within a brittle/ductile shear zone with the main thrust shear zone forming the primary conduit for the mineralising fluids. Pre-existing quartz veining and brittle fracturing of the granite created a network of second order conduits for mineralising fluids. Gold appears as free particles or associated with traces of base metals sulphides (galena, chalcopyrite, pyrite) intergrown within quartz along late stage fractures.
Drillhole information	*A summary of all information material to the*	A total of 2,072 holes have been used in the mineral resource and are deemed to be material. It is not

Section 2: Reporting of Exploration Results		
Criteria	**JORC Code Explanation**	**Commentary**
	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 does not detract from the understanding of the report, the Competent Person should clearly explain why this is the case.*	practical to summarise all of the holes here in this release. Future drill hole data will be periodically released or when a results materially change the economic value of the project. Exclusion of the drilling information will not detract from the reader's view of the report.
Data aggregation methods	*In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (e.g. cutting of high grades) and cut-off grades are usually Material and should be stated.*	No exploration results are reported in this release.
	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.	No exploration results are reported in this release.
	The assumptions used for any reporting of metal equivalent values should be clearly stated.	There are no metal equivalents reported in this release.
Relationship between mineralisation widths and intercept lengths	*These relationships are particularly important in the reporting of Exploration Results.* *If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.* *If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (eg 'down hole length, true width not known').*	Saracen has not previously reported exploration results nor are any included in this release. The geometry of the mineralisation is well known and true thickness can be calculated. Mineralisation at King of the Hills has been intersected in most cases where mineralisation controls are known, approximately perpendicular to the orientation of the mineralised lodes. Due to the shear abundance of the mineralised structures at King of The Hill, it is unavoidable that some of this mineralisation has not been optimally intersected.
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.*	Included in this release is an appropriately orientated longsection of the mineralisation, illustrating the centroids of the intercept point projected to a plane. Included also in this release are cross section views of the mineralisation which provides the visual perspective of the typical drilling angle.
Balanced Reporting	*Where comprehensive reporting of all Exploration*	Saracen has not previously reported exploration results nor are any included in this release.

Section 2: Reporting of Exploration Results

Criteria	JORC Code Explanation	Commentary
	Results are not practicable, representative reporting of both low and high grades and/or widths should be practiced to avoid misleading reporting of Exploration Results.	
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.*	Aerial photography, geotechnical drilling, petrological studies, ground magnetics, metallurgical test-work and whole rock geochemistry have been completed by various companies over the history of the deposit. Seismic and gravity surveys were carried out in 2003 and 2004 in an effort to identify controls on the mineralisation. Preliminary results indicated that the Tarmoola granite has a base and that mafics exist below this. The reporting was not completed due to Sons of Gwalia entering into administration. St Barbara completed an extended gravity survey from the previous one that was successful in delineating the granite/greenstone contact and mapped poorly tested extensions to known mineralised trends.
Further work	*The nature and scale of planned further work (eg tests for lateral extensions or depth extensions or large-scale step-out drilling).* *Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive*	Saracen is currently consolidating all the drill data with a view of reviewing the mineralisation extents of the entire deposit. Saracen is also investigating alternative interpretations of the mineralisation, particularly to the south of the current underground workings.

Section 3: Estimation and Reporting of Mineral Resources

Criteria	JORC Code Explanation	Commentary
Database Integrity	*Measures taken to ensure that data has not been corrupted by, for example, transcription or keying errors, between its initial collection and its use for Mineral Resource estimation purposes.*	The database provided to Saracen was an extract from an SQL database. The primary database is regulated by a locked framework which fixes the relationships between tables. The data model minimises the potential for data collection and data usage errors through pre-determined look up tables, storage and export functions. User defined permissions also regulate the ability to add, edit or extract data. It is unknown at this stage how the process used to record the primary data. Typical methods are manual translation of logging and data capture from written logs, direct import of csv tables through a data import scheme where data is validated upon import or direct data entry options into the database using predefined look up values.
	Data validation procedures used.	The rigid structure of the SQL data model is such that predefined rules and look up tables are applied to all data entry. Data that does not meet the criteria are highlighted and moved to a buffer area until the data is rectified to meet the passing rules. Validation of data included visual checks of hole traces, analytical and geological data. It is unknown at this stage how the database was managed and who was responsible for its maintenance. It is also unknown if there was any built in functionality around pass/fail checks on assay importing.

Section 3: Estimation and Reporting of Mineral Resources

Criteria	JORC Code Explanation	Commentary
Site Visits	*Comment on any site visits undertaken by the Competent Person and the outcome of those visits.*	The competent person together with Saracen technical representatives did conduct site visits to the King of the Hill project. The Competent person has an appreciation of the King of the Hills deposit geology and the historical mining activities that occurred there.
Geological Interpretation	*Confidence in (or conversely, the uncertainty of) the geological interpretation of the mineral deposit.*	The interpretation has been based on the detailed geological work completed by previous owners of the project. Saracen has reviewed and validated the historical interpretation of the King of the Hills deposit. This knowledge is based on extensive geological logging of drill core, RC chips, detailed open pit mapping and assay data. Mineralisation domains are defined by quartz veining, occurrence of sulphides (galena,chalcopyrite, and Sphalerite) and elevated gold grade (>0.5 g/t).
	Nature of the data used and any assumptions made.	The interpretations have been constructed using all available geological logging descriptions including but not limited to, stratigraphy, lithology, texture, and alteration. Open pit mapping had been included in the interpretation, however only affects the location of the domain boundaries inside the previously mined open pit. A thorough structural and deformation review, based around independent pit mapping and underground mapping helped to refine and improve the accuracy of the domain framework in the immediate underground position. Cross sectional interpretations of the mineralisation have been created and form the basic framework through which the 3D wireframe solid is built.
	The affect, if any, of alternative interpretations on Mineral Resource estimation.	Saracen has not considered any alternative interpretation on this resource. Saracen is currently reviewing all the resource data with the aim of validating the current interpretation and its extents.
	The use of geology in guiding and controlling the Mineral Resource estimation.	The wireframed domains are constructed using all available geological information (as stated above) and terminate along known structures. Mineralisation styles, geological homogenity, and grade distributions for each domain (used to highlight any potential for bimodal populations) are all assessed to ensure effective estimation of the domains.
	The factors affecting continuity both of grade and geology.	The main factors affecting continuity are predominantly structurally offset quartz veining within the hosting granodiorite stock and the pervasively altered ultramafic rocks. Potassic alteration in the form of sericite is occasionally associated with mineralisation within the granite whilst fuchsite is often present in mineralised parts of the ultramafic rocks. These were used to aid the construction of the mineralisation domains.
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 Western Flank mineralised zone strikes 30 degrees west of true north over a distance of 700m and plunges to the southwest. Individual lodes dip east at 35 to 45 degrees. Eastern Flank mineralisation strikes 30 degrees east of true north over a distance of 700m and is vertical. Mineralisation has been tested to approximately 400m below surface and remains open.
Estimation and modelling techniques	*The nature and appropriateness of the estimation technique(s) applied and key assumptions, including treatment of extreme grade values, domaining, interpolation parameters and maximum distance of extrapolation from data points.*	All domains were estimated using ordinary kriging on 4mE x 12mN x 4mRL parent blocks size. Search parameters are consistent with geological observation of high grade mineralisation geometry: Parameters for the major domains are as follows • IDL – Rotation Azimuth = 170 degrees, Dip = 30 degrees, Pitch = 45 degrees. Max search distances = 120m. Major/Semi-Major anisotropy =2.0; Major/Minor = 8.0. Min samples = 8, max samples =20 • KDL – Rotation Azimuth = 140 degrees, Dip = 20 degrees, Pitch= 167.5 degrees. Max search distances = 120m. Major/Semi- Major anisotropy = 2.0; Major/Minor = 8.0. Min samples = 8, max samples =20

Section 3: Estimation and Reporting of Mineral Resources

Criteria	JORC Code Explanation	Commentary
		• Regal – Rotation Azimuth = 150 degrees, Dip = 40 degrees, Pitch = 120 degrees. Max search distances = 120m. Major/Semi-Major anisotropy = 2.0; Major/Minor = 8.0. Min samples = 8, max samples =20 •T3 – Rotation Azimuth = 300 degrees, Dip = 15 degrees, Pitch = 67.5 degrees. Max search distances = 100m. Major/Semi-Major anisotropy = 1.7; Major/Minor = 6.7. Min samples = 8, max samples =20 • Lower Kingdom – Rotation Azimuth = 170 degrees, Dip = 25 degrees, Pitch = -67.5 degrees. Max search distances = 120m. Major/Semi-Major anisotropy = 1.0; Major/Minor = 3.8. Min samples = 8, max samples =20 • EF veins – Rotation Azimuth = 175 degrees, Dip = 75 degrees, Pitch = 90 degrees. Max search distances = 110m. Major/Semi- Major anisotropy = 2.2; Major/Minor = 7.3. Min samples = 8, max samples =20 • UAC shears – Rotation Azimuth = 10 degrees, Dip = 20 degrees, Pitch = 0 degrees. Max search distances = 75m. Major/Semi-Major anisotropy = 1.0; Major/Minor = 3.8. Min samples = 8,max samples =20 Isolated high grade composites were top cut to 100g/t prior to estimation for each domain Model was validated by plotting composite and block model average grades against RL
	The availability of check estimates, previous estimates and/or mine production records and whether the Mineral Resource estimate takes appropriate account of such data.	No Check estimates have been done for this resource
	The assumptions made regarding recovery of by-products.	No assumptions have been made with respect to the recovery of by-products.
	Estimation of deleterious elements or other non-grade variables of economic significance (e.g. sulfur for acid mine drainage characterisation).	There has been no estimate at this point of deleterious elements. Arsenic has been found in some samples
	In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed.	The previous resource used the parent block size of 4m(X) by 12m(Y) by 4m(Z). These were deemed appropriate for the majority of the resource, where drill spacing is in the order of 20m x 30m. Parent blocks were sub-celled to 1m(X) by 1m(Y) by 0.5m(Z) to ensure that the wireframe boundaries were honoured and preserved the location and shape of the mineralisation. Search ranges have been informed by variogram modelling and knowledge of the drill spacing and the known mineralisation geometry including direction of maximum continuity. Three search estimation runs are used with the aim to satisfy the minimum sample criteria in the first search range where possible. Saracen is currently scrutinising these parameters and performing KNA to ensure validity. External audits indicate that there isn’t any outstanding or erroneous data informing the estimation.
	Any assumptions behind modelling of selective mining units.	A selective mining unit of 8m(X) by 12m(Y) by 8m(Z) was assumed for reporting purposes and is compatible with the stope shapes used in the ore extraction.
	Any assumptions about correlation between	No assumptions have been made regarding correlation between variables.

Section 3: Estimation and Reporting of Mineral Resources		
Criteria	**JORC Code Explanation**	**Commentary**
	variables.	
	Description of how the geological interpretation was used to control the resource estimates.	The geological interpretation strongly correlates with the mineralised domains. Specifically where the mineralised domain corresponds with quartz veining. All wireframe boundaries including those where lithology and mineralisation correspond, hard boundaries are enforced.
	Discussion of basis for using or not using grade cutting or capping.	Previous resource analysis indicated that statistically very few grades in the domain populations required top-cutting. Top-cuts were employed to eliminate the risk of overestimating in the local areas where a few high grade samples existed. Saracens are in the process of reviewing this data and assessing top cuts by domain. External audits indicate that there isn't any outstanding or erroneous data informing the estimation.
	The process of validation, the checking process used, the comparison of model data to drill hole data, and use of reconciliation data if available.	Several key model validation steps have been taken to validate the resource estimate. The mineral resource model has been stepped through visually in sectional and plan view to appreciate the composite grades used in the estimate and the resultant block grades. This has also been carried out in 3D with the composite grades and a point cloud of the model grades. Northing and Elevation swathe plots have been constructed to evaluate the composited assay means against the mean block estimates. The estimate was checked against previously reconciled production records received during the due diligence process, which match very closely.
Moisture	*Whether the tonnages are estimated on a dry basis or with natural moisture, and the method of determination of the moisture content.*	All tonnages are estimated on a dry basis.
Cut-off parameters	*The basis of the adopted cut-off grade(s) or quality parameters applied.*	The model is reported at a 3.0g/t Au cut-off on 8mE x 12mN x 8mRL panels for each lode to account for non-selective mining across strike.
Mining factors or assumptions	*Assumptions made regarding possible mining methods, minimum mining dimensions and internal (or, if applicable, external) mining dilution. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential mining methods, but the assumptions made regarding mining methods and parameters when estimating Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the mining assumptions made.*	The mining method is underground, open stoping and room and pillar. Minimum height is approximately 5m with the resource reported on similar size panels to reflect this relationship.
Metallurgical factors or assumptions	*The basis for assumptions or predictions regarding metallurgical amenability. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential metallurgical methods, but the assumptions regarding metallurgical treatment process and parameters made when reporting Mineral Resources may not always be rigorous. Where this is the case, this should be reported with*	Based on historical mining at King of the Hills, gold recovery factors for oxide and transition ore are around 95%

Section 3: Estimation and Reporting of Mineral Resources		
Criteria	**JORC Code Explanation**	**Commentary**
	an explanation of the basis of the metallurgical assumptions made.	
Environmental factors or assumptions	*Assumptions made regarding possible waste and process residue disposal options. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider the potential environmental impacts of the mining and processing operation. While at this stage the determination of potential environmental impacts, particularly for a greenfields project, may not always be well advanced, the status of early consideration of these potential environmental impacts should be reported. Where these aspects have not been considered this should be reported with an explanation of the environmental assumptions made.*	The project covers an area that has been previously impacted by mining. The tenement area includes existing ethnographic heritage sites. SBM have undertaken extensive Aboriginal Heritage Surveys within the tenements and management measures are in place.
Bulk Density	*Whether assumed or determined. If assumed, the basis for the assumptions. If determined, the method used, whether wet or dry, the frequency of the measurements, the nature, size and representativeness of the samples.*	The bulk densities, which were assigned to each panel in the resource model, are based on the dominant rock type and weathering zone that intersects the panel. Bulk densities are derived from over a thousand determinations which were carried out between 1994 and 2001 as part of routine Grade Control procedures. Density ranges between 2.69g/cm3 and 2.80g/cm3
	The bulk density for bulk material must have been measured by methods that adequately account for void spaces (vugs, porosity, etc), moisture and differences between rock and alteration zones within the deposit.	The procedure the previous owners utilised, included the coating of dried samples in paraffin wax where the samples had some degree of weathering, were porous or clay rich. These coated samples were then tested using the water displacement technique as previously mentioned.
	Discuss assumptions for bulk density estimates used in the evaluation process of the different materials.	An average mean of densities collected for each weathering profile material, fresh, transitional and oxide
Classification	*The basis for the classification of the Mineral Resources into varying confidence categories.*	The resource classification applied to the 2015 resource model was based on drilling density and confidence in geological continuity. Areas where the geological continuity has been verified or the average drillhole spacing is 20 m by 30 m have been classified as Indicated and areas with wider spaced drilling have been classified as Inferred.
	Whether appropriate account has been taken of all the relevant factors (ie relative confidence in tonnage/grade estimations, reliability of input data, confidence in continuity of geology and metal values, quality, quantity and distribution of the data).	All care has been taken to account for relevant factors influencing the mineral resource estimate. Confidence in the predicted tonnes and grade estimated in the model is high and previous mining performance suggests that the input data and geological continuity are such that a robust resource estimate can be achieved.
	Whether the result appropriately reflects the Competent Person's view of the deposit.	The geological model and the mineral resource estimate reflect the competent person’s view of the deposit.
Audits or reviews	*The results of any audits or reviews of Mineral*	External reviews have been conducted by Mining Plus and Quantitative Group (QG) for this resource

Section 3: Estimation and Reporting of Mineral Resources

Criteria	JORC Code Explanation	Commentary
	Resource estimates.	estimate. The reviews covered all aspects of the estimate including source data, geological model, resource estimate and classification In addition, the reporting of the Mineral Resources. The findings from the audits show that the data, interpretation, estimation parameters, implementation, validation, documentation and reporting are all fit for purpose with no material errors or omissions.
Discussion of relative accuracy/confidence	*Where appropriate a statement of the relative accuracy and confidence level in the Mineral Resource estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the resource within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors that could affect the relative accuracy and confidence of the estimate.*	The mineral resource has been reported in accordance with the guidelines established in the 2012 edition of the JORC code. The resource estimate is a global resource estimate. As for all estimates, the results come from a single deterministic interpolation process, which minimises error by smoothing of the sample data variance. Validation indicates a high level of estimate accuracy on a global basis however; this accuracy for key variables may not be available at a local mining scale which would be derived from the grade control model.
	The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonnages, which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the procedures used.	The statements relate to a global estimate of tonnes and grade.

Kailis

Section 1: Sampling Techniques and Data

Criteria	JORC Code Explanation	Commentary
Sampling Techniques	*Nature and quality of sampling (e.g. cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc.). These examples should not be taken as limiting the broad meaning of sampling.*	Sampling methods undertaken at Kailis by previous owners have included rotary air blast (RAB), reverse circulation (RC), aircore (AC) and diamond drillholes (DD). Limited historical data has been provided by previous owners. Saracen has not carried out any sampling activities at Kailis as the project has only recently been acquired.
	Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used	RC, RAB, AC and DD core drilling is assumed to have been completed by previous holders to industry standard at that time (1980- 2008).
	Aspects of the determination of mineralisation that are Material to the Public Report. In cases where	All RAB, RC, AC and DD and sampling is assumed to have been carried out to industry standard at that time.

Section 1: Sampling Techniques and Data

Criteria	JORC Code Explanation	Commentary
	'industry standard' work has been done this would be relatively simple (e.g. 'reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30 g charge for fire assay'). In other cases more explanation may be required, such as where there is coarse gold that has inherent sampling problems. *Unusual commodities or mineralisation types (e.g. submarine nodules) may warrant disclosure of detailed information*	The majority of recent drillholes have been riffle or cone split to provide 1m samples for analysis. Older drillholes have been sampled via spear sampling or unknown methods. Analysis methods include aqua regia, fire assay and unknown methods.
Drilling Techniques	*Drill type (e.g. core, reverse 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.).*	The deposit was initially sampled by 156 RAB holes. Further drilling included 51 RAB holes, 1186 RC holes (assumed standard 5 ¼" face sampling hammer bit) 220 AC holes and 54 HQ (mostly standard tube, a limited number were triple tube) and unknown diameter diamond drillholes. A number of these were diamond tails on existing RC drillholes. It is unknown if diamond drill core was oriented.
Drill Sample Recovery	*Method of recording and assessing core and chip sample recoveries and results assessed*	It has been noted that recoveries were rarely less than 100% although recovery data has not been provided. Some problems were reported with wet samples from RC drilling. Diamond hole ore zone intersections are HQ sized diamond core using standard double tubes (triple tubes used occasionally). Core loss through the ore zone was reported occasionally however recoveries for diamond drilling programs were around 95%.
	Measures taken to maximise sample recovery and ensure representative nature of the samples	It is unknown what, if any, measures were taken to ensure sample recovery and representivity.
	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.	Any historical relationship is not known.
Logging	*Whether core and chip samples have been geologically and geotechnically logged to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies.* *Whether logging is qualitative or quantitative in nature.* *Core (or costean, channel, etc) photography.*	Logging of diamond drill core, RAB, RC and AC drillholes has recorded lithology, mineralogy, texture, mineralisation, weathering, alteration and veining. Some diamond drilling has been geotechnically logged to provide data for geotechnical studies. It is unknown if diamond core was photographed.
	The total length and percentage of the relevant intersections logged	All drillholes appear to have been logged in full.
Sub-sampling techniques and sample preparation	*If core, whether cut or sawn and whether quarter, half or all core taken.*	The sampling method for most drill core is unknown, a small amount is recorded as half core sampled.
	If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry.	The sampling method for the majority of the historic RAB, AC and RC drilling is unknown: a small number have been recorded as spear sampled. Some wet sampling has been reported but only a small proportion of these had poor recoveries

Section 1: Sampling Techniques and Data		
Criteria	**JORC Code Explanation**	**Commentary**
	For all sample types, the nature, quality and appropriateness of the sample preparation technique.	The sampling techniques for historic RAB, RC, AC and DD drilling are unknown, best practice is assumed.
	Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.	Best practice is assumed at the time of historic RAB, DD, AC and RC sampling. Procedures adopted to ensure sample representivity for more recent drilling included sizing analysis, with an expected return of 85% passing 75um.
	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.	It is unknown if duplicate sampling was performed on historic RAB, RC, AC and DD drilling.
	Whether sample sizes are appropriate to the grain size of the material being sampled.	Analysis of data determined sample sizes were considered to be appropriate.
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.*	More recent sampling has been analysed using a 40 gram fire assay with AAS finish to determine the gold concentration. This method is considered suitable for determining gold concentrations in rock and is a total digest method. Methods for historic RC, RAB, AC and DD drilling included fire assay, aqua regia and unknown methods.
	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 geophysical tools have been utilised at the Kailis project
	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.	Historic RAB, DD, AC and RC drilling is assumed to have been carried out to industry standard regarding QAQC procedures. More recent drilling included the insertion of 4 commercial standards and 2 blank control samples for every 100 samples submitted. A number of pulps were retrieved, renumbered and resubmitted to the original laboratory as well as being submitted to an external laboratory as a further check. Analysis showed acceptable repeatability with no bias Analysis of QAQC data determined acceptable levels of accuracy with no bias existing in the dataset.
Verification of sampling and assaying	*The verification of significant intersections by either independent or alternative company personnel.*	It is unknown if historic intercepts were verified by alternative company personnel.
	The use of twinned holes.	A number of DDH holes were drilled to twin original RC holes and verify results.
	Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols	Limited documentation of this nature has been provided. Limited drilling data has been supplied in an Access database.
	Discuss any adjustment to assay data.	It appears no adjustment was made to assay data.
Location of data points	*Accuracy and quality of surveys used to locate drillholes (collar and down-hole surveys), trenches, mine workings and other locations used in Mineral Resource estimation.*	Historic drilling was located using mine surveyors and standard survey equipment; more recent drilling has been surveyed using a Real Time Kinetic GPS system. The majority of downhole surveys for exploration RC and DD drilling were carried out using an Eastman single shot camera at regular intervals. Some drillholes were gyroscopically surveyed and some survey methods remain unknown.
	Specification of the grid system used.	MGA Zone 51 grid coordinate system is used

Section 1: Sampling Techniques and Data

Criteria	JORC Code Explanation	Commentary
	Quality and adequacy of topographic control.	DTM surveys were obtained for the project area from Tesla Airborne Geoscience
Data spacing and distribution	*Data spacing for reporting of Exploration Results.*	No exploration results reported in this release
	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.	Data spacing is nominally 20m N-S by 20m E-W and 20m N-S by 40m EW in more sparsely drilled areas of the resource. 10m N-S by 10m E-W grade control drilling is available over mined areas. Drilling data is sufficient to establish continuity of the main lode.
Orientation of data in relation to geological structure	*Whether sample compositing has been applied.*	Some historic RAB and AC drilling was sampled with 3-4m composite samples. Anomalous zones were resampled at 1m intervals in some cases, it is unknown at what threshold this occurred.
	Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.	Sampling is perpendicular to the main lode orientation and is well understood from past production.
	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.	There is no record of any sample bias that has been introduced because of the relationship between the orientation of the drilling and that of the mineralised structures.
Sample security	*The measures taken to ensure sample security.*	Information on sample security measures has not been provided
Audits or reviews	*The results of any audits or reviews of sampling techniques and data.*	No evidence of external reviews has been supplied. QAQC procedures appear to have been regularly internally reviewed and updated.

