



12th September 2016

ASX Announcement

Predictive Discovery Limited is a gold exploration company with strong technical capabilities focused on its advanced gold exploration projects in West Africa.

ASX: PDI

Issued Capital: 1.37B shares

Share Price: 1.1 cents

Market Capitalisation:

\$15.1M

Directors

Phillip Jackson
Non-Exec Chairman

Paul Roberts

Managing Director

David Kelly
Non-Executive Director

Drilling Extends Boundiali Gold Mineralised Zone to at least 1.2km

Predictive Discovery Limited (ASX: PDI) reports ongoing encouraging gold assay results from RC drilling completed by Toro Gold Limited (Toro) on the Nyangboue Prospect on Predictive's Boundiali Project in Cote D'Ivoire.

- Gold mineralisation has now been intersected on five widely spaced drill sections:
 - The main (eastern) mineralised zone (Figure 1) extends for at least 1.2km, with best intercepts of 20m at 10.5g/t Au and 28m at 4.0g/t Au (ASX releases 23/6/16 and 8/8/16), and is open to the south,
 - A second mineralised zone has been intersected on one drill line 250m to the west of the main zone, with a best intercept of 7m at 3.8g/t Au (ASX release 25/7/16). It is untested over a distance of 640m to the south.
 - There is clear line to line correlation on the main zone, suggesting a single mineralised shear zone.
- New drill assay results from two new drill sections included:
 - o BRC056 (660m SSW of the BRC004BIS intercept 20m at 10.5g/t Au)
 - 2m at 7.7g/t Au from 42m,
 - 6m at 1.5g/t Au from 14m,
 both within a 30m long intercept averaging 0.9g/t Au from 14m.
 - BRC085 (830m SSW of BRC004BIS)
 - 1m at 10.5g/t Au.
- Assay results for 15 holes are awaited.

Mr Paul Roberts, Predictive's Managing Director said: "With each new set of drill assays, the strike length of the Nyanboue gold mineralisation has grown. It is now clear that this is a significant new gold discovery. While gold values are variable in the holes drilled so far, this is to be expected in any shear-hosted gold deposit of this type, especially one which has been drilled on such a wide drill line spacing.

The Nyangboue prospect has a number of positive characteristics including (1) gold intercepts from surface, (2) individual high grades in most intercepts, suggesting that a plus 2g/t Au bulk grade is a strong possibility, (3) abundant visible gold in higher grade intervals suggesting simple metallurgy and (4) initial indications of good continuity in the controlling structure(s). There are also several other good prospects on the permit which are, as yet, untested by drilling."



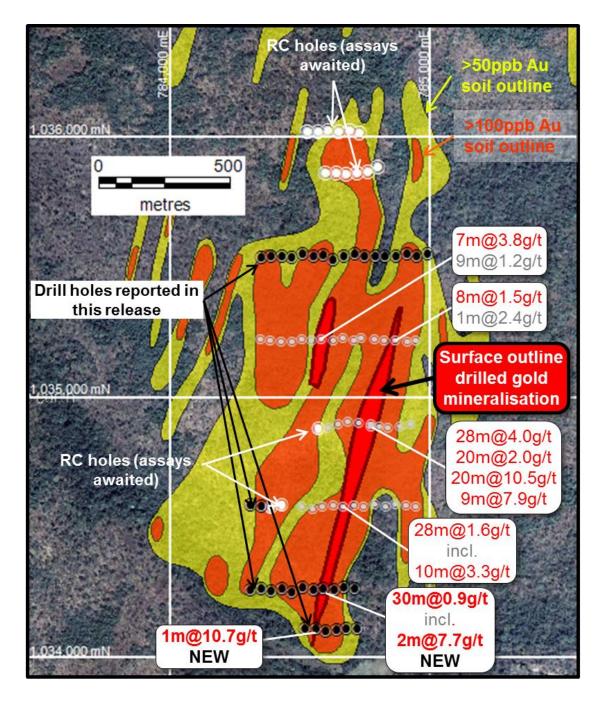


Figure 2: RC drill hole collar locations on a gold-in-soil geochemical contour plan (reported to the ASX on 23/2/16) in the southern 2km portion of the Nyangboue Prospect. Gold geochemical contours are superimposed on satellite imagery. The interpreted surface outline of gold mineralisation is shown in red. The eastern of the two mineralised zones is referred to as the "main" zone in this release. Assays for the holes shown as pale grey symbols were reported to the ASX on 23/6/16, 25/7/16 and 8/8/16. Results reported today are from holes shown as black symbols.

