

Golden Star Increases Mineral Reserves by Over 10% to 2.1 Million Ounces

Toronto, ON – February 23, 2016 - Golden Star Resources Ltd. (NYSE MKT: GSS; TSX: GSC; GSE: GSR) (“Golden Star” or the “Company”) announces its Mineral Reserves and Mineral Resources estimate as of December 31, 2015.

Highlights

- Mineral Reserves increased by over 10% to 2.1 million ounces
 - Grade increased by 34% to 2.8 grams per tonne (g/t)
 - Tonnage declined to 23.6 million tonnes
- Mineral Reserves are composed of only non-refractory ounces
- Measured and Indicated Mineral Resources⁽¹⁾, inclusive of Mineral Reserves, increased to 4.7 million ounces
 - Grade remained relatively constant at 2.4 g/t
 - Tonnage increased to 61.4 million tonnes

Sam Coetzer, President and CEO of Golden Star, commented:

“The 2015 Mineral Reserve statement is a true reflection of our transformation to become a low cost and far less complex Company. Approximately 60% of the Company’s Mineral Reserve base is now contained in our two high grade underground mines. This concentration allows for much greater predictability and reliability of production and costs throughout our properties as the underground operations will be impacted less by seasonal changes and fuel price fluctuations.”

Proven and Probable Mineral Reserves and Measured and Indicated Mineral Resources summary as of December 31, 2015

	Tonnes (000)	Grade (g/t)	Ounces (000)
Proven and Probable Mineral Reserves ⁽¹⁾	23,626	2.82	2,143
Measured and Indicated Mineral Resources ⁽¹⁾⁽²⁾	61,360	2.38	4,700

⁽¹⁾ Includes only non-refractory material

⁽²⁾ Mineral Resources are inclusive of Mineral Reserves.

Mineral Reserves were estimates using \$1,100 gold price per ounce. Mineral Resources were estimated using a \$1,300 gold price per ounce.

Mineral Reserves

Total Proven and Probable Mineral Reserves for the year ending December 31, 2015, increased to over 2.1 million ounces from approximately 1.9 million ounces the previous year. Grades increased by 34%, to 2.82 g/t offset by a 17% decline in tonnage to 23.6 million. The gain was achieved after depletion from production in 2015 and despite the \$100 lower gold price assumption used in the estimation versus the gold price assumption used in the prior year. This estimation does not include any refractory material at Bogoso / Prestea as the refractory operation was suspended in 2015.

Wassa

Total Proven and Probable Mineral Reserves at Wassa decreased slightly to 1.5 million ounces from 2014 while grades increased by 11% to 2.27 g/t and tonnage decreased to 20.4 million tonnes. Most

notable is the increase in grade at the Wassa Underground, from 4.26 g/t to 4.59 g/t. The gains at Wassa Underground and in the Wassa stockpiles were offset by the depletion from production of the Wassa Open Pit.

Bogoso / Prestea

Total Proven and Probable Mineral Reserves at Bogoso/Prestea increased significantly to 656,000 ounces when comparing to 2014. The increase was almost entirely driven by the newly declared Mineral Reserves at Prestea Underground, which is expected to commence production sometime in mid-2017. The increases were slightly offset by the depletion due to production in 2015.

