

TORONTO, Dec. 1, 2015 /CNW/ - Golden Star is pleased to announce the results of its Feasibility Study ("FS") regarding the development of its Prestea Underground Mine in Ghana.

In November 2014 the Company released a Preliminary Economic Assessment ("PEA") based on the development of a non-mechanized mining operation in the West Reef deposit at Prestea. The FS includes additional geotechnical, hydrogeological and metallurgical test work on samples from additional underground drilling. The drilling results contribute to an updated resource block model which is the basis for the 2015 mine design and estimation of Mineral Reserves.

All references to currency are in United States dollars.

Highlights

- Post-tax Internal Rate of Return ("IRR") of 42% at \$1,150 per ounce gold price
- Net Present Value, assuming 5% discount rate ("NPV_{5%}") of \$124 million at \$1,150 per ounce gold price
- West Reef Probable Mineral Reserves as of November 3, 2015 are 1.04 million tonnes (Mt) grading 14.0 grams per tonne of gold ("g/t Au") for 469,000 ounces of gold
- West Reef Indicated Mineral Resources as of October 24, 2015 of 1.14 Mt grading 18.4 g/t Au for 675,000 ounces of gold inclusive of Mineral Reserves
- \$63 million of capital required to commercial production which includes \$20 million of capitalized operating costs
- Life of mine ("LOM") of five and a half years, after 12 months of rehabilitation and 7 months of development to commercial production
- LOM cash operating costs of \$462 per ounce
- LOM all-in sustaining costs of \$603 per ounce
- LOM all-in costs of \$756 per ounce
- Payback period of 2.9 years from the start of project

Sam Coetzer, President and CEO of Golden Star commented:

"This Feasibility Study confirms our expectations from the PEA and I am very encouraged by the increase in reserves as a result of the additional drilling that was completed. The increase in mine life allows us to consider additional upside resource development going forward.

The Feasibility Study considers a new standalone plant, however, the Company is reviewing the option of modifying its currently installed processing infrastructure to reduce capital spending. Under these conditions the Feasibility Study indicates a robust project with significant upside. Additionally, with the current production from the Prestea South open pits, we believe there are further synergies to be unlocked by the deferral of plant modification capital without negatively impacting upon the production profile. Prestea Underground will be viable in the current gold price environment and, with the funding we have arranged, we expect to bring it into production by early 2017."

Company Profile

Golden Star Resources (NYSE MKT: GSS; TSX: GSC; GSE: GSR) ("Golden Star" or the "Company") is an established gold mining company with two 90% owned producing mines, Wassa and Prestea, on the prolific Ashanti Gold Belt in Ghana. In 2014, Golden Star produced 261,000 ounces of gold. The Company is financed to develop underground mines below existing open pit operations which are expected to reduce unit costs further when in production from 2016 onwards. As such, the Company offers investors leveraged, un-hedged exposure to the gold price with low operational risk in a stable African mining jurisdiction in addition to significant exploration and development upside potential.

For further information regarding Golden Star's Mineral Reserves and Mineral Resources, see Golden Star's Annual Information Form for the year ended December 31, 2014, available on SEDAR at www.sedar.com.

INTRODUCTION

Prestea is an underground mine which has been in existence for over 100 years and has historically produced an estimated 9 million ounces of gold. It was acquired by Golden Star in 2002 and placed on care and maintenance while evaluation and exploration activities continued. The mine, located 16 km south of the Bogoso processing plant along a dedicated haul road and adjacent to the town of Prestea, is accessible by road from Accra as well as via the port city of Takoradi 150 kilometers to the south.

Subsequent to Golden Star's acquisition of Prestea, the Company completed 284 underground diamond drillholes for approximately 47,000 meters and identified and defined a new mineral resource in the West Reef. This steeply dipping, narrow vein deposit lies at a depth of 550 meters to 1,025 meters below surface, approximately two kilometers to the south of the Prestea Central Shaft and is host to high-grade, free milling gold.

In June 2013, a feasibility study of the development of the West Reef at Prestea was released by Golden Star. This study showed positive economics for the development of an underground mechanized mine. Mineral Reserves were estimated at 1.4 Mt at a diluted mined grade of 9.6 g/t Au for 443,000 ounces. The initial capital outlay was estimated at \$91 million with a development timeline of approximately three years.