BOUNDIALI DRILLING PROGRAM (NYANGBOUE PROSPECT)

The RC drilling program on the Boundiali permit consisted of a total of 92 RC holes and 5,496m drilled. The program was designed to test a 2km long zone of strong and coherent gold-in-soil



anomalies (Figure 1). These lie at the southern end of the Nyangboue Prospect, a 6km long gold-insoil anomaly (Figure 2) first reported to the ASX on 20/10/15.

The RC holes were drilled:

- on eight east-west oriented lines, of which six are spaced 320m apart. The northernmost and southernmost lines are 160m from their neighbours (Figure 2). Hole collars are approximately 40m apart,
- mostly to depths of 50-60m, with the exceptions of a few holes which were extended or redrilled to depths of up to 130m,
- towards the west and angled at 50 degrees.

Additional details of the drill and assay methodologies employed in this program are reported in Table 1.

The first three sets of drill results included the following drill intercepts:

- BRC003 28m at 4.04g/t Au from 3m, including 1m at 49.7g/t Au
- BRC004 20m at 1.97g/t Au from 0m
- BRC004 14m at 5.51g/t Au from 32m, including 1m at 31.6g/t Au
- BRC004BIS (twin hole) 20m at 10.45g/t Au from 38m including 1m at 145.5g/t Au
- BRC006 9m at 7.9 g/t Au from 99m including 1m at 44.7g/t Au
- BRC023 7m at 3.8g/t Au from 33m including 1m at 11.3g/t Au
- BRC048 28m at 1.55g/t Au including 1m at 27.4g/t Au

The results released today include the following drill intercepts:

- BRC056 30m at 0.92g/t Au from 14m including:
 - o 6m at 1.51g/t Au from 14m
 - o **2m at 7.68g/t Au** from 42m
- BRC085 1m at 10.65g/t Au from 37m.

While the eastern "main zone" gold mineralised trend is a straight NNE striking zone, the orientation of the mineralisation in individual gold intercepts is not yet clear. It is possible that there are some cross structures controlling higher grade shoot development. A program of surface geophysics followed by diamond drilling will be required to resolve this question.

As noted in earlier ASX releases, initial observations from logging these drill holes and mapping the limited rock exposures at surface are as follows:

- The mineralised zone appears to lie within a large and complex ductile shear zone containing:
 - Quartz-sericite schists which are interpreted to be derived from volcanosedimentary rocks,
 - o granitic intrusives,
 - o sediments,



- o felsic volcanics with quartz phenocrysts,
- possible mylonites (extremely strongly sheared rocks) and
- possible mafic volcanics.
- Sparse rock outcrops indicate that shearing dips steeply to the east, which is why holes were drilled towards the west.
- Gold values are generally associated with zones of quartz veining (1-2cm veinlets both smoky grey quartz and white quartz.
- Visible gold has been panned from some of the RC drill chips and fines. Follow-up screen fire assays on intervals with high gold grades and/or visible gold are therefore planned.
- The dip and dip direction of the mineralisation is not yet understood. Holes BNRC003-007 have now been extended/re-drilled to help address this question.
- The sheared rock sequence contains minor sulphides, including pyrite, pyrrhotite and arsenopyrite.