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.*	On 19 August 2015 Saracen Mineral Holdings Limited (SMH), Saracen Metals Pty Ltd (SM) and St Barbara Limited entered an Agreement for the sale and purchase of the King of the Hills and Kailis projects (Agreement). Please see SMH's ASX announcement dated 20 August 2015. All conditions precedent under the Agreement have been satisfied and completion is expected to take place on 15 October 2015, upon and following which SM will take ownership of the King of the Hills and Kailis projects and the following will apply: The Kailis pit and near mine exploration are located on M37/46, M37/219, M37/564, and M37/902 which are granted until 2027, 2031, 2020, and 2030 respectively. All mining leases have a 21 year life and are renewable for a further 21 years on a continuing basis. The mining leases are 100% held and managed by Saracen Metals Pty Limited, a wholly owned subsidiary of Saracen Minerals Holdings Limited. The mining leases are subject to a 1.5% IRC royalty. All production is subject to a Western Australian state government NSR royalty of 2.5%. All bonds have been retired across these mining leases and they are all currently subject to the conditions imposed by the MRF. There are currently no native title claims applied for or determined across these mining leases. However, an agreement for Heritage Protection between St Barbara Mines Ltd and the Wutha People still

Section 2: Reporting of Exploration Results

Criteria	JORC Code Explanation	Commentary
		applies.Lodged aboriginal heritage site 17587, which is an Other Heritage Place referred to as the "Kailis Project Quartz Site", is located in M37/46.
	The security of the tenure held at the time of reporting along with any known impediments to obtaining a licence to operate in the area.	The tenements are in good standing and the license to operate already exists.
Exploration done by other parties	*Acknowledgment and appraisal of exploration by other parties.*	Mineralisation was discovered in the Kailis project area in the early 1980s after RAB drilling returned anomalous gold and arsenic values. Carr Boyd minerals intersected mineralisation with an initial RC program targeting these anomalies in 1982. Esso, City Resources and Sons of Gwalia all held the project at various times and carried out RAB, RC, AC and DDH programs delineating the resource. The deposit was mined in 2000-2001 by Sons of Gwalia. Mining was carried out by St Barabara at the nearby Trump deposit between 2008-2009.
Geology	*Deposit type, geological setting and style of mineralisation.*	Gold mineralisation at Kailis is hosted in quartz-sericite schist within a broad north trending, shallow to moderately dipping (40-50 degrees east) shear zone with a strike length in excess of 1800m. Mineralised intervals are often narrow (3-8m) but thicken to 15-20m in places. Structural studies identified narrow sub vertical NE-SW trending quartz vein sets that cross cut the main shear zone as possible controls on high grade mineralisation. The best gold grades tend to occur in the oxide and transitional zones with lower grades in the fresh rock. Mineralisation is open at depth but closed along strike.
Drillhole 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 does not detract from the understanding of the report, the Competent Person should clearly explain why this is the case.*	A total of 1667 holes have been used in the mineral resource and are deemed to be material. It is not practical to summarise all of the holes here in this release. Future drill hole data will be periodically released or when a results materially change the economic value of the project. Exclusion of the drilling information will not detract from the reader's view of the report.
Data aggregation methods	*In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (e.g. cutting of high grades) and cut-off grades are usually Material and should be stated.*	No exploration results are reported in this release.
	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	No exploration results are reported in this release.

Section 2: Reporting of Exploration Results		
Criteria	**JORC Code Explanation**	**Commentary**
	detail.	
	The assumptions used for any reporting of metal equivalent values should be clearly stated.	There are no metal equivalents reported in this release.
Relationship between mineralisation widths and intercept lengths	*These relationships are particularly important in the reporting of Exploration Results.* *If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.* *If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (eg 'down hole length, true width not known').*	Saracen has not previously reported exploration results nor are any included in this release. The geometry of the mineralisation is well known and true thickness can be calculated. Mineralisation at Kailis has been mainly intersected by vertical drill holes which have an average intersection angle to mineralisation of approximately 68 degrees.
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.*	Included in this release is an appropriately orientated longsection of the mineralisation, illustrating the centroids of the intercept point projected to a plane. Included also in this release are cross section views of the mineralisation which provides the visual perspective of the typical drilling angle.
Balanced Reporting	*Where comprehensive reporting of all Exploration Results are not practicable, representative reporting of both low and high grades and/or widths should be practiced to avoid misleading reporting of Exploration Results.*	Saracen has not previously reported exploration results nor are any included in this release.
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.*	Historic activities have included drilling to obtain samples for metallurgical, geotechnical and hydrological test work. A number of geophysical surveys including airborne magnetics, radiometrics, and gravity have been carried out over the project area by various companies to identify strike extensions and /or strike parallel mineralisation. Drilling of identified targets proved successful identifying several anomalous zones. A detailed structural review of the nearby Trump deposit was carried out in 2012, highlighting the importance of the cross cutting structures as possible controls on the high grade mineralisation.
Further work	*The nature and scale of planned further work (eg tests for lateral extensions or depth extensions or large-scale step-out drilling).* *Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive*	Saracen is currently working on establishing exploration opportunities which will extend the known mineralisation at depth. This will primarily focus on understanding the key geological relationships and critical continuity directions to target depth extensions.

Section 3: Estimation and Reporting of Mineral Resources		
Criteria	**JORC Code Explanation**	**Commentary**
Database Integrity	*Measures taken to ensure that data has not been corrupted by, for example, transcription or keying errors, between its initial collection and its use for Mineral Resource estimation purposes.*	The database provided to Saracen was an extract from an SQL database. The primary database is regulated by a locked framework which fixes the relationships between tables. The data model minimises the potential for data collection and data usage errors through pre-determined look up tables, storage and export functions. User defined permissions also regulate the ability to add, edit or extract data. It is unknown at this stage how the process used to record the primary data. Typical methods are manual translation of logging and data capture from written logs, direct import of csv tables through a data import scheme where data is validated upon import or direct data entry options into the database using predefined look up values.
	Data validation procedures used.	The rigid structure of the SQL data model is such that predefined rules and look up tables are applied to all data entry. Data that does not meet the criteria are highlighted and moved to a buffer area until the data is rectified to meet the passing rules. Validation of data included visual checks of hole traces, analytical and geological data. It is unknown at this stage how the database was managed and who was responsible for its maintenance. It is also unknown if there was any built in functionality around pass/fail checks on assay importing.
Site Visits	*Comment on any site visits undertaken by the Competent Person and the outcome of those visits.*	The competent person together with Saracen technical representatives did conduct a site visit. And has an appreciation of the Kailis deposit geology and the historical mining activities that occurred there. Drill core was inspected during the visits.
Geological Interpretation	*Confidence in (or conversely, the uncertainty of) the geological interpretation of the mineral deposit.*	The interpretation has been based on the detailed geological work completed by previous owners of the project. Saracen has reviewed and validated the historical interpretation of the Kailis deposit.This knowledge is based on extensive geological logging of drill core, RC chips, detailed open pit mapping and assay data. Mineralisation domains are defined by quartz veining, alteration, texture and gold grade and assume that lode distributions defined by mining operations are reasonably continuous.
	Nature of the data used and any assumptions made.	The interpretations have been constructed using all available geological logging descriptions including but not limited to, stratigraphy, lithology, texture, and alteration. Open pit mapping had been included in the interpretation, however only affects the location of the domain boundaries inside the previously mined open pit. Cross sectional interpretations of the mineralisation have been created and from the basic framework through which the 3D wireframe solid is built.
	The affect, if any, of alternative interpretations on Mineral Resource estimation.	Saracen has considered an alternative interpretation which it has used to construct a resource estimate and compared this with the previous estimate.
	The use of geology in guiding and controlling the Mineral Resource estimation.	The wireframed domains are constructed using all available geological information (as stated above) and terminate along known structures. Mineralisation styles, geological homogenity, and grade distributions for each domain (used to highlight any potential for bimodal populations) are all assessed to ensure effective estimation of the domains.
	The factors affecting continuity both of grade and geology.	The main factors affecting continuity are predominantly quartz veining, alteration and texture. These were used to aid the construction of the mineralisation domains.
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*	The Kailis resource is contained within a + 40m wide continuously mineralised shear zone which extends over a strike length of approximately 1,300m from 174,400mE to 175,720mE (MGA), and dips 30° to the south. Mineralisation is open at depth and to the west.

Section 3: Estimation and Reporting of Mineral Resources

Criteria	JORC Code Explanation	Commentary
	and lower limits of the Mineral Resource.	
Estimation and modelling techniques	*The nature and appropriateness of the estimation technique(s) applied and key assumptions, including treatment of extreme grade values, domaining, interpolation parameters and maximum distance of extrapolation from data points.*	Block estimation using ordinary kriging has been completed in Micromine. All wireframes have been constructed in Micromine, which were used as hard boundaries for the estimations. Estimation of parent blocks are interpolated, and assigned to sub-cells. Univariate statistical analysis of length weighted (1m) domain coded downhole composites have been completed for all domains and top-cuts applied where applicable. Extreme grades are not common in the data set and all domains have been analysed individually to determine specific top-cut values. The top-cut process affects only 1-2% of the data. Care was taken not to severely reduce the metal by cutting a large proportion of the data. Variogram modelling was completed with Snowden's Supervisor software. This defined the special continuity within the domains. The parameters determined from this analysis were used in the interpolation process.
	The availability of check estimates, previous estimates and/or mine production records and whether the Mineral Resource estimate takes appropriate account of such data.	Saracen generated an Independent resource estimate for the Kailis deposit based on an alternative Interpretation. Saracens interpretation excludes a significant amount of low grade material which was included in the previous Interpretation.
	The assumptions made regarding recovery of by-products.	No assumptions have been made with respect to the recovery of by-products.
	Estimation of deleterious elements or other non-grade variables of economic significance (e.g. sulfur for acid mine drainage characterisation).	There has been no estimate at this point of deleterious elements. Arsenic has been found in some samples
	In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed.	The parent block sizes for the resource model are 10m(X) by 10m(Y) by 5m(Z). These are deemed appropriate for the majority of the resource, where drill spacing is in the order of 20m x 20m. Parent blocks have been sub-celled to 1m(X) by 1m(Y) by 0.5m(Z) to ensure that the wireframe boundaries are honoured and preserve the location and shape of the mineralisation. Search ranges have been informed by variogram modelling and knowledge of the drill spacing and the known mineralisation geometry including direction of maximum continuity. Three search estimation runs are used with the aim to satisfy the minimum sample criteria in the first search range where possible.
	Any assumptions behind modelling of selective mining units.	No selective mining units have been assumed.
	Any assumptions about correlation between variables.	No assumptions have been made regarding correlation between variables.
	Description of how the geological interpretation was used to control the resource estimates.	The geological interpretation strongly correlates with the mineralised domains. Specifically where the mineralised domain corresponds with quartz pyrite veining. All wireframe boundaries including those where lithology and mineralisation correspond, hard boundaries are enforced.
	Discussion of basis for using or not using grade cutting or capping.	Statistical analysis of all domains highlight that there are very few grades in the domain populations that require top-cutting. Top-cuts have been employed to eliminate the risk of overestimating in the local areas where a few high grade samples exist.
	The process of validation, the checking process used, the comparison of model data to drill hole data, and use of reconciliation data if available.	Several key model validation steps have been taken to validate the resource estimate. The mineral resource model has been stepped through visually in sectional and plan view to appreciate the composite grades used in the estimate and the resultant block grades. This has also been carried out in 3D with the composite grades and a point cloud of the model grades.

Section 3: Estimation and Reporting of Mineral Resources

Criteria	JORC Code Explanation	Commentary
		Northing and Elevation swathe plots have been constructed to evaluate the composited assay means against the mean block estimates. The mineral resource model has been constructed to include kriging efficiency and the slope of regression values. These values are used to measure the quality of the estimate. Natural deterioration of the quality is observed at the perimeter of the modelled areas where data density is lower. The estimate was checked against previously reconciled production records received during the due diligence process, which match very closely.
Moisture	*Whether the tonnages are estimated on a dry basis or with natural moisture, and the method of determination of the moisture content.*	All tonnages are estimated on a dry basis.
Cut-off parameters	*The basis of the adopted cut-off grade(s) or quality parameters applied.*	Based on Saracen's current economic operations at Carosue Dam, and the natural grade distinction above background, a grade of 0.5g/t has been chosen.
Mining factors or assumptions	*Assumptions made regarding possible mining methods, minimum mining dimensions and internal (or, if applicable, external) mining dilution. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential mining methods, but the assumptions made regarding mining methods and parameters when estimating Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the mining assumptions made.*	The Kailis deposit is amenable to mining using the open pit mining method. The deposit has successfully been mined by open pit in the past. There are reasonable grounds to assume that in the future this deposit will again be mined by conventional open pit load and haul operations.
Metallurgical factors or assumptions	*The basis for assumptions or predictions regarding metallurgical amenability. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential metallurgical methods, but the assumptions regarding metallurgical treatment process and parameters made when reporting Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the metallurgical assumptions made.*	Based on historical mining at Kailis, gold recovery factors for oxide and transition ore are around 94% and that the gravity gold recovery is as high as 65%
Environmental factors or assumptions	*Assumptions made regarding possible waste and process residue disposal options. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider the potential environmental impacts of the mining and processing operation. While at this stage the determination of potential environmental impacts, particularly for a greenfields*	No significant problems were registered on previous Notice Of Intent applications (NOIs) dating from 2000-2003 for the Kailis deposit.

Section 3: Estimation and Reporting of Mineral Resources

Criteria	JORC Code Explanation	Commentary
	project, may not always be well advanced, the status of early consideration of these potential environmental impacts should be reported. Where these aspects have not been considered this should be reported with an explanation of the environmental assumptions made.	
Bulk Density	*Whether assumed or determined. If assumed, the basis for the assumptions. If determined, the method used, whether wet or dry, the frequency of the measurements, the nature, size and representativeness of the samples.*	Previous owners have taken routine density measurements when drilling diamond core, along with a comprehensive grab sampling regime during the mining of the pit. The method of calculation is the water displacement technique. Measurements have been recorded in the acquire database and extraction schemes pair this data with the major lithology code for statistical analysis. At this point Saracen does not have the available data to comment on the frequency and distribution of the density measurements. The size and nature of the samples is also unknown to Saracen at this time.
	The bulk density for bulk material must have been measured by methods that adequately account for void spaces (vugs, porosity, etc), moisture and differences between rock and alteration zones within the deposit.	The procedure the previous owners utilised, included the coating of dried samples in paraffin wax where the samples had some degree of weathering, were porous or clay rich. These coated samples were then tested using the water displacement technique as previously mentioned.
	Discuss assumptions for bulk density estimates used in the evaluation process of the different materials.	An average mean of densities collected for each weathering profile material, fresh, transitional and oxide
Classification	*The basis for the classification of the Mineral Resources into varying confidence categories.*	The mineral resource has been classified into Indicated and Inferred categories based on drill hole spacing, geological confidence, and grade continuity and estimation quality. The combinations of these factors were used to assign resource categories on a domain by domain basis.
	Whether appropriate account has been taken of all the relevant factors (ie relative confidence in tonnage/grade estimations, reliability of input data, confidence in continuity of geology and metal values, quality, quantity and distribution of the data).	All care has been taken to account for relevant factors influencing the mineral resource estimate. Confidence in the predicted tonnes and grade estimated in the model is high and previous mining performance suggests that the input data and geological continuity are such that a robust resource estimate can be achieved.
	Whether the result appropriately reflects the Competent Person's view of the deposit.	The geological model and the mineral resource estimate reflect the competent person’s view of the deposit.
Audits or reviews	*The results of any audits or reviews of Mineral Resource estimates.*	No external reviews or audits for this resource estimate. At the completion of a resource estimation Saracen Gold Mines undertake an extensive review of the model that covers model inventory and comparisons to previous models. Geological interpretation, wireframing, domain selection, statistics by domain, assay evaluation, parent cell sizes, data compositing, variography, search strategy, estimation and Kriging Neighbourhood Analysis and finally model validation and resource categorisation are all discussed and scrutinized by the geological and mine planning teams.
Discussion of relative accuracy/confidence	*Where appropriate a statement of the relative accuracy and confidence level in the Mineral Resource estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative*	The mineral resource has been reported in accordance with the guidelines established in the 2012 edition of the JORC code. Saracen Gold Mine uses a standard approach to resource estimation and the procedure requires the systematic completion of the Saracen Resource Estimation Document that is thoroughly investigated and assessed in the Model review process, as stated above. Given that this is a global resource estimate, it is prudent that, before commencement of any mining activities grade control drilling should

Section 3: Estimation and Reporting of Mineral Resources

Criteria	JORC Code Explanation	Commentary
	accuracy of the resource within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors that could affect the relative accuracy and confidence of the estimate.	be done to improve the local estimates.
	The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonnages, which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the procedures used.	The statements relate to a global estimate of tonnes and grade.

Section 4: Estimation and Reporting of Ore Reserves

Criteria	JORC Code Explanation	Commentary
Mineral Resource estimate for conversion to Ore Reserves	*Description of the Mineral resource Estimate used as a basis for the conversion to an Ore Reserve.*	The Mineral Resource estimate for the Kailis gold deposit used as a basis for conversion to the Ore Reserve estimate, was compiled by Saracen using a combination of data supplied by St Barbara Limited, and data compiled by Saracen. The data included drilling and assay data, geological mapping and historical mining records to validate the model against and solid interpretation wireframes of the geology. This information was used to construct a model estimated by ordinary kriging. The model was depleted with the last final pit survey completed in 2008.
	Clear statement as to whether the Mineral Resources are reported additional to. Or inclusive of, the Ore Reserves.	The Mineral Resource reported is inclusive of the Ore Reserve.
Site Visits	*Comment on any site visits undertaken by the Competent Person and the outcome of those visits.*	Chris Burton has not yet conducted a site visit, however, Saracen's consultant geotechnical engineer accompanied by Saracen's Chief Geologist and other senior technical representatives have conducted a site visit as part of the due diligence process in Saracen's purchase of the Kailis assets. The main focus of the visit was a physical inspection of the existing Kailis Pit. Observations were carried out of the existing pit wall conditions, overall stability, and inflow of groundwater. The existing pit at Kailis was mined between 2000-2001.
	If no site visits have been undertaken indicate why this is the case.	The Kailis deposit has only recently been acquired by Saracen, and the timing constraints of the due diligence site visit did not allow for Chris Burton to attend the site.
Study status	*The type and level of study undertaken to enable Mineral Resources to be converted to Ore Reserves*	The Kailis Gold Mine operated as an open pit mine for a period of 11 months from 2000-2001. All documentation relating to the operation parameters for the pit have been obtained and understood. Since acquiring the Kailis assets Saracen has undertaken a pre-feasibility study with mining and processing parameters updated to reflect current conditions.
	The Code requires that a study to at least Pre-Feasibility Study level has been undertaken to convert Mineral Resources to Ore Reserves. Such studies will have been carried out and will have	Modifying factors have been applied to the study to ensure the rigor of the financial analysis. All of the parameters assumed and adopted, as well as the financial analysis completed, have been the subject to peer review.