In November 2014 the Company released the results of a PEA based on a non-mechanized mining operation of the West Reef deposit at Prestea. Plant feed was estimated at 0.65 million tonnes at a diluted mined grade of 17.2 g/t Au for 359,000 ounces. The initial capital outlay was estimated at \$40 million with a development timeline of approximately 21 months.

This FS is based upon Mineral Reserves of 1.04 Mt at a diluted mined grade of 14.0 g/t Au for 469,000 ounces of contained gold. The initial capital outlay is estimated at \$63 million with a development timeline of approximately 19 months to commercial production.

MINERAL RESERVES

The FS is based on a Mineral Resource model completed in August 2015 which has incorporated all past drilling, reef drive sampling and assaying.

The West Reef Mineral Resource block model was used to estimate Mineral Reserves using modifying factors. Mining shapes were designed targeting the Indicated Mineral Resources only, using a cut-off grade of 6.2 g/t Au as a guideline based on a gold price of \$1,150 per ounce, an estimated site operating cost of \$207 per tonne processed, and a metallurgical gold recovery of 96%. The mining shapes follow the geological wireframes of the mineralized structure. Mining recovery and dilution parameters are based on the selected mining method, minimum mining width, and geotechnical considerations. External mining dilution averages 17% with zero grade. Additional dilution arising from underground material handling constraints averages 8% with zero grade. Mining recoveries vary from 100% for sill development ore to 96% for stoping ore.

Economic modeling confirmed the viability of the Mineral Reserves presented in the table below. The FS mine plan was based on the stated West Reef Indicated Mineral Resources only.

The FS Mineral Reserve has been estimated by SRK Consulting (Canada) Inc. in accordance with guidelines set out in the Definition Standards on Mineral Resources and Mineral Reserves published by the Canadian Institute of Mining, Metallurgy, and Petroleum ("CIM Council") and as required by Canada's National Instrument 43-101 ("NI 43-101").

The Mineral Reserve Statement for the West Reef is presented in Table 1.

Table 1: Mineral Reserve Statement, West Reef Deposit,

Prestea Underground Project, Ghana, November 3, 2015

Category	Quantity	Grade	Contained Metal
	(Mt)	(g/t Au)	Au (koz)
Proven	-	-	-
Probable	1.04	14.0	469

Notes to the Mineral Reserve Statement:

- Mineral reserves are included in mineral resources. All figures have been rounded to reflect the relative accuracy of the estimates.
- The mineral reserve estimates are prepared in accordance with the Definition Standards On Mineral Resources and Mineral Reserves, adopted by the CIM Council on May 11, 2014, and the Estimation of Mineral Resources and Mineral Reserves Best Practice Guidelines, adopted by CIM Council on November 23, 2003, using geostatistical and/or classical methods, and economic and mining parameters appropriate to the West Reef deposit.
- Underground mineral reserves are reported at plant feed cut-off grade of 6.2 g/t Au assuming: metal price of \$1,150 per ounce of gold, mining cost of \$105 per ore tonne, G&A cost of \$23 per ore tonne, processing and surface hauling cost of \$79 per ore tonne, and process recovery of 96%.

- Mineral reserves are the economic portion of the Measured and Indicated mineral resources. Mineral reserve estimates include mining dilution at grades assumed to be zero. Mining dilution and recovery factors vary for specific stopes and sills and are influenced by several factors including vein thickness, level interval, and mining method.

MINERAL RESOURCES

The Mineral Resource Statement as of October 24, 2015 was prepared by Mr. Mitch Wasel, Vice President Exploration, who is a Qualified Person pursuant to National Instrument 43-101.

Table 2: Mineral Resource Statement, Prestea Underground Project,

Ghana, October 24, 2015.