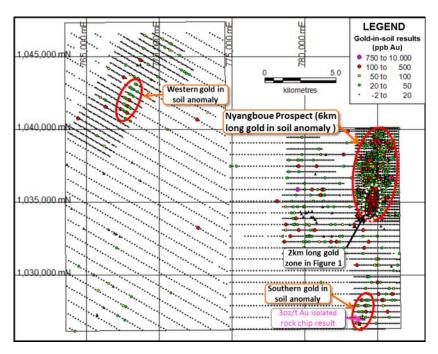


Figure 2: Toro Gold soil sampling grid covering the entire Boundiali exploration permit (results reported to the ASX on 20/10/15 and 23/3/16). Results in grade intervals are shown for all of Toro soil results to date. The large Nyangboue Prospect gold anomaly and two other coherent gold anomalies are highlighted on this map. Rock chip sample locations are shown as small black triangles.

NEXT STEPS

The Company is still awaiting results from 15 holes, which have been delayed by a breakdown in sample preparation equipment at Toro Gold's sample preparation facility at Mako in Senegal. These will be released when they come to hand.

Programs of ground geophysics are currently being planned.



TORO JOINT VENTURE BACKGROUND

Predictive is in joint venture with Toro Gold Limited (**Toro**), a UK-based company, on six granted permits and two permit applications in Cote D'Ivoire (Figure 3). The Toro Joint Venture operates through Predictive Discovery Limited's subsidiary, Predictive Cote D'Ivoire SARL (**Predictive CI**) of which Predictive now holds 49%. Toro can earn a further 14% of Predictive CI by spending US\$2.5 million, which would then lift its equity to 65%. At this stage, Predictive plans to contribute 35% of the ongoing expenditure once Toro achieves its 65% equity.

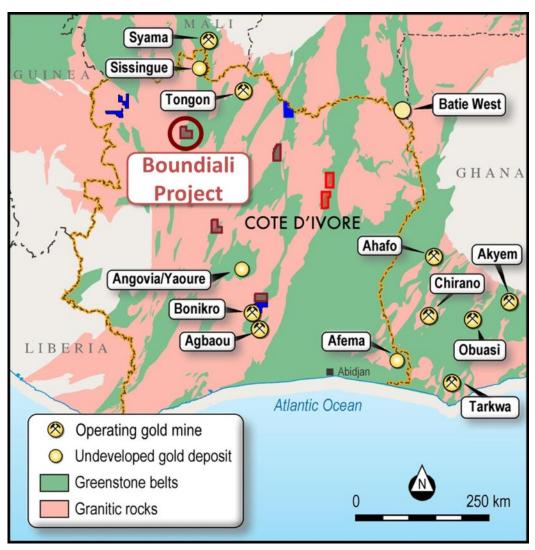


Figure 3: Locality map showing the initial Toro Joint Venture permits (in brown) including Boundiali (highlighted), the GIV Joint Venture permits and permit applications (in blue), and the permits covered by PDI's agreement with XMI SARL over the Bobosso Project (red).

BOUNDIALI BACKGROUND

The Boundiali permit is located within a very well mineralised greenstone belt which contains the large operating Tongon and Syama gold mines in Cote D'Ivoire and Mali respectively (Figure 3). The



southern part of this belt has had little exploration to date and represents a first class opportunity to make new large gold discoveries.

Predictive was granted the Boundiali permit in January 2014. The Company's first exploration program on the permit was a BLEG stream sediment survey (ASX release dated 4/8/14) which discovered a series of strong stream sediment anomalies, the best of which, a 24ppb Au anomaly, lies downstream of the gold mineralised zone described in this release.