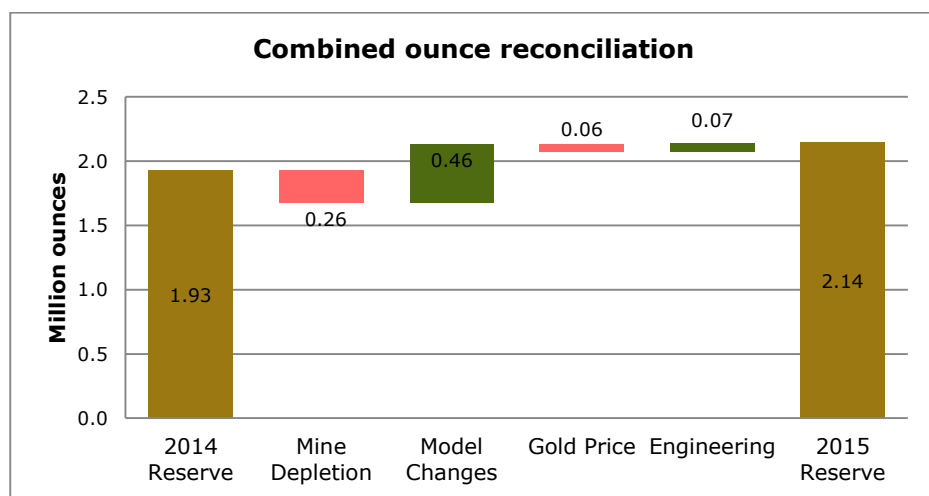
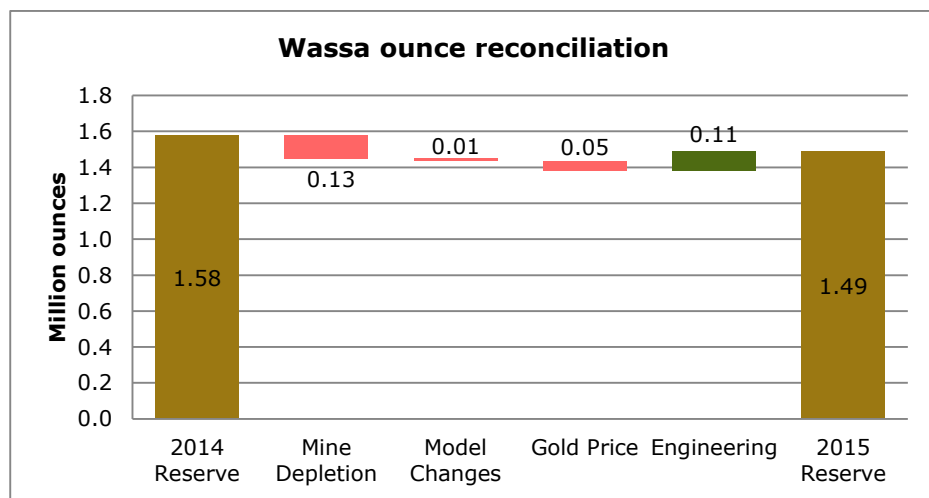
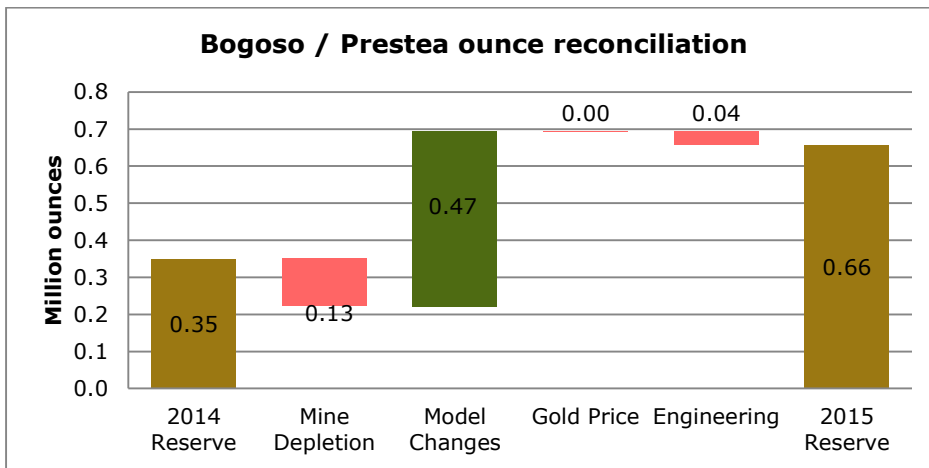
The following table provides a breakdown of the Proven and Probable Mineral Reserves:

	Dec 31, 2015 Proven Mineral Reserve			Dec 31, 2015 Probable Mineral Reserve			Dec 31, 2015 Proven and Probable Mineral Reserve			Dec 31, 2014 Proven and Probable Mineral Reserve		
	tonnes (000)	grade g/t Au	ounces (000)	tonnes (000)	grade g/t Au	ounces (000)	tonnes (000)	grade g/t Au	ounces (000)	tonnes (000)	grade g/t Au	ounces (000)
Wassa Open Pit	257	1.56	13	13,922	1.46	654	14,179	1.46	667	17,831	1.42	815
Wassa Underground	-	-	-	5,397	4.59	796	5,397	4.59	796	5,437	4.26	745
Stockpiles	789	0.93	24	-	-	-	789	0.93	24	820	0.73	19
Total Wassa	1,046	1.09	37	19,319	2.33	1,450	20,365	2.27	1,486	24,089	2.04	1,579
Bogoso / Prestea (refractory)	-	-	-	-	-	-	-	-	-	1,954	2.52	158
Mampon	-	-	-	304	4.60	45	304	4.60	45	320	4.43	46
Prestea South	-	-	-	1,892	2.30	140	1,892	2.30	140	1,697	2.24	122
Prestea Underground	-	-	-	1,041	14.02	469	1,041	14.02	469	-	-	-
Stockpiles	25	2.69	2	-	-	-	25	2.69	2	405	1.82	24
Total Bogoso/Prestea	25	2.69	2	3,237	6.29	654	3,261	6.26	656	4,376	2.49	350
Total	1,071	1.12	39	22,556	2.90	2,104	23,626	2.82	2,143	28,465	2.11	1,929
Total excl. refractory	1,071	1.12	39	22,556	2.90	2,104	23,626	2.82	2,143	26,510	2.08	1,771