Deposit	Measured			Indicated			Inferred		
	(Mt)	(g/t	(koz	(Mt)	(g/t	(koz	(Mt)	(g/t	(koz
		Au)	Au)		Au)	Au)		Au)	Au)
Main Reef	-	-	-	0.17	7.8	43	2.02	7.1	460
West Reef	-	-	-	1.14	18.4	675	0.66	13.5	288
Footwall	-	-	-	0.29	8.5	80	0.22	8.7	60
Shaft Pillar	-	-	-	-	-	-	0.36	9.2	107
Total	-	-	-	1.60	15.5	798	3.26	8.7	915

Notes to the Mineral Resource Statement:

- The identified mineral resources in the block model are classified according to the CIM definitions for Measured, Indicated and Inferred categories and are constrained by a block cut-off grade calculated using a gold price of \$1,300 per ounce and below the mid-year topographic surface. The mineral resources are reported in-situ without modifying factors applied;
- The mineral resources were estimated using block models. The composite grades were capped where this was deemed necessary, after statistical analysis. Ordinary Kriging was used to estimate the block grades. The search ellipsoids were orientated to reflect the general strike and dip of the modelled mineralization;
- Block model tonnage and grade estimates were classified according to the Definition Standards on Mineral Resources and Mineral Reserves adopted by the CIM Council (May 2014). The basis of the mineral resource classification included confidence in the geological continuity of the mineralized structures, the quality and quantity of the exploration data supporting the estimates, and the geostatistical confidence in the tonnage and grade estimates. Three-dimensional solids were modelled reflecting areas with the highest confidence, which were classified as Indicated mineral resources;
- All figures are rounded to reflect the relative accuracy of the estimate. All composites have been capped where appropriate.

PRESTEA UNDERGROUND WEST REEF FEASIBILITY STUDY RESULTS

The FS demonstrates positive economics for the extraction of the West Reef Probable Mineral Reserves using shrinkage stoping. In conducting this assessment, a gold price of \$1,150 per ounce was assumed. The results indicate an IRR of 42%, NPV at a 5% discount rate of \$124 million and a payback period of 2.9 years from the start of development.

Project Infrastructure

The plan to extract the West Reef at Prestea is an expansion of a previously operating underground mining operation. Therefore most of the required services, infrastructure and community support are already in place:

- Surface access to the mine is via the public road network that extends onto the mine site and mineralized material will be hauled to the processing plant along an existing private haul road;
- Labour with underground mining experience is plentiful and the care and maintenance activities at Prestea already employ 205 experienced staff and employees;
- Utilities are available including electricity from the Ghana national grid which is currently used to power the existing Prestea mine infrastructure;
- Ore will be processed through a 500 tonnes per day processing facility at the Bogoso plant site; and
- Tailings will be deposited in Golden Star's existing and permitted Bogoso tailings storage facility.

At Prestea there is an extensive infrastructure of surface and underground vertical shafts, inclined shafts, horizontal

development, raises and stopes developed along the 9 kilometers of strike length of the gold mineralization. The primary access shaft for the West Reef is the Central Shaft located in the town of Prestea and the secondary shaft is the Bondaye Shaft, 5 kilometers to the south. The Central Shaft will be used for personnel access, materials transport, dewatering and hoisting. The Bondaye Shaft will act as the secondary means of egress as well as for dewatering.

Mining

The West Reef mineralization lies approximately 2 kilometers south of Central Shaft and 3 kilometers north of the Bondaye Shaft at a depth of between 550 and 1,025 meters below surface. The mineralization dips at approximately 60 to 85 degrees to the west and varies in width from 0.5 to 3.5 meters with an average width of approximately 1.8 meters.

The FS proposes shrinkage stoping, which was the mining method historically used at Prestea, but with the application of rock bolts and timber props to support the stope walls to maintain stope stability and control waste dilution. The main haulage level will be established on the existing 24 level to move mineralized and waste rock to the Central Shaft for hoisting to surface. An incline/decline system will be developed in the footwall of the mineralization to access sublevels at a vertical spacing of approximately 35-40 meters between existing levels 17 and 24 and 140 m below level 24. Shrinkage stopes will be developed between open raises spaced 60 meters on strike. Drawcones will be developed out of the sublevels into the stopes and will be equipped with chutes for controlled shrinkage mucking into rail cars in the sublevels. The stopes will be advanced up dip with only the swell material (30% of total blasted) removed from the stopes during the mining phase. When the stope is mined up to the sill pillar below the upper sublevel, the remaining mineralized material in the stope will be drawn as required. Total mining operating costs are estimated to be an average of \$105 per tonne during commercial production.

