

2017 GOLD DEPOSITS

BOASTING THE HIGHEST GRADE DRILL INTERSECTS

by Vladimir Basov

These rich gold deposits have a potential
for even higher-grade resources

Drill results are important indicators not only for mining and exploration companies, but nearly all stakeholders involved, including existing shareholders and potential investors.

While high grade drill intersects are generally exciting and greatly promising news, a conservative and very rigorous approach is recommended when a non-technical person is trying to understand the results of a drilling campaign.

It is not uncommon to see a press release when a proud company claims that a “significant” interval has been recently intersected and that contains, for example, a 5,000 g/t gold grade. Such news can rapidly increase a company’s stock price, but is grade alone a crucial factor in a drill results’ interpretation?

Actually, these super-high anomalous grades are often associated with very narrow drill intervals, which may be caused by a nugget effect. These high grades may not adequately represent the composition of the ore body (if any), and cannot necessarily be considered as reliable precursors of a high-grade ore body or a deposit as a whole (Note: caution should be taken when the first drill results are reported from a greenfield project, especially when the type of mineralization and ore continuity/morphology are still unknown).

As such, when considered alone, high-grade drill intersections sometimes fuel speculation which may not show the real representative picture of the ore body / deposit. They should be considered mainly as a teaser that spurs further in-depth research of technical reports.

Other factors must be taken into consideration while interpreting drill results. The most important of them is the width of ore interval(s) intersected by the drill hole.

Indeed, a drill hole with a wide massive interval of mineralized material of a lower grade can be very beneficial to the company and often far more valuable than a high-grade drill hole intersection but with narrow width.

Moreover, narrow high-grade intersects may not be representative in determining the extent and continuity of the whole ore body, and may not be even part of a bigger ore body / deposit because of the “outlier” samples effect. At the same time, wide intervals of lower ore grade can be precursors of a massive deposit.

Narrow ore bodies are usually mined by very expensive selective mining methods, while massive wide ore bodies can be exploited using very effective, lower-cost and highly productive bulk mining methods.

When combined with grade, the width of a drill intersect is a powerful tool that can be used to compare drill results released by different companies. When applying a gram-meter technique, the following concepts should also be used:

True Width

Exploration drill holes are not always vertical and, in fact, can be drilled at any angle. Ore bodies/deposits can be of any imaginable shapes and orientations, too. Consider a worst-case scenario, when a nearly vertical drill hole intersects a nearly vertical ore body or a nearly horizontal hole intersects a nearly horizontal ore body (usually when exploration holes drilled from underground workings). In this case, if a width of an ore interval is measured along a drill hole (apparent width), the results of the resource estimation could be significantly skewed and greatly overestimated. Therefore, the only reliable way to delineate ore bodies and calculate resources is to use a true width, or a real thickness of an ore body. A true width concept is best illustrated on the Figure 1.

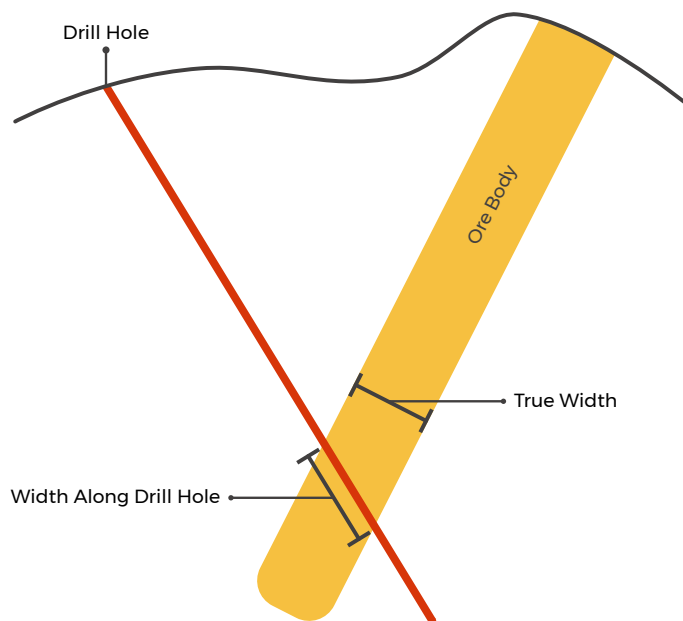


Figure 1. True width vs. width along a drill hole. For illustrative purposes only.