**Numbers may not add due to rounding. See the end of this news release for additional notes.

Reconciliation of Mineral Reserves

The following graphs provide a reconciliation of the Company's Proven and Probable Mineral Reserves from December 31, 2014 and December 31, 2015:



** Numbers may not add due to rounding.

Mineral Resources

Total Measured and Indicated Mineral Resources, inclusive of the Proven and Probable Mineral Reserves, of 6.1 million ounces as of December 31, 2015 were slightly lower than they were as of December 31, 2014, mostly driven by fewer tonnes with grade remaining relatively consistent at 2.5 g/t. Given the Company's decision to discontinue refractory operations in 2015 resulting in no refractory mineral resource development in the year, the decline in Mineral Resources can largely be attributed to the depletion in the refractory ounces from production in 2015.

Mineral Resources, inclusive of Mineral Reserves but excluding refractory material, as of December 31, 2015 increased slightly to 4.7 million ounces driven by slightly lower grade, 2.38 g/t, and slightly more tonnes, 61.4 million tonnes, despite the lower gold price and the depletion from production of the non-refractory ounces.

Wassa

Total Measured and Indicated Mineral Resources at Wassa have increased slightly to 3.6 million ounces from December 31, 2014 resulting from a decline in grade and increase in tonnage. Measured and Indicated Resources at Wassa Underground increased by 10% to 1.6 million ounces, while grade declined by 5% to 3.85 g/t and tonnage increased slightly. First ore production from the Wassa Underground is expected in the second half of 2016.

Bogoso / Prestea

Total Measured and Indicated Mineral Resource at Bogoso/Prestea is 2.6 million ounces, a decrease of approximately 18% from 2014 attributed to the decline in refractory ounces due to depletion from production during 2015. Much of the decline in tonnage was offset by the 16% increase to average grades attributable to the 5% increase in the grade at Prestea Underground to 15.52 g/t.

The following table provides a breakdown of the Measured and Indicated Mineral Resources:

	Dec 31, 2015 Measured Mineral Resources			Dec 31, 2015 Indicated Mineral Resources			Dec 31, 2015 Measured and Indicated Mineral Resources			Dec 31, 2014 Measured and Indicated Mineral Resources		
	tonnes	grade	ounces	tonnes	grade	ounces	tonnes	grade	ounces	tonnes	grade	ounces
	(000)	g/t Au	(000)	(000)	g/t Au	(000)	(000)	g/t Au	(000)	(000)	g/t Au	(000)
Wassa Open Pit	243	1.72	13	37,731	1.23	1,488	37,974	1.23	1,501	33,039	1.37	1,458
Wassa Underground	-	-	-	13,090	3.85	1,621	13,090	3.85	1,621	11,248	4.07	1,471
Wassa Other	-	-	-	3,583	3.76	434	3,583	3.76	434	5,199	3.53	590
Subtotal Wassa	243	1.72	13	54,404	2.03	3,543	54,647	2.02	3,556	49,486	2.21	3,519
Bogoso / Prestea (refractory)	-	-	-	14,740	3.00	1,420	14,740	3.00	1,420	23,245	2.77	2,071
Mampon	-	-	-	396	4.25	54	396	4.25	54	557	3.44	62
Prestea South	-	-	-	2,568	2.12	175	2,568	2.12	175	3,710	2.03	243
Prestea Underground	-	-	-	1,597	15.52	797	1,597	15.52	797	1,322	14.82	630
Bogoso / Prestea Other	-	-	-	2,151	1.70	118	2,151	1.70	118	2,418	1.66	129
Subtotal Bogoso / Prestea	-	-	-	21,452	3.72	2,564	21,452	3.72	2,564	31,253	3.12	3,135
Total	243	1.72	13	75,856	2.50	6,107	76,100	2.50	6,120	80,739	2.56	6,653
Total excl. Refractory	243	1.72	13	61,116	2.39	4,687	61,360	2.38	4,700	57,494	2.48	4,583

** Numbers may not add due to rounding. See the end of this news release for additional notes.

Inferred Mineral Resources

Total Inferred Mineral Resources increased by 28% to 3.3 million ounces with increased grades and tonnage as the drivers. When refractory material is excluded the increase improves to 34% or 3.1 million ounces. The increase in Inferred Mineral Resources can largely be attributed to the 55% increase in ounces at Wassa.