Section 4: Estimation and Reporting of Ore Reserves

Criteria	**JORC Code Explanation**	**Commentary**
	determined a mine plan that is technically achievable and economically viable, and that material Modifying Factors have been considered.	
Cut-off parameters	*The basis of the cut-off grade(s) or quality parameters applied*	For the purpose of Ore Reserve Estimate a marginal cut-off of 0.7g/t was calculated based upon an assumed gold price of AUD$1400/oz and applicable processing, haulage and administration costs. A top cut has already been applied to the Mineral Resource Estimate eliminating the necessity for any further adjustment to the Ore Reserve estimate.
Mining factors or assumptions	*The method and assumptions used as reported in the Pre-feasibility or Feasibility Study to convert the Mineral Resource to an Ore Reserve (i.e. either by application of appropriate factors by optimisation or by preliminary or detailed design).*	The resource model used in the Mineral Resource Estimation was the basis for the generation of a range of Whittle 4X pit optimisation shells. The generation of these shells was reliant upon costs and inputs derived from current operational data and independent consultant recommendations. An appropriate shell was then selected as the basis for an iterative process of pit design work, culminating in the finalisation of a detailed pit design for the Kailis cutback
	The choice, nature and appropriateness of the selected mining method(s) and other mining parameters including associated design issues such as pre-strip, access, etc.	Mining method to be employed will be conventional hydraulic excavator and dump truck fleet, with 190t and 260t class excavators assumed. The class of excavator employed matches those used in previous mining at SGM's Carosue Dam Operations, providing good comparative cost data for financial modelling purposes, as well as a reliable database of excavation and performance rates. The pit will be mined as a single cutback, extending the existing pit both to the west and east.
	The assumptions made regarding geotechnical parameters (e.g. pit slopes, stope sizes, etc.), grade control, and pre-production drilling.	Geotechnical recommendations were made by Will Sarunic (geotechnical consultant - Xstract) following a site visit, inspection of drill core, and a review of the historical geotechnical data, as well as a review of wall parameter recommendation report commissioned by the deposits previous owners. Once the pit is dewatered there may be some need for additional geotechnical input. The Grade control method to be employed at Kailis will utilise RC grade control sampling methods due to the applicability of this method to the type and style of mineraliation at Kailis.
	The major assumptions made and Mineral Resource model used for pit and stope optimisation (if appropriate).	Planned mining dilution & mining recoveries are factored into the model used in the Mineral Resource Estimation assuming the use of 190t and 260t class hydraulic excavators and based on previous and current mining experience.
	The mining dilution factors used.	Unplanned mining dilution has been assumed at 25%, based on relatively narrow flat dipping mineralised zones and the class of excavator to be used.
	The mining recovery factors used.	Unplanned mining recovery has been assumed at 90%, based on relatively narrow flat dipping mineralised zones and the class of excavator to be used.
	Any minimum mining widths used	A minimum mining width of 30m has been adopted for the main excavation fleet. Where 'pinch-points' occur along the interface with the existing pit it has been assumed that a smaller more versatile excavator will be employed, with appropriate costings for these areas applied.
	The manner in which inferred Mineral resources are utilised in mining studies and the sensitivity of the outcome to their inclusion.	No inferred resources are contained within the final pit design boundaries, therefore the project has no sensitivity to the possible inclusion of that resource category. Pit optimisation and mining studies excluded these inferred mineral resources.
	The infrastructure requirements of the selected	The selected mining method for the pit is conventional for this style of mineralisation and no specialised

Section 4: Estimation and Reporting of Ore Reserves

Criteria	**JORC Code Explanation**	**Commentary**
	mining methods.	infrastructure is required to accommodate this method of mining
Metallurgical factors or assumptions	*The metallurgical process proposed and the appropriateness of that process to the style of mineralisation*	The ore reserve will be treated at the established Thunderbox processing facility. The Thunderbox Process Plant is a CIL cyanide leach plant incorporating a gravity circuit which is appropriate for the extraction of gold from free milling gold ores. A weighted average plant processing recovery of 92.6% based upon material type and metallurgical test work has been assumed in the Ore Reserve Estimate.
	Whether the metallurgical process is well-tested technology or novel in nature.	The method of ore processing and extraction proposed utilises well tried and proven technology dating back to the 1960's and practiced extensively around the world.
	The nature, amount and representiveness of metallurgical test work undertaken, the nature of the metallurgical domaining applied and the corresponding metallurgical recovery factors applied.	Independent metallurgical test work was carried out by Ammtec on four different occasions between 1996 and 2008 both as part of the original feasibility studies and subsequent studies considering the re-commencement of mining at Kailis. The recoveries were better for the weathered material compared to the fresh, with typically 92-94% recovery for oxide and transitional ore, and 88-90% recovery for fresh rock ore. A weighted average recovery was applied in this study based upon the proportion of the weathered ore in the Ore Reserve Estimate.
	Any assumptions or allowances made for deleterious elements.	There are no known deleterious elements present in Kailis ore.
	The existence of any bulk sample or pilot scale test work and the degree to which such samples are considered representative of the ore body as a whole.	Approximately 276,000 tonnes of the Kailis ore mined from the original Kailis pit were processed from 2000 to 2001 at the neighbouring Gwalia plant. This ore was blended with underground ore, but at this time no reconciliation data is available for this parcel of Kailis ore.
	For minerals that are defined by a specification, has the ore reserve estimation been based on the appropriate mineralogy to meet the specifications.	N/A
Environmental factors or assumptions	*The status of studies of potential environmental impacts of the mining and processing operation. Details of waste rock characterisation and the consideration of potential sites, status of design options considered and, where applicable, the status of approvals for process residue storage and waste dumps should be reported.*	The mine is currently on 'care and maintenance'. A mining proposal has previously been submitted by the prior owners of the deposit, however, this will need to be updated and re-submitted prior to any mining taking place. A clearing permit would also need to be submitted for approval, along with a works approval for the dewatering of the Kailis pit to the Harbour Lights pit. The existing Thunderbox processing facility, and the accommodation village all lay on granted mining leases. The gas spur pipeline, the bore field and the airstrip are all on granted miscellaneous licences. Due to the very recent acquisition of this project by SGM the following studies may be required to support the above applications for statutory approval: Flora surveys of new areas to be cleared, waste rock characterisation studies, surface water studies.
Infrastructure	*The existence of appropriate infrastructure: availability of land for plant development, power, water, transportation (particularly for bulk commodities), labour, accommodation; or the ease with which the infrastructure can be provided, or accessed.*	The Kailis deposit has little infrastructure, however, all required infrastructure is already in place at Thunderbox to allow processing of ore from Kailis, and there is sufficient land available at Kailis for the minor infrastructure required. A modern accommodation camp is sited at Thunderbox with direct sealed road access to the project and a well maintained gravel airstrip services the camp. The mine site is sited imediately adjacent to the sealed highway linking it to Leonora, 6km to the South. The processing plant at Thunderbox is connected to the Goldfields Gas Transmission Line, and dual fuel

Section 4: Estimation and Reporting of Ore Reserves

Criteria	**JORC Code Explanation**	**Commentary**
		(diesel/gas) usage has been assumed in all financial analyses.
Costs	*The derivation of, or assumptions made, regarding projected capital costs in the study.*	Capital costs relate to project acquisition.
	The methodology used to estimate operating costs.	Operating costs for open pit mining have been derived from a combination of actual costs from SGM's Carosue Dam Operations and costs supplied by an independent industry consultant. Operating costs for ore processing have been derived from known parameters at Thunderbox, with additional costs such as labour sourced from current operational data at SGM's Carosue Dam Operations
	Allowances made for the content of deleterious elements	Historical testwork carried out at Kailis did not reveal any deleterious elements within the ore or waste that required any additional cost allowances.
	The derivation of assumptions made of metal or commodity price(s), for the principal minerals and co-products	An assumed gold price of AUD$1,400/oz has been adopted for financial modelling
	The source of exchange rates used in study	All revenue and cost calculations have been made in AUD, so no exchange rate usage or assumptions have been necessary
	Derivation of transportation charges	Costs associated with bullion transportation have been derived from existing contractual arrangements at Carouse Dam
	The basis for forecasting or source of treatment and refining charges, penalties for failure to meet specification, etc.	Costs associated with refining have been derived from existing contractual arrangements at Carouse Dam
	The allowances made for royalties payable, both Government and private.	Royalty costs are the WA state government 2.5% royalty, and a 1.5% royalty payable to IRC
Revenue Factors	*The derivation of, or assumptions made, regarding revenue factors including head grade, metal or commodity price(s) exchange rates, transportation and treatment charges, penalties, net smelter returns, etc.*	For the purposes of reserve estimation it has been assumed that there is no gold hedging. All gold production will be sold at spot price to the Perth Mint.
	The derivation of assumptions made of metal or commodity price(s), for the principal metals, minerals and co-products	An assumed gold price of AUD$1,400/oz has been adopted for financial modelling
Market Assessment	*The demand, supply and stock situation for the particular commodity, consumption trends and factors likely to affect supply and demand into the future.*	There is a transparent quoted market for the sale of gold
	A customer and competitor analysis along with the identification of likely market windows for the product.	There is a transparent quoted market for the sale of gold
	Price and volume forecasts and the basis for these forecasts.	There is a transparent quoted market for the sale of gold

Section 4: Estimation and Reporting of Ore Reserves		
Criteria	**JORC Code Explanation**	**Commentary**
	For industrial minerals the customer specification, testing and acceptance requirements prior to a supply contract.	N/A
Economic	*The inputs to the economic analysis to produce the net present value (NPV) in the study, the source and confidence of these economic inputs including estimated inflation, discount rate, etc.*	An optimal pit shell based upon an AUD$1,100/oz gold price was the basis for the pit design adopted in the Ore Reserve Estimate. Due to the short duration of mining (less than 12 months) a discount rate has not been applied to cash flow calculations.
	NPV ranges and sensitivity to variations in the significant assumptions and inputs.	A full financial model was developed with sensitivities applied to all key inputs and assumptions (+/- 15%), which is appropriate to the level of study undertaken (pre-feasibility). Undiscounted cash flows remained positive for all of the key sensitivities conducted.
Social	*The status of agreements with key stakeholders and matters leading to social licence to operate*	When previously in operation, Kailis mine operators had a good relationship with neighbouring stakeholders, including engagement with the local pastoralists and the traditional owners. The mine is located on leasehold pastoral land. Granted mining leases cover all of the proposed mining and processing assets and there are no Native title claims pending. Saracen entered into an agreement with St. Barbara Limited regarding the transfer of the mining tenements covering the Kailis project in August 2015. All conditions precedent have been satisfied and completion is expected in October 2015, following which Saracen will take full ownership of the Kailis project.
Other	*To the extent relevant, the impact of the following on the project and/or on the estimation and classification of the Ore Reserves:*	
	Any identified material naturally occurring risks	Water inrush is the only naturally occurring risk identified, and will be addressed by the construction of appropriate water diversion bunds as part of normal mining operations. The costs associated with the construction of the bund have been factored into waste mining haulage.
	The status of material legal agreements and marketing arrangements	A royalty of 1.5% of production is payable to IRC.
	The status of governmental agreements and approvals critical to the viability of the project, such as mineral tenement status, and government and statutory approvals. There must be reasonable grounds to expect that all necessary government approvals will be received within the timeframes anticipated in the Pre-Feasibility or Feasibility study. Highlight and discuss the materiality of any unresolved matter that is dependent on a third party on which extraction of the reserve is contingent.	Gold produced from Kailis Mine will be sold on the spot market. A royalty of 2.5% is payable to the W.A. State government, with a royalty of 1.5% of production payable to IRC. Government approvals will need to be sought relating to this Ore Reserve Estimate, namely for mining, waste dumping, diversion of surface run-off, water extraction from pits and bores and the associated discharge. All of the approvals being sought have previously been in place for the previous owners of the mine, and the best opinion available suggests that this will be a likely outcome once again. Water extracted from the existing Kailis pit will be pumped approximately 4km to the Harbour Lights pit for discharge. The Harbour Lights pit is owned by the previous owners of the Kailis deposit and permission to pump and discharge into this pit was a condition of the Kailis purchase agreement by Saracen.
Classification	*The basis for the classification of the Ore Reserve into varying confidence categories*	The Ore Reserve Estimate classification for Kailis has been in accordance with the JORC code 2012. All of the Ore Reserve Estimate was classified as being Probable with all of the Ore Reserve Estimate being derived from that portion of the Mineral Resource classified as indicated. There is no measured component to the Kailis Mineral Resource Estimate within the pit design which forms the physical extent of the Ore Reserve Estimate.
	Whether the result appropriately reflects the	Cost assumptions and inputs applied to the pit optimisation and subsequent design were derived from

Section 4: Estimation and Reporting of Ore Reserves

Criteria	JORC Code Explanation	Commentary
	Competent Person's view of the deposit.	current operational data relating to Thunderbox Operations, and expert recommendations from industry consultants. Results of these optimisations and the resultant analysis reflect the views of Chris Burton regarding the Kailis deposit.
	The proportion of Probable Ore Reserves that have been derived from Measured Mineral Resources (if any)	There were no Measured Mineral Resources within the pit design that formed the physical extent of the ore reserve estimate.
Audits or reviews	*The results of any audits or reviews of Ore Reserve estimates*	All of the parameters assumed and adopted, as well as the financial analysis completed, have been the subject to peer review.
Discussion of relative accuracy/confidence	*Where appropriate a statement of the relative accuracy and confidence level in the Ore Reserve estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geo-statistical procedures to quantify the relative accuracy of the reserve within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors which could affect the relative accuracy and confidence of the estimate.* *The statement should specify whether it relates to global or local estimates, and if local, state the relevant tonnages which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the procedures used.* *Accuracy and confidence discussions should extend to specific discussions of any applied modifying factors that may have a material impact on Ore Reserve viability, or for which there are remaining areas of uncertainty ay the current study stage.* *It is recognised that this may not be possible or appropriate in all circumstances. These statements or relative accuracy and confidence of the estimate should be compared with production data, where available.*	The ore reserve estimate was derived from the mineral resource estimate which in turn was reliant upon a resource block model whose estimation was derived from drill-hole data on a spacing of 20mE by 20mN and geological and grade continuity to satisfy the requirements for an indicated resource. The interpretation and estimation process integrated an allowance for a selective mining unit, effectively building in planned dilution to the Mineral resource estimate. This had the impact of eliminating some narrow zones of mineralisation through the addition of waste and a resultant grade below cut-off. Other areas of narrow mineralisation experienced a lowering of grade and increase in tonnage Saracen has made certain assumptions regarding mining and processing costs, mining dilution and recoveries, geotechnical parameters, and metallurgical recoveries. All of these have been documented and are based upon known parameters either at Kailis whilst previously in operation, or in existence at Saracen's other operations, or have been recommended by reputable industry consultants. All of the parameters assumed and adopted, as well as the financial analysis completed, have been the subject to peer review.

Bannockburn District

Bannockburn

Section 1: Sampling Techniques and Data

Criteria	JORC Code Explanation	Commentary
Sampling Techniques	*Nature and quality of sampling (e.g. cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc.). These examples should not be taken as limiting the broad meaning of sampling.*	Sampling methods undertaken at Bannockburn by previous owners have included rotary air blast (RAB), reverse circulation (RC) and diamond drillholes (DD). Limited historical data has been provided by previous owners. Saracen has not carried out any sampling activities at the Bannockburn deposit due to only recently acquiring the deposit.
	Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used	RC, RAB, and DD core drilling is assumed to have been completed by previous holders to industry standard at that time (1990- 2008).
	Aspects of the determination of mineralisation that are Material to the Public Report. In cases where 'industry standard' work has been done this would be relatively simple (e.g. 'reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30 g charge for fire assay'). In other cases more explanation may be required, such as where there is coarse gold that has inherent sampling problems. *Unusual commodities or mineralisation types (e.g. submarine nodules) may warrant disclosure of detailed information*	Initial RC drilling in the early 1990s included single stage mix and grind sample preparation to create a 300g pulp from which a 50g charge was used for assay determination. More recent RC drilling involved total preparation of a 4m composite sample to provide a 40g charge for fire assay. No other information has been found or supplied so it is assumed all RAB, RC and DD and sampling was carried out to industry standard at that time.
Drilling Techniques	*Drill type (e.g. core, reverse 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.).*	Drilling activities at Bannockburn have included 684 RAB holes, 1694 RC holes (some with diamond tails) and 78 DD holes (HQ, NQ, and unknown diameter). Some historic HQ core was oriented by unknown methods.
Drill Sample Recovery	*Method of recording and assessing core and chip sample recoveries and results assessed*	Recoveries for some more recent RC drilling have been recorded based on a visual weight estimate. No other recoveries have been provided, it is unknown if they were recorded.
	Measures taken to maximise sample recovery and ensure representative nature of the samples	It is unknown what, if any, measures were taken to ensure sample recovery and representivity.
	Whether a relationship exists between sample recovery and grade and whether sample bias may	Any historical relationship is not known.

Section 1: Sampling Techniques and Data

Criteria	JORC Code Explanation	Commentary
	have occurred due to preferential loss/gain of fine/coarse material.	
Logging	*Whether core and chip samples have been geologically and geotechnically logged to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies.* *Whether logging is qualitative or quantitative in nature.* *Core (or costean, channel, etc) photography.*	Logging of diamond drill core, RAB, RC and blast hole chips record lithology, mineralogy, texture, mineralisation, weathering, alteration and veining. Some historic diamond drilling has been photographed and geotechnically logged. it is unknown if all diamond core was photographed.
	The total length and percentage of the relevant intersections logged	All drillholes appear to have been logged in full.
Sub-sampling techniques and sample preparation	*If core, whether cut or sawn and whether quarter, half or all core taken.*	The sampling method for most drill core is unknown. Some historic core was half core sampled.
	If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry.	RC drilling carried out in the 1990s includes spear sampled composites and riffle split 1m samples. RAB drilling was spear sampled. More recent RC drilling has been riffle split or spear sampled. Some sampling methods remain unknown.
	For all sample types, the nature, quality and appropriateness of the sample preparation technique.	The sample preparation of 1990s RC drilling involved a single stage mix and grind method, more recent RC drilling involved a total preparation method. The sampling techniques for much of the remaining historic RAB, RC and DD drilling are unknown, best practice is assumed.
	Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.	Best practice is assumed at the time of historic RAB, DD and RC sampling.
	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.	It is unknown if duplicate sampling was performed on exploration RAB, RC and DD drilling. Limited field duplicates were carried out on some more recent RC grade control drilling at a rate of one per hole.
	Whether sample sizes are appropriate to the grain size of the material being sampled.	It is assumed sample sizes were appropriate for the grain size of material being sampled.
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.*	A 50 gram fire assay with AAS finish was used to determine the gold concentration for 1990s RC drilling. This method is considered suitable for determining gold concentrations in rock and is a total digest method. Limited historic samples were assayed using a leachwell digest and AAS finish in the onsite laboratory. More recent RC drilling has been assayed using a 50g aqua regia or 40g fire assay with AAS finish. Other assay methods for exploration RC, RAB and DD drilling included fire assay with AAS finish, aqua regia with AAS finish and unknown methods.
	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.	It is unknown if any instruments of this nature have been used at Bannockburn. Saracen has not had full access to all the data during the acquisition process.
	Nature of quality control procedures adopted (e.g.	QAQC information from the Bannockburn sampling data is limited therefore all drilling is assumed to

Section 1: Sampling Techniques and Data		
Criteria	**JORC Code Explanation**	**Commentary**
	standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (i.e. lack of bias) and precision have been established.	have been carried out to industry standard. Some internal laboratory checks (1 in 10 resample of pulps and 1 in 20 resplit of rejects) were carried out during early 1990s RC drilling. Limited duplicate sampling was carried out in more RC recent drilling along with the insertion of certified standards and blanks. Analysis of limited repeat data displays acceptable precision with average HARD (half absolute relative difference) values below 20%.
Verification of sampling and assaying	*The verification of significant intersections by either independent or alternative company personnel.*	It is unknown if historic intercepts were verified by alternative company personnel.
	The use of twinned holes.	Specific drilling programs consisting of twinned holes is not apparent. However, grade control from both open pit and underground operations have confirmed the width and grade of previous exploration drilling.
	Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols	Limited documentation of this nature has been provided. Data has been stored in an acQuire database with limited drilling data for review supplied in an Access database.
	Discuss any adjustment to assay data.	No adjustment to assay data appears to have been made
Location of data points	*Accuracy and quality of surveys used to locate drillholes (collar and down-hole surveys), trenches, mine workings and other locations used in Mineral Resource estimation.*	Collar locations for early 1990s RC, RAB and DD drilling were surveyed using an EDM theodolite. The precision of this equipment in unknown. Downhole surveys were carried out using a CHAMP downhole electronic multishot system. More recent drilling has collar locations surveyed by unknown GPS and DGPS equipment, while downhole surveys have been carried out at regular intervals by unknown methods.
	Specification of the grid system used.	AMG84 Zone 51 grid coordinate system is used. Some historic data drilled on local grid systems has been converted to this grid system
	Quality and adequacy of topographic control.	No detail of topographic control was supplied or found.
Data spacing and distribution	*Data spacing for reporting of Exploration Results.*	No exploration results reported in this release
	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.	The drilling is distributed and spaced such that geological and grade continuity can be established to estimate the mineral resource and ore reserve appropriately. The mineralisation is continuous over a 2km strike length, therefore the 25m x 25m exploration drill spacing effectively defines the continuity. The tight drill spacing at the exploration and mineral resource definition stage highlight the complex nature of some areas of the resource.
Orientation of data in relation to geological structure	*Whether sample compositing has been applied.*	Historic 1990s RC drilling was sampled on 6m composites due to the depth of overburden, with significant gold results being resampled in 1m intervals. Historic RAB drilling was generally 4m composite sampled with anomalous zones resampled to 1m intervals. Some more recent RC drilling was composited into 3m or 4m samples with areas of interest resampled to 1m.
	Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.	Due to the variability in the dip direction of the various lodes at Bannockburn, drilling has been orientated in multiple directions to ensure all mineralisation has been tested effectively. This ensures that minimal bias is introduced when sampling.
	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.	All drilling from surface has been drilled as close to perpendicular as possible. This has reduced the risk of introducing a sampling bias as far as possible. Multiple drill orientations have been used to test the variably orientated mineralisation.
Sample security	*The measures taken to ensure sample security.*	Information on sample security measures has not been provided

Section 1: Sampling Techniques and Data

Criteria	JORC Code Explanation	Commentary
Audits or reviews	*The results of any audits or reviews of sampling techniques and data.*	No evidence of external reviews has been supplied. Saracen has not had access to this information during the acquisition process.