TABLE 1 – DRILL RESULTS – TORO JV BOUNDIALI RC DRILL PROGRAM (NYANGBOUE PROSPECT)

			•						-	
Hole No.	UTM 29N Easting	UTM 29N Northing	RL (m)	Hole depth (m)	Hole dip (°)	Azimu th (°)	Depth from (m)	Down- hole interv al (m) ¹	Au (g/t) at 0.5g/t Au cut-off grade ²	Comments
BRC002	784688	1034904	421	124	-50	270	No s	significa	nt result	Results from 0-53m reported on 23/6/16
BRC008	784929	1034897	425	53	-50	270	No s	significa	nt result	
BRC030	784629	1035528	411	50	-50	270	No s	significa	nt result	
BRC031	784670	1035539	415	56	-50	270	No s	significa	nt result	
BRC032	784710	1035548	418	50	-50	270	No s	significa	nt result	
BRC033	784748	1035541	414	52	-50	270	No s	significa	nt result	
BRC034	784791	1035539	417	60	-50	270			nt result	
BRC035	784828	1035538	412	46	-50	270			nt result	
BRC036	784871	1035540	410	51	-50	270			nt result	
BRC037	784910	1035551	412	94	-50	270			nt result	
BRC038	784950	1035540	416	56	-50	270			nt result	
BRC039	784990	1035547	410	57	-50	270			nt result	
BRC040	784590	1035545	410	50	-50	270	24	1	1.04	
BRC041	784550	1035542	409	50	-50	270	No s	ignifica	nt result	
BRC042	784510	1035547	406	50	-50	270	17	1	1.52	
BRC043	784470	1035537	403	50	-50	270	No s	ignifica	nt result	
BRC044	784430	1035538	410	50	-50	270	No significant result		nt result	
BRC045	784390	1035540	407	55	-50	270	9	1	1.28	
BRC046	784350	1035537	402	50	-50	270	No significant result		nt result	
BRC051	784790	1034586	411	108	-50	270	No significant result		nt result	Results from 0-60m reported 8/8/16
BRC053	784470	1034249	400	50	-50	270	34	1	1.01	
BRC054	784510	1034266	403	50	-50	270	No s	significa	nt result	
BRC055	784550	1034258	402	50	-50	270	23	1	1.02	
BRC056	784590	1034260	405	50	-50	270	1	1	1.57	
BRC056	784590	1034260	405	50	-50	270	14	6	1.51	These two
BRC056	784590	1034260	405	50	-50	270	42	2	7.68	intercepts constitute a 30m long low grade mineralised zone averaging 0.92g/t Au from 14m
BRC057	784630	1034256	404	80	-50	270	43	1	3.42	
BRC057	784630	1034256	404	80	-50	270	56	3	1.06	
BRC058	784670	1034264	403	70	-50	270	18	3	1.12	



BRC058	784670	1034264	403	70	-50	270	36	1	1.85	
BRC058	784670	1034264	403	70	-50	270	46	1	1.04	
BRC059	784710	1034260	402	55	-50	270	47	1	1.38	
BRC071	784310	1034585	404	50	-50	270	No s	ignifica	nt result	
BRC072	784350	1034579	404	50	-50	270	No s	ignifica	nt result	
BRC076	784310	1034259	397	50	-50	270	No s	ignifica	nt result	
BRC077	784350	1034260	397	50	-50	270	No s	ignifica	nt result	
BRC078	784390	1034253	398	50	-50	270	No s	ignifica	nt result	
BRC079	784430	1034260	398	50	-50	270	No s	ignifica	nt result	
BRC080	784600	1034099	402	50	-50	270	No s	ignifica	nt result	
BRC081	784640	1034101	401	50	-50	270	23	2	0.62	
BRC082	784680	1034109	401	50	-50	270	11	1	2.26	
BRC083	784720	1034109	401	50	-50	270	No significant result			
BRC084	784520	1034107	402	50	-50	270	No s	ignifica	nt result	
BRC085	784560	1034106	402	55	-50	270	37	1	10.65	

¹ No true widths reported because the orientation of the gold mineralisation is not yet properly understood.
2 Minimum grade x width interval reported of 1 g/t x m. Maximum down-hole internal waste of 4m. All assayed in 1m intervals.

