Endeavour Mining Corporation

Ity Mine, Côte d'Ivoire
(Latitude 6° 52'16" N, Longitude 8° 06'30" W)

Technical Report for the Ity Gold Mine, Côte d'Ivoire, West Africa

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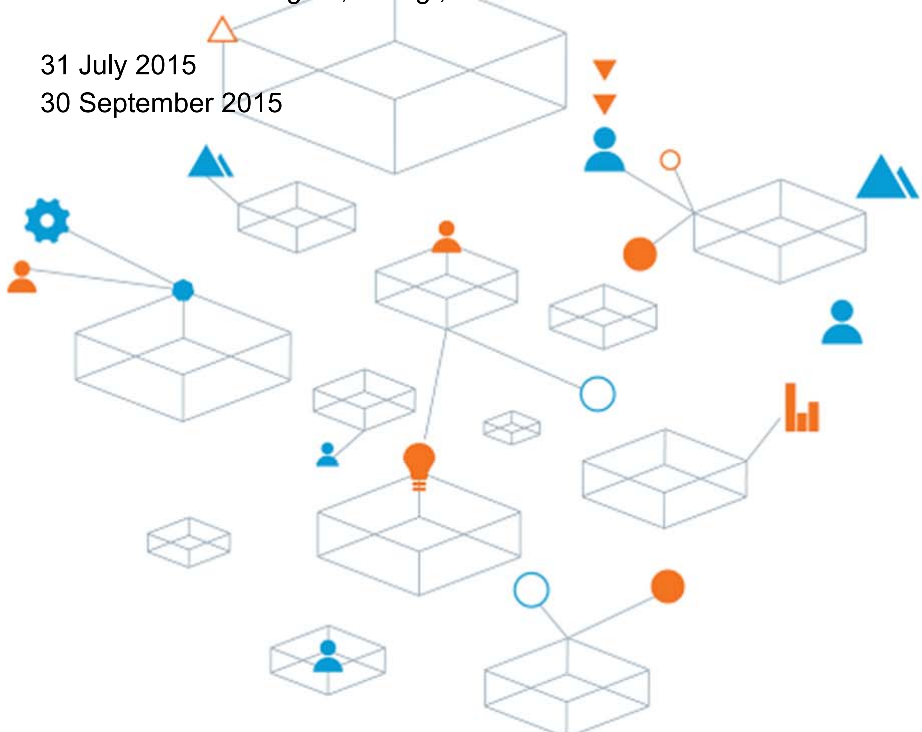
Effective Date: 31 July 2015
Report Date: 30 September 2015



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Date: 30 September 2015

Project Number: JSMI02

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1 SUMMARY

1.1 Introduction

Coffey Mining (South Africa) Pty Limited (Coffey) has been requested by Endeavour Mining Corporation (Endeavour), the Issuer, to compile an Independent Technical Report on the Ity Gold Mine (Ity Mine) in Côte d'Ivoire which is operated by Société des Mines d'Ity (SMI), a subsidiary of La Mancha Holding S.àr.l. (La Mancha). This document complies with disclosure and reporting requirements set forth in the Toronto Stock Exchange Manual, National Instrument 43-101 (NI43-101) Standards of Disclosure for Mineral Project, Companion Policy 43-101CP and Form 43-101F1.

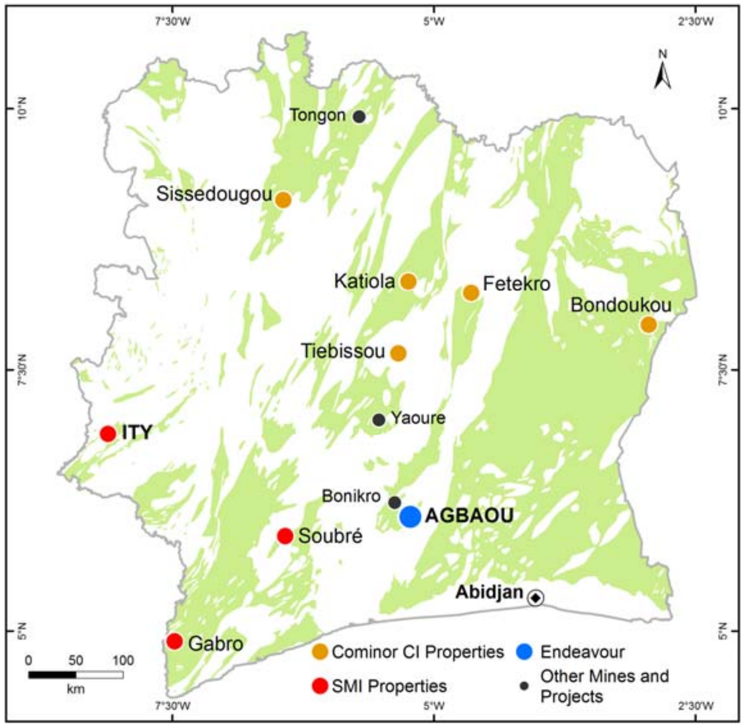
SMI operates the open-pit and heap leach gold mine in the Ity district of western Côte d'Ivoire. Production commenced in 1991, with a total of over 1.0 million ounces (Moz) produced to date from multiple deposits. The mine currently processes 950 ktpa of ore and produced 82,000 ounces of gold in 2014 and 45,000 ounces of gold production from the first six months of 2015.

As the mining progresses and deeper ore is extracted, over the next several years recoveries from the heap-leach plant for several ore types will be reduced and the construction of a carbon-in-leach (CIL) plant may result in an improvement in overall project economics.

In 2014, SNC-Lavalin Inc.conducted a Pre-Feasibility Study (PFS) on behalf of SMI to evalute the potential of a CIL plant using a processing rate of 1.5Mtpa. The results of the study were positive and in late 2014 through to early 2015, SMI carried out drilling programs at the Daapleu, Zia NE and Mont Ity deposits designed to upgrade all Inferred Mineral Resource material from the 2014 mineral resource estimate to Indicated Mineral Resources, the Daapleu deposit Indicated Mineral Resource to Measured Mineral Resource, and to delineate each deposit further along strike. The resulting 2015 mineral resource estimate update yielded a significant increase in Measured and Indicated Mineral Resources to 2.9Moz of gold contained in five deposits, two dumps, decommissioned leach pads and a stockpile. SNC-Lavalin was mandated by SMI to update the PFS for the CIL Project using a processing rate of 2.0Mtpa. The results of that study are summarized in this report.

The mineral deposits described in this report are all part of the mine property of SMI's exploitation permit or the adjacent exploration permit in the Côte d'Ivoire and are centred on 06^{o} 52' 16" north latitude and 08^{o} 06' 30" west longitude. Côte d'Ivoire is located in West Africa at the extreme west of the Gulf of Guinea and is bordered by Ghana in the east, Mali and Burkina Faso in the north and Guinea and Liberia in the west. The Ity gold deposits are located in the west of Côte d'Ivoire, 480km (direct) from the economic capital of Abidjan, near the border with Liberia and Guinea (Figure 1.1_1 and 1.1_2).

Figure 1.1_1
Location of the SMI Properties, Côte d'Ivoire



The Ity Mine currently operates two open pits; Mont Ity and Tontouo. As of the Effective Date of this report the Tontouo open pit is near the end of its life and is not included in this technical report. Recent drill programs have defined additional mineral resources for Mont Ity, as well as new in-situ mineral resources at Daapleu, Zia North East (ZiaNE), Walter and Gbeitouo and also the decommissioned heap leach pads at Aires de Lixiviation (Aires) and the former waste dumps of Verse Ouest and Teckraie.

The SMI properties, which are the subject of this report, include two permits which contain the Ity gold deposits (Figure 1.1_2). These permits are:

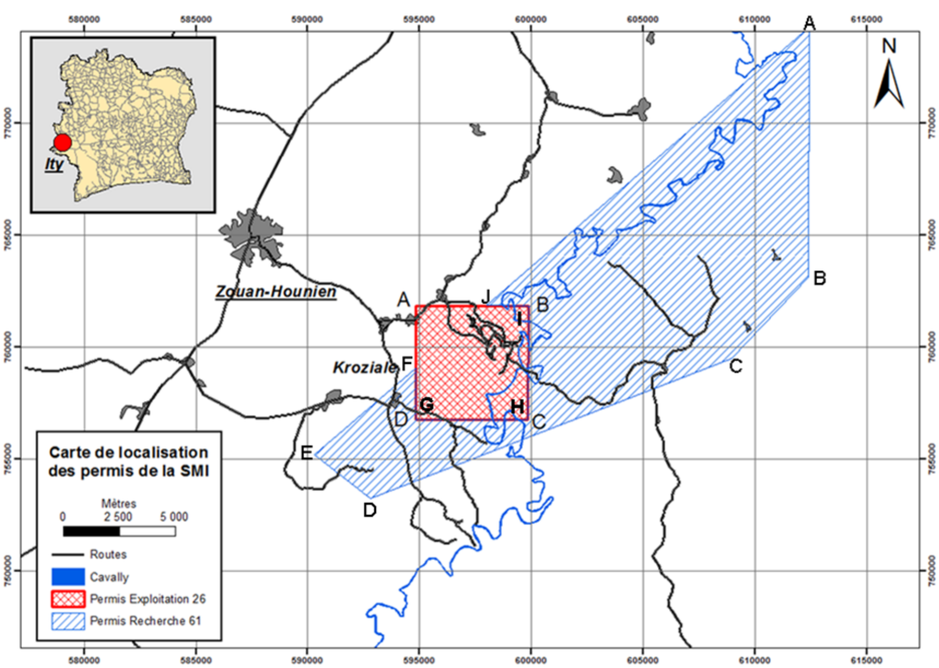
- Permis d'Exploitation PE26 (Mining Permit)
- Permis de Recherche PR61 (Exploration Permit)

PR61 is situated over parts of the Zouan-Hounien and Blolequin prefectures. The permit has a surface area of 153km^2 and is oriented northeast-southwest and is comprised of two sub portions, including the following deposits and prospects: Gbeitouo, Daapleu, Yacetouo, Morgane, Mlambopleu to the east of the Cavally River and Floleu to the west of the river. PR61 was first issued in 1995 and extended in two year intervals with land area reductions down to the current holdings.