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.*	M37/339, M37/340 and M37/361 form part of the Bannockburn project currently being acquired by Saracen and are in good standing. There are no native title claims over the Bannockburn deposit.
	The security of the tenure held at the time of reporting along with any known impediments to obtaining a licence to operate in the area.	The tenements are in good standing and the license to operate already exists.
Exploration done by other parties	*Acknowledgment and appraisal of exploration by other parties.*	Gold was discovered at Bannockburn in the late 1800s with intermittent working of the deposit until the 1950s. Modern exploration began in the late 1970s with initial exploration targeting nickel sulphides before gold exploration began in 1979. Exploration activities by numerous companies including Freeport of Australia, Kulim Limited and Arboyne took place until Dominion purchased the project and commenced mining in 1991. The mine was placed on care and maintenance in 1995. The project changed hands numerous times after this with owners including Consolidated Gold Mines, Arrow Resources, Breakaway Resources, LionOre Australia and Norilsk Nickel Australia carrying out exploration activities leading to the discovery of numerous other deposits in the vicinity.
Geology	*Deposit type, geological setting and style of mineralisation.*	The Bannockburn deposit is located along the western margin within the central portion of the Norseman-Wiluna greenstone belt. Locally the project area is dominated by an extensive sequence of tholeiitic, high-Mg and komatiitic basalts with intercalated sedimentary and intermediate volcaniclastic horizons. Dolerite and gabbro sills intrude the sequence. The deposit is complex with multiple controlling factors. The gross geometry of the deposit is controlled by the Bannockburn fault, a steeply dipping NNW trending fault that is continuous over at least 2.3km on the western margin of the orebody. The fault separates an ultramafic unit in the west from the Bannockburn host sequence in the east. It dips steeply east, rolling to vertical and steep west dipping in the northern part of the orebody. The Bannockburn fault is effectively the western boundary to the orebody with very little mineralisation penetrating the western side of the fault. The Central fault which hosts the Central orebody has a shallow northerly plunge and is the orebody on which the majority of the underground workings have focused on. There are a series of steeply east dipping lodes in the hangingwall of the central lode; these are interpreted as either tensional veins of reverse faults with shearing present along the veins. Black graphic shale units present within the stratigraphy have acted as a localised control on the mineralisation. The black shale units have taken up some of the deformation with stratigraphy parallel shearing and mafic sequences between the shales have extended to form steep east dipping extension veins.

Section 2: Reporting of Exploration Results

Criteria	JORC Code Explanation	Commentary
Drillhole 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 does not detract from the understanding of the report, the Competent Person should clearly explain why this is the case.*	A total of 17642 holes have been used in the mineral resource and are deemed to be material. It is not practical to summarise all of the holes here in this release. Future drill hole data will be periodically released or when a results materially change the economic value of the project. Exclusion of the drilling information will not detract from the reader's view of the report.
Data aggregation methods	*In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (e.g. cutting of high grades) and cut-off grades are usually Material and should be stated.*	No exploration results are reported in this release.
	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.	No exploration results are reported in this release.
	The assumptions used for any reporting of metal equivalent values should be clearly stated.	No exploration results are reported in this release.
Relationship between mineralisation widths and intercept lengths	*These relationships are particularly important in the reporting of Exploration Results.* *If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.* *If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (eg 'down hole length, true width not known').*	Saracen has not previously reported exploration results nor are any included in this release. The geometry of the mineralisation is highly variable and the complex nature of the orebodies makes the definitive calculation of true thickness difficult. Drilling has been orientated to intersect the various orebodies at most optimum angle where possible. This has not always been achieved. Where holes have drilled parallel to or within a lode, additional holes have been drilled at a more suitable orientation to account for the poor angle.
Diagrams	*Appropriate maps and sections (with scales) and tabulations of intercepts should be included for any significant discovery being reported These should include, but not be limited to a plan view of drill hole collar locations and appropriate sectional views.*	No diagrams are referenced in this release.

Section 2: Reporting of Exploration Results

Criteria	JORC Code Explanation	Commentary
Balanced Reporting	*Where comprehensive reporting of all Exploration Results are not practicable, representative reporting of both low and high grades and/or widths should be practiced to avoid misleading reporting of Exploration Results.*	Saracen has not previously reported exploration results nor are any included in this release.
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.*	Various geophysical surveys have been carried out over the Bannockburn deposit in an effort to delineate structure and mineralisation including magnetics, gravity, CSMAT (Controlled Source Audio Magneto Telluric), radiometrics and SAM (sub-audio magnetics). CSMAT was deemed ineffective due to penetration issues while other methods returned varying results.
Further work	*The nature and scale of planned further work (eg tests for lateral extensions or depth extensions or large-scale step-out drilling).* *Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive*	Saracen is currently working on establishing an exploration program which will identify areas of opportunity to extend or enhance the Bannockburn mineral resource.

Section 3: Estimation and Reporting of Mineral Resources

Criteria	JORC Explanation	Commentary
Database Integrity	*Measures taken to ensure that data has not been corrupted by, for example, transcription or keying errors, between its initial collection and its use for Mineral Resource estimation purposes.*	The database provide to Saracen was an extract from an acquire SQL database. The primary database is regulated by a locked framework called the acquire data model which fixes the relationships between tables. The data model minimises the potential for data collection and data usage errors through pre-determined look up tables, storage and export functions. User defined permissions also regulate the ability to add, edit or extract data. It is unknown at this stage how the process used to record the primary data. Typical methods are manual translation of logging and data capture from written logs, direct import of csv tables through a data import scheme where data is validated upon import or direct data entry options into the database using predefined look up values.
	Data validation procedures used.	The rigid structure of the acquire data model is such that predefined rules and look up tables are applied to all data entry. Data that does not meet the criteria are highlighted and moved to a buffer area until the data is rectified to meet the passing rules. It is unknown at this stage how the database was managed and who was responsible for its maintenance. It is also unknown if there was any built in functionality around pass/fail checks on assay importing.

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Criteria	JORC Explanation	Commentary
		This data extract was cross validated with the database provided by Norilsk Nickel Australia LTD PTY during the due diligence process, and also the database supplied to Golder by Norilsk Nickel Australia LTD PTY for the earlier resource estimate. Such cross validations highlighted variances that were reconciled against, surface, pit and underground surveys. This reconciled database was used for the estimation.
Site Visits	*Comment on any site visits undertaken by the Competent Person and the outcome of those visits.*	No site visits have taken place at this point in time by the competent person. However, a team of 12 people including Saracen technical representatives as well as industry consultants did conduct site visits. Historical drill core was inspected during the visits.
	If no site visits have been undertaken indicate why this is the case.	Given that there was no activity (drilling, mining etc.), it was deemed that a site visit during the process would not provide significant value and not materially affect the outcome of any resource estimate.
Geological Interpretation	*Confidence in (or conversely, the uncertainty of) the geological interpretation of the mineral deposit.*	The interpretation has been based on the detailed geological work completed by a series of previous owners of the project. This knowledge is based on extensive geological logging of drill core, RC chips, detailed open pit mapping, underground mapping and assay data. The gross architecture of the deposit is well known however the local scale structural controls are complex. Confidence can be taken from the fact that the deposit has been mined previously by open pit and underground methods.
	Nature of the data used and any assumptions made.	The interpretations have been constructed using all available geological logging descriptions including but not limited to, stratigraphy, lithology, texture, and alteration. Open pit and underground observations have been included in the interpretation, however only affects the location of the domain boundaries around the previously mined sections of the resource. Cross sectional interpretations of the mineralisation have been created and from the basic framework through which the 3D wireframe solid is built.
	The affect, if any, of alternative interpretations on Mineral Resource estimation.	No other interpretations have been tested at this point. The tightness of the drilling restricts the possible options of the interpretations. The main Bannockburn fault and Central thrust are highly continuous and predictable. The shorter scale extensional lodes in the hanging wall of the central thrust are more variable, however can still be interpreted between sections.
	The use of geology in guiding and controlling the Mineral Resource estimation.	The geology has been used to assist controlling the mineral resource estimation. The main mineralised shear zones have been domained such that the geological characteristics have been honoured. This includes discriminating between the main shear zones and the extensional vein arrays splaying off the shear zones and mineralisation associated with black shale zones.
	The factors affecting continuity both of grade and geology.	At the deposit scale laminated quartz veins have higher grades than bucky and coarsely brecciated quartz veins. Highly silicified mafic schist is the main locus for mineralisation. The stronger the silicic and biotite alteration the high the grade. It is estimated that 75% of the gold is located in the alteration halos and 25% in the veins themselves. Additionally it has been noted that mineralisation is strong where increased percentages of arsenopyrite are present. A small amount of remobilised mineralisation can be found on the margins of porphyry and lamprophric intrusives.
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.*	Bannockburn mineralisation extends from 6849500mN to 6852000mN, 292600mE to 294100mE and 150 meters below surface. The Bannockburn gold deposit has a strike of 340° (NNW) and has a shallow plunge 5-10° to the NNW.
Estimation and modelling techniques	*The nature and appropriateness of the estimation technique(s) applied and key assumptions, including treatment of extreme grade values, domaining,*	Block estimation has been completed in Micromine software. All wireframes have been constructed in Micromine. All estimation uses these wireframes as hard boundaries. Ordinary Kriging has been chosen as the estimation method.

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	interpolation parameters and maximum distance of extrapolation from data points.	Estimation of parent blocks are interpolated, and assigned to sub-cells. The maximum distance of extrapolation is less than 50m. Univariate statistical analysis of length weighted, (1m), domain coded down hole composites have been completed for all domains and top-cuts applied where applicable. Extreme grades have been appraised in each domain and have been analysed to determine specific top-cut values. Log-probability plots were used supplementary to the histogram analysis. KNA was performed on grouped domains to determine appropriate block size, sample support, search dimensions and block discretisation values.
	The availability of check estimates, previous estimates and/or mine production records and whether the Mineral Resource estimate takes appropriate account of such data.	The OK model has been compared to the due diligence inverse distance cubed resource estimate with similar global results, (<2% variance in tonnes, grade and ounces). This comparison suggests a robust estimation. Since the due diligence the underground void and open pit mined surfaces have been scrutinised. Updated void models have been sourced and surfaces updated to include last stages of production that correlate with grade control production holes. Globally the OK estimate and total production reconcile within 5% of the ounces.
	The assumptions made regarding recovery of by-products.	No assumptions have been made with respect to the recovery of by-products.
	Estimation of deleterious elements or other non-grade variables of economic significance (e.g. sulfur for acid mine drainage characterisation).	There has been no estimate at this point of deleterious elements. Saracen is unaware if any elements other than gold have been assayed. Arsenic may have been assayed; however this data has not been made available.
	In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed.	The parent block sizes for the resource model are X (12.5m) by Y (25m) by Z (5m). These are deemed appropriate for the majority of the resource, where drill spacing is in the order of 25m x 15m to 25m x 20m and up to 40m x 40m. Parent blocks have been sub-celled to X (1.25m) by Y (2.5m) by Z (1.0m) to ensure that the wireframe boundaries are honoured and preserve the location and shape of the mineralisation. Search ranges have been informed by knowledge of the drill spacing and the known mineralisation geometry including direction of maximum continuity. Three search estimation runs are used with the aim to satisfy the minimum sample criteria in the first search range where possible.
	Any assumptions behind modelling of selective mining units.	No selective mining units have been assumed.
	Any assumptions about correlation between variables.	No assumptions have been made regarding correlation between variables.
	Description of how the geological interpretation was used to control the resource estimates.	The geological interpretation correlates with the mineralised domains. Specifically where the mineralised domain corresponds with the key mineralised fault zones. All wireframe boundaries including those where lithology and mineralisation correspond, hard boundaries are enforced.
	Discussion of basis for using or not using grade cutting or capping.	Statistical analysis of all domains highlight that there are very few grades (1% of the total samples) in the domain populations that require top-cutting. Top-cut have been employed to eliminate the risk of overestimating in the local areas where high grade samples exist.

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Criteria	**JORC Explanation**	**Commentary**
	The process of validation, the checking process used, the comparison of model data to drill hole data, and use of reconciliation data if available.	Several key model validation steps have been taken to validate the resource estimate. These steps include; The volume variance between the estimate and the wireframed domains are compared. The metal variance between top cut values, and composited values are measured to original Au and non-composited values. These composited grades are compared to the estimate mean grade for each individual domain. These comparisons are further investigated by appropriate northing, easting and bench intervals in the form of swathe plots. The mineral resource model has been stepped through visually in sectional and plan view to appreciate the composite grades used in the estimate and the resultant block grades. Kriging efficiency and slope results give an indication of the quality of the estimate.
Moisture	*Whether the tonnages are estimated on a dry basis or with natural moisture, and the method of determination of the moisture content.*	All tonnages are estimated on a dry basis.
Cut-off parameters	*The basis of the adopted cut-off grade(s) or quality parameters applied.*	Based on Saracen's current economic operations at Carosue Dam, and the natural grade distinction above background, a grade of 0.5g/t has been chosen.
Mining factors or assumptions	*Assumptions made regarding possible mining methods, minimum mining dimensions and internal (or, if applicable, external) mining dilution. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential mining methods, but the assumptions made regarding mining methods and parameters when estimating Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the mining assumptions made.*	The Bannockburn deposit is amenable to mining by both open pit and underground methods. The deposit has been mined by open pit and underground methods historically. There are reasonable grounds to assume that in the future this deposit will again be mined by conventional open pit load and haul operations. It is unlikely that the mineralisation would be accessed by underground methods. Any open pit operations that may interact with historical underground workings would need to assume a higher ore loss factor around the margins of effected areas. This is particularly the case if underground voids have not been filled.
Metallurgical factors or assumptions	*The basis for assumptions or predictions regarding metallurgical amenability. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential metallurgical methods, but the assumptions regarding metallurgical treatment process and parameters made when reporting Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the metallurgical assumptions made.*	It is expected that any future mining of the Bannockburn deposit will be processed at the Thunderbox processing facility which is currently on care and maintenance. The Thunderbox mill employs a conventional crushing, grinding and CIL leaching process to extract the gold. The mill operated successfully between 2002 and 2007, processing in excess of 9Mt of ore. The conventional plant displayed excellent performance with gold recoveries between 93.4 to 96.6 % over the life of the mine. Test work by Ammtec completed historically suggests Bannockburn mineralisation should achieve similar recoveries to the mineralisation previously processed at Thunderbox.
Environmental factors or assumptions	*Assumptions made regarding possible waste and process residue disposal options. It is always necessary as part of the process of determining*	As arsenic is present in the mineralogy of the deposit, the processing plant has been designed to ensure effective management of potentially harmful arsenic contamination. A 20m diameter high rate thickener is used to thicken the tails to maximise water and cyanide recovery.

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Criteria	**JORC Explanation**	**Commentary**
	reasonable prospects for eventual economic extraction to consider the potential environmental impacts of the mining and processing operation. While at this stage the determination of potential environmental impacts, particularly for a greenfields project, may not always be well advanced, the status of early consideration of these potential environmental impacts should be reported. Where these aspects have not been considered this should be reported with an explanation of the environmental assumptions made.	Process water is added to the thickener feed to create one wash stage prior to detoxification. Arsenic precipitation is effected in a stirred closed tank with air sparging. Ferric sulphate solution is metered into the reactor on the basis of dissolved arsenic concentration. The fumes from the precipitation tank are passed through a packed bed caustic scrubber before venting to the atmosphere. The precipitation tank overflow is then passed to the tails hopper.
Bulk Density	*Whether assumed or determined. If assumed, the basis for the assumptions. If determined, the method used, whether wet or dry, the frequency of the measurements, the nature, size and representativeness of the samples.*	Previous owners have taken routine density measurements when drilling diamond core. The method of calculation is the water displacement technique. Measurements have been recorded in the acquire database and extraction schemes pair this data with the major lithology code for statistical analysis. At this point Saracen does not have the available data to comment on the frequency and distribution of the density measurements. The size and nature of the samples is also unknown to Saracen at this time.
	The bulk density for bulk material must have been measured by methods that adequately account for void spaces (vugs, porosity, etc), moisture and differences between rock and alteration zones within the deposit.	As stated above the frequency and distribution is unknown at this point in time. It has assumed from the very good reconciliation performance from mine to mill that the determined density assignments from the mine are accurate.
	Discuss assumptions for bulk density estimates used in the evaluation process of the different materials.	An average mean of densities collected for each lithological type has been uniformly applied to the modelled geological units. This includes the primary fresh lithologies as well as the weathered oxide and transitional zones.
Classification	*The basis for the classification of the Mineral Resources into varying confidence categories.*	The mineral resource has been classified into Measured, Indicated and Inferred categories based on drill hole spacing, geological confidence, and grade continuity and estimation quality. The combinations of these factors together guide the formation of 3D wireframes that code the appropriate blocks with the nominated resource classification category.
	Whether appropriate account has been taken of all the relevant factors (ie relative confidence in tonnage/grade estimations, reliability of input data, confidence in continuity of geology and metal values, quality, quantity and distribution of the data).	All care has been taken to account for relevant factors influencing the mineral resource estimate. Confidence in the predicted tonnes and grade estimated in the model is high and previous mining performance suggests that the input data and geological continuity are such that a reasonable resource estimate can achieved.
	Whether the result appropriately reflects the Competent Person's view of the deposit.	The geological model and the mineral resource estimate reflect the competent person's view of the deposit.
Audits or reviews	*The results of any audits or reviews of Mineral Resource estimates.*	Saracen has adopted a process for geological modelling, estimation and reporting of mineral resources that meets high industry standards. Due to the short time frame for the due diligence review, no external audits have been conducted.
Discussion of relative accuracy/confidence	*Where appropriate a statement of the relative accuracy and confidence level in the Mineral Resource estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical*	The mineral resource has been reported in accordance with the guidelines established in the 2012 edition of the JORC code. Analysis, cross checks and validation of the acquired database occurred prior to the construction of this detailed mineral resource update. The previous sections of this table identify the areas that require further

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Criteria	**JORC Explanation**	**Commentary**
	procedures to quantify the relative accuracy of the resource within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors that could affect the relative accuracy and confidence of the estimate.	update and validation. It is unlikely that these minor checks would have any material effect on the results of mineral resource. It was highlighted in the review process that updated surveys for surfaces and mined surfaces would be beneficial.
	The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonnages, which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the procedures used.	The statements relate to a global estimate of tonnes and grade.
	These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.	Previous mining operation reports suggest that the estimated metal is within 5%.

Section 4: Estimation and Reporting of Ore Reserves		
Criteria	**JORC Explanation**	**Commentary**
Mineral Resource estimate for conversion to Ore Reserves	*Description of the Mineral resource Estimate used as a basis for the conversion to an Ore Reserve.*	The Mineral Resource estimate for the Bannockburn gold deposit used as a basis for conversion to the Ore Reserve estimate was compiled by SGM using the reconciled database. It included drilling and assay data, historical mining records to validate the model against and solid interpretation wireframes of the geology. This information was used to construct a model estimated by ordinary kriged methods. The model was depleted with the latest survey models for open pit and underground. A zone around underground workings, and areas highlighted as backfill and/ or contain water were flagged in the estimate to allow for conservative evaluations during the optimisation.
	Clear statement as to whether the Mineral Resources are reported additional to. Or inclusive of, the Ore Reserves.	The Mineral Resource reported is inclusive of the Ore Reserve.
Site Visits	*Comment on any site visits undertaken by the Competent Person and the outcome of those visits.*	A site visit was conducted by Chris Burton to Bannockburn Pit, accompanied by a consultant geotechnical engineer and technical representatives as part of the due diligence process in the purchase of the Bannockburn assets. The main focus of the visit was a physical inspection of the existing Bannockburn Pit, to assess pit slope stability, groundwater inflows, and validate final pit surveys Fifteen years have passed since the pit was last operational. Stability conditions in the mined pit were generally classified as fair in the geotechnical report.
	If no site visits have been undertaken indicate why this is the case.	N/A
Study status	*The type and level of study undertaken to enable Mineral Resources to be converted to Ore Reserves*	The Bannockburn Gold Project operated as both an open pit and underground mine and processing facility for a period of eight years from 1991-1998. As part of the proposed purchase of these assets by Saracen a pre-feasibility standard study has been undertaken with mining and processing parameters updated to reflect current cost parameters. Modifying factors have been applied to the study to ensure the rigor of the financial analysis.

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Criteria	JORC Explanation	Commentary
	The Code requires that a study to at least Pre-Feasibility Study level has been undertaken to convert Mineral Resources to Ore Reserves. Such studies will have been carried out and will have determined a mine plan that is technically achievable and economically viable, and that material Modifying Factors have been considered.	Modifying factors have been applied to the study to ensure the rigor of the financial analysis. All of the parameters assumed and adopted, as well as the financial analysis completed, have been subject to peer review.
Cut-off parameters	*The basis of the cut-off grade(s) or quality parameters applied*	For the purpose of Ore Reserve Estimate a marginal cut-off of 0.7g/t was calculated based upon an assumed gold price of AUD$1400/oz and applicable processing, haulage and administration costs. A top cut has already been applied to the Mineral Resource Estimate eliminating the necessity for any further adjustment to the Ore Reserve estimate.
Mining factors or assumptions	*The method and assumptions used as reported in the Pre-feasibility or Feasibility Study to convert the Mineral Resource to an Ore Reserve (i.e. either by application of appropriate factors by optimisation or by preliminary or detailed design).*	The resource model used in the Mineral Resource Estimation was the basis for the generation of a range of Whittle 4X pit optimisation shells. The generation of these shells was reliant upon costs and inputs derived from current operational data and independent consultant recommendations. The shell with revenue factor 1 formed the basis for a detailed pit design.
	The choice, nature and appropriateness of the selected mining method(s) and other mining parameters including associated design issues such as pre-strip, access, etc.	Mining method to be employed will be conventional hydraulic excavator and dump truck fleet, with 120t and 190t class excavators assumed. The class of excavator employed matches those currently working at SGM's Carosue Dam Operations, providing good comparative cost data for financial modelling purposes, as well as a reliable database of excavation and performance rates. The pit that forms the basis of the reserve estimate will be mined as a single cutback, extending the existing pit to the North.
	The assumptions made regarding geotechnical parameters (e.g. pit slopes, stope sizes, etc.), grade control, and pre-production drilling.	The absence of reliable historical geotechnical data or technical reports for the existing open pit resulted in new geotechnical diamond drill holes being drilled and logged by Saracen. Geotechnical consultants compiled and modelled the new data and generated design wall parameters for the proposed pit. These parameters were adopted for the purposes of pit optimisation and the final pit design. Prior to mining commencing, further geotechnical study will be required to confirm these assumptions. Grade control of the deposit will be carried out utilising conventional RC grade control methods typically on a 10m x 5m spacing.
	The major assumptions made and Mineral Resource model used for pit and stope optimisation (if appropriate).	Planned mining dilution & mining recoveries are factored into the resource models assuming the use of 120t and 190t class hydraulic excavators and based on previous and current mining experience.
	The mining dilution factors used.	To accurately assess the likely mining dilution that will be experienced whilst mining the Bannockburn pit, particularly around the old underground workings, a detailed mining sequence model was evolved to capture those areas of ore affected by the collapsing of voids, and estimate the resultant dilution. Ore blocks where then categorised by the level of dilution and proximity to voids, and a dilution factor applied. Saracen have adopted a conservative approach to both practical extraction of remnant ore as well as an allowance for any retreat mining that may not have been fully captured in the final survey. A probe drilling program has been conducted to define pillars and remnant ore, with the results indicating that all tested pillars are still insitu.