Section 1: Sampling Techniques and Data						
Criteria	JORC Code Explanation	Commentary				
Sampling Technique	Nature and quality of sampling (eg cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as downhole 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. 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 (eg '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 (eg submarine nodules) may warrant disclosure of detailed information.	All of the sampling described in Table 1 refers to RC drill holes. A representative subsample of the RC drill chips was obtained using an onrig riffle splitter. A second reference sample was obtained using a spear. The assayed drill samples are judged to be representative of the rock being drilled because representative sub-sampling of the RC drill samples was achieved.				
Drilling	Drill type (eg core, reverse circulation, open- hole hammer, rotary air blast, auger, Bangka, sonic, etc) and details (eg core diameter, triple or standard tube, depth of diamond tails, face- sampling bit or other type,	The drilling was largely carried out by reverse circulation with a face sampling hammer. The holes were collared using a blade bit, which was used to refusal (towards base of saprolite/saprock).				



	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. Measures taken to maximise sample recovery and ensure representative nature of the samples. Whether a relationship exists between sample recovery and grade and whether sample	RC recovery was assessed by weighing the sample bags and calculating recoveries using an estimate of rock density. The Toro site geologists report that recoveries are consistently good.
	bias may have occurred due to preferential loss/gain of fine/coarse material.	
Logging	Whether core and chip samples have been geologically and geotechnical logged to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies.	Logging of RC holes records lithology, mineralogy, mineralisation, alteration, structure, weathering and other features of the samples. Logging of sulphide mineralization and veining is quantitative. All holes were logged in full. No judgement has yet been made by independent qualified consultants on whether the geological and geotechnical logging has been sufficient to support Mineral Resource estimation, mining and metallurgical studies.
	Whether logging is qualitative or quantitative in nature. Core (or costean/Trench, channel, etc) photography. The total length and percentage of the relevant intersections logged.	
Sub-Sampling Technique and Sample Preparation	If core, whether cut or sawn and whether quarter, half or all core taken. If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry. For all sample types, the nature, quality and appropriateness of the sample preparation technique. Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.	The RC samples submitted for assay were all sub-sampled by an on-rig 3-tier/multi stage riffle splitter (producing a 1/8 th split). The sampled material is considered to be representative of the samples as a whole.
	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. Whether sample sizes are appropriate to the grain size of the material being sampled.	



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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. 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. Nature of quality control procedures adopted (eg standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (ie lack of bias) and precision have been	All samples reported in this release were assayed for gold by 50g fire assay at the ALS laboratory in Loughrea in Ireland. High grade samples were checked at the laboratory by gravimetric means. At the lab, regular assay repeats, lab standards, checks and blanks were inserted and analysed. Unlabelled standards (Certified Reference Materials), blanks and duplicate samples were also inserted by Toro personnel on site at Boundiali. Samples are prepared at Toro's sample preparation laboratory at Mako in Senegal.
Verification of Sampling and Assaying	established. The verification of significant intersections by either independent or alternative company personnel. The use of twinned holes The verification of significant intersections by either independent or alternative company personnel. Discuss any adjustment to assay data	One hole has been twinned (BRC004BIS) and the results of the repeat hole was reported on 8/8/16. Field data collection was undertaken by Toro Gold geologists and supervised by Toro Gold management.
Location of Data points	Accuracy and quality of surveys used to locate drill holes (collar and down- hole surveys), trenches, mine workings and other locations used in Mineral Resource estimation. Specification of the grid system used Quality and adequacy of topographic	Collar positions were located using a hand held GPS with a location error of +/- 3m. Collar coordinates listed in the table are for the WGS84 datum, Zone 29 North.
Data Spacing and Distribution	Control Data spacing for reporting of Exploration Results 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 holes reported here were drilled on two lines spaced 320m apart with hole collars approximately 40m apart. No judgement has yet been made by an independent qualified consultant on whether the drill density is sufficient to calculate a Mineral Resource. The samples were not composited.
Orientation of Data in Relation to Geological Structure	Whether sample compositing has been applied Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the 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.	All drill holes reported here were drilled approximately at right angles to the anticipated strike of the target geochemical anomaly (Figure 2).