Mining Permit PE26 with an area of 25km^2 comprises the Ity Gold Mine which includes the Mont Ity, ZiaNE and Walter deposits, the Aires (decomissioned heap leach pads) and the Verse Ouest and Teckraie dumps which are to the west of the Cavally River.

Mineral rights are 100% held by SMI, a registered company of Côte d'Ivoire at address 08 BP 872 Abidjan 08 – Cocody 180 logements Boulevard Latrille, immeuble Palm Club, 2nd floor. La Mancha holds a 55% stake and management control of SMI, the remainder is held 30% by SODEMI (the State Mining Agency), 10% by the Government of Côte d'Ivoire, and 5% by a private investor.

Figure 1.1_2
Permit Areas SMI, Côte d'Ivoire



1.2 History

Copper and gold were first discovered near the village of Ity in the 1950's during regional exploration by the Bureau Minière de la France d'Outre-Mer. Initial attempts to recover the gold were unsuccessful due to the fineness of the gold and the rheology of the ore. In 1983 the Société Minière d'Ity was incorporated to develop the Flotouo deposit which poured it first gold in 1991. Substantial exploration was done in the 1990s and many of the deposits were discovered or expanded at the time. Since then ownership has changed several times until the La Mancha Group acquired a large stake in SMI in 2012. In 2014 a change in shareholders was authorized by the Government of the Côte d'Ivoire leading to the current ownership structure.

1.3 Geology

The Ity deposits are located in the Lower Proterozoic Birimian Formations of the Toulépleu-Ity klippe. The Toulepleu-Ity klippe is a small remnant of Birimian within the older Archean portion of the West African Craton. The Ity area is characterized by a series of granodioritic intrusions into a sedimentary sequence of volcano-sediments and carbonates with a general NE-SW strike. The volcanic rocks are generally tuffaceous with chemistry that ranges from basic to acidic. All formations have been subjected to regional metamorphism.

The deposits of Ity, ZiaNE, and Walter are skarns developed at the contacts of the granodiorite with the carbonates. The remaining in-situ deposits are more typical shear-hosted, greenstone deposits. The Daapleu deposit is characterized by the presence of a “rhyolitic” intrusive surrounded by a package of volcanosediments. The “rhyolite” is locally called “daaplite” and is leucocratic (grey to white), microgranular, schistose and rich in micas, essentially a fine grained granite. The Gbeitouo deposit is hosted within volcano-sediments.

The Teckraie and Verse Ouest deposits are rock dumps of the now depleted Flotouo (skarn) open pit and sit on top of weathered granodiorite. Aires consists of the decomissioned heap leach pads from the historic operation of the mine.

1.4 Exploration

La Mancha’s evaluation of the Ity Mine began in 2012 following the change in ownership and management. Exploration since then has been carried out under the supervision of technically qualified personnel applying standard industry approaches. All data acquired meets or exceeds industry standards and all exploration work has been carried out by, or supervised by technical personnel of the operator. Work prior to 2012 has been validated or replaced with new information.

1.5 Data

A summary of the drilling for all eight deposits is given in Table 1.5_1.

Table 1.5_1
SMI Gold Project
Drilling Summary

Deposit	Method	Boreholes	Metres
Aires leach pads	AirCore	159	6,455
Verse Ouest dump	Diamond	32	1,180
Teckraie dump	AirCore	85	3,191
	RC	2	28
	Diamond	31	1,079
Daapleu	RC	47	3,892
	Diamond	559	45,329
ZiaNE	RC	10	926

Table 1.5_1
SMI Gold Project
Drilling Summary

	Diamond	243	26,920
Mont Ity	RC	286	13,287
	Diamond	299	39,918
Walter	RC	103	6,919
	RC-DD	6	613
	Diamond	32	3,916
Gbeitouo	RAB	19	2,240
	Diamond	67	6,854

Drilling and survey procedures observed are to acceptable industry standards, are appropriate to the deposits being drilled and are appropriate for mineral resource estimation.

The Walter and Gbeitouo deposits still have a large proportion of historical boreholes utilized in the mineral resource estimates. Historical drilling was poorly documented between 2002 and 2012. Sufficient additional drilling allowed verification of historic drilling for use in industry standard resource estimates. Drilling practices from 2012 onward were all documented and regularly assessed by independent senior consultants and are to acceptable industry standards, are appropriate to the deposits being drilled and are appropriate for mineral resource estimation.

Control samples used during drill campaigns on the Aires, Teckraie, Verse Ouest, Daapleu, ZiaNe and Mont Ity project areas contained within this report comprised the insertion of standards, blanks and field duplicates into the sample stream. The intended aim should be approximately 5% coverage for standards, blanks and duplicates. The quality control data was analysed on an on-going basis and generated some queries with the laboratory that were resolved.

During the different campaigns on the deposit areas the duplicates were comprised of a quarter split of the core, a second coarse-split of the RC sample or a second split of the pulp. A total of 18 different commercial standards (Geostats, Gannet Holdings and Rock Labs of Australia) were used, of various grades. Two different sources of blank material were used, beach sand and coarse rock chips that were confirmed to not contain any gold.

All assays for the most recent exploration campaigns were done by Bureau Veritas laboratory, Abidjan, Côte d'Ivoire with 50g fire-assay analyses. In addition to the above, six batches of samples were sent to ALS Chemex, Ouagadougou, Burkina Faso as umpire checks. These samples came from the Mont Ity and ZiaNE project areas.

In general the results of the assays were within acceptable limits and deemed suitable for use in the mineral resource database. Any data deemed not to be suitable was removed from the database.

1.6 Metallurgy and Heap Leach Process

No heap leach testwork has been conducted on the project during the last number of years and anything completed historically is no longer available. The heap leach has been in operation for many years and remains in operation and as such production data can be used to give an indication of the metallurgical performance expected from the plant.

It is reported by mine management that regular bottle-roll tests are completed to determine the recoverable gold from a -2mm pulverised 50 gram sample.

Historically, as reported in 2008, regular column leach tests were completed, but this practise has been discontinued.

The analytical techniques available on the mine do not include total contained gold methods and as such the actual head grade samples cannot be determined. Comparing gold recovered with the above determined leachable gold content results in a historical yield of between 75% and almost 80%.

1.7 Metallurgy and CIL Process

Considerable metallurgical testwork has been conducted to confirm the metallurgical response for a CIL plant. The metallurgical testing used for the 2.0Mtpa CIL project was completed during 2014 at ALS Minerals Division (Metallurgy) located in Kamloops, BC, Canada. Additional work was conducted in 2015 but has not been integrated into this report and is part of ongoing feasibility studies.

Mineralogical and metallurgical test work was completed in order to generate sufficient mineralogical and metallurgical information to:

- Establish the processing route (process flow diagrams);
- Determine the plant operating parameters for the ores to be processed;
- Evaluate the variability in metallurgical performance for the different deposits, and;
- Define parameters required for the engineering and design of the plant (process design criteria, mass and water balance and equipment sizing).

The mineralogical study and metallurgical test work program were executed on the geological samples from the following deposit and facies:

- Daapleu deposit included three different geological facies called Daaplite, Volcano sediment and a High Grade contact zone between both;
- Gbeitouo deposit included two different geological facies called Oxidized Clay and Meta-volcano sediment;
- Mont Ity Deep Extension test work was on two different geological facies called Oxidized Clay and Reduced Clay;
- ZiaNE deposit test work was on two different geological facies called Oxidized Clay and Laterite;

- Aires – four composite samples representing four geographical areas of the heap leach pads.

The sample material was selected and prepared by SMI geologists and personnel to create what is believed to be the most representative facies samples. The metallurgical test work results allowed the process development steps described in the following paragraphs.