The following table provides a breakdown of the Inferred Mineral Resources:

	Dec 31, 2015 Inferred Mineral Resources			Dec 31, 2014 Inferred Mineral Resources		
	tonnes (000)	grade g/t Au	ounces (000)	tonnes (000)	grade g/t Au	ounces (000)
Wassa Open Pit	286	1.37	13	137	1.47	6
Wassa Underground	14,442	4.16	1,930	10,331	3.69	1,227
Wassa Other	1,764	4.53	257	1,127	4.97	180
Subtotal Wassa	16,492	4.15	2,200	11,596	3.79	1,414
Bogoso / Prestea (refractory)	1,184	4.22	161	2,073	3.52	235
Mampon	103	2.08	7	257	1.72	14
Prestea South	72	2.34	5	549	2.49	44
Prestea Underground	3,249	8.74	913	3,253	8.05	842
Bogoso / Prestea Other	389	1.54	19	510	1.48	24
Subtotal Bogoso / Prestea	4,997	6.88	1,105	6,643	5.43	1,159
Total	21,486	4.78	3,305	18,238	4.39	2,573
Total excl. refractory	20,305	4.82	3,144	16,166	4.50	2,338

** Numbers may not add due to rounding. See the end of this news release for additional notes.

Notes to the Mineral Reserve Statement:

- (1) The Mineral Reserves as of December 31, 2015 were estimated using a gold price assumption of \$1,100 per ounce.
- (2) The slope angles of all pit designs are based on geotechnical criteria as established by external consultants. The size and shape of the pit designs are guided by consideration of the results from a pit optimization program.
- (3) Cut-off grades have been estimated based on operating cost projections, mining dilution and recovery, government royalty payment requirements and applicable metallurgical recovery. Marginal cut-off grade estimates for the open pits are as follows: Wassa 0.70 g/t; Mampon 1.52 g/t; and Prestea South 1.23 g/t. Break-even cut-off grade estimates for the underground mines are as follows: Wassa Underground 2.39 g/t; and Prestea Underground 7.50 g/t.

Notes to the Measured and Indicated Mineral Resource and the Inferred Mineral Resources:

- (1) The Mineral Resources for Wassa Other include Father Brown, Benso and Chichiwilli.
- (2) The Mineral Resources for Bogoso / Prestea Other include Chujah, Dumasi, Bogoso North, Buesichem, Opon, and Ablifa.

- (3) The Wassa Underground Mineral Resource has been estimated below the \$1,300 per ounce of gold pit shell using an economic gold grade cut-off of 1.81 g/t Au, which the Company believes would be the lower cut-off for underground.
- (4) The Father Brown Underground Mineral Resource has been estimated below the \$1,300 per ounce of gold pit shell using an economic gold grade cut-off of 3.17 g/t Au, which the Company believes would be the lower cut-off for underground.
- (5) Prestea Underground Mineral Resource has been estimated below the \$1,300 pit shell of Prestea South down to 3800m elevation using a gold cut-off at 5.43 g/t Au.
- (6) Mineral Resources were estimated using optimized pit shells at a gold price of \$1,300 per ounce. Other than gold price, the same optimized pit shell and underground parameters and modifying factors used to determine the Mineral Reserves were used to determine the Mineral Resources.

Company Profile

Golden Star is an established gold mining company that owns and operates the Wassa and Prestea mines situated on the prolific Ashanti Gold Belt in western Ghana, Africa. Listed on the NYSE MKT, the TSX, and the GSE, Golden Star is strategically focused on increasing operating margins and cash flow through the development of two high grade, low cost underground mines both beneath existing open pit operations. The Wassa Underground is expected commence production in 2016 with the Prestea Underground commencing production in 2017. Both projects are fully funded and on track to begin production as expected. Production in 2016 is expected to be between 180,000 – 205,000 ounces of gold with costs between \$815 - \$925 per ounce.