Grade capping

In fact, “highly” anomalous grades can not only be used for incorrect speculations, but can be a real problem for resource geologists, too. Those “significantly high” grades can cause overstatement of the true underlying average grade and an overly optimistic assessment of ore reserves / resources. That is why grade capping is a very important technique adopted in most mineral resource models. For gold deposits, some specialists arbitrarily recommend capping grades in the range 30 – 60 g/t of gold. While this range may be appropriate in some instances, grade capping is better determined based on drill sample analysis obtained from a particular gold deposit that reflects a type of mineralization and morphology of an ore body, and production reconciliation (for deposits that are in production phase). A capping grade concept is illustrated on the Figure 2

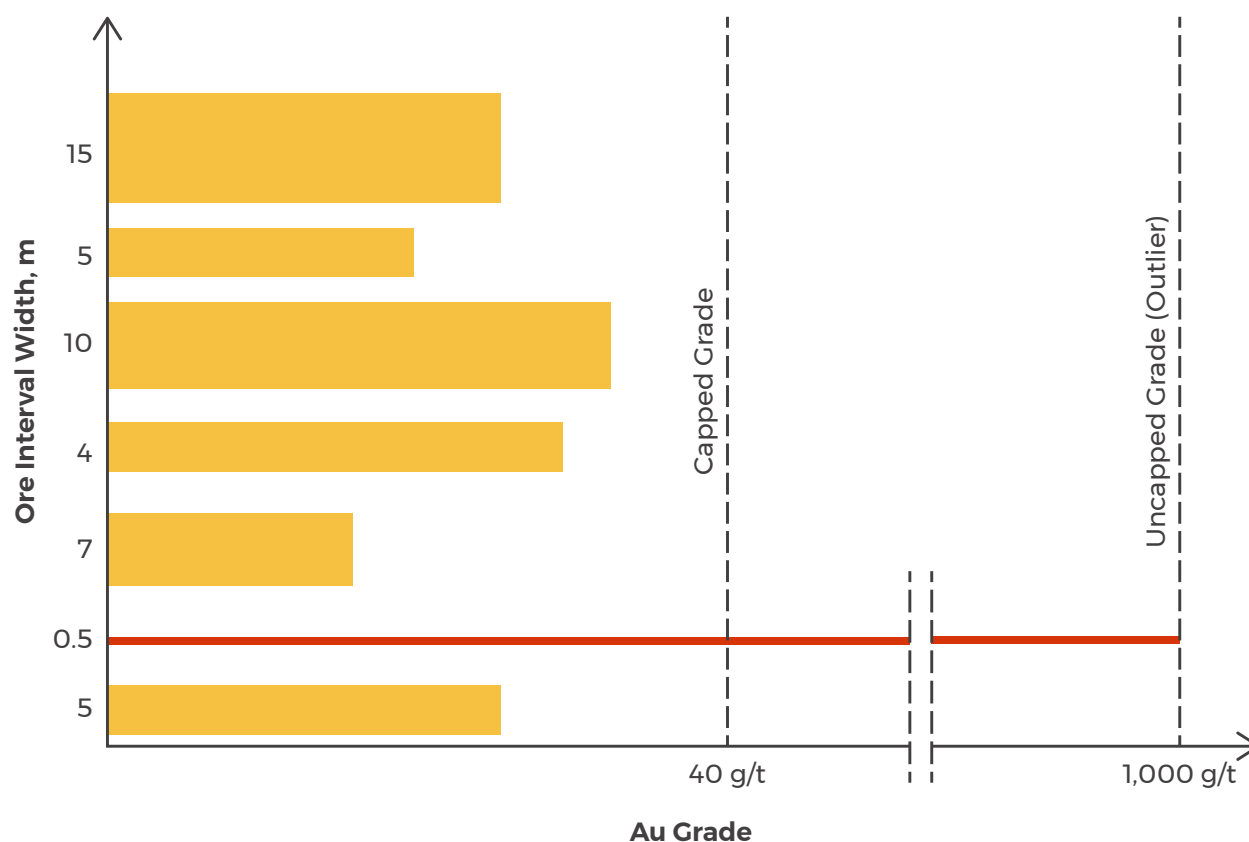


Figure 2. Uncapped grade vs. capped grade. Not to scale. For illustrative purposes only.