A mineral sizer type crusher has been selected for the soft sticky ore facies, such as oxidized clay, reduced clay and heap leach residues. A jaw crusher has been selected for the more competent (hard) ore facies, such as daaplite and volcano-sediments.

The preliminary results from the test grinds indicate the grinding mill has been sized to process ore at an average rate of 254tph (tonnes per hour) with a finished product 80% passing 75µm.

Gravity concentration did not improve overall gold recoveries and has not been considered in the process development as the mean gold particle diameter is only in the 18 µm range.

A high rate thickener has been selected for the pre-leach thickener. The thickener underflow density of 43% (w/w) is anticipated.

Whole ore cyanidation leach tests were performed and a final grind of 75µm has been selected with air sparging for the process design criteria. The cyanide leach kinetic curves developed during the test work show that gold extraction with 32-hour retention time was selected for the CIL plant process design criteria. The gold extraction for the composite samples averaged about 93% for the non-sulphide composites and 72% for the sulphide composites.

1.8 Mineral Resources

Ity is an operating gold mine. The mineral resource models supporting the current mineral reserves estimates for Ity were updated as of July 31st, 2015 by independent consultants, Coffey and Arethuse Geology Sarl (Arethuse).

Coffey estimated the mineral resource for the Mont Ity, Daapleu, ZiaNE, Aires, Teckraie, and Verse Ouest deposits using a combination of Nearest Neighbour, Inverse Distance methods. The volume modelling and mineral resource estimation was completed in the 3D software package Micromine™, Datamine™ Studio 3 and Isatis.

Arethuse estimated the mineral resources for the Walter and Gbeitouo deposits using a combination of Ordinary Kriging and Inverse Distance methods. Geological modelling and mineral resource estimation was done using GEOVIA Surpac 6.6, XLStat, Autotats and Isatis software packages.

The mineral resource estimates were prepared by conventional block modeling techniques. Grade shells were generally defined using a threshold assay of 0.50g/t Au as the lower limit for inclusion within the grade shell.

Samples were composited to standard one-metre lengths, starting from the top of the mineralized zone wireframe for each hole. Statistical analysis was employed to define high-grade outlier gold assays, and all composites inside the grade shells were capped. Capping strategies ranged from Daapleu and Verse Ouest deposits where capping was deemed unnecessary to Walter where gold values were capped to 40g/t.

The quality of the estimations was validated using summary statistics, comparison of the estimate mean versus the mean of the composite dataset, visual checks of cross sections, long sections, and plans and comparison of different estimation methods.

The mineral resources are defined within an optimal pit shell generated using the following parameters:

- Overall pit slope of approximately 30 to 40 degrees;
- Commodity price of USD1,500/oz Au;
- Process recovery between 73% and 96%;
- Process cost between USD12.1/t and USD16.5/t;
- Refinery, selling and royalty costs of 4% of sell price.

Mineral resource estimates from five in-situ deposits, two rock dumps and the decommissioned heap leach pads are given in Table 1.8_1. The weathered zones are generally feed for the Heap Leach Plant over the next three years. The rest of the material is planned as feed for the CIL plant and is mostly comprised of material which cannot be as effectively treated in the Heap Leach process. The Verse Ouest dump has not yet been considered for mineral reserve heap leach processing or for the CIL project.

Table 1.8_1
SMI Gold Project
Mineral Resources as At Effective Date 31 July 2015

Deposit	Cut-off grade	Measured			Indicated			Inferred		
		kt	g/t	Au oz	kt	g/t	Au oz	kt	g/t	Au oz
Mont Ity	0.5g/t Au				5,100	2.35	385,600	140	2.75	12,400
Daapleu	0.5g/t Au	21,188	1.45	984,700	9,604	1.46	452,000	1,553	1.21	60,500
ZiaNE	0.5g/t Au				6,741	1.56	337,900	3,838	1.78	219,800
Walter	0.5g/t Au				2,613	2.24	188,500	200	1.42	9,100
Gbeitouo	0.8g/t Au				1,954	2.30	144,700	57	1.29	2,300
Aires leach pads	0.0g/t Au	6,134	1.04	205,900						
Verse Ouest dump	0.0g/t Au				3,844	1.22	150,800	3,591	1.25	144,300
Teckraie dump	0.0g/t Au				1,945	1.11	69,500	304	1.01	9,900
Total		**27,322**	**1.36**	**1,190,600**	**31,801**	**1.69**	**1,729,000**	**9,682**	**1.47**	**458,300**

Note:
- Mineral resources include mineral reserves
- Numbers may not sum exactly due to rounding.

1.9 Mineral Reserves (Heap Leach)

The deposits planned to be mined during the current mine plan have been optimized for a “Heap Leach and CIL scenario” that envisioned a 2016 construction decision on the CIL plant with commercial operation at the start of 2018. If the CIL construction decision was deferred then the “Heap Leach scenario” would have to be revised. The material to be mined is often overlying material that will be mined later and included in the optimization of the “”Carbon-In-Leach scenario”. The goal was to identify the most profitable shell for a “Heap Leach scenario” for each suitable deposit with the constraint of processing only the oxidized material. The material mined for the “Heap Leach” i.e. the open pit shells, are contained within the locations of the material to be mined as the “CIL” shells. Mineral reserves in the “Heap Leach scenario” pit design shells are inclusive of mining dilution and mine recovery, considering plant recovery and are summarized in Table 1.9_1.

Some material that is not processable using the Heap Leach facility (essentially reduced clay material and granodiorite) and will be mined before the CIL plant will be operational. SMI aims at stockpiling this material in a dedicated stockpile until the start of the CIL plant. This limited amount of material located inside the Heap Leach pit limit is considered as “mineral reserve material” and will be accounted for in the CIL production plan scenario

Process costs, inclusive of the general and administrative (G&A) costs, and recoveries were used to generate the mineral reserves for the Heap Leach operation. The metallurgical recoveries used to calculate the mineral reserves are based on SMI recommendations and are in line with 2014 actual results.

The cut-off grade parameters used for the models are based on costs, royalties, process recoveries and metal prices supplied by SMI.

Table 1.9_1
SMI Gold Project
Mineral Reserves for Heap Leach Operation as of the Effective Date of 31 July 2015

Deposit	Category	Tonnes ('000)	Grade (g/t)	Contained Gold (kg)	Contained Gold ('000oz)	Processing Method
Mont Ity	Probable	775	3.71	2,874	92	Heap Leach
Walter	Probable	356	2.82	1,004	32	Heap Leach
ZiaNE	Probable	213	1.48	315	10	Heap Leach
Teckraie dump	Probable	913	1.31	1,199	39	Heap Leach
Total	**Probable**	**2,257**	**2.39**	**5,393**	**173**	**Heap Leach**

* The material within the HL pit limit that cannot be processed using HL processing method will be stockpiled until the CIL plant starts operation

1.10 Mineral Reserves (Carbon-in-Leach)

The base case mining production schedule for the CIL operation was completed on a bench-by-bench level for all deposits. Daapleu and Ity were designed with interim pits targeting high-grade material. In order to mine the Daapleu pit a section of the Cavally River requires diversion creating at risk exposure related to hydrogeology.

The mining recovery used is industry standard for similar type operations and material types. The mine operation cost estimation is based on the tonnage of each type of material from the different pits and the specific pit location. Using these parameters, the cycle times were calculated based on SMI production factors and hauling distances for each pit. Finally, an operating cost per type of material was calculated based on the labour cost, fuel consumption, maintenance cost, etc. Table 1.10_1 presents the mineral reserves for the CIL operation.

Table 1.10_1
SMI Gold Project
Mineral Reserves for Carbon-in-Leach Operation as of the Effective Date of 31 July 2015

Description	Proven Reserve			Probable Reserve		
	Tonnes ('000)	Au g/t	Au ('000oz)	Tonnes ('000)	Au g/t	Au ('000oz)
Mont Ity				187	7.51	44
Daapleu				15,219	1.61	787
Walter				1,053	2.00	68
ZiaNe				3,952	1.60	204
Gbeitouo				1,264	2.56	104
Aires leach pads				6,135	1.04	206
Stockpiles				161	3.17	16
Total	**0**	**0**	**0**	**27,968**	**1.59**	**1,429**

Currently the CIL recovery rate is estimated to be between 93% for the non-sulphide composites and 72% for the sulphide composites. The planned ongoing DFS will investigate processing technologies that may enhance the recovery rate.

1.11 Mining

The Ity Heap Leach mine is an existing conventional open pit mine using articulated trucks (40t class) and hydraulic backhoes or front shovel excavators (80t class). Limited drill and blast activities are required as the material that is currently mined is largely oxidized (clay or laterites). This material is processed at the existing heap leach facility.

Mining for the CIL scenario is envisioned to be a similar operation developing five in-situ open pits, one decommissioned leach pad and two former waste dumps.

1.12 Infrastructure

SMI started its mining operation in the area in 1991 with a 200ktpa processing capacity with all open-pit mining. Since that time the facilities have been upgraded to process approximately 950ktpa of ore using heap leaching as the processing method.