Sample Security	The measures taken to ensure sample security	The drill samples are currently stored securely at Toro Gold's compound in the town of Boundiali.
Audits or Reviews The results of any audits of reviews of sampling techniques and data		No audits or reviews of sampling techniques and data have been carried out given the reconnaissance nature of this drill program.
	Section 2 Report	ting of Exploration Results
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 Boundiali exploration permit was granted to PDI Cote D'Ivoire SARL in January 2014.Toro Gold Limited has earned a 51% interest in PDI Cote D'Ivoire SARL by spending US\$1 million. It is currently spending a further US\$2.5 million to increase its equity to 65%.
	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.	
Exploration Done by Other Parties	Acknowledgment and appraisal of exploration by other parties.	PDI is not aware of any effective gold exploration over the Boundiali permit prior to PDI's initial work, however historic records are incomplete at the Cote D'Ivoire government geological agency.
Geology	Deposit type, geological setting and style of mineralisation.	The geology of the Boundiali permit consists of granite, metasediments, mafic volcanics and intrusives, and conglomerates.
Drill Hole Information	A summary of all information material to the understanding of the exploration results including a tabulation of the following information for all Material drill holes: • 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 of the required data is provided in Table 1 (above).
Data Aggregation Methods	In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (eg cutting of high grades) and cut-off grades are usually Material and should be stated. Where aggregate intercepts incorporate short lengths of high grade results and longer lengths of low grade results, the procedure used for such aggregation should be stated and some typical examples of such aggregations should be shown in detail.	All RC samples were collected and assayed in 1m intervals. No top cuts have been applied to the drill results. Up to 4m (down-hole) of internal waste is included. Mineralised intervals are reported on a weighted average basis.



	The assumptions used for any reporting of metal equivalent values should be clearly stated.	
Relationship Between Mineralisation Widths and	These relationships are particularly important in the reporting of Exploration Results	True widths have not been estimated as the geological controls on mineralisation in these initial drill holes into the prospect are not yet well understood.
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').	The holes were drilled from east to west to test a steeply east dipping foliation in the limited rock exposures seen in the area. The mineralisation lies within what Toro interprets to be a ductile shear zone which would suggest that mineralisation should lie parallel to foliation. Nevertheless, the gold intercepts are actually suggestive of a west-dipping mineralised envelope. The most mineralised holes have been extended; assays of the deepened holes should provide some additional information on this question along with careful re-logging and XRF readings on the RC chip samples in the coming months. True widths may only be understood properly after a diamond drilling program is carried out, possibly later in 2016.
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.	An appropriate plan showing the location of the drill holes is included in the text of this document.
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 intercepts containing grades above 0.5g/t Au and at least 1g/t x m with a maximum thickness of internal waste of 4m are reported 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.	All relevant exploration data is either reported in this release or has been reported previously and is referred to in the release.
Further Work	The nature and scale of planned further work (eg tests for lateral extensions or large scale step out drilling.	Most of the drill results from this program have not yet been received. Further work will be considered once the results of this drilling program come to hand. A follow-u p drill program later in 2016 is likely.
	Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.	



Predictive Discovery Limited (PDI) was established in late 2007 and listed on the ASX in December 2010. The Company is focused on exploration for gold in West Africa. The Company operates in Burkina Faso, West Africa where it has assembled a substantial regional ground position covering 1,500km² and is exploring for large, open-pittable gold deposits. Exploration in eastern Burkina Faso has yielded a large portfolio of exciting gold prospects, including the high grade Bongou gold deposit on which a resource estimate was calculated in September 2014. PDI also has substantial interests in a large portfolio of tenements in Côte D'Ivoire covering a total area of 3,937 km².

Competent Persons Statement

The exploration results and the Exploration Target reported herein, insofar as they relate to mineralisation are based on information compiled by Mr Paul Roberts (Fellow of the Australian Institute of Geoscientists). Mr Roberts is a full time employee of the company and has sufficient experience relevant to the style of mineralisation and type of deposits being considered to qualify as a Competent Person as defined by the 2012 Edition of the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves. Mr Roberts consents to the inclusion in the report of the matters based on his information in the form and context in which it appears.

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