Metallurgy and Processing

The metallurgical test work results indicate that the Prestea West Reef material is free milling with approximately 96% metallurgical recovery using gravity followed by Carbon-in-Leach ("CIL") processing. The proportion of gravity recoverable gold identified in the test work is high at between 50% and 90%. The processing facility will comprise of a 500 tonnes per day standalone plant utilizing a standard comminution circuit, followed by gravity and CIL sections. The recovered gravity concentrate will be treated in the existing Acacia circuit. Gold recovered from the CIL circuit will be further processed in the existing elution circuit. Dore will be smelted in the existing gold room.

Capital cost of the new processing plant is estimated at \$20.6 million and is included in the initial capital expenditure of \$63 million. Total processing and haulage operating costs are expected to average \$79 per ore tonne over the life of mine.

Capital Expenditure

Initial capital expenditure is estimated at \$63 million with life of mine capital totaling \$77 million net of revenue, processing costs and working capital during the development phase. The table below presents the major capital items during the life of the project.

Capital	Total 2015 2016 2017 2018 2019 2020-						
	(\$M)	(\$M)	(\$M)	(\$M)	(\$M)	(\$M)	2024
						(\$M)	
Infrastructure Rehabilitation	26.3	4.0	12.8	5.7	3.9	-	-
Capitalized opex net of revenue	20.1	4.2	15.4	0.5	-	-	-
Processing Plant	20.6	2.1	18.5	-	-	-	-
Mining Equipment	3.9	0.5	2.7	0.8	-	-	-
Mining Sustaining	2.2	-	-	0.4	0.4	0.4	1.0
Other	3.4	0.9	0.9	0.1	-	-	1.5
Total Capital	76.5	11.6	50.3	7.4	4.3	0.4	2.5

The infrastructure rehabilitation includes shaft and hoist upgrades, electrical infrastructure, process plant, ventilation,

compressed air and pumping. This forms the bulk of the initial capital expenditure. The capitalized operating cost relates to manpower, power, consumables and refurbishment costs during the pre-development and production ramp-up phase.

Operating Metrics

Ore mined	Mt	1.04
Dilution	%	25
LOM Average Mill Head Grade (diluted)	g/t	14.0
Gold content in ore	koz	469
Metallurgical recovery	%	96
Average Annual Gold Production	koz	80
LOM Ounces sold	koz	450

Mining	per tonne (milled)	\$105
Processing	per tonne (milled)	\$79
G&A	per tonne (milled)	\$23
Total operating cost	per tonne (milled)	\$207
Gold price assumption	per ounce	\$1,150

Internal Rate of Return (IRR)	%	42
Net Present Value at 5% discount (NPV _{5%})	million	\$124

Gross revenue	million	\$518
Operating costs	million	\$203
Operating profit (EBITDA)	million	\$242

Capital Costs

Cash Operating Costs	per ounce	\$462
All-In Sustaining Costs (including royalty and stream)	per ounce	\$603
All-In Costs	per ounce	\$756

Economic Sensitivity

The project is robust as the following sensitivities to gold price for post-tax NPV_{5%} and IRR presented in the table below demonstrate:

Gold Price NPV_{5%} IRR

\$ 1,050 \$92 M 35%

\$ 1,100 \$108 M 39%

\$ 1,150 \$124 M 42%

\$ 1,200 \$141 M 46%

\$ 1,250 \$157 M 49%

Opportunities

The FS identified a number of opportunities:

- Project Mineral Resources could increase by further drilling of the areas up dip of West Reef, above 17 level, and down plunge to the north of West Reef below 24 level
- Further drilling could convert existing Inferred Mineral Resources to the Measured or Indicated Resource category, potentially adding to the Mineral Reserves and extending life of mine
- The FS is based on all stope rib and sill pillars being left in-situ post mining. It is estimated that Indicated Mineral Resources within these pillars totals 287,000 tonnes grading 18 g/t Au for 168,000 ounces
- Further stope design optimization and placement of development waste into mining voids could lead to reduced internal and external dilution, and increased mill head grades
- Strong potential to modify the existing processing plant which could reduce both the capital requirement and the construction schedule.