Depth of intersection

It is necessary to bear in mind that economic indicators of a mining project and its overall feasibility are primarily based on the grade of mineralization relative to the depth of the ore interval and the size of ore body. For example, an ore body with 1 g/t average gold grade could be economically viable to exploit utilizing open-pit mining method down to a 200m depth. Intersection of the same grade uncovered at depths below 200m can easily be non-economical because of costly under-

ground mining methods only viable at those depths. This is just a brief glance at the very complex issue that is the subject of thorough and rigorous geological, technical, economic, comparative and benchmarking studies.

With all this information in mind, let's look at the highest-grade gold intersections reported in 2017. Mining Intelligence tracks all publicly released drill results and has many useful tools for comparative analysis.

To avoid uncertainties and speculations associated with early exploration stage drilling results, only projects with delineated ore bodies, reported true widths and calculated resources have been included into this ranking. In cases where multiple high-grade intersections were reported for an individual project during the year, only the best interval has been considered. Drill results for the entire hole were considered, excluding intermediate intervals or intervals with less than 1 meter width.

List of the top highest-grade gold intersects in 2017, in gram-meters

	Project	Country	Owner	Status	Drill intersection			True Width, m	Grade, g/t *	Grade x Width, gram-meter
					From, m	To, m	Width, m			
1	Fosterville	Australia	Kirkland Lake	Production	244.2	253.05	8.85	8.2	991	8,126
2	Amaruq	Canada	Agnico Eagle	Advanced Exploration	327.8	372.5	44.7	38.7	40	1,548
3	Kiena	Canada	Wesdome Gold	Production	299.5	307	7.5	5.6	262.13	1,468
4	Island Gold	Canada	Richmont Mines	Production	188.6	194.2	5.6	4.9	261.46	1,281
5	Saramacca	Suriname	IAMGOLD	Advanced Exploration	14.5	75	60.5	30	40.91	1,227
6	Bermejal	Mexico	Leagold	Production	585.15	671.1	85.9	29.21	25.3	739
7	Leprechaun	Canada	Marathon Gold	PEA	6	307	301	240.8	2.65	638
8	Eagle River	Canada	Wesdome Gold	Production	143.2	186	42.8	20.67	28.72	593
9	Buritica	Colombia	Continental Gold	Construction	24	57.9	33.9	30.8	17.17	529
10	Karma	Burkina Faso	Endeavour Mining	Production	55	58	3	2.7	195	527

* Due to limited data on capped grades, uncapped gold grades were analyzed for all projects in this article

Fosterville

1

8,126 gram-meter

Kirkland Lake Gold Ltd. (TSX:KL) (NYSE:KL) reported continuous high-grade drill results at depth from underground drilling at the Fosterville Mine in Australia. The most impressive of those was an 8,126 gram-meter intersect from the Swan Zone of the Lower Phoenix gold system. The Swan Zone is the highest-grade area of the Fosterville mine, with an initial Mineral Reserve of 532,000 ounces at an average grade of 58.8 g/t Au. Combined with a mined grade of around 23 g/t Au and cash costs in the range of \$300-350/ozt, Fosterville is one of the world's most remarkable underground gold deposits right now.

Amaruq

2

1,548 gram-meter

Agnico Eagle Mines Limited (NYSE:AEM, TSX:AEM) owns the Amaruq satellite gold deposit, which is located approximately 50 kilometres northwest of the Meadowbank mine, in Nunavut, Canada. Agnico reported a record 1,548 gram-meter drill intersection in 2017. As of December 31, 2016, the Amaruq property contained an open pit indicated mineral resource of 2.1 million ounces of gold (16.9 million tonnes grading 3.88 g/t gold); an open pit inferred mineral resource of 763,000 ounces gold (4.9 million tonnes grading 4.81 g/t gold); and an underground inferred mineral resource of 1.4 million ounces gold (6.8 million tonnes grading 6.22 g/t gold).