The current mine facilities include:

- Mining administration building;
- Main workshop and repair facilities;
- Mining equipment re-fuelling centre;
- Explosive storage, located away from the main facilities;
- Plant administration buildings such as the security office, workshop, administration offices and metallurgical lab;
- Warehouses;

- Camp accomodations for 200 persons;
- Water services inclusive of raw water abstraction, potable water, fire water, and;
- Medical facilities.

The electrical power is supplied from the Ivorian national grid as well as back-up diesel generators.

The CIL operation will require infrastructure development as described in this report. This will include, within the property limits, a CIL plant, the diversion of the Cavally River to allow development of the Daapleu pit and associated bridge, construction of the haulage roads for the new pits, and the construction of a staged Tailing Storage Facilities (TSF) for disposal of the related tailings from the CIL plant.

Outside the property limit, a new power transmission line will have to be installed by the local electrical utility.

1.13 Environmental

Several environmental studies have been conducted in the last 15 years. Geostat Systems International Corporation has conducted two internal reports for SMI: an environmental management plan (Plan de Management Environnemental) dated March 2000 and a rehabilitation plan (Réaménagement du site minier d'Ity) dated June 2005. An Environmental Impact Study (EIS) for the Ity Mine has been carried out in 2000 by SMI. This study has been used as a reference in the rehabilitation report titled "Réaménagement du Site Minier d'Ity" (SMI, 2005). The Ministry of the Environment also conducted an environmental audit of the Ity Mine at the end of December 2005.

In order to renew the Mining Permit PE26 and in consideration of the plans for the CIL project, two social and environmental impact assessments (SEIA) have also been completed:

- Étude d’impact environnemental et social du projet de construction d’une usine de traitement de minerai de type CIL sur le permis d’exploitation PE26 de la mine d’or ITY (Roche, 2013).
- Étude d’impact environnemental et social dans le cadre du projet d’exploitation des gisements de Gbeitouo et de Daapleu dans le département de Blolequin (2D Consulting, 2015).

In addition to the exploitation of two new deposits, the CIL project includes the diversion of the Cavally River (four river closure dams), the construction of a bridge and of three perimeter dikes to protect the Walter, Gbeitouo and Daapleu deposits.

There is an SEIA in progress related to this planned infrastructure for the CIL project. The public meeting process is planned to start at the end of September 2015. It is anticipated that the decree, which authorizes the construction and operation of the planned infrastructure, may be granted as early as the fourth quarter of 2015.

The three SEIAs were performed according to the Loi Cadre No. 96-766 of 3 October 1996 on the Environmental Code, the Décret No. 96-894 of 8 November 1996 establishing the rules and procedures applicable to studies of the environmental impacts of development projects and the Arrêté No. 00972 of 14 November 2007 on the application of Décret No. 96-894.

The SEIA for the construction for the CIL plant was approved by the Ivorian authorities in December 2013 (Arrêté 008/Mine SUDD/ANDE). A revision will be required for a larger throughput rate of the CIL plant and modifications to the locations of some of the associated infrastructure.

A resettlement action plan is also currently in preparation.

1.14 Capital Costs

Heap Leach

The total capital expenditure planned for the Heap Leach operation until the end of 2017 is approximately at 18.3 MUSD (16.6 MEUR).

The planned expenditures are as follows:

- Mining fleet equipment renewal and/or additional equipment – 8.0MUSD (7.3MEUR);
- Mine dewatering equipment and borehole drilling – 2.2MUSD (2.0MEUR);
- Processing plant sustaining capital and permanent infrastructure - 2.8MUSD (2.5MEUR);
- Other smaller capital items (light vehicles, buses, IT, security, etc.) – 5.3MUSD (4.8MEUR).

CIL Project

SNC-Lavalin's mandate for the CIL project was to develop a PFS level capital and operating cost estimate with a target accuracy of ±30%.

The total estimated CAPEX for the project is 219 MUSD (199 MEUR), which includes:

- Total Direct Costs – 128.5 MUSD (116.8 MEUR);
- Total EPCM Indirect Costs – 65.4 MUSD (59.5 MEUR);
- Total Owner's Costs – 25.1 MUSD (22.8 MEUR).

1.15 Operating Costs

Heap Leach

Ongoing operating costs based on costs incurred operationally in 2014 include:

- Mining Costs – 2.1 USD/t moved;
- Milling Costs – 20.4 USD/t processed;
- G&A Costs – 13.6 MUSD/a.

The AISC for 2014 and for the first 6-months of 2015 are respectively US$921/oz and US$696/oz.

CIL Project

The data used to prepare the operating cost estimate are based on the June 2015 geological block model and associated mining schedule. This mining schedule was based on a mining plan that excludes Inferred Mineral Resources. The target accuracy of this OPEX estimate update is ±30%.

The mine operation cost was calculated based on the tonnage of each type of material from the different pits and the specific pit location. Using these parameters, the cycle times were calculated based on SMI production factors and hauling distances for each pit. Finally, an operating cost per type of material was calculated based on the labour cost, fuel consumption, maintenance cost, etc.

The mining costs used in the PFS are presented for each facies of each of the deposits and range from USD 1.45 /t (1.32 €/t) to USD 3.11 /t (2.83 €/t).

The processing cost per material type was evaluated in laboratory tested on samples taken from the site. These samples were subjected to various tests to simulate reagent dosing, wear factors and other parameters. The combination of all these results was used to calculate the processing cost per material type. It is important to mention that metallurgical testing results used in this PFS update are not including the recent laboratory testing results performed in 2015. The processing costs in the PFS are estimated to be USD 13.67 /t (12.43 €/t) on average over the life of the CIL project.

The building maintenance and administrative supplies have been calculated based on building CAPEX value and factored plant labour cost. The labour cost has been estimated based on a plant general crew by function and salary.

Site G&A costs, estimated at USD 9.7 /a (8.8m €/a), were provided by SMI.

1.16 Economic Analysis

An economic analysis has been conducted using a cash flow model prepared on the basis and assumptions as stated in the following discussion. The results of the economic analysis represent forward-looking information (production rates, cash flows, net present value, etc.) that are subject to a number of unknown risks, uncertainties and other factors that may cause actual results to differ materially from those presented here.

Table 1.16_1 summarizes the property's valuation, on the basis of the below described assumptions. The base case has been run using a flat gold price of USD1,150/oz (€1,045/oz), net of USD4.55 (€5/oz) bullion transport, insurance and refining costs. A flat USD/euro exchange rate of 1.10 has been assumed. A 3.5% gold royalty, payable to the State of Côte d'Ivoire, has been applied over the life of both the Heap Leach and CIL operations based on the retained gold sale price assumptions. This royalty is in accordance with the rate applicable, under the Ivorian mining code.The financial analysis supports the economic viability of both the Heap Leach operation and the CIL project.

The Heap Leach mine production schedule currently extends to 2017. The CIL project at 2.0 Mtpa has a life of mine of 14 years.

Table 1.16_1
SMI Gold Project
Basis and Assumptions of the Economic Model for the HL and CIL Project

On a 100% basis	Flat US$1,150/oz	Flat €1,045/oz
HL Physicals		
Tonnes moved (Mt)	12.083	
Ore processed (Mt)	2.257	
Grade processed (g/t)	2.39	
Production (‘000oz)	147	
CIL Physicals		
Tonnes moved (Mt)	89.399	
Ore processed (Mt)	27.967	
Grade processed (g/t)	1.59	
Production (’000oz)	1,144	
Financials	MUSD	MEUR
EBITDA	612.5	556.8
CAPEX	289.6	263.3
TAXES	77.8	70.7
Post Tax Free Cash Flow	245.2	222.9
Valuation (100% basis)	MUSD	MEUR
HL – Post Tax NPV (5% discount)	32	29
CIL – Post Tax NPV (5% discount)	87	79

1.17 Conclusions

Historical exploration activities have been of variable quality while the work undertaken in the last three years is to international standards. Current exploration practices are appropriate to the deposits being evaluated. All historical data has been assessed for accuracy and incorporated into the database and it was found acceptable for use in geological and mineral resource evaluations.

The mineral resources and mineral reserves at the Ity property are robust. There remain sufficient Heap Leach reserves to be economically exploited over the next several years until the CIL project construction decision is made and construction is completed. Additional opportunities exist to increase the Heap Leach reserves with known oxidized mineral resources should an extension of the Heap Leach operation life be required.

The quality and quantity of metallurgical testwork performed for the 2Mtpa CIL is considered adequate for the PFS level developed for the project. The ore facies not containing sulphide are substantially free-milling and do not show any preg-robbing characteristics. However, the ore facies containing sulphide are partially refractory and direct cyanidation (CIL process) yields a lower gold recovery.

The PFS demonstrated the economic potential of the CIL project with the possibility of extending the Ity Mine Life of Mine by over 10 years by adding substantial mineral reserves.

The positive results of the PFS justify proceeding to the Definitive Feasibility Study (DFS) which is now underway.