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Criteria	**JORC Explanation**	**Commentary**
	The mining recovery factors used.	To accurately assess the likely mining recovery that will be experienced whilst mining the Bannockburn pit, particularly around the old underground workings, a detailed mining sequence model was evolved to capture those areas of ore affected by the collapsing of voids, and estimate the resultant ore loss. Ore blocks where then categorised by the level of recovery and proximity to voids, and an ore loss factor applied. Saracen have adopted a conservative approach to both practical extraction of remnant ore as well as an allowance for any retreat mining that may not have been fully captured in the final survey. A probe drilling program has been conducted to define pillars and remnant ore, with the results indicating that all tested pillars are still insitu.
	Any minimum mining widths used	A minimum mining width of 30m has been adopted for the main excavation fleet. Where 'pinch-points' occur along the interface with the existing pit it has been assumed that a smaller more versatile excavator will be employed, with appropriate costing for these areas applied.
	The manner in which inferred Mineral resources are utilised in mining studies and the sensitivity of the outcome to their inclusion.	The entire Ore Reserve Estimate is classified as probable, with all of this reserve having been converted from indicated mineral resources. Pit optimisation and mining studies excluded inferred mineral resources.
	The infrastructure requirements of the selected mining methods.	The selected mining method for the pit is conventional for this style of mineralisation and no specialised infrastructure is required to accommodate this method of mining
Metallurgical factors or assumptions	*The metallurgical process proposed and the appropriateness of that process to the style of mineralisation*	The ore reserve will be treated at the established Thunderbox processing facility. The Thunderbox Process Plant is a CIL cyanide leach plant incorporating a gravity circuit which is appropriate for the extraction of gold from free milling gold ores. A review of Ammtec metallurgical reports for the operational period under Dominion Mining's tenure highlighted metallurgical recoveries between 94-98%. For the purpose of this Ore Reserve Estimate the more conservative recoveries from Thunderbox have been assumed (93.9%)
	Whether the metallurgical process is well-tested technology or novel in nature.	The method of ore processing and extraction proposed utilises well tried and proven technology dating back to the 1960's and practiced extensively around the world.
	The nature, amount and representiveness of metallurgical test work undertaken, the nature of the metallurgical domaining applied and the corresponding metallurgical recovery factors applied.	A review of Ammtec metallurgical reports for the operational period under Dominion Mining's tenure highlighted metallurgical recoveries between 94-98%. For the purpose of this Ore Reserve Estimate the more conservative recoveries from Thunderbox have been assumed (93.9%)
	Any assumptions or allowances made for deleterious elements.	There are no known deleterious elements present in Bannockburn ore.
	The existence of any bulk sample or pilot scale test work and the degree to which such samples are considered representative of the ore body as a whole.	Previously Bannockburn ore sourced from both open pit and underground mining was processed by Dominion Mining between 1991 and 1998 through a CIP plant on site at Bannockburn, which has since been dismantled and removed. This period of operation represents the best bulk sample/pilot test possible. A review of data from Bannockburn Operations has identified that plant recoveries during this period ranged from 88 – 98% with an average of 94%. Higher recoveries would have been achieved by processing this ore through the Thunderbox plant due to the extended leach residence time.

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Criteria	JORC Explanation	Commentary
	For minerals that are defined by a specification, has the ore reserve estimation been based on the appropriate mineralogy to meet the specifications.	N/A
Environmental factors or assumptions	*The status of studies of potential environmental impacts of the mining and processing operation. Details of waste rock characterisation and the consideration of potential sites, status of design options considered and, where applicable, the status of approvals for process residue storage and waste dumps should be reported.*	The mine is currently on 'care and maintenance'. A clearing permit and groundwater licences are in place. No other applications for mining or processing related activities have been submitted with any relevant authorities at this time as mining options are still being finalised. The existing Bannockburn mine, the intended northern cutback, the Thunderbox processing facility, and the accommodation village all lay on granted mining leases. The proposed haul road linking Bannockburn to the Thunderbox processing facility, the gas spur pipeline, the bore field and the airstrip are all on granted miscellaneous licences. Before operations at Bannockburn open pit can commence the following will be required for statutory approval: Waste rock characterisation studies, groundwater and surface water studies, A works approval, groundwater licence, and mining proposal will require preparing and submitting. Groundwater licences will also need reviewing and a strategy formulated and submitted.
Infrastructure	*The existence of appropriate infrastructure: availability of land for plant development, power, water, transportation (particularly for bulk commodities), labour, accommodation; or the ease with which the infrastructure can be provided, or accessed.*	The site infrastructure relating to the processing facility, camp, and airstrip is well established from previous mining activities at Thunderbox between 2000 and 2007. There exists a CIL ore processing facility at Thunderbox that is currently being refurbished and has a name plate capacity of 2.5mtpa situated approximately 30km from the Bannockburn pit. A modern accommodation camp is situated within a few kilometres of the processing plant, and a well maintained gravel airstrip services the camp. The operations are connected to the Goldfields Gas Transmission Line, and dual fuel (diesel/gas) has been assumed in all financial analyses. A haul road will need to be built at a cost of $1.95m at the commencement of production to facilitate the haulage of ore to the Thunderbox processing facility. A miscellaneous licence has already been granted covering the proposed route of the haul road.
Costs	*The derivation of, or assumptions made, regarding projected capital costs in the study.*	Capital costs included in the financial analysis relate to project acquisition, mill refurbishment, first fills, haul road construction, and village refurbishment. Costs for the mill have been based upon tenders submitted for the refurbishment work following site visits and follow up investigations. Costs for haul road construction and village refurbishment are based upon recent contracts for similar work undertaken at SGM's Carosue Dam Operations.
	The methodology used to estimate operating costs.	Operating costs for open pit mining have been derived from a combination of actual costs from the Carosue Dam Operations and costs supplied by an independent industry consultant. Operating costs for ore processing have been derived from known operating costs at Thunderbox , with additional costs such as labour sourced from current operational data at SGM's Carosue Dam Operations
	Allowances made for the content of deleterious elements	Previous operational experience at Bannockburn did not reveal any deleterious elements within the ore or waste that required any additional cost allowances.

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Criteria	JORC Explanation	Commentary
	The derivation of assumptions made of metal or commodity price(s), for the principal minerals and co-products	An assumed gold price of AUD$1,400/oz has been adopted for financial modelling
	The source of exchange rates used in study	All revenue and cost calculations have been made in AUD, so no exchange rate usage or assumptions have been necessary
	Derivation of transportation charges	Costs associated with bullion transportation have been derived from existing contractual arrangements at Carouse Dam
	The basis for forecasting or source of treatment and refining charges, penalties for failure to meet specification, etc.	Costs associated with refining have been derived from existing contractual arrangements at Carouse Dam
	The allowances made for royalties payable, both Government and private.	Royalty costs are the WA state government 2.5% royalty, an AUD$1/oz royalty with Dominion Mining, and a 1.5% royalty payable to Norilsk Nickel.
Revenue Factors	*The derivation of, or assumptions made, regarding revenue factors including head grade, metal or commodity price(s) exchange rates, transportation and treatment charges, penalties, net smelter returns, etc.*	It has been assumed that there will be no forward sales contracts in place and that all gold will be sold at spot price to the Perth Mint
	The derivation of assumptions made of metal or commodity price(s), for the principal metals, minerals and co-products	An assumed gold price of AUD$1,400/oz has been adopted for financial modelling
Market Assessment	*The demand, supply and stock situation for the particular commodity, consumption trends and factors likely to affect supply and demand into the future.*	There is a transparent quoted market for the sale of gold
	A customer and competitor analysis along with the identification of likely market windows for the product.	There is a transparent quoted market for the sale of gold
	Price and volume forecasts and the basis for these forecasts.	There is a transparent quoted market for the sale of gold
	For industrial minerals the customer specification, testing and acceptance requirements prior to a supply contract.	N/A
Economic	*The inputs to the economic analysis to produce the net present value (NPV) in the study, the source and confidence of these economic inputs including estimated inflation, discount rate, etc.*	A pit design based upon an optimal pit shell (AUD$1,400/oz gold price) was adopted in the Ore Reserve Estimate. A discount rate of 8% was assumed in all NPV calculations.
	NPV ranges and sensitivity to variations in the significant assumptions and inputs.	A full financial model was developed with sensitivities applied to all key inputs and assumptions (+/- 15%), which is appropriate to the level of study undertaken (Pre-feasibility). Undiscounted cash flows remained positive for all of the key sensitivities conducted.
Social	*The status of agreements with key stakeholders and matters leading to social licence to operate*	When previously in operation, Bannockburn mine operators had a good relationship with neighbouring stakeholders, including engagement with the local pastoralists and the traditional owners. The mine is

Section 4: Estimation and Reporting of Ore Reserves		
Criteria	**JORC Explanation**	**Commentary**
		located on leasehold pastoral land with compensation agreements in place with the local pastoralist Granted mining leases cover all of the proposed mining and processing assets and there are no Native title claims pending.
Other	*To the extent relevant, the impact of the following on the project and/or on the estimation and classification of the Ore Reserves:*	
	Any identified material naturally occurring risks	Water inrush is the only naturally occurring risk identified, and will be addressed by the construction of appropriate water diversion bunds as part of normal mining operations. The costs associated with the construction of the bund have been factored into waste mining haulage.
	The status of material legal agreements and marketing arrangements	A royalty of 1.5% of production is payable to Norilsk Nickel (capped at A$17m for Thunderbox and Bannockburn projects combined).
	The status of governmental agreements and approvals critical to the viability of the project, such as mineral tenement status, and government and statutory approvals. There must be reasonable grounds to expect that all necessary government approvals will be received within the timeframes anticipated in the Pre-Feasibility or Feasibility study. Highlight and discuss the materiality of any unresolved matter that is dependent on a third party on which extraction of the reserve is contingent.	Government approvals will need to be sought relating to this Ore Reserve Estimate, namely for mining, waste dumping, diversion of surface run-off, , water extraction from pits and bores and the associated discharge. All of the approvals being sought have previously been in place for the previous owners of the mine, and the best opinion available suggests that this will be a likely outcome once again. Approval for the haul road construction will also need to be sought.
Classification	*The basis for the classification of the Ore Reserve into varying confidence categories*	The Ore Reserve Estimate classification for Bannockburn has been in accordance with the JORC code 2012. All of the Ore Reserve Estimate was classified as being Probable with all of the Ore Reserve Estimate being derived from that portion of the Mineral Resource classified as indicated. There is no measured component to the Bannockburn Mineral Resource Estimate within the pit design used for the Ore Reserve Estimate.
	Whether the result appropriately reflects the Competent Person's view of the deposit.	Cost assumptions and inputs applied to the pit optimisation and subsequent design were derived from current operational data relating to Carouse Dam Operations, and expert recommendations from industry consultants. Results of these optimisations and the resultant analysis reflect the views of Chris Burton regarding the Bannockburn deposit.
	The proportion of Probable Ore Reserves that have been derived from Measured Mineral Resources (if any)	There were no Measured Mineral Resources
Audits or reviews	*The results of any audits or reviews of Ore Reserve estimates*	All of the parameters assumed and adopted, as well as the financial analysis completed, have been the subject to peer review.
Discussion of relative accuracy/confidence	*Where appropriate a statement of the relative accuracy and confidence level in the Ore Reserve estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geo-statistical procedures to quantify the relative accuracy of the*	The ore reserve estimate was derived from the mineral resource estimate which in turn was reliant upon a resource block model whose estimation was derived from drill-hole data of sufficient continuity and spacing to satisfy the requirements for an indicated resource. The interpretation and estimation process integrated an allowance for a selective mining unit, effectively building in planned dilution to the Mineral resource estimate. This had the impact of eliminating some narrow zones of mineralisation through the addition of waste and a resultant grade below cut-off. Other areas of narrow mineralisation experienced a

Section 4: Estimation and Reporting of Ore Reserves		
Criteria	**JORC Explanation**	**Commentary**
	reserve within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors which could affect the relative accuracy and confidence of the estimate. *The statement should specify whether it relates to global or local estimates, and if local, state the relevant tonnages which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the procedures used.* *Accuracy and confidence discussions should extend to specific discussions of any applied modifying factors that may have a material impact on Ore Reserve viability, or for which there are remaining areas of uncertainty ay the current study stage.* *It is recognised that this may not be possible or appropriate in all circumstances. These statements or relative accuracy and confidence of the estimate should be compared with production data, where available.*	lowering of grade and increase in tonnage. The Resource model was depleted for previous underground mining utilising the latest survey void model. Saracen has made certain assumptions regarding mining and processing costs, mining dilution and recoveries, geotechnical parameters, and metallurgical recoveries. All of these have been documented and are based upon known parameters either at Bannockburn whilst previously in operation, or in existence at Saracen's other operations, or have been recommended by reputable industry consultants. All of the parameters assumed and adopted, as well as the financial analysis completed, have been the subject to peer review.

North Well

Section 1: Sampling Techniques and Data		
Criteria	**JORC Code Explanation**	**Commentary**
Sampling Techniques	*Nature and quality of sampling (e.g. cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc.). These examples should not be taken as limiting the broad meaning of sampling.*	Sampling methods undertaken at North Well by previous owners have included rotary air blast (RAB), reverse circulation (RC) and diamond drillholes (DD). Saracen has not carried out any sampling activities at North Well due to only recently acquiring the deposit.
	Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used	RC, RAB, and DD core drilling is assumed to have been completed by previous holders to industry standard at that time (1992- 2010).

Section 1: Sampling Techniques and Data

Criteria	JORC Code Explanation	Commentary
	Aspects of the determination of mineralisation that are Material to the Public Report. In cases where 'industry standard' work has been done this would be relatively simple (e.g. 'reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30 g charge for fire assay'). In other cases more explanation may be required, such as where there is coarse gold that has inherent sampling problems. *Unusual commodities or mineralisation types (e.g. submarine nodules) may warrant disclosure of detailed information*	Limited information has been found or supplied so it is assumed all RAB, RC and DD and sampling was carried out to industry standard at that time. More recent sampling carried out by Norilsk has involved the use of 4m composite or 1m re-split samples from which a 40g charge was produced for fire assay and aqua regia digest.
Drilling Techniques	*Drill type (e.g. core, reverse 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.).*	Drilling activities at North Well have included 818 RAB holes, 785 RC holes (assumed standard 5 ¼ '' bit size) and 25 DD holes (HQ, NQ, and unknown diameter, some with RC precollars). Limited historic diamond core hole was oriented by unknown methods.
Drill Sample Recovery	*Method of recording and assessing core and chip sample recoveries and results assessed*	Recoveries for some more recent RC drilling have been recorded based on a visual weight estimate. It is unknown historic recoveries were recorded.
	Measures taken to maximise sample recovery and ensure representative nature of the samples	It is unknown what, if any, measures were taken to ensure sample recovery and representivity.
	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.	Any historical relationship is not known.
Logging	*Whether core and chip samples have been geologically and geotechnically logged to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies.* *Whether logging is qualitative or quantitative in nature.* *Core (or costean, channel, etc) photography.*	Logging of diamond drill core, RAB and RC chips record lithology, mineralogy, texture, mineralisation, weathering, alteration and veining. Some historic diamond drilling has been geotechnically logged. It is unknown if any diamond core was photographed.
	The total length and percentage of the relevant intersections logged	The majority of drillholes appear to have been logged in full.
Sub-sampling techniques and sample preparation	*If core, whether cut or sawn and whether quarter, half or all core taken.*	The sampling method for most drill core is unknown. Some historic core was half core or quarter core sampled.
	If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry.	The sampling methods for RC and RAB drilling carried out in the 1990s are unknown More recent RC drilling has been riffle or cyclone split, or spear sampled. It is unknown if wet samples were encountered.

Section 1: Sampling Techniques and Data

Criteria	JORC Code Explanation	Commentary
	For all sample types, the nature, quality and appropriateness of the sample preparation technique.	The sampling techniques for much of the historic RAB, RC and DD drilling are unknown, best practice is assumed.
	Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.	Best practice is assumed at the time of historic RAB, DD and RC sampling.
	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.	It is unknown if duplicate sampling was performed on the majority of historic RAB, RC and DD drilling. Limited field duplicate samples were carried out in more recent RC drilling programs.
	Whether sample sizes are appropriate to the grain size of the material being sampled.	It is assumed sample sizes were appropriate for the grain size of material being sampled. Some recent campaigns included sizing analysis (90% passing 75 microns) to ensure this.
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.*	Numerous assay techniques have been used in the history of the deposit, most commonly fire assay and aqua regia. These methods are considered suitable for determining gold concentrations in rock and are total digest methods. One early RC campaign utilised BLARG (bulk leach aqua regia gold) in comparison to fire assay in an effort to determine the effects of coarse gold on the assay result. As this method is a partial digest it was deemed an ineffective comparison. Other assay methods utilised for RC, RAB and DD samples are unknown.
	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.	It is unknown if any instruments of this nature have been used at North Well.
	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.	QAQC information from North Well sampling data is limited therefore all drilling is assumed to have been carried out to industry standard. There is evidence of standards being routinely included in more recent drilling (from 2006 onward) along with limited duplicate sampling. Laboratory repeats were recorded and analysed.
Verification of sampling and assaying	*The verification of significant intersections by either independent or alternative company personnel.*	It is unknown if historic intercepts were verified by alternative company personnel.
	The use of twinned holes.	Specific drilling programs consisting of twinned holes are not apparent.
	Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols	Limited documentation of this nature has been provided. Data has been stored in an acQuire database.
	Discuss any adjustment to assay data.	No adjustment to assay data appears to have been made
Location of data points	*Accuracy and quality of surveys used to locate drillholes (collar and down-hole surveys), trenches, mine workings and other locations used in Mineral Resource estimation.*	The survey quality and control is unknown for the majority of historic drilling. More recent drilling has collar locations surveyed by unknown GPS and DGPS equipment. Downhole survey methods recorded include Eastman single and multishot, gyro, inferred and unknown methods.
	Specification of the grid system used.	MGA Zone 51 grid coordinate system is used. Some historic data drilled on local grid systems has been converted to this grid system
	Quality and adequacy of topographic control.	No detail of topographic control was supplied or found.

Section 1: Sampling Techniques and Data

Criteria	JORC Code Explanation	Commentary
Data spacing and distribution	*Data spacing for reporting of Exploration Results.*	No exploration results reported in this release. The nominal drillhole spacing is 25 m (northing) by 25 m (easting) in the core of the deposit, and increases to the margins of the deposit.
	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.	The mineralised domains at North Well have demonstrated sufficient continuity in both geological and grade continuity to support the definition of Mineral Resources and Reserves, and the classifications applied under the 2012 JORC Code.
Orientation of data in relation to geological structure	*Whether sample compositing has been applied.*	Historic 1990s RAB and RC drilling was generally sampled on 3 - 4m composites with significant gold results being resampled in 1m intervals Some more recent RC pre-collar drilling was composited into 6m samples with areas of interest resampled to 1m.
	Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.	The deposit is drilled towards grid west at angles varying from -60^0 and -90^0 to intersect the mineralised zones at a close to perpendicular relationship for the bulk of the deposit.
	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.	All drilling from surface has been drilled as close to perpendicular as possible. This has reduced the risk of introducing a sampling bias as far as possible. No orientation based sampling bias has been identified at North Well in the data at this point.
Sample security	*The measures taken to ensure sample security.*	Information on sample security measures has not been provided
Audits or reviews	*The results of any audits or reviews of sampling techniques and data.*	No evidence of external reviews has been supplied.