NI 43-101 TECHNICAL REPORT

The complete NI 43-101 Technical Report which will include the results of the FS will be filed on SEDAR (www.sedar.com) within 45 days and will also be available on the Company's website (www.gsr.com).

The FS information presented in this press release has been reviewed and approved by the following Qualified Persons pursuant to the National Instrument 43-101: Benny Zhang, P. Eng., M. Eng.; Ken Reipas, P. Eng., both are Principal Mining Engineers of SRK Consulting (Canada) Inc., and are independent of the Company; and Dr. Martin Raffield, P. Eng., Senior Vice President Project Development and Technical Services for Golden Star.

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 applicable Canadian securities laws. Investors are cautioned that forward-looking statements are inherently uncertain and involve risks and uncertainties that could cause actual results to differ materially. Such statements include comments regarding: FS operating metrics, including estimated gold production, tonnes mined and processed, grade and gold recoveries; payback period; estimated pre-tax and post-tax internal rate of return and net present value of Prestea Underground Mine (including assumed discount rates) and sensitivities to gold price; the timing for first production and commercial production from Prestea Underground Mine; the life of mine at Prestea and the ability to increase mineral resources and extend the life of mine; cash operating costs per ounce; all-in sustaining costs per ounce; the transformation of Golden Star into a low cost producer; the availability and quantum of funding to advance the development of Prestea Underground Mine; mining methods and estimated recovery at Prestea Underground Mine; capital costs, including processing plant, initial and life of mine capital costs, for Prestea Underground Mine; the construction of a new processing plant or the ability to modify the existing processing plant; availability of tailings storage facilities; required investments in mine infrastructure; production and operating metrics; the timing for ramping up production at Prestea Underground Mine; estimates of probable mineral reserves and indicated and inferred mineral resources, including tonnage, grade and contained ounces of gold; and future work to be completed at Prestea Underground Mine. Factors that could cause actual results to differ materially include timing of and unexpected events during the development of the Prestea Underground Mine; variations in ore grade, tonnes mined, crushed or milled; variations in relative amounts of refractory, non-refractory and transition ores; delay or failure to receive board or government approvals and permits; the availability and cost of electrical power; timing and availability of external financing on acceptable terms; technical, permitting, mining or processing issues, including difficulties in establishing the infrastructure for Prestea Underground Mine; changes in U.S. and Canadian securities markets; and fluctuations in gold price and input costs and general economic conditions. 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. 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 and that actual results will vary from these estimates, possibly by material amounts. While we may elect to update these estimates at any time, we do not undertake to update any estimate at any particular time or in response to any particular event. Investors and others should not assume that any forecasts in this press release represent management's

estimate as of any date other than the date of this press release.

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 National Instrument 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.

NON-GAAP FINANCIAL MEASURES

In this press release, we use the terms "cash operating cost per ounce", "all-in sustaining costs per ounce", and "all-in cash costs per ounce". These terms should be considered as Non-GAAP Financial Measures as defined in applicable Canadian and United States securities laws and should not be considered in isolation or as a substitute for measures of performance prepared in accordance with International Financial Reporting Standards. "Cash operating cost per ounce" for a period is equal to the cost of sales excluding depreciation and amortization for the period less royalties and production taxes, minus the cash component of metals inventory net realizable value adjustments divided by the number of ounces of gold sold during the period. "All-in sustaining costs per ounce" commences with cash operating costs and then adds royalties and the stream, sustaining capital expenditures, mine site exploratory drilling and greenfield evaluation costs and environmental rehabilitation costs. This measure seeks to represent the total costs of producing gold from operations. "All-in costs per ounce" commences with all-in sustaining costs and adds the initial and development capital expenditures. This measure seeks to represent the total costs of gold sold from operations including all capital expenditures. These measures are not representative of all cash expenditures as they do not include income tax payments or interest costs. These measures are not necessarily indicative of operating profit or cash flow from operations as would be determined under International Financial Reporting Standards. Changes in numerous factors including, but not limited to, mining rates, milling rates, gold grade, gold recovery, and the costs of labor, consumables and mine site general and administrative activities can cause these measures to increase or decrease. We believe that these measures are the same or similar to the measures of other gold mining companies, but may not be comparable to similarly titled measures in every instance.

SOURCE [Golden Star Resources Ltd.](#)