Several additional targets at different stages of exploration (i.e. Verse Ouest and others) have been identified in the very close vicinity of present Ity facilities, on both the Exploitation Permit and Exploration Permit. The company considers that additional resources could be defined and potentially provide additional feed for the Heap Leach operation to extend its life by 2 to 3 years and also to increase the CIL project mineral resource and mineral reserve base.

1.18 Recommendations

A follow-up exploration program aiming at achieving the targets of: (1) providing additional feed for the Heap Leach operation to extend its life by 2 to 3 years; and (2) increasing the CIL project mineral resource and mineral reserve base has been proposed for the Ity Project. The program consists of approximately 25,000m of drilling (80% diamond/20% RC drilling) and is designed to maximize the opportunity to expand the potential of known deposits and for discovery of new zones of gold mineralization for the minimum exploration expenditures in the shortest time frame. The total exploration budget to complete most of the required work is estimated to be roughly USD 5.5M. This program is scheduled to begin in Q4 2015 and to be completed within 9 to 12 months.

The mining plan shows that, while most of the planned plant feed was tested, some geological facies have not been tested during the PFS stage. These facies should be tested to confirm the adequacy of the currently developed process.

Additional mineralogical and metallurgical test work is also required to firm up the process flowsheet that has been developed. The additional test work will allow determination of optimum operating parameters (final grind, reagent consumption, etc.) in order to minimize CAPEX and OPEX.

Additional rheology and settling testwork is also recommended for equipment selection sizing and design, as there are wide variability characteristics in the various facies.

The increase in mineral resources of the sulphide facies (particularly in the Daapleu deposit) may warrant investigation of alternate processing methods such as pressure oxidation process (POX) for these sulphidic facies. Pressure oxidation followed by POX product cyanidation along with the flotation tailings stream, will likely produce a higher gold recovery than direct cyanidation of the ore. However the additional CAPEX and OPEX associated with the POX processing needs to be investigated and evaluated to demonstrate the economics.

It is recommended, at the next stage of technical reporting, that a more detailed scheduling exercise be undertaken to determine the optimal scenario for feeding ore from the various pits and stockpiles to the mill, particularly with the different types of ore coming from the pits (hard versus soft, and also based on sulphide contents).

A more detailed pit phasing plan for ZiaNE and Daapleu should also be carried out in future studies of the project as these pits have the potential to bring higher grade material to the mill earlier in the production schedule, especially from Daapleu.

During the next phase of the work, an optimization of the TSF in terms of location, dam alignment and footprint will need to be carried out.

During the next phase of the study, significant work will be required to optimize the design diversion of the Cavally River and minimize the environmental and social impacts.

A geotechnical investigation program for all proposed pits to obtain the geotechnical information required for the DFS level open pit slope design is recommended in addition to a geotechnical field investigation for all infrastructure.

2 INTRODUCTION

Coffey has been requested by Endeavour, the Issuer, to compile an Independent Technical Report on the Ity Mine in Côte d'Ivoire which is operated by SMI, a subsidiary of La Mancha Holding S.àr.l. This document complies with disclosure and reporting requirements set forth in the Toronto Stock Exchange Manual, NI43-101 Standards of Disclosure for Mineral Project, Companion Policy 43-101CP and Form 43-101F1.

SMI operates the open-pit and heap leach gold mine in the Ity district of western Côte d'Ivoire. Production commenced in 1991, with a total of over 1.0Moz produced to date from multiple deposits. The mine currently processes 950 ktpa of ore and produced 82,000 ounces of gold in 2014 and 45,000 ounces of gold production from the first six months of 2015.

A Scoping Study for the exploitation of the mineral resource using an alternative processing method was conducted in 2013. The preliminary financial analysis carried out during this study showed promising results and SMI decided to continue through the PFS stage.

In 2014, SNC-Lavalin Inc. conducted a PFS on behalf of SMI to evaluate the potential of a CIL plant using a processing rate of 1.5Mtpa. The results of the study were positive and in late 2014 through to early 2015, SMI carried out drilling programs at Daapleu, Zia NE and Mont Ity designed to upgrade all Inferred Mineral Resource material from the 2014 mineral resource estimate to Indicated Mineral Resource, the Daapleu deposit Indicated Mineral Resource to Measured Mineral Resource and to delineate each deposit further along strike. The resulting 2015 mineral resource estimate update yielded a significant increase in Measured and Indicated Mineral Resources for all three areas and SNC-Lavalin was mandated by SMI to update the PFS for the CIL Project using a processing rate of 2.0Mtpa.

All units in this report are metric and distances are in metres, unless otherwise stated. All geographic coordinates are UTM WGS84 Zone N29. Elevation Datum is mean sea level

2.1 Scope of the Report

This report is intended to document the results of the latest mineral resource estimates, the results of the mining studies for the Heap Leach operations and the results of the PFS for the CIL Project available to date.

The mineral resource estimates for the Daapleu, ZiaNE and Mont Ity deposits, the Aires Heap Leach pads, and the Verse Ouest dump are provided as of the Effective Date of July 31, 2015. The 2014 or earlier mineral resource estimates for the Walter and Gbeitouo deposits, and the Teckraie dump have also updated to this Effective Date. The report documents the results of the Heap Leach mining study and the CIL plant PFS of 2014 which was updated to the July 2015 Effective Date.

This report is prepared under the guidelines of NI43-101 and the Canadian Institute of Mining and Metallurgy (CIM) guidelines and is intended to meet the filing requirements of the Issuer.

2.2 Principal Sources of Information

Principal sources of information are documents supplied by SMI, study results, site visits (Section 2.3) and information in the public domain. A reference list is given in Section 27.

2.3 Site Visits

A site visit was made to the mine/exploration site between 20 and 28 May 2014 by Ms Kathleen Body. During the site visit the following activities were undertaken:

- Visit to drilling operations at Walter (not part of the current evaluation). Both operating drill sites were inspected as well as site recently cleared on the same project;
- Visit to the deposit sites at Daapleu, ZiaNE, Teckraie rock dumps and the Aires (Decommissioned Heap Leach pads);
- Inspection of the sample processing facilities at the exploration camp;
- Inspection of the sample and core storage facilities at the exploration camp;
- Discussions with project geologists on geological interpretations, quality control processes and data validation, processing requirements;
- Data collection where additional information was needed.

Mr Mpfariseni Mudau visited the Ity projects between 12 and 21 April 2015. The following activities were undertaken during the visit:

- Discussion of the current geological models and cross-sections;
- Discussion of the regional and deposit geology with SMI geologists;
- Inspection of the drilling and sampling sites and assessment of collection methods;
- Validation of the geological logging against the drill cores;
- Inspection of the core yard (for sample storage) and preparation laboratory;
- Visit to the mining area;
- Collection of the database and additional technical information.

Site visits were made to the mine site between July 2012 for a period of 3 days, and December 2013 for one week by Mr. Rémi Bosc representing ARETHUSE GEOLOGY. During the site visits the following activities were undertaken:

- Supervision of ARETHUSE staff engaged in staffing exploration and drilling program from 2012 to 2014;
- Assessment of drilling, sampling, data-acquisition and reporting practices along CIM recommendation and subsequent training for SMI staff;
- Review of cores and sampling facilities, discussion and review of geological models;
- Frequent visit to drilling operations and deposits sites of Walter, Verse Ouest Teckraie, Mont Ity and extension, Colline Sud, Tontouo;
- Review the Ity mine geology and grade control practices;
- Visit heap leach operation.

A site visit was made to the mine/exploration site between 6 and 15 October 2014 by Mr. Patrick Perez of SGS. During the site visit the following activities were undertaken:

- Discussions with the Mine Manager and the Site General Manager concerning the mining operations;
- Review with the Mine Manager the operating practices and ensured the geotechnical recommendations for the mine design of the Mont Ity mine were followed;
- Review with the Mine Manager the mining parameters (dilution and recoveries) and ensured they were consistent with the parameters used for the mine planning (short term and long term) and mineral reserve estimates;
- Discussion with the site geologist of the current geological models.

A site visit was made to the mine / exploration / processing site between January 23rd and 28th by Mr. Daniel Gauthier. During the site visit the following activities were undertaken:

- Inspection of the sample and core storage facilities at the exploration camp;
- Inspection of the sample processing facilities at the exploration camp;
- Discussions with project geologists on geological interpretations, quality control processes and data validation, processing requirements;
- Visit to the Mont Ity mine site, and dumps;
- Visit to the current Heap Leach operations, including the crushing and agglomeration station, conveying and stacking systems, heap leach pads;
- Visit to the current processing installation, including the solution ponds, carbon-in-column circuit, carbon regeneration kiln, and acid wash and elution vessels;
- Visit to the current maintenance (mechanical and electrical) shops;
- Visit to the metallurgical (column) testing installation;
- Visit the SMI site to identify possible locations for the construction of the future CIL plant;
- Data collection where additional information was needed.