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 North Well resource is located on M37/358, M37/359 and M37/465. Near Mine exploration extends onto M37/340. The tenements are held by Norilsk Nickel Wildara Pty Ltd but are the subject of a purchase agreement with Saracen Metals Pty Limited whereby Saracen has purchased 100% of the tenements. The mining leases have a 21 year life: Mining Lease M37/465 is held until 2015 and Mining Leases M37/340, M37/358, and M37/359 are held until 2034. All are renewable for a further 21 years on a continuing basis. All production is subject to a Western Australian state government NSR royalty of 2.5%. Mining Leases M37/358 and M37/359 are subject to a royalty of $25.00 per ounce of gold produced from the tenements over 33,000 ounces and up to 73,000 ounces and of $1.00 per ounce of gold produced over 73,000 ounces payable to Dominion Gold Operations Pty Ltd. Mining Lease M37/465 is subject to a royalty payable to Forsyth NL calculated as a percentage of the Ore Value for ore processed each quarter. The Ore Value is calculated by reference to the Ore Grace and the Average Gold Price for the quarter. For ore processed with an Ore Grade greater than 1.5

Section 2: Reporting of Exploration Results		
Criteria	**JORC Code Explanation**	**Commentary**
		g/tonne the royalty is 4% of the Ore Value and less than 1.5g/tonne, the royalty is 2.5% of the Ore Value. The tenements are all subject to a 1.5% royalty on all minerals which are capable of being sold or otherwise disposed of, multiplied by the Net Smelter Return, capped at $17 million, payable to Norilsk Nickel Wildara Pty Ltd. There are no caveats or bank mortgages relating to the tenements. A single Aboriginal Heritage site exists within M37/340 – Site ID 1522 Koara Camp artefacts and scatter. The site is not impacted by near mine exploration on the tenement. There are no other registered Aboriginal Heritage sites within the tenements. There are no pastoral compensation agreements over the tenements.
	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.	No known impediment exists to obtaining a licence to operate and the tenements are all in good standing.
Exploration done by other parties	*Acknowledgment and appraisal of exploration by other parties.*	Gold was discovered in the area in the late 1800s with intermittent working of the nearby Bannockburn deposit until the 1950s. Modern exploration began in the late 1970s with initial exploration targeting nickel sulphides before gold exploration began in 1979. Exploration activities by numerous companies including Freeport of Australia, Kulim Limited and Arboyne took place until Dominion purchased the project. Soil sampling and RAB drilling highlighted the North Well anomaly followed by an extensive RC campaign to delineate the resource. Mining at North Well began in 1995 and continued after the project was sold to Australian Goldfields. DD and RC drilling continued in and around the deposit along with surface sampling and various geophysical surveys in an effort to extend mineralisation and define new targets. AGF were placed under administration and mining ceased in 1998 upon the exhaustion of the mine reserves. Arrow Resources Management acquired the project and sold it to Breakaway Resources who carried out minor RAB drilling in the area. Lionore acquired the ground from Breakaway and completed resource extension and near mine exploration RC drilling. Norilsk acquired the project and carried out further drilling as well as a MILTEM survey over the North Well area, highlighting several areas of interest.
Geology	*Deposit type, geological setting and style of mineralisation.*	The North Well deposit is located on the central portion of the Archaean Norseman- Wiluna greenstone belt. Mafic to ultramafic intrusive and extrusive rocks, with intercalated sedimentary horizons dominate the greenstone stratigraphy. There are some felsic rocks to intermediate volcanic rocks and their derivatives. The greenstone sequences, confined to the west by basement (pre-tectonic) granitoid, gneiss, smaller syntectonic granitoid stocks, and batholiths, generally occupy the core of anticlinal domes. Some basement rocks partially invade the greenstone stratigraphy. Stratigraphy dips are relatively modest throughout the majority of the project, but steepen considerably towards more vertical, major tectonic structures. The mineralisation at North Well is confined to the Bannockburn Shear Zone (“BSZ”). The BSZ is a concave structure that has a strike length of approximately 30km, strikes roughly north south, and dips to the east. The BSZ is an approximately one kilometre wide zone of deformation that separates the basement granite/gneiss terrane to the west from greenstone terrane to the east. At North Well, the gold mineralisation is located approximately 400m from the main granite greenstone contact. Gold mineralisation is in east dipping basalts within a sequence of siltstones and acid volcaniclastics and occurs over a strike length of approximately 2600m and to a depth of 170m. Gold mineralisation is predominantly associated with quartz +/- sulphide filled shear structures.

Section 2: Reporting of Exploration Results

Criteria	JORC Code Explanation	Commentary
		A strong S2/S3 lineation controls the mineralisation into a series of shallow (~25°) south plunging ore shoots that form en echelon zones along strike and down the dip of the shear zone. A series of east west late stage faults (some with dolerite intrusions) cross cut the mineralisation.
Drillhole 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 does not detract from the understanding of the report, the Competent Person should clearly explain why this is the case.*	A total of 515 holes have been used in the mineral resource and are deemed to be material. It is not practical to summarise all of the holes here in this release. Future drill hole data will be periodically released or when a results materially change the economic value of the project. Exclusion of the drilling information will not detract from the reader's view of the report.
Data aggregation methods	*In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (e.g. cutting of high grades) and cut-off grades are usually Material and should be stated.*	No exploration results are reported in this release.
	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.	No exploration results are reported in this release.
	The assumptions used for any reporting of metal equivalent values should be clearly stated.	No exploration results are reported in this release.
Relationship between mineralisation widths and intercept lengths	*These relationships are particularly important in the reporting of Exploration Results.* *If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.* *If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (e.g. 'down hole length, true width not known').*	Saracen has not previously reported exploration results nor are any included in this release.
Diagrams	*Appropriate maps and sections (with scales) and*	No diagrams are referenced in this release.

Section 2: Reporting of Exploration Results

Criteria	JORC Code Explanation	Commentary
	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 reporting of all Exploration Results are not practicable, representative reporting of both low and high grades and/or widths should be practiced to avoid misleading reporting of Exploration Results.*	Saracen has not previously reported exploration results nor are any included in this release.
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.*	A number of geophysical surveys have been completed and interpreted including regional aeromagnetics, radiometrics, SAM (sub-audio magnetics) and MLTEM (Moving loop electromagnetics) in an effort to highlight potential target areas.
Further work	*The nature and scale of planned further work (e.g. tests for lateral extensions or depth extensions or large-scale step-out drilling).* *Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive*	Saracen is currently working on establishing an exploration program which will identify areas of opportunity to extend or enhance the North Well mineral resource.

Section 3: Estimation and Reporting of Mineral Resources

Criteria	JORC Code Explanation	Commentary
Database Integrity	*Measures taken to ensure that data has not been corrupted by, for example, transcription or keying errors, between its initial collection and its use for Mineral Resource estimation purposes.*	The database provided to Saracen was an extract from an acquire SQL database. The primary database is regulated by a locked framework called the acquire data model which fixes the relationships between tables. The data model minimises the potential for data collection and data usage errors through pre-determined look up tables, storage and export functions. User defined permissions also regulate the ability to add, edit or extract data. It is unknown at this stage how the process used to record the primary data. Typical methods are manual translation of logging and data capture from written logs, direct import of csv tables through a data import scheme where data is validated upon import or direct data entry options into the database using predefined look up values.
	Data validation procedures used.	The rigid structure of the acquire data model is such that predefined rules and look up tables are applied to all data entry. Data that does not meet the criteria are highlighted and moved to a buffer area until the data is rectified to meet the passing rules.

Section 3: Estimation and Reporting of Mineral Resources		
Criteria	**JORC Code Explanation**	**Commentary**
		It is unknown at this stage how the database was managed and who was responsible for its maintenance. It is also unknown if there was any built in functionality around pass/fail checks on assay importing.
Site Visits	*Comment on any site visits undertaken by the Competent Person and the outcome of those visits.*	No site visits have taken place at this point in time by the competent person. However, a team of 12 people including Saracen technical representatives as well as industry consultants did conduct site visits. Historical drill core was inspected during the visits.
	If no site visits have been undertaken indicate why this is the case.	Given that there was no activity (drilling, mining etc.), it was deemed that a site visit during the process would not provide significant value and not materially affect the outcome of any resource estimate.
Geological Interpretation	*Confidence in (or conversely, the uncertainty of) the geological interpretation of the mineral deposit.*	The interpretation has been based on the detailed geological work completed by previous owners of the project. This knowledge is based on extensive geological logging of drill core, RC chips, detailed open pit mapping and assay data. The majority of the mineralisation is mainly confined to Bannockburn Shear Zone (BSZ) that passes through the deposit, with weaker mineralisation on the footwall and hanging wall lodes. Within the BSZ, mineralisation is hosted in east dipping basalts within a sequence of siltstones and acid volcanics and is associated with quartz+/- sulphide filled structures. A strong S2/S3 lineation controls the mineralisation into a series of shallow (~25 ^{o}) south plunging shoots that form en echelon zones along strike and down dip of the shear zone.
	Nature of the data used and any assumptions made.	The interpretations have been constructed using all available geological logging descriptions including but not limited to, stratigraphy, lithology, texture, and alteration. Interpreted cross cutting faults have been observed and have been use to guide disruptions in the position of the key mineralised domains. Surface mapping had been included in the interpretation. Cross sectional interpretations of the mineralisation have been created and from the basic framework through which the 3D wireframe solid is built.
	The affect, if any, of alternative interpretations on Mineral Resource estimation.	The North Well deposit is generally sub-vertical in geometry, with clear boundaries which define the mineralised domains. Infill drilling has supported and refined the model and the current interpretation is thus considered to be robust. Over the life of the project several different sources have interpreted the mineralisation and all agree on the same basic interpretation, given the bulk of the mineralisation is confined to the Bannockburn Shear Zone.
	The use of geology in guiding and controlling the Mineral Resource estimation.	Geological controls and relationships were used to define mineralised domains. Key features are sulphide content, associated with quartz structures.
	The factors affecting continuity both of grade and geology.	At the deposit scale the gold distribution is predominantly confined to the Bannockburn shear zone, with distinct south dipping (~25 ^{o}) higher grade shoots forming an en echelon pattern along the strike of the deposit. Mineralisation is mainly associated with quartz+/- sulphide filled structures. These factors have been addressed via the resource estimation process applied.
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.*	North Well mineralisation extends from 6853875mN to 6856525mN, 291700mE to 292500mE and 250 meters below surface. The Bannockburn shear generally strikes north-south along the North Well deposit.
Estimation and modelling techniques	*The nature and appropriateness of the estimation technique(s) applied and key assumptions, including treatment of extreme grade values, domaining, interpolation parameters and maximum distance of extrapolation from data points.*	Grade estimation using Ordinary Kriging (OK) was completed for North Well. CAE Studio 3 software was used to estimate gold into10m x20m x5m size parent blocks. Drill grid spacing ranges from 25 m to 50 m. Drill hole sample data was flagged using domain codes generated from three dimensional mineralisation domains and oxidation surfaces. Sample data was composited to one metre downhole length. Over 90% of the sample intervals are 1m. Intervals with no assays were excluded from the compositing routine. The influence of extreme sample distribution outliers was reduced by top-cutting where required. The top-

Section 3: Estimation and Reporting of Mineral Resources		
Criteria	**JORC Code Explanation**	**Commentary**
		cut levels were determined using a combination of top-cut analysis tools (grade histograms, log probability plots and Coefficient of Variation (CV)). Top-cuts were reviewed and applied on a domain basis. Due to the flexures in the mineralised envelopes, the estimation process was guided by the Dynamic Anisotropy technique in CAE's Studio3. This basically links the geometrical shape of the mineralisation wireframe to the search ellipse during the estimation process. Variography was conducted in Snowden's supervisor software.
	The availability of check estimates, previous estimates and/or mine production records and whether the Mineral Resource estimate takes appropriate account of such data.	The ordinary kriged resource estimate has been compared with previous resource estimate done by the previous owner. The previous resource predicted more tonnes and lower grade for the total inventory resource. This resource estimate done by Saracen predicts less tonnes at higher grades. This discrepancy can be explained by the 'loose' broad mineralisation envelopes used in conjunction with the Multiple Indicator kriging methodology in the previous estimate compared with Saracen's mineralisation envelopes which were constructed using a nominal 0.5 g/t Au cut-off. Although there is previous mining activities at North Well, no historical mine production and mill reconciliation records were sighted that can be directly compared with this resource estimate.
	The assumptions made regarding recovery of by-products.	No assumptions have been made with respect to the recovery of by-products.
	Estimation of deleterious elements or other non-grade variables of economic significance (e.g. sulphur for acid mine drainage characterisation).	There has been no estimate at this point of deleterious elements. Saracen is unaware if any elements other than gold have been assayed. Arsenic may have been assayed; however this data has not been made available.
	In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed.	A single block model for North Well was constructed using an 10 mE by 20 mN by 5 mRL parent block size with subcelling to 1 mE by 2 mN by 1 mRL for domain volume resolution. All estimation was completed at the parent cell scale. Kriging neighbourhood analysis was carried out for North Well in order to optimise the block size, search distances and sample numbers used. Discretisation was set to 4 by 8 by 5 for all domains. The size of the search ellipse per domain was based on the gold variography. Three search passes were used for each domain. In general, the first pass used the ranges of the gold variogram and a minimum of 12 and maximum of 32 samples. In the second pass the search ranges were unchanged and the minimum samples reduced to 8 samples. The third pass ellipse was extended to 2 times the range of the gold variograms and the minimum number of samples reduced to 4 and a maximum of 32 samples were applied. A maximum of 4 samples per hole were used. In the majority of domains, most blocks were estimated in the first pass (particularly for the main domains); however, some more sparsely-sampled domains were predominantly estimated on the second or third pass. Un-estimated blocks, i.e. those outside the range of the third pass, were assigned the estimated domain mean and lower resource confidence classifications. Hard boundaries were applied between all estimation domains except for the major domain D_200_MN (at diesel) and F_100_MN (at Frosties) where a soft boundary was applied.
	Any assumptions behind modelling of selective mining units.	No selective mining units have been assumed.
	Any assumptions about correlation between variables.	No assumptions have been made regarding correlation between variables.
	Description of how the geological interpretation was used to control the resource estimates.	The geological interpretation strongly correlates with the mineralised domains. Specifically where the mineralised domain corresponds with the presence of sulphide filled quartz structures. Where well known the geological unit is described in the block model.

Section 3: Estimation and Reporting of Mineral Resources

Criteria	JORC Code Explanation	Commentary
		All wireframe boundaries including those where lithology and mineralisation correspond, hard boundaries are enforced.
	Discussion of basis for using or not using grade cutting or capping.	Statistical analysis showed the populations in each domain at North Well to generally have a low coefficient of variation but it was noted that a very small number of estimation domains included outlier values that required top-cut values to be applied.
	The process of validation, the checking process used, the comparison of model data to drill hole data, and use of reconciliation data if available.	Validation of the block model carried out a volumetric comparison of the resource wireframes to the block model volumes. Validating the estimate compared block model grades to the input data using tables of values, and swath plots showing northing, easting and elevation comparisons. Visual validation of grade trends and metal distributions was carried out. Although there has been historical mining at North Well there has not been any historical data that has been verified to be directly linked to the North Well deposit. There have not been accurate mining records kept by a succession of previous owners of this deposit.
Moisture	*Whether the tonnages are estimated on a dry basis or with natural moisture, and the method of determination of the moisture content.*	All tonnages are estimated on a dry basis.
Cut-off parameters	*The basis of the adopted cut-off grade(s) or quality parameters applied.*	Based on Saracen's current economic operations at Carosue Dam, and the natural grade distinction above background, a grade of 0.5g/t has been chosen.
Mining factors or assumptions	*Assumptions made regarding possible mining methods, minimum mining dimensions and internal (or, if applicable, external) mining dilution. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential mining methods, but the assumptions made regarding mining methods and parameters when estimating Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the mining assumptions made.*	The North Well deposit is amenable to mining by open pit methods. The deposit has successfully been mined by open pit in the past prior to 2007. There are reasonable grounds to assume that in the future this deposit will again be mined by conventional open pit load and haul operations, particularly to the south of the current mined out pits at Diesel and Frosties
Metallurgical factors or assumptions	*The basis for assumptions or predictions regarding metallurgical amenability. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential metallurgical methods, but the assumptions regarding metallurgical treatment process and parameters made when reporting Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the metallurgical assumptions made.*	It is expected that any future mining of the North Well deposit will be processed at the Thunderbox processing facility which is currently on care and maintenance. The Thunderbox mill employs a conventional crushing, grinding and CIL leaching process to extract the gold. The mill operated successfully between 2002 and 2007, processing in excess of 9Mt of ore. The conventional plant displayed excellent performance with gold recoveries between 93.4 to 96.6 % over the life of the mine. Test work by Ammtec completed historically suggests North Well mineralisation should achieve similar recoveries to the mineralisation previously processed at Thunderbox.
Environmental factors or assumptions	*Assumptions made regarding possible waste and process residue disposal options. It is always necessary as part of the process of determining*	As arsenic is present in the mineralogy of the deposit, the processing plant has been designed to ensure effective management of potentially harmful arsenic contamination. A 20m diameter high rate thickener is used to thicken the tails to maximise water and cyanide recovery.

Section 3: Estimation and Reporting of Mineral Resources

Criteria	JORC Code Explanation	Commentary
	reasonable prospects for eventual economic extraction to consider the potential environmental impacts of the mining and processing operation. While at this stage the determination of potential environmental impacts, particularly for a greenfields project, may not always be well advanced, the status of early consideration of these potential environmental impacts should be reported. Where these aspects have not been considered this should be reported with an explanation of the environmental assumptions made.	Process water is added to the thickener feed to create one wash stage prior to detoxification. Arsenic precipitation is effected in a stirred closed tank with air sparging. Ferric sulphate solution is metered into the reactor on the basis of dissolved arsenic concentration. The fumes from the precipitation tank are passed through a packed bed caustic scrubber before venting to the atmosphere. The precipitation tank overflow is then passed to the tails hopper.
Bulk Density	*Whether assumed or determined. If assumed, the basis for the assumptions. If determined, the method used, whether wet or dry, the frequency of the measurements, the nature, size and representativeness of the samples.*	Previous owners have taken routine density measurements when drilling diamond core. The method of calculation is the water displacement technique. Measurements have been recorded in the acquire database and extraction schemes pair this data with the major lithology code for statistical analysis. At this point Saracen does not have the available data to comment on the frequency and distribution of the density measurements. The size and nature of the samples is also unknown to Saracen at this time.
	The bulk density for bulk material must have been measured by methods that adequately account for void spaces (vugs, porosity, etc), moisture and differences between rock and alteration zones within the deposit.	As stated above the frequency and distribution is unknown at this point in time. It has assumed from the very good reconciliation performance from mine to mill that the determined density assignments from the mine are accurate.
	Discuss assumptions for bulk density estimates used in the evaluation process of the different materials.	An average mean of densities collected for each lithological type has been uniformly applied to the modelled geological units. This includes the primary fresh lithologies as well as the weathered oxide and transitional zones.
Classification	*The basis for the classification of the Mineral Resources into varying confidence categories.*	The mineral resource has been classified into Indicated and Inferred categories based on drill hole spacing, geological confidence, and grade continuity and estimation quality. The combination of these factors together guide the digitising of a “cookie cutter” string in long section view which selects and codes the appropriate blocks with the nominated resource classification category.
	Whether appropriate account has been taken of all the relevant factors (i.e. relative confidence in tonnage/grade estimations, reliability of input data, confidence in continuity of geology and metal values, quality, quantity and distribution of the data).	The input data is comprehensive in its coverage of the mineralisation and does not favour or misrepresent in-situ mineralisation. Geological control at North Well consists of a primary mineralisation is associated with sulphide filled quartz structures within the major BSZ (Bannockburn Shear Zone) regional structure. The definition of mineralised zones is based on a high level of geological understanding producing a robust model of mineralised domains. The validation of the block model shows good correlation of the input data to the estimated grades.
	Whether the result appropriately reflects the Competent Person's view of the deposit.	The geological model and the mineral resource estimate reflect the competent person’s view of the deposit.
Audits or reviews	*The results of any audits or reviews of Mineral Resource estimates.*	Saracen has adopted a process for geological modelling, estimation and reporting of mineral resources that meets high industry standards. No external audits have been conducted, as this deposit was recently acquired, Saracen however intends have an external audit done prior to commencement of any mining activity.
Discussion of relative accuracy/confidence	*Where appropriate a statement of the relative accuracy and confidence level in the Mineral Resource estimate using an approach or procedure*	The relative accuracy of the Mineral Resource estimate is reflected in the reporting of the Mineral Resource as per the guidelines of the 2012 JORC Code. The resource estimates have undergone a robust validation process, and as such, the competent person is satisfied that the resources estimated in

Section 3: Estimation and Reporting of Mineral Resources		
Criteria	**JORC Code Explanation**	**Commentary**
	deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the resource within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors that could affect the relative accuracy and confidence of the estimate.	the block model are a true representation of the insitu resources.
	The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonnages, which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the procedures used.	The statements relate to a global estimate of tonnes and grade.
	These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.	No accurate records at of production data is available at North Well to say to a give a realistic comparison with this resource estimate

Waterloo District

Waterloo

Section 1: Sampling Techniques and Data		
Criteria	**JORC Code Explanation**	**Commentary**
Sampling Techniques	*Nature and quality of sampling (e.g. cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc.). These examples should not be taken as limiting the broad meaning of sampling.*	Sampling methods undertaken at Waterloo by previous owners have included aircore (AC), rotary air blast (RAB), reverse circulation (RC) and diamond drillholes (DD). Saracen has not carried out any sampling activities at Waterloo due to only recently acquiring the deposit.
	Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used	AC, RC, RAB, and DD core drilling is assumed to have been completed by previous holders to industry standard at that time (1979- 2011).

Section 1: Sampling Techniques and Data

Criteria	JORC Code Explanation	Commentary
	Aspects of the determination of mineralisation that are Material to the Public Report. In cases where 'industry standard' work has been done this would be relatively simple (e.g. 'reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30 g charge for fire assay'). In other cases more explanation may be required, such as where there is coarse gold that has inherent sampling problems. *Unusual commodities or mineralisation types (e.g. submarine nodules) may warrant disclosure of detailed information*	Limited information has been found for historic drilling so it is assumed all AC, RAB, RC and DD and sampling was carried out to industry standard at that time. More recent RC drilling was sampled using 4m composites or 1m samples from which 3kg was taken for assay. Diamond drilling was sampled to geological intervals (0.2 – 1m) and half or quarter cored. The assaying process involved a total preparation analytical protocol utilising a four acid digest and ICP/OES finish for Ni, Cu, Zn, Cr, As, Mn, Fe, Co, Mg, Al, S, Ti and Ca, and a lead collection fire assay and MS finish for Au, Pt and Pd.
Drilling Techniques	*Drill type (e.g. core, reverse 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.).*	Drilling activities at Waterloo have included 3 AC holes, 299 RAB holes, 179 RC holes (assumed standard 5 ¼'' bit size),195 DD holes drilled from surface (HQ and unknown diameter) and 190 DD holes drilled from underground (LTK48 and LTK60 diameter). A large percentage of historic diamond core was oriented by unknown methods.
Drill Sample Recovery	*Method of recording and assessing core and chip sample recoveries and results assessed*	Recoveries for some more recent RC drilling have been recorded based on a visual weight estimate. It is unknown if historic recoveries were recorded. Diamond recoveries for recent drilling have been recorded as percentages based on measured lengths returned versus drilled metres. Recoveries average >90%.
	Measures taken to maximise sample recovery and ensure representative nature of the samples	It is unknown what, if any, measures were taken to ensure sample recovery and representivity for much of the sampling.
	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.	Any historical relationship is not known. Recent diamond drilling has demonstrated high recoveries meaning loss of material has been minimal.
Logging	*Whether core and chip samples have been geologically and geotechnically logged to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies.* *Whether logging is qualitative or quantitative in nature.* *Core (or costean, channel, etc) photography.*	Logging of diamond drill core, AC, RAB and RC chips record lithology, mineralogy, texture, mineralisation, weathering, alteration and veining. The majority of the diamond drilling has had geotechnical and structural logging carried out, including RQD, fracture number, alpha and beta angles, defect strength, type and fill. It is unknown if any diamond core was photographed.
	The total length and percentage of the relevant intersections logged	The majority of drillholes appear to have been logged in full.
Sub-sampling techniques and sample	*If core, whether cut or sawn and whether quarter, half or all core taken.*	Diamond core was half core or quarter core sampled. Samples were collected from the same side.