For further information, please contact

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Statements Regarding Forward-Looking Information

Some statements contained in this news release are “forward-looking statements” within the meaning of the Private Securities Litigation Reform Act of 1995 and “forward looking information” within the meaning of Canadian securities laws. Forward looking statements and information include but are not limited to, statements and information regarding: Mineral Reserve and Mineral Resource estimates and underlying assumptions; the timing of the commencement of production at Prestea Underground and at Wassa Underground and as to both projects being fully funded; the impact of the underground resource base on the predictability and reliability of production; underground operations being less impacted by seasonal changes and fuel price fluctuations; anticipated production and associated costs in 2016; and the transformation of Wassa and Prestea to lower cost mines and the Company into a lower cost producer. Generally, forward-looking information and statements can be identified by the use of forward-looking terminology such as “plans”, “expects”, “is expected”, “budget”, “scheduled”, “estimates”, “forecasts”, “intends”, “anticipates”, “believes” or variations of such words and phrases (including negative or grammatical variations) or statements that certain actions, events or results “may”, “could”, “would”, “might” or “will be taken”, “occur” or “be achieved” or the negative connotation thereof. Investors are cautioned that forward-looking statements and information are inherently uncertain and involve risks, assumptions and uncertainties that could cause actual facts to differ materially. There can be no assurance that future developments affecting the Company will be those anticipated by management. Please refer to the discussion of these and other factors in our Annual Information Form for the year ended December 31, 2014. Our Annual Information Form for the year ended December 31, 2014 will be superseded by our Annual Information Form for the year ended December 31, 2015, which will contain similar information and will be made available on SEDAR at www.sedar.com. The forecasts contained in this press release constitute management’s current

estimates, as of the date of this press release, with respect to the matters covered thereby. We expect that these estimates will change as new information is received. While we may elect to update these estimates at any time, we do not undertake any estimate at any particular time or in response to any particular event.

Technical Information

The Mineral Reserve and Mineral Resource estimates have been compiled by the Company's technical personnel in accordance with definitions and guidelines set out in the Definition Standards for Mineral Resources and Mineral Reserves adopted by the Canadian Institute of Mining, Metallurgy, and Petroleum and as required by Canada's National Instrument 43-101 – Standards of Disclosure for Mineral Projects ("NI 43-101"). Mineral Reserve estimates reflect the Company's reasonable expectation that all necessary permits and approvals will be obtained and maintained. Mining dilution and mining recovery vary by deposit and have been applied in estimating the Mineral Reserves.

The Mineral Resource technical contents of this press release have been reviewed and approved by S. Mitchel Wasel, BSc Geology, a "Qualified Person" pursuant to NI 43-101. Mr. Wasel is Vice President Exploration for Golden Star and an active member of the Australasian Institute of Mining and Metallurgy. The 2015 estimates of Mineral Resources were prepared under the supervision of Mr. Wasel. The 2015 estimates of Mineral Reserves were prepared under the supervision of Dr. Martin Raffield, Senior Vice President Technical Services for the Company. Dr. Raffield is a "Qualified Person" as defined by NI 43-101.

Additional scientific and technical information relating to the mineral properties referenced in this news release are contained in the following current technical reports for those properties available at www.sedar.com: (i) Wassa - "NI 43-101 Technical Report on feasibility study of the Wassa open pit mine and underground project in Ghana" effective date December 31, 2014; (ii) Prestea Underground - "NI 43-101 Technical Report on a Feasibility Study of the Prestea Underground Gold Project in Ghana" effective date November 3, 2015; and (iii) Bogoso - "NI 43-101 Technical Report on Resources and Reserves Golden Star Resources Ltd., Bogoso Prestea Gold Mine, Ghana" effective date December 31, 2013.

Cautionary Note to US Investors Concerning Estimates of Measured and Indicated Mineral Resources

This press release uses the terms "Measured Mineral Resources" and "Indicated Mineral Resources". The Company advises US investors that while these terms are recognized and required by NI 43-101, the US Securities and Exchange Commission ("SEC") does not recognize them. Also, disclosure of contained ounces is permitted under Canadian regulations; however the SEC generally requires Mineral Resource information to be reported as in-place tonnage and grade. US Investors are cautioned not to assume that any part or all of the mineral deposits in these categories will ever be converted into Mineral Reserves.

Cautionary Note to US Investors Concerning Estimates of Inferred Mineral Resources

This press release uses the term "Inferred Mineral Resources." The Company advises US investors that while this term is recognized and required by NI 43-101, the SEC does not recognize it. "Inferred Mineral Resources" have a great amount of uncertainty as to their existence, and great uncertainty as to their economic and legal feasibility. It cannot be assumed that all or any part of Inferred Mineral Resources will ever be upgraded to a higher category. In accordance with Canadian rules, estimates of Inferred Mineral Resources cannot form the basis of feasibility or other economic studies. US investors are cautioned not to assume that any part or all of the Inferred Mineral Resource exists, or is economically or legally mineable.