Two site visits were originally made to the mine site during the PFS by Dr. Henri P.Sangam. The first site visit was held between 22 and 29 January 2014. During the site visit the following activities were undertaken:

- General site reconnaissance and observations of site geotechnical conditions with special attention to areas of :
  - Pit areas at West Cavally;
  - Plant site; and
  - Tailings Storage Facility.
- Meetings and discussions with SMI geologists on regional and deposit geology as well as on the current geological models and cross-sections;
- Visit to core shed to observe rock cores for each proposed pit;
- Visit to Ity pit to observe current operational practices and performance of the pit slopes.

The second site visit was held between 20 and 28 May 2014 to kick-off the preliminary geotechnical work. During the site visit the following activities were undertaken:

- Visit to Ity pit to establish pit wall mapping procedures;
- Visit to coreshed for the selection of geological boreholes to be logged;
- QA/QC of pit wall mapping at Ity pit;
- Start developing the field investigation program for DFS.

Two additional visits were also conducted during the DFS study to start the geotechnical field investigation campaign between 10 and 21 January 2015 and between 20 to 27 June 2015 for additional site reconnaissance and observations of site geotechnical conditions.

2.4 Qualifications and Experience

The following personnel were nominated to the project team and their specific areas of responsibility are shown below. The qualifications and appropriate experience of the authors are detailed in the Authors' Certificates and summarised Table 2.4_1.

Table 2.4_1
SMI Gold Project
List of Qualified Persons and Responsibilities SMI Gold Project

Qualified Person	Company	Sections
Kathleen J. Body, Pr.Sci.Nat.	Coffey Mining (South Africa) (Pty) Ltd	1-5, 6.1-6.7,6.10, 7-9, 14.1-14.6, 14.9, 18.1, 23-27
Mpfariseni Mudau, Pr.Sci.Nat.,	Coffey Mining (South Africa) (Pty) Ltd	10.1-10.4, 11.1-11.4, 11.5.1-11.5.3, 11.6, 12.1-12.3.6,12.4
Gordon I. Cunningham, Pr. Eng.	Turnberry Projects (Pty) Ltd.	13.1, 17.1
Rémi Bosc, Eur.Geol.	Arethuse Geology Sarl	6.8-9, 10.5, 11.5.4,11.5.5, 12.3.7-8, 12.5 and 14.7-8
Patrick Perez, P.Eng.	SGS Canada	4.4, 15.1, 16.3, 19, 21.1, 22
Jason Baker, P.Eng.	SNC-Lavalin Inc.	15.2, 16.4
Daniel Gauthier, Eng.	SNC-Lavalin Inc.	13.2, 17.2
Pierre Larochelle, Eng.	SNC-Lavalin Inc.	18.2-18.4, 20, 21.2
Henri P. Sangam, P.Eng.	SNC-Lavalin Inc.	16.1, 16.2

3 RELIANCE ON OTHER EXPERTS

This report was prepared using NI43-101 Technical Report guidelines, in accordance with Form 43-101F1 by Coffey for Endeavour. The quality of information and conclusions contained herein is consistent with the level of effort involved in Coffey's services and based on:

- Information available at the time of preparation supplied,
- Third party technical reports prepared by Government agencies and previous tenement holders,
- Other relevant published and unpublished third party information.

This report is intended to be used by Endeavour, subject to the terms and conditions of the contract between Coffey and SMI. This contract permits Endeavour to file this report as a Technical Report with Canadian Securities Regulatory Authorities pursuant to NI43-101, Standards of Disclosure for Mineral Projects. Except for the purposes legislated under Canadian provincial and territorial securities law, any other uses of this report by any third party is at that party's sole risk.

A final draft of this report was provided to Endeavor, along with a written request to identify any material errors or omissions, prior to lodgement.

Neither Coffey, nor the authors of this report, are qualified to provide extensive comment on legal facets associated with ownership and other rights pertaining to SMI's mineral properties described in Section 4. Neither Coffey nor the authors of this report carried out any legal due diligence confirming the legal title of SMI to the properties. It is assumed that SMI has and will continue to have the legal right to explore and exploit these properties.

QP Comment Pierre Larochelle: In the preparation of Item 20, the responsible QP has relied to a very large extent on Mr. Richard Fontaine's expertise. Mr. Fontaine graduated in Forestry Engineering and is a seasoned Environmental and ESIA (Environmental and Social Impact Assessment) specialist with over 25 years of experience in the field of Environmental Engineering as related to similar projects.

QP Comment Gordon Ian Cunningham: I am familiar with the specific type of deposit found in the property area and its metallurgical aspects and have been involved in similar evaluations and technical compilations. I have not visited the site prior to 31 July 2015. I have relied upon outside sources of information from both La Mancha and Ity Mine used in the completion of Items 15.1 and 17.1. I am aware of no reason to believe the dataset is not accurate and reliable.

4 PROPERTY DESCRIPTION AND LOCATION

4.1 Location

The mineral deposits described in this report are all part of the mine property of SMI or the adjacent exploration permit in the Côte d'Ivoire, centred on 06° 52' 16" north latitude and 08° 06' 30" west longitude. Côte d'Ivoire is located in West Africa at the extreme west of the Gulf of Guinea and it is bordered by Ghana in the east, Mali and Burkina Faso in the north and Guinea and Liberia in the west. The gold deposits of Ity are located in the west of the Côte d'Ivoire, 750km from the economic capital of Abidjan, near the border with Liberia and Guinea (Figures 4.1_1 to 4.1_3).