Kiena

3

1,468 gram-meter

Wesdome Gold Mines Ltd. (TSX: WDO) owns the Kiena Mine Complex, in Val d'Or, Quebec, which is a fully permitted, integrated underground mining and milling complex. From 1981 to 2013 the mine produced 1.75 million ounces of gold from 12.5 million tonnes at a grade of 4.5 g/t. In 2013 operations were suspended, but the infrastructure has been well preserved on a care and maintenance status. Drilling is currently focused on delineation of additional proximal zones, which may enhance future production scenarios. The 1,468 gram-meter intersect uncovered in 2017 confirms the near-term potential to redevelop the Kiena deposit for commercial production.

Island Gold

4

1,281 gram-meter

Richmont Mines Inc., which was acquired by Alamos Gold (TSX:AGI) in November 2017, reported a 1,281 gram-meter drill intersection at its cornerstone Island Gold Mine in Ontario. Deep directional drilling further confirmed the continuation of high-grade wide mineralized zones and significant potential to increase mineral resources at depth. Richmont anticipates adding quality high-grade near-mine resources at the Island Gold deposit that could be incorporated into the current mine plan.

Saramacca

5

1,227 gram-meter

IAMGOLD Corporation (TSX:IMG; NYSE:IAG) reported a 1,227 gram-meter intersection during its 2017 infill drilling program at the Saramacca deposit located 25 kilometres southwest of the company's Rosebel Gold Mine in Suriname. This massive high-grade deposit is amenable for open-pit mining and IAMGOLD plans to bring it into production as quickly as possible.

Bermejal

6

739 gram-meter

Leagold Mining Corporation (TSX-V: LMC) reported a 739 gram-meter intersection at its high-grade Bermejal underground deposit in Mexico, which is adjacent to Los Filos – Bermejal mine complex. It may potentially be the second underground mine there, in addition to the existing Los Filos underground mine. As of November 20, 2017, the Bermejal deposit contained an underground resource of 2.77 million ounces of gold (15.4 million tonnes grading 5.6 g/t gold).

Leprechaun

7

638 gram-meter

Marathon Gold Corporation (TSX: MOZ) uncovered a 638 gram-meter intersection at the Leprechaun Deposit at the Valentine Lake Gold Camp, in central Newfoundland. The new drilling confirms the continuity of excellent gold grades down through the more than 350-meters deep and 25-60-meters wide mineralized Main Zone corridor of the deposit.

Eagle River

8

593 gram-meter

Wesdome Gold Mines Ltd. (TSX: WDO) reported a 593 gram-meter gold intersection at its wholly-owned Eagle River Mine in Wawa, Ontario. These results contain potential widths of up to 20 metres and are unprecedented at Eagle River. The current proximity of these intercepts to mine infrastructure coupled with the sheer volume of high grade mineralization will potentially have near to mid-term positive production implications. The Eagle River Complex is currently producing gold from two mines, the Eagle River Underground Mine and the Mishi Open pit.

Buritica

9

529 gram-meter

Continental Gold Inc. (TSX:CNL; OTCQX:CGOOF) uncovered a 529 gram-meters gold intersection at its 100% owned Buriticá project in Antioquia, Colombia. The results of the drilling are quite impressive and will likely lead to the growth in high-grade resources, improved project economics and greater mine plan flexibility once commercial production commences in 2020. The Buriticá project boasts of up to 22 g/t gold grade in Proven Reserves.

Karma

10

527 gram-meter

Endeavour Mining (TSX:EDV)(OTCQX:EDVMF) reported a 527 gram-meter gold intersection from its on-going exploration campaign at the company's Karma mine in Burkina Faso. Drilling at the Karma mine has confirmed high-grade mineralization at the Yabongso target that will likely add further potential to extend the mine life. Evivis pri in dici furbit vero ur. Na et conin hos, quam dempratqui

Story developed using data from Mining Intelligence. Learn more and schedule a demo.