Section 1: Sampling Techniques and Data

Criteria	JORC Code Explanation	Commentary
preparation	*If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry.*	The sampling methods for much of the historic AC, RC and RAB drilling are unknown. More recent RC and RAB drilling has been riffle or cyclone split, or spear sampled. It is unknown if wet samples were encountered.
	For all sample types, the nature, quality and appropriateness of the sample preparation technique.	The sampling techniques for much of the historic AC, RAB, RC and DD drilling are unknown, best practice is assumed.
	Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.	Best practice is assumed at the time of historic AC, RAB, DD and RC sampling.
	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.	It is unknown if duplicate sampling was performed on the majority of historic AC,RAB, RC and DD drilling. There is evidence of field duplicate sampling being conducted in more recent campaigns.
	Whether sample sizes are appropriate to the grain size of the material being sampled.	It is assumed sample sizes were appropriate for the grain size of material being sampled.
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.*	Numerous assay techniques have been used in the history of the deposit, including ATOES or AXOES (Acid digest with inductively coupled plasma optical emission spectrometry)and ATMS (acid digest with mass spectrometry) for Ni and base metals, and FAMS (lead collection fire assay with inductively coupled plasma mass spectrometry finish) for Au, Pt and Pd. Some historic methods are unknown.
	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.	It is unknown if any instruments of this nature have been used at Waterloo.
	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.	QAQC information from historic Waterloo sampling data is limited therefore all drilling is assumed to have been carried out to industry standard. More recent drilling carried out at the deposit adhered to strict QAQC protocols involving weighing of samples, collection of field duplicates and insertion of blanks and standards. Laboratory repeats were carried out along with umpire lab checks. Analysis of this data displayed acceptable precision and accuracy.
Verification of sampling and assaying	*The verification of significant intersections by either independent or alternative company personnel.*	It is unknown if historic intercepts were verified by alternative company personnel.
	The use of twinned holes.	Specific drilling programs consisting of twinned holes are not apparent.
	Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols	Limited documentation of this nature has been provided. Data has been stored in an acQuire database.
	Discuss any adjustment to assay data.	No adjustment to assay data appears to have been made
Location of data points	*Accuracy and quality of surveys used to locate drillholes (collar and down-hole surveys), trenches, mine workings and other locations used in Mineral Resource estimation.*	The survey quality and control is unknown for the some of the historic drilling. More recent drilling has collar locations surveyed by unspecified GPS and DGPS equipment, with underground DD surveyed by unknown methods. Downhole survey methods recorded include Eastman single shot, Reflex, Maxibore, gyroscope, inferred and unknown methods.

Section 1: Sampling Techniques and Data		
Criteria	**JORC Code Explanation**	**Commentary**
	Specification of the grid system used.	Many of the historic holes were drilled on a local grid system. Future reporting will be carried out on MGA Zone 51.
	Quality and adequacy of topographic control.	No information on topographic control has been found or supplied.
Data spacing and distribution	*Data spacing for reporting of Exploration Results.*	No exploration results reported in this release. The nominal drillhole spacing is 25 m (northing) by 25 m (easting) in the core of the deposit, and increases to the margins of the deposit.
	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.	The mineralised domains at Waterloo have demonstrated sufficient continuity in both geological and grade continuity to support the definition of Mineral Resources and Reserves, and the classifications applied under the 2012 JORC Code.
Orientation of data in relation to geological structure	*Whether sample compositing has been applied.*	Some historic RAB and RC, and some more recent RC precollars have been composited into 3-4m samples.
	Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.	Surface drill hole sample orientation is generally approximately at right angles to the plane of the mineralisation. Underground drilling and sampling crosses the structures at various angles and provides a detailed three-dimensional view of the deposit.
	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 sample security.*	Information on sample security measures has not been provided
Audits or reviews	*The results of any audits or reviews of sampling techniques and data.*	No evidence of external reviews has been supplied. Saracen has not had access to this information during the acquisition process.

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 Waterloo resource is located on M36/473. Near mine exploration extends onto M36/474 and M36/541 Mining Leases M36/473, M36/474 and M36/541 are held by Norilsk Nickel Wildara Pty Ltd (60%) and Dalrymple Resources Pty Ltd (40%). The tenements are subject to a purchase agreement with Saracen Metals Pty Limited whereby Saracen has purchased 100% of the tenements from Norilsk and Dalrymple. Mining Leases M36/473, M36/474 and M36/541 are subject to a joint venture agreement (Agreement 65H/012 (88218)) between Oresearch NL and Dalrymple Resources NL, as assigned to Saracen Metals Pty Limited. The mining leases have a 21 year life held until 2021. All are renewable for a further 21 years on a continuing basis. All production is subject to a Western Australian state government NSR royalty of 2.5%.

Section 2: Reporting of Exploration Results

Criteria	JORC Code Explanation	Commentary
		The tenements are all subject to a 1.5% royalty on all minerals which are capable of being sold or otherwise disposed of, multiplied by the Net Smelter Return and capped at $17 million. The royalty is payable to Norilsk Nickel Wildara Pty Ltd. A single Aboriginal Heritage site exists within M36/473 – Site ID 2550 Leonora-Leinster 21 artefacts, scatter, quarry and rock shelter. The site is not impacted by the Waterloo Operations. A single Aboriginal Heritage site exists within M36/541 – Site ID 2551 Leonora-Leinster 22 artefacts and scatter. The site is not impacted by near mine exploration on the tenement. There are no other registered Aboriginal Heritage sites within the tenements. There are no caveats or bank mortgages relating to the tenements. There are no pastoral compensation agreements over the tenements.
	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.	No known impediment exists to obtaining a licence to operate and the tenements are all in good standing.
Exploration done by other parties	*Acknowledgment and appraisal of exploration by other parties.*	Extensive nickel exploration was undertaken in the 1960s and 1970s in the Waterloo area by companies including WMC, Seltrust, Amax and BP Minerals. Dalrymple acquired the ground in the 1990s and carried out a RAB program, assaying for gold, nickel and other base metals. Gold results were disappointing but anomalous nickel values were recorded in a number of holes. Forrestania entered into a JV with Dalrymple in 1997 and carried out further RAB drilling along with AC and RC programs. They also carried out a number of fixed and moving loop EM surveys, with a fixed loop survey within the Marsh area in 2001 highlighting a number of promising conductors. Waterloo was discovered in 2002 when a diamond drilhole designed to test one of the FLTEM conductors intersected significant massive nickel sulphide mineralisation. An extensive RC and DD program was designed to delineate the mineralisation and follow up other conductors in the area. Downhole EM surveys were undertaken on a number of DD holes. Mining commenced in June 2005 and Norilsk Nickel took over LionOre in 2007. They completed diamond and RC drilling targeting Waterloo mineralisation extensions. Mining ceased in 2008.
Geology	*Deposit type, geological setting and style of mineralisation.*	The Waterloo deposit is a structurally modified komatiite-hosted nickel sulphide deposit located on the western limb of a south-plunging anticlinal fold (the March syncline). The folded greenstone stratigraphy is located at the southern termination of the Perseverance Granite. The mineralisation is hosted by a metamorphosed and serpentinised high Mg olivine cumulate ultramafic that averages 40m thick and 120m wide and approaches the surface at the northern end of the deposit. The cumulate thins down plunge to 15-20m thick to the south. The mineralised ultramafic and surrounding stratigraphy strikes NNW and, dips west at 10 – 55 degrees and plunges SSE at 10-30 degrees. The hangingwall stratigraphy is a thick sequence of layered mafic epiclastics and komatiites while the footwall consists of felsic sediments, mafic tuff, pyroxenite and komatiites. The main style of mineralisation is disseminated and matrix Fe-Ni-Cu sulphides that form a liner ribbon-like zone approximately 30 m wide on the lower contact of the ultramafic unit. In areas where there is less structural and metasomatic overprint the mineralisation shows a gradual increase in sulphide abundance toward the basal contact suggesting a primary magmatic origin. Some massive sulphide is present but is commonly foliated with clasts of country rock, suggesting remobilisation.
Drillhole information	*A summary of all information material to the understanding of the exploration results including a tabulation of the following information for all*	A total 222 holes have been used in the mineral resource and are deemed to be material. It is not practical to summarise all of the holes here in this release. In addition there are 1,253 underground sample sets.

Section 2: Reporting of Exploration Results		
Criteria	**JORC Code Explanation**	**Commentary**
	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 does not detract from the understanding of the report, the Competent Person should clearly explain why this is the case.*	Future drill hole data will be periodically released or when a results materially change the economic value of the project. Exclusion of the drilling information will not detract from the reader's view of the report.
Data aggregation methods	*In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (e.g. cutting of high grades) and cut-off grades are usually Material and should be stated.*	No exploration results are reported in this release.
	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.	No exploration results are reported in this release.
	The assumptions used for any reporting of metal equivalent values should be clearly stated.	No exploration results are reported in this release.
Relationship between mineralisation widths and intercept lengths	*These relationships are particularly important in the reporting of Exploration Results.* *If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.* *If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (eg 'down hole length, true width not known').*	Saracen has not previously reported exploration results nor are any included in this release.
Diagrams	*Appropriate maps and sections (with scales) and tabulations of intercepts should be included for any significant discovery being reported These should include, but not be limited to a plan view of drill hole collar locations and appropriate sectional views.*	No diagrams are referenced in this release.
Balanced Reporting	*Where comprehensive reporting of all Exploration Results are not practicable, representative reporting of both low and high grades and/or widths should*	Saracen has not previously reported exploration results nor are any included in this release.

Section 2: Reporting of Exploration Results		
Criteria	**JORC Code Explanation**	**Commentary**
	be practiced to avoid misleading reporting of Exploration Results.	
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.*	A number of geophysical surveys including aeromagnetics and various electromagnetic surveys have been completed by historic owners. FLTEM and MLTEM were carried out in 2001 and highlighted a number of conductors, one of which was the Waterloo mineralisation. Downhole TEM was then utilised to help constrain the surface EM interpretation and to locate extensions to the mineralisation at depth. Metallurgical studies in carried out in 2002 and 2003 included flotation test work for nickel recovery and arsenic concentration, which was determined to be low.
Further work	*The nature and scale of planned further work (eg tests for lateral extensions or depth extensions or large-scale step-out drilling). Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive*	Saracen is currently working on establishing an exploration program which will identify areas of opportunity to extend or enhance the Waterloo mineral resource.

Section 3: Estimation and Reporting of Mineral Resources		
Criteria	**JORC Code Explanation**	**Commentary**
Database Integrity	*Measures taken to ensure that data has not been corrupted by, for example, transcription or keying errors, between its initial collection and its use for Mineral Resource estimation purposes.*	The database provide to Saracen was an extract from an acquire SQL database. The primary database is regulated by a locked framework called the acquire data model which fixes the relationships between tables. The data model minimises the potential for data collection and data usage errors through pre-determined look up tables, storage and export functions. User defined permissions also regulate the ability to add, edit or extract data. It is unknown at this stage how the process used to record the primary data. Typical methods are manual translation of logging and data capture from written logs, direct import of csv tables through a data import scheme where data is validated upon import or direct data entry options into the database using predefined look up values.
	Data validation procedures used.	Data imported into Micromine mining software has been validated in terms of the normal drill hole database parameters. The status of validation of the original data is not known at this stage.
Site Visits	*Comment on any site visits undertaken by the Competent Person and the outcome of those visits.*	No site visit has taken place by the Competent Person.
	If no site visits have been undertaken indicate why this is the case.	Given that there was no activity (drilling, mining etc.), it was deemed that a site visit would not provide significant value and would not materially affect the outcome of any resource estimate.

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Criteria	JORC Code Explanation	Commentary
Geological Interpretation	*Confidence in (or conversely, the uncertainty of) the geological interpretation of the mineral deposit.*	The Waterloo interpretation has been based on the detailed geological work completed by a series of previous owners of the project. This knowledge is based on extensive geological logging of drill core, RC chips, detailed underground mapping and face sampling data. The gross architecture of the relatively is very simple and the geological framework is well understood. It is considered by the CP that existing geological interpretation is robust.
	Nature of the data used and any assumptions made.	The interpretations have been constructed using all available geological logging descriptions including but not limited to, stratigraphy, lithology, texture, and alteration. Underground mapping and sampling has also been included in the interpretation where available. Cross sectional interpretations of the mineralisation have been created on 10m spaced sections from which the 3D wireframe solids are built.
	The affect, if any, of alternative interpretations on Mineral Resource estimation.	Due to the relatively simple nature of the mineralisation no alternative interpretations have been considered.
	The use of geology in guiding and controlling the Mineral Resource estimation.	The wireframe domains are constructed using all available geological information, as stated above. Mineralisation styles, geological homogeneity, and grade distributions for each domain (used to highlight any potential for bimodal or mixed populations) are all assessed to ensure effective estimation of the domains.
	The factors affecting continuity both of grade and geology.	The Waterloo mineralised zone consists of four geologically defined domains (Massive, Matrix, Disseminated and Weakly-disseminated). Each has a characteristic and different grade distribution (for almost all elements), strongly correlated with the geological and mineralogical nature of each domain.
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 Waterloo mineralisation extends over a strike length of approximately 850m. Overall width in plan view is typically 40 to 45m and overall vertical extent is typically 30 to 50m. The individual domains vary in true thickness, the Massive zone being only 1 to 3m, the Matrix zone 3 to 5m and the broader disseminated and weakly disseminated zones typically being 5 to 15m. The Waterloo mineralised zone plunges towards (Local Grid) south at approximately 20° and overall extends from 80m below surface to 400m below surface.
Estimation and modelling techniques	*The nature and appropriateness of the estimation technique(s) applied and key assumptions, including treatment of extreme grade values, domaining, interpolation parameters and maximum distance of extrapolation from data points.*	Block estimation using ordinary kriging has been completed in Micromine 2014 (V15). Domain strings and wireframes were digitised and constructed in Surpac and imported into Micromine and these were used as hard boundaries for the estimations. Statistical analysis the grade distribution of 1m domain-coded downhole composites has been completed for all domains. As a result of this, it was determined that no top-cuts needed to be applied. Variogram modelling was completed on a domain basis with GeoAccess Professional software. This defined the special continuity within the domains. The parameters determined from this analysis were used in the interpolation process. An unfolding methodology was used to allow for the effects of variable strike and dip within the mineralisation zones.
	The availability of check estimates, previous estimates and/or mine production records and whether the Mineral Resource estimate takes appropriate account of such data.	The current model compares reasonably with both previous models and production data. However, uncertainties remain in the definition of underground development and stopes and direct comparisons thus carry an element of risk.
	The assumptions made regarding recovery of by-products.	No assumptions have been made with respect to the recovery of by-products. A limited amount of data was available for Pt and Pd and these were included in the resource estimate.
	Estimation of deleterious elements or other non-	There has been no estimate at this point of deleterious elements.

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Criteria	**JORC Code Explanation**	**Commentary**
	grade variables of economic significance (e.g. sulfur for acid mine drainage characterisation).	
	In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed.	The parent block sizes for the resource model are 2.5m(X) by 5m(Y) by 2.5m (Z). These are deemed appropriate for the majority of the resource, where drill and underground spacing is typically on 10m sections. Parent blocks have been sub-celled to 0.25m(X) by 0.5m(Y) by 0.25m (Z) to ensure that the wireframe boundaries are honoured and preserve the location and shape of the mineralisation. Search ranges have been informed by variogram modelling and knowledge of the sample spacing and the known mineralisation geometry including direction of maximum continuity. Three search estimation runs are used with the aim to satisfy the minimum sample criteria in the first search range where possible.
	Any assumptions behind modelling of selective mining units.	No selective mining units have been assumed.
	Any assumptions about correlation between variables.	No assumptions have been made regarding correlation between variables.
	Description of how the geological interpretation was used to control the resource estimates.	Detailed geological logging and underground mapping have been used to control the wireframe domains which are used as interpolation constraints.
	Discussion of basis for using or not using grade cutting or capping.	Statistical analysis of all domains highlight that there are no grades in the domain populations that require top-cutting.
	The process of validation, the checking process used, the comparison of model data to drill hole data, and use of reconciliation data if available.	Model validation has been carried out in a number of ways. The mineral resource model has been viewed visually in sectional and plan view and compared to drill hole assay data. Northing and Elevation swathe plots have been constructed to evaluate the composited assay means verses the mean block estimates. The mineral resource model has been constructed to include kriging efficiency and the slope of regression values. These values are used to measure the quality of the estimate. Natural deterioration of the quality is observed at the perimeter of the modelled areas where data density is lower.
Moisture	*Whether the tonnages are estimated on a dry basis or with natural moisture, and the method of determination of the moisture content.*	All tonnages are estimated on a dry basis.
Cut-off parameters	*The basis of the adopted cut-off grade(s) or quality parameters applied.*	The mineral resource has been reported at a 1% nickel cutoff, which has been used historically at Waterloo during production. No updated optimisation or economic analyses are currently available.
Mining factors or assumptions	*Assumptions made regarding possible mining methods, minimum mining dimensions and internal (or, if applicable, external) mining dilution. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential mining methods, but the assumptions made regarding mining methods and parameters when estimating Mineral Resources may not always be rigorous. Where this is the case, this should be reported with*	No mining adjustment factors have been applied to the resource model. The mineralisation as outlined and with a 1% cutoff applied represents an in-situ resource. An underground mining strategy would have to be applied to convert this to a reserve; this is considered outside the scope of the current mineral resource estimate.

Section 3: Estimation and Reporting of Mineral Resources		
Criteria	**JORC Code Explanation**	**Commentary**
	an explanation of the basis of the mining assumptions made.	
Metallurgical factors or assumptions	*The basis for assumptions or predictions regarding metallurgical amenability. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential metallurgical methods, but the assumptions regarding metallurgical treatment process and parameters made when reporting Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the metallurgical assumptions made.*	No metallurgical factors have been applied to the in-situ resource. As the mine has already been in production, the application of these factors is appropriate at the reserve generation stage.
Environmental factors or assumptions	*Assumptions made regarding possible waste and process residue disposal options. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider the potential environmental impacts of the mining and processing operation. While at this stage the determination of potential environmental impacts, particularly for a greenfields project, may not always be well advanced, the status of early consideration of these potential environmental impacts should be reported. Where these aspects have not been considered this should be reported with an explanation of the environmental assumptions made.*	Environmental factors have already been addressed during the previous production phase.
Bulk Density	*Whether assumed or determined. If assumed, the basis for the assumptions. If determined, the method used, whether wet or dry, the frequency of the measurements, the nature, size and representativeness of the samples.*	Bulk density has been generated from a database of density measurements. A regression equation related to Ni grade is used where Density = Ni * 0.1028 + 2.7931
	The bulk density for bulk material must have been measured by methods that adequately account for void spaces (vugs, porosity, etc), moisture and differences between rock and alteration zones within the deposit.	The procedure the previous owners utilised is considered appropriate for the deposit. There has also been production to assist in the validation of bulk density.
	Discuss assumptions for bulk density estimates used in the evaluation process of the different materials.	Bulk density is applied to the mineralised domains as a whole.
Classification	*The basis for the classification of the Mineral Resources into varying confidence categories.*	The mineral resource has been classified in the Inferred category due to uncertainties in the location of underground development and stopes. If classification was based on drill hole and underground sample spacing and geological confidence, it is likely that classification would have included substantial quantities of Measure and Indicated material.

Section 3: Estimation and Reporting of Mineral Resources		
Criteria	**JORC Code Explanation**	**Commentary**
	Whether appropriate account has been taken of all the relevant factors (ie relative confidence in tonnage/grade estimations, reliability of input data, confidence in continuity of geology and metal values, quality, quantity and distribution of the data).	All care has been taken to account for relevant factors influencing the mineral resource estimate. Confidence in the predicted tonnes and grade estimated in the model would be high if not for uncertainties in underground development location. Pevious mining performance suggests that the input data and geological continuity are such that the resource estimate itself is reliable.
	Whether the result appropriately reflects the Competent Person's view of the deposit.	The classification reflects the views of the Competent Person.
Audits or reviews	*The results of any audits or reviews of Mineral Resource estimates.*	There has been no audit or review of the mineral resource estimate.
Discussion of relative accuracy/confidence	*Where appropriate a statement of the relative accuracy and confidence level in the Mineral Resource estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the resource within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors that could affect the relative accuracy and confidence of the estimate.*	The mineral resource has been reported in accordance with the guidelines established in the 2012 edition of the JORC code. It has been classified in the Inferred, which implies that confidence is relatively low.
	The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonnages, which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the procedures used.	The statements relate to a global estimate of tonnes and grade.
	These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.	Comparison with production data are complicated locally by uncertainties associated with underground surveys, but in general are considered reasonable.