Figure 4.1_1
Location of the SMI Properties, Côte d'Ivoire

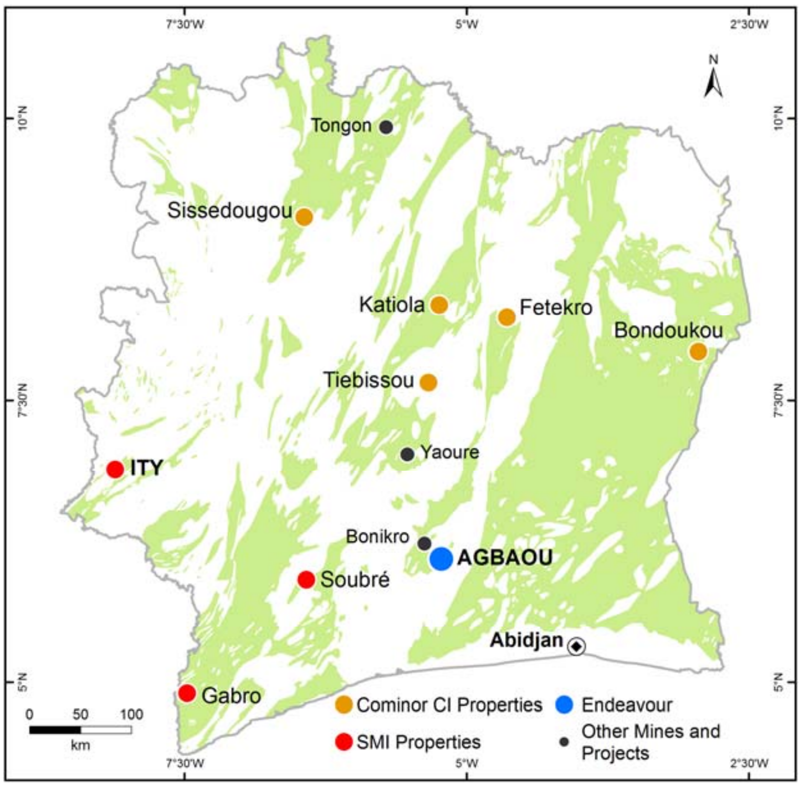


Figure 4.1_2
Permit Areas SMI, Côte d'Ivoire

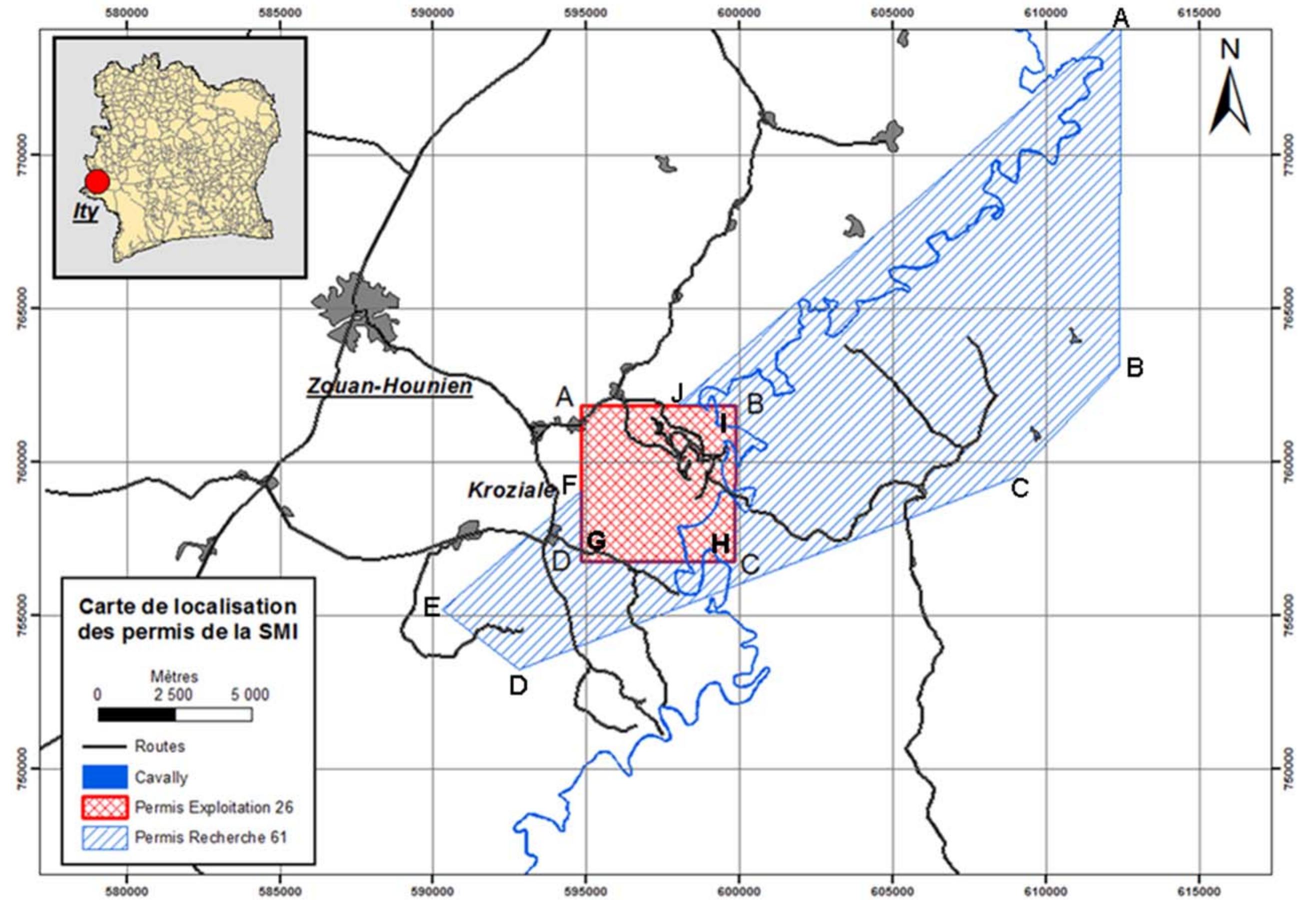
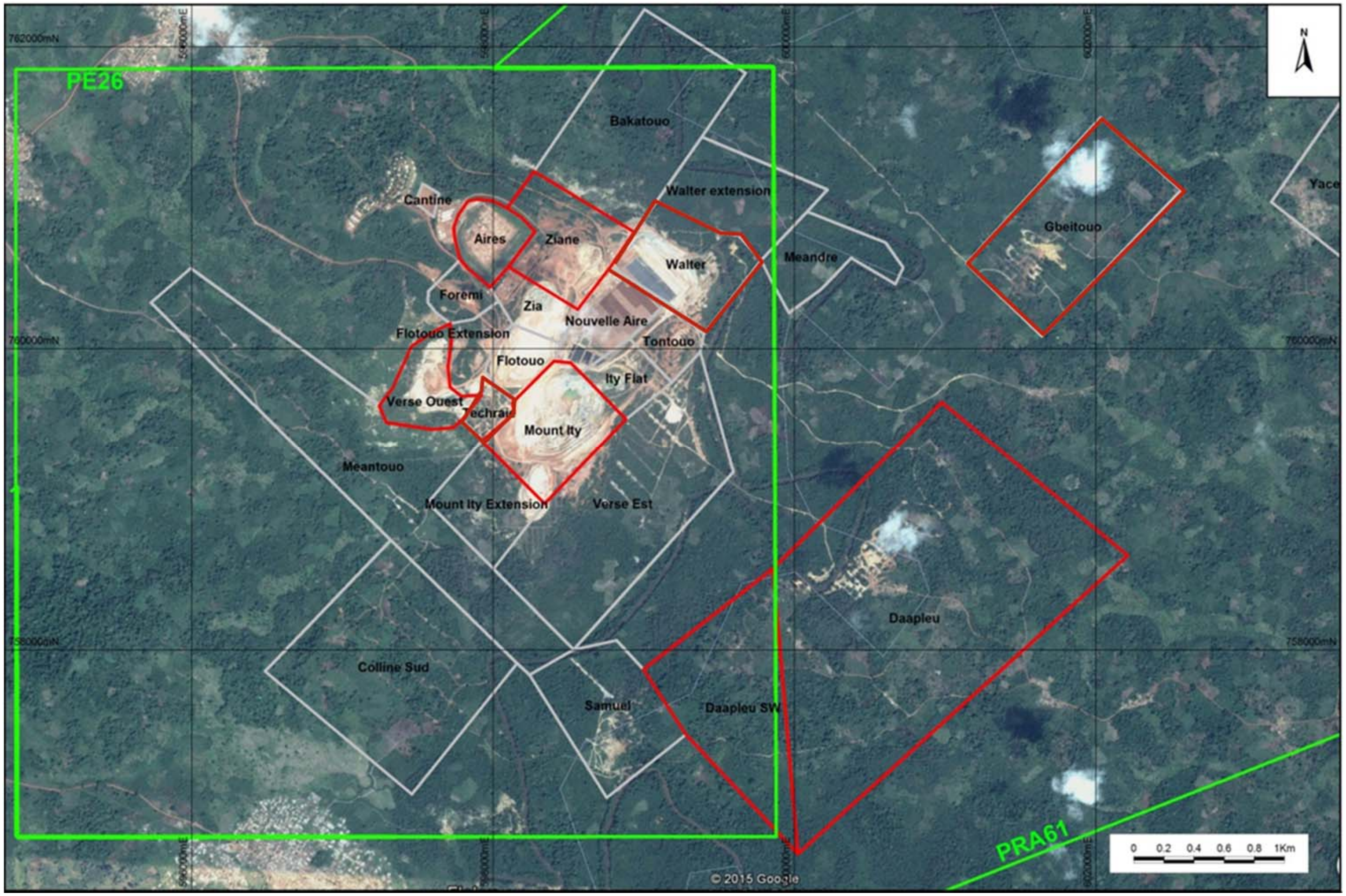


Figure 4.1_3
SMI Operations and Gold Projects, Côte d'Ivoire



4.2 Mineral Rights

The SMI properties which are the subject of this report are located on two permits in the area on and near the Ity gold deposit (Figure 4.1_2). These permits are:

- Permis d'Exploitation PE26 (Mining Permit), coordinates are given in Table 4.2_1, and
- Permis de Recherche PR61 (Exploration Permit), coordinates are given in Table 4.2_2.

Mining Permit PE26 comprises an area of 25km^2 and includes the Ity Gold Mine, the deposits ZiaNE and Walter, the Aires (decommissioned Heap Leach Pads), the rock dumps Verse Ouest and Teckraie and surrounding areas most of which are to the west of the Cavally River. Mining Permit PE26 was first granted in 1989 as Arrête 197/MINES/DM/ (14 October 1989) and renewed as:

- Arrête 081/MME/DM (13 December1994);
- Arrête 0038/MRMP/DM27/07/1998;
- Arrête 003/ME/DM 3 March 2006 (prorogation de validité), and ;
- Arrête 005/MME/DM/26/03/2008 for a further period of seven years from 1 November 2006 (Appendix A).

The PFS required for the renewal of the permit was lodged with the Minister of Mines in May 2013. The renewal of the exploitation permit was granted on 28 August 2014 as Arrête 8-002/MIM/DGMG. The renewal is for 10 years from 14 November 2014.

The Environmental and Social Impact study (ESIS) for the construction of CIL gold plant was approved on 17 December 2013 as Arrête 008/MINESUDD/ANDE.

Table 4.2_1
SMI Gold Project
Coordinates Mining Permit PE26

Point	Longitude (West)	Latitude (North)
A	8°08’30”	6°53’30”
B	8°05’46”	6°53’30”
C	8°05’46”	6°50’44”
D	8°08’30”	6°50’44”

Exploration Permit PR61 is situated over parts of the Zouan-Hounien and Blolequin prefectures. The permit has a surface area of 153km^2 and is oriented northeast-southwest and is comprised of two sub portions, with prospects Gbeitouo, Daapleu, Yacetouo, Morgane, Mlambopleu to the east of the Cavally River and Floleu to the west of the river. Exploration Permit PR 61 was first issued in 1995 and extended in two year intervals with land area reductions up to the current holdings as ministerial decree n°0072/MMPE/DGMG/DDM (7 September 2012) and is valid until September 12, 2014.

- 5 September 2014: SMI asked for extension of Mining Permit PE26 to PR61;

- 29th May 2015: SMI renounced to the demand above;
- 29th May 2015: LMCI made an exploration permit request for PR609 (ex PR61).

In order to obtain the Exploration Permit into a Mining Permit, the company will have to lodge a request to the Ministry of Mines with the following documents:

- The ESIS under the terms of the national environmental agency (Agence Nationale De l'Environnement: "ANDE");
- A report demonstrating the economic and technical feasibility of the project.

Table 4.2_2
SMI Gold Project
Coordinates PR61

Point	Longitude (West)	Latitude (North)
A	7°58'57"	7°00'16"
B	7°58'57"	6°54'10"
C	8°00'46"	6°58'16"
D	8°09'37"	6°48'50"
E	8°10'58"	6°49'53"
F	8°08'30"	6°52'00"
G	8°08'30"	6°50'44"
H	8°05'46"	6°50'44"
I	8°05'46"	6°53'30"
J	8°06'47"	6°53'30"

4.3 Ownership

Mineral rights are 100% held by SM,I a company of the Côte d'Ivoire, at a registered address 08 BP 872 Abidjan 08 – Cocody 180 logements Boulevard Latrille, immeuble Palm Club, 2nd floor.

The shareholders of SMI are:

- Société pour le Développement Minier de la Côte d'Ivoire (SODEMI) effective 30%;
- State of Ivory Coast effective 10%; and
- Keyman Investment (Didier Drogba Group) 5%

4.4 Royalties

A 3.5% gold royalty, payable to the State of Côte d'Ivoire, has been applied over the life of both the Heap Leach and CIL operations based on the retained gold sale price assumptions. This royalty is in accordance with the rate applicable, under the Ivorian mining code, as presented in Table 4.4_1.

Table 4.4_1
SMI Gold Project
Royalty Rates Applicable Under The Ivorian Mining Code

Spot gold price - London PM Fix	Royalty rate
≤ US$1000	3%
US$1000 ≤ US$1300	3.5%
US$1300 ≤ US$1600	4%

AREVA holds a royalty payable to Franco Nevada on Ity's production on the basis of 2% NSR for the cumulative production since January 1st 2001 comprised between 13 and 22 tonnes, and of 3% while this cumulative production is comprised between 22 and 35 tonnes.

4.5 Risk Factors

Significant factors and risks that may affect access, title, or the right or ability to perform work on the property include the recent political unrest in Côte d'Ivoire. SMI management continues to believe that the Ivorian political situation will not have a significant impact on the long-term of the mine or the recoverability of its investments in the Ity property.

5 ACCESSIBILITY, CLIMATE, LOCAL RESOURCES, INFRASTRUCTURE AND PHYSIOGRAPHY

5.1 Climate

The climate of Côte d'Ivoire is tropical with a dry season from December to May and a wet season with intermittent sunny days from June to November. Climatic conditions at Ity are tropical and the seasons are distinguished by changes in precipitation and wind direction. Temperatures are fairly constant throughout the year. The rainy season at Ity runs from April to October, and the dry season from November to April. Annual rainfall is 1800mm and temperatures are generally average between 25-30°C. Operations are carried out year round however access to exploration sites on the east side of the Cavally River may be restricted during heavy rains.

5.2 Vegetation and Soils

Two types of vegetation cover are found in the Côte d'Ivoire and have a very specific distribution. The vegetation types are delimited by a concave boundary that runs from Man-Toumodi south to Abengourou (Section 5.3, Figure 5.3_1).

- The equatorial forest covers the southern domain.
- The northern domain is a mixed dense humid forest, guinea-type savannah and wooded savannah.

Three types of soils cover are mapped (from north to south)

- Ferralitic red soils in forested areas. These are deep, leached, mostly dry and very acidic
- Ferrisols rich in iron hydroxides at the savannah-forest boundaries, and
- Tropical soils of the savannahs rich in iron.

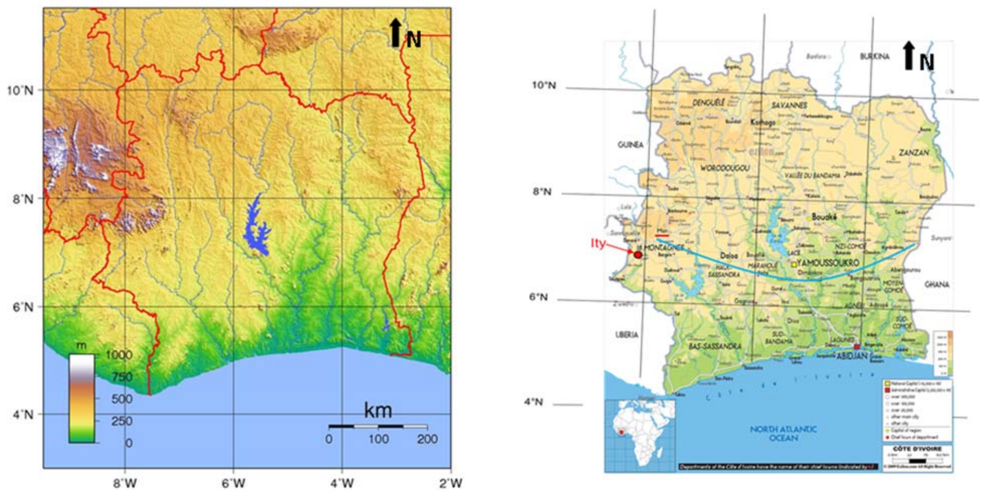
5.3 Topography

The topography of Côte d'Ivoire is characterised by an ensemble of hills and flat-topped plateaus in undulating plains. The elevation rises from sea-level at the coast to approximately 1700m at Mt Nimba at the border with Guinea and Liberia in the west (Figure 5.3_1). The regions in the west and northwest are marked by the mountains of Dans, Touras and Touba.

The Ity deposit is situated on a peneplain dominated by small hills typical of humid tropical forest morphology. The area hosts a series of hills of approximately 300m high. The four dominant hills being Mounts Zia, Ity, Flotouo and Zouatouo.

The Cavally (Cavalla) River is situated approximately 1km from the current operations and runs through the Daapleu deposit. The river winds in a serpentine fashion, runs roughly north to south draining the western portion of Côte d'Ivoire and forms part of the border with Liberia in the south.

Figure 5.3_1
Topography of the Côte d'Ivoire



http://www.mappery.com/Iory-Coast-Topography-Map

Blue line is the northern limit of the equatorial forest (Section 5.2)
http://www.mappery.com/Ivory-Coast-Physical-Map

5.4 Access and Infrastructure

The Ity property and associated exploration areas are located in a remote region. Access to site is possible by road from Abidjan and is a ten hour trip. The mine can be supplied via this route. Access for staff is generally by air from Abidjan to Man and then by road from Man to the mine site. Flights are run weekly, currently on a Tuesday.

Roads to the mine are generally tarred but may be in poor repair in places and as in most tropical areas can deteriorate rapidly during the rainy season.

There are no large towns near the mine site but there are numerous villages and settlements that could be classified as small towns nearby. Basic goods supplying the local population needs can be found but most supplies and services needed by the mining operation must be brought in from Abidjan or imported.

5.5 Security

Security issues that affect the SMI property are general lack of access and limited transportation due to the remote location. Political uncertainty due to political conflict in the last few years is a concern. The recent Ebola epidemic did not reach the area but the property is close to the border with Guinea and Liberia and the potential for a spread into the areas exists if there is another outbreak in neighbouring countries. SMI management is aware of these risks and procedures are in place to deal with potential security threats.

5.6 Surface rights

Surface rights are sufficient for all current mining and milling operations, exploration activities, and for all required mine facilities.

6 HISTORY

6.1 General History of the Property

The general history of the property up to 2008 is taken from reports by Febvey and Bottero 2013 and Danjou and Furic 2014. Site specific histories are given in Sections 6.2 - 6.9.

In the 1950's, copper and gold discovered in placers near the village of Ity attracted the attention of Bureau Minière de la France d'Outre Mer (BUMIFOM). BUMIFOM was initially a copper exploration company before switching to gold exploration. France's state-owned Bureau de Recherches Géologiques et Minières (BRGM) estimated an in-house geological resource in 1970. However, various attempts to economically extract gold from the Flotouo deposit failed because of metallurgical problems, mainly due to the fineness of the gold and the rheology of the ore.

In 1984, SMI was incorporated in Côte d'Ivoire as a vehicle for developing the Flotouo deposit. Further exploration conducted by BRGM and SMI in the 1980' yielded another in-house geological resource that confirmed and increased the mineralized zones found earlier. Mine construction began in 1990. The first gold from the Flotouo deposit was poured in January 1991. COFRAMINES was later replaced by Mine Or in 1993, and then by Normandy La Source, who raised its stake in SMI to 51% by acquiring 11% from SODEMI in 1997. Mining at Zia (the northeast extension of Flotouo) began in 2000.

La Compagnie Minière Or (COMINOR) was created in 1999 by the BRGM in France to receive some of the assets (including SMI and other Côte d'Ivoire exploration properties) from the Normandy Mining Group. In 2