Amorac District

Amorac

Section 1: Sampling Techniques and Data		
Criteria	**JORC Code Explanation**	**Commentary**
Sampling Techniques	*Nature and quality of sampling (e.g. cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc.). These examples should not be taken as limiting the broad meaning of sampling.*	Sampling methods undertaken at Amorac by previous owners have included rotary air blast (RAB), reverse circulation (RC) and diamond drillholes (DD). Saracen has not carried out any sampling activities at Amorac due to only recently acquiring the deposit.
	Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used	RC, RAB, and DD core drilling is assumed to have been completed by previous holders to industry standard at that time (1982- 2008).
	Aspects of the determination of mineralisation that are Material to the Public Report. In cases where 'industry standard' work has been done this would be relatively simple (e.g. 'reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30 g charge for fire assay'). In other cases more explanation may be required, such as where there is coarse gold that has inherent sampling problems. Unusual commodities or mineralisation types (e.g. submarine nodules) may warrant disclosure of detailed information	Limited information has been found for historic drilling so it is assumed all RAB, RC and DD and sampling was carried out to industry standard at that time. More recent RC drilling was sampled using 4m composites or 1m samples from which 3kg was taken for assay. Diamond drilling was sampled to geological intervals (0.2 – 1m) and half or quarter cored. The assaying process involved a total preparation analytical protocol utilising a four acid digest and ICP/OES finish for Ni, Cu, Zn, Cr, As, Mn, Fe, Co, Mg, Al, S, Ti and Ca, and a lead collection fire assay and MS finish for Au, Pt and Pd.
Drilling Techniques	*Drill type (e.g. core, reverse 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.).*	Drilling activities at Amorac have included 84 RAB holes, 63 RC holes (assumed standard 5 ¼'' bit size),87 DD holes drilled from surface (HQ and unknown diameter) A large percentage of historic diamond core was oriented by unknown methods.
Drill Sample Recovery	*Method of recording and assessing core and chip sample recoveries and results assessed*	Recoveries for some more recent RC drilling have been recorded based on a visual weight estimate. It is unknown if historic recoveries were recorded. Diamond recoveries for recent drilling have been recorded as percentages based on measured lengths returned versus drilled metres. Recoveries average >90%.
	Measures taken to maximise sample recovery and ensure representative nature of the samples	It is unknown what, if any, measures were taken to ensure sample recovery and representivity for much of the sampling.

Section 1: Sampling Techniques and Data

Criteria	JORC Code Explanation	Commentary
	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.	Any historical relationship is not known. Recent diamond drilling has demonstrated high recoveries meaning loss of material has been minimal.
Logging	*Whether core and chip samples have been geologically and geotechnically logged to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies.* *Whether logging is qualitative or quantitative in nature.* *Core (or costean, channel, etc) photography.*	Logging of diamond drill core, RAB and RC chips record lithology, mineralogy, texture, mineralisation, weathering, alteration and veining. The majority of the more recent diamond drilling has had geotechnical and structural logging carried out, including RQD, fracture number, alpha and beta angles, defect strength, type and fill. It is unknown if any diamond core was photographed.
	The total length and percentage of the relevant intersections logged	The majority of drillholes appear to have been logged in full.
Sub-sampling techniques and sample preparation	*If core, whether cut or sawn and whether quarter, half or all core taken.*	Diamond core was half core or quarter core sampled. Samples were collected from the same side. The sampling method is unknown for some of the historic diamond drilling
	If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry.	The sampling methods for much of the historic RC and RAB drilling are unknown. More recent RC and RAB drilling has been riffle or cyclone split, or spear sampled. It is unknown if wet samples were encountered.
	For all sample types, the nature, quality and appropriateness of the sample preparation technique.	The sampling techniques for much of the historic RAB, RC and DD drilling are unknown, best practice is assumed.
	Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.	Best practice is assumed at the time of historic RAB, DD and RC sampling.
	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.	It is unknown if duplicate sampling was performed on the majority of historic RAB, RC and DD drilling. There is evidence of field duplicate sampling being conducted in more RC recent campaigns.
	Whether sample sizes are appropriate to the grain size of the material being sampled.	It is assumed sample sizes were appropriate for the grain size of material being sampled.
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.*	Numerous assay techniques have been used in the history of the deposit, including ATOES or AXOES (Acid digest with inductively coupled plasma optical emission spectrometry)and ATMS (acid digest with mass spectrometry) for Ni and base metals, and FAMS (lead collection fire assay with inductively coupled plasma mass spectrometry finish) for Au, Pt and Pd. Some historic methods are unknown.
	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.	It is unknown if any instruments of this nature have been used at Amorac.
	Nature of quality control procedures adopted (e.g.	QAQC information from historic Amorac sampling data is limited therefore all drilling is assumed to have

Section 1: Sampling Techniques and Data

Criteria	JORC Code Explanation	Commentary
	standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (i.e. lack of bias) and precision have been established.	been carried out to industry standard. More recent drilling carried out at the deposit adhered to strict QAQC protocols involving weighing of samples, collection of field duplicates and insertion of blanks and standards. Laboratory repeats were also carried out. Analysis of this data displayed acceptable precision and accuracy.
Verification of sampling and assaying	*The verification of significant intersections by either independent or alternative company personnel.*	It is unknown if historic intercepts were verified by alternative company personnel.
	The use of twinned holes.	Specific drilling programs consisting of twinned holes are not apparent.
	Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols	Limited documentation of this nature has been provided. Data has been stored in an acQuire database.
	Discuss any adjustment to assay data.	No adjustment to assay data appears to have been made
Location of data points	*Accuracy and quality of surveys used to locate drillholes (collar and down-hole surveys), trenches, mine workings and other locations used in Mineral Resource estimation.*	The survey quality and control is unknown for the some of the historic drilling. More recent drilling has collar locations surveyed by unspecified GPS and DGPS equipment, with underground DD surveyed by unknown methods. Downhole survey methods recorded include Eastman single shot, Reflex, gyroscope, inferred and unknown methods.
	Specification of the grid system used.	Many of the historic holes were drilled on a local grid system. Future reporting will be carried out on MGA Zone 51.
	Quality and adequacy of topographic control.	No information on topographic control has been found or supplied.
Data spacing and distribution	*Data spacing for reporting of Exploration Results.*	No exploration results reported in this release. The nominal drillhole spacing is 40 m (northing) by 40 m (easting).
	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.	The mineralised domains at Amorac have demonstrated sufficient continuity in both geological and grade continuity to support the definition of Mineral Resources and Reserves, and the classifications applied under the 2012 JORC Code.
Orientation of data in relation to geological structure	*Whether sample compositing has been applied.*	Some historic RAB and RC, and some more recent RC precollars have been composited into 3-4m samples.
	Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.	Surface drill hole sample orientation is generally approximately at right angles to the plane of the mineralisation.
	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 sample security.*	Information on sample security measures has not been provided
Audits or reviews	*The results of any audits or reviews of sampling techniques and data.*	No evidence of external reviews has been supplied. Saracen has not had access to this information during the acquisition process.

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 Amorac resource is located on M36/473. Near mine exploration extends onto M36/541. Mining Leases M36/473 and M36/541 are held by Norilsk Nickel Wildara Pty Ltd (60%) and Dalrymple Resources Pty Ltd (40%). The tenements are subject to a purchase agreement with Saracen Metals Pty Limited whereby Saracen has purchased 100% of the tenements from Norilsk and Dalrymple. Mining Leases M36/473 and M36/541 are subject to a joint venture agreement (Agreement 65H/012 (88218)) between Oresearch NL and Dalrymple Resources NL, as assigned to Saracen Metals Pty Limited. The mining leases have a 21 year life held until 2021. All are renewable for a further 21 years on a continuing basis. All production is subject to a Western Australian state government NSR royalty of 2.5%. The tenements are all subject to a 1.5% royalty on all minerals which are capable of being sold or otherwise disposed of, multiplied by the Net Smelter Return and capped at $17 million. The royalty is payable to Norilsk Nickel Wildara Pty Ltd. A single Aboriginal Heritage site exists within M36/473 – Site ID 2550 Leonora-Leinster 21 artefacts, scatter, quarry and rock shelter. The site is not impacted by current exploration and resource development activities. A single Aboriginal Heritage site exists within M36/541 – Site ID 2551 Leonora-Leinster 22 artefacts and scatter. The site is not impacted by near mine exploration on the tenement. There are no other registered Aboriginal Heritage sites within the tenements. There are no caveats or bank mortgages relating to the tenements. There are no pastoral compensation agreements over the tenements.
	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.	No known impediment exists to obtaining a licence to operate and the tenements are all in good standing.
Exploration done by other parties	*Acknowledgment and appraisal of exploration by other parties.*	Extensive nickel exploration including RAB and RC drilling was undertaken in the 1960s and 1970s in the Amorac area by companies including WMC and Seltrust. Seltrust carried a SIROTEM survey, highlighting a number of anomalies, two of which were tested with diamond drillholes. No significant nickel mineralisation was encountered. Dalrymple acquired ground near Amorac in the 1990s and carried out a RAB program, assaying for gold, nickel and other base metals. Gold results were disappointing but anomalous nickel values were recorded in a number of holes. Forrestania entered into a JV with Dalrymple in 1997 and carried out extensive RAB drilling. They also carried out a number of fixed and moving loop EM surveys, with a fixed loop survey within the Marsh area in 2001 highlighting a number of promising conductors. Amorac was discovered in 2002 when two diamond drillholes designed to test the most conductive of the of the FLTEM anomalies intersected significant minor nickel sulphide mineralisation. Subsequent drilling up dip intersected significant mineralisation that was defined with further DD and RC drilling. Norilsk Nickel took over LionOre in 2007 and completed diamond and RC drilling targeting Amorac mineralisation extensions.
Geology	*Deposit type, geological setting and style of mineralisation.*	The Amorac deposit is a nickel sulphide deposit located on the western limb of a south-plunging anticlinal fold (the Marsh Syncline) The folded greenstone stratigraphy is located at the southern termination of the Perseverance Granite. Amorac is located 250 – 300m up dip (east) and approximately 200 vertical metres startigraphically below

Section 2: Reporting of Exploration Results

Criteria	JORC Code Explanation	Commentary
		the Waterloo deposit, with the Amorac stratigraphy regarded as being part of the footwall to the Waterloo ultramafic unit. The Amorac stratigraphy consists of interlayered felsic sediments, mafic epiclastics and altered ultramafics that dips to the WSW at 20-30 degrees. Mineralisation consists of remobilised sulphides (pyrrhotite, pentlandite, and pyrite) emplaced along brittle ductile shears concordant with stratigraphy. These pinch and swell laterally and along strike to form a series of discontinuous stacked lenses. There is a spatial correlation with ultramafics, which are found within or adjacent to the nickeliferous sulphide zones although these ultramafics do not typically contain mineralisation.
Drillhole 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 does not detract from the understanding of the report, the Competent Person should clearly explain why this is the case.*	A total 52 holes have been used in the mineral resource and are deemed to be material. It is not practical to summarise all of the holes here in this release. Future drill hole data will be periodically released or when a results materially change the economic value of the project. Exclusion of the drilling information will not detract from the reader's view of the report.
Data aggregation methods	*In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (e.g. cutting of high grades) and cut-off grades are usually Material and should be stated.*	No exploration results are reported in this release.
	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.	No exploration results are reported in this release.
	The assumptions used for any reporting of metal equivalent values should be clearly stated.	No exploration results are reported in this release.
Relationship between mineralisation widths and intercept lengths	*These relationships are particularly important in the reporting of Exploration Results.* *If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be*	Saracen has not previously reported exploration results nor are any included in this release.

Section 2: Reporting of Exploration Results		
Criteria	**JORC Code Explanation**	**Commentary**
	reported. *If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (eg 'down hole length, true width not known').*	
Diagrams	*Appropriate maps and sections (with scales) and tabulations of intercepts should be included for any significant discovery being reported These should include, but not be limited to a plan view of drill hole collar locations and appropriate sectional views.*	No diagrams are referenced in this release.
Balanced Reporting	*Where comprehensive reporting of all Exploration Results are not practicable, representative reporting of both low and high grades and/or widths should be practiced to avoid misleading reporting of Exploration Results.*	Saracen has not previously reported exploration results nor are any included in this release.
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.*	A number of geophysical surveys including aeromagnetics and various electromagnetic surveys have been completed by historic owners. FLTEM and MLTEM were carried out in 2001 and highlighted a number of conductors, one of which was the Amorac mineralisation. Downhole TEM was also utilised to help constrain the surface EM interpretation and to locate extensions to the mineralisation at depth.
Further work	*The nature and scale of planned further work (eg tests for lateral extensions or depth extensions or large-scale step-out drilling).* *Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive*	Saracen is currently working on establishing an exploration program which will identify areas of opportunity to extend or enhance the Amorac mineral resource.

Section 3: Estimation and Reporting of Mineral Resources		
Criteria	**JORC Code Explanation**	**Commentary**
Database Integrity	*Measures taken to ensure that data has not been corrupted by, for example, transcription or keying errors, between its initial collection and its use for Mineral Resource estimation purposes.*	The database provide to Saracen was an extract from an acquire SQL database. The primary database is regulated by a locked framework called the acquire data model which fixes the relationships between tables. The data model minimises the potential for data collection and data usage errors through pre-determined look up tables, storage and export functions. User defined permissions also regulate the ability to add, edit or extract data. It is unknown at this stage how the process used to record the primary data. Typical methods are manual translation of logging and data capture from written logs, direct import of csv tables through a data import scheme where data is validated upon import or direct data entry options into the database using predefined look up values.
	Data validation procedures used.	Data imported into Micromine mining software has been validated in terms of the normal drill hole database parameters. The status of validation of the original data is not known at this stage.
Site Visits	*Comment on any site visits undertaken by the Competent Person and the outcome of those visits.*	No site visit has taken place by the Competent Person.
	If no site visits have been undertaken indicate why this is the case.	Given that there was no activity (drilling, mining etc.), it was deemed that a site visit would not provide significant value and would not materially affect the outcome of any resource estimate.
Geological Interpretation	*Confidence in (or conversely, the uncertainty of) the geological interpretation of the mineral deposit.*	The Amorac interpretation is based on surface drilling, using a simplified geological model analogous to the Waterloo mineralisation. Confidence in the interpretation is reasonable, given the drill spacing.
	Nature of the data used and any assumptions made.	The interpretations have been constructed using all available geological logging descriptions including but not limited to, stratigraphy, lithology, texture, and alteration. Cross sectional interpretations of the mineralisation have been created on nominal 40m spaced sections from which the 3D wireframe solids are built.
	The affect, if any, of alternative interpretations on Mineral Resource estimation.	Due to the relatively simple nature of the mineralisation no alternative interpretations have been considered.
	The use of geology in guiding and controlling the Mineral Resource estimation.	The wireframe domains are constructed using all available geological information, as stated above. Mineralisation styles, geological homogeneity, and grade distributions for each domain (used to highlight any potential for bimodal or mixed populations) are all assessed to ensure effective estimation of the domains.
	The factors affecting continuity both of grade and geology.	The Waterloo mineralised zone consists of a single geologically defined domain which has a characteristic grade distribution for Nickel, strongly correlated with the geological and mineralogical nature of the mineralised domain and markedly different from the surrounding waste material.
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 Amorac mineralised zone extends 450m along strike and is typically 3m to 5m thick and varies from 40m to 80m in lateral extent. The mineralised zone plunges towards (Local Grid) south at approximately 25° and overall extends from 60m below surface to 300m below surface.
Estimation and modelling techniques	*The nature and appropriateness of the estimation technique(s) applied and key assumptions, including treatment of extreme grade values, domaining,*	Block estimation using ordinary kriging has been completed in Micromine 2014 (V15). Domain strings and wireframes were digitised and constructed in Surpac and imported into Micromine and these were used as hard boundaries for the estimations.

Section 3: Estimation and Reporting of Mineral Resources

Criteria	JORC Code Explanation	Commentary
	interpolation parameters and maximum distance of extrapolation from data points.	Statistical analysis of the grade distribution of 1m domain-coded downhole composites has been completed for all domains. As a result of this, it was determined that no top-cuts needed to be applied. Variogram modelling was completed on a domain basis with GeoAccess Professional software. This defined the special continuity within the domains. The parameters determined from this analysis were used in the interpolation process. The CP considers the estimation method appropriate for the deposit type.
	The availability of check estimates, previous estimates and/or mine production records and whether the Mineral Resource estimate takes appropriate account of such data.	The current resource model has produced somewhat lower tonnage and grade estimates than a previous model, most likely due to the more rigorous kriging methodology. There has been no production from the Amorac mineralisation.
	The assumptions made regarding recovery of by-products.	No assumptions have been made with respect to the recovery of by-products. A limited amount of data was available for Pt and Pd and these were included in the resource estimate.
	Estimation of deleterious elements or other non-grade variables of economic significance (e.g. sulfur for acid mine drainage characterisation).	There has been no estimate at this point of deleterious elements.
	In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed.	The parent block sizes for the resource model are 2.5m(X) by 5m(Y) by 2.5m(Z). These are deemed appropriate given the size of the mineralisation envelope and the drill spacing of nominally 40m x 20m. Parent blocks have been sub-celled to 0.25m(X) by 0.5m(Y) by 0.25m(Z) to ensure that the wireframe boundaries are honoured and preserve the location and shape of the mineralisation. Search ranges have been informed by variogram modelling and knowledge of the sample spacing and the known mineralisation geometry including direction of maximum continuity. Three search estimation runs are used with the aim to satisfy the minimum sample criteria in the first search range where possible.
	Any assumptions behind modelling of selective mining units.	No selective mining units have been assumed.
	Any assumptions about correlation between variables.	No assumptions have been made regarding correlation between variables.
	Description of how the geological interpretation was used to control the resource estimates.	Detailed geological logging has been used to control the wireframe domains which are used as interpolation constraints. Knowledge obtained during underground mapping and mining at Waterloo has also been used in the interpretation process.
	Discussion of basis for using or not using grade cutting or capping.	Statistical analysis of all domains highlight that there are no grades in the domain populations that require top-cutting.
	The process of validation, the checking process used, the comparison of model data to drill hole data, and use of reconciliation data if available.	Model validation has been carried out in a number of ways. The mineral resource model has been viewed visually in sectional and plan view and compared to drill hole assay data. Northing and Elevation swathe plots have been constructed to evaluate the composited assay means verses the mean block estimates. The mineral resource model has been constructed to include kriging efficiency and the slope of regression values. These values are used to measure the quality of the estimate. Natural deterioration of the quality is observed at the perimeter of the modelled areas where data density is lower.
Moisture	*Whether the tonnages are estimated on a dry basis or with natural moisture, and the method of determination of the moisture content.*	All tonnages are estimated on a dry basis.

Section 3: Estimation and Reporting of Mineral Resources		
Criteria	**JORC Code Explanation**	**Commentary**
Cut-off parameters	*The basis of the adopted cut-off grade(s) or quality parameters applied.*	The mineral resource has been reported at a 1% nickel cutoff, which has been used historically at Waterloo during production. No updated optimisation or economic analyses are currently available.
Mining factors or assumptions	*Assumptions made regarding possible mining methods, minimum mining dimensions and internal (or, if applicable, external) mining dilution. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential mining methods, but the assumptions made regarding mining methods and parameters when estimating Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the mining assumptions made.*	No mining adjustment factors have been applied to the resource model. The mineralisation as outlined and with a 1% cutoff applied represents an in-situ resource. An underground mining strategy would have to be applied to convert this to a reserve; this is considered outside the scope of the current mineral resource estimate.
Metallurgical factors or assumptions	*The basis for assumptions or predictions regarding metallurgical amenability. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential metallurgical methods, but the assumptions regarding metallurgical treatment process and parameters made when reporting Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the metallurgical assumptions made.*	No metallurgical factors have been applied to the in-situ resource. As the adjacent Waterloo mineralisation has already been in production, the application of these factors is appropriate at the reserve generation stage.
Environmental factors or assumptions	*Assumptions made regarding possible waste and process residue disposal options. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider the potential environmental impacts of the mining and processing operation. While at this stage the determination of potential environmental impacts, particularly for a greenfields project, may not always be well advanced, the status of early consideration of these potential environmental impacts should be reported. Where these aspects have not been considered this should be reported with an explanation of the environmental assumptions made.*	Environmental factors have already been addressed during the previous production phase at Waterloo.
Bulk Density	*Whether assumed or determined. If assumed, the basis for the assumptions. If determined, the method used, whether wet or dry, the frequency of the*	Bulk density has been generated from a database of density measurements. A regression equation related to Ni grade is used where Density = Ni * 0.1028 + 2.7931

Section 3: Estimation and Reporting of Mineral Resources		
Criteria	**JORC Code Explanation**	**Commentary**
	measurements, the nature, size and representativeness of the samples.	
	The bulk density for bulk material must have been measured by methods that adequately account for void spaces (vugs, porosity, etc), moisture and differences between rock and alteration zones within the deposit.	The procedure the previous owners utilised is considered appropriate for the deposit. There has also been production at adjacent Waterloo to assist in the validation of bulk density
	Discuss assumptions for bulk density estimates used in the evaluation process of the different materials.	Bulk density is applied to the mineralised material.
Classification	*The basis for the classification of the Mineral Resources into varying confidence categories.*	The resource has been classified in Inferred category based on drill hole spacing, geological confidence, and grade continuity and estimation quality.
	Whether appropriate account has been taken of all the relevant factors (ie relative confidence in tonnage/grade estimations, reliability of input data, confidence in continuity of geology and metal values, quality, quantity and distribution of the data).	All care has been taken to account for relevant factors influencing the mineral resource estimate. Confidence in the predicted tonnes and grade estimated in the model is moderate.
	Whether the result appropriately reflects the Competent Person's view of the deposit.	The classification reflects the views of the Competent Person.
Audits or reviews	*The results of any audits or reviews of Mineral Resource estimates.*	There has been no audit or review of the mineral resource estimate.
Discussion of relative accuracy/confidence	*Where appropriate a statement of the relative accuracy and confidence level in the Mineral Resource estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the resource within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors that could affect the relative accuracy and confidence of the estimate.*	The mineral resource has been reported in accordance with the guidelines established in the 2012 edition of the JORC code. It has been classified in the Inferred, which implies that confidence is relatively low.
	The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonnages, which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the procedures used.	The statements relate to a global estimate of tonnes and grade.
	These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.	There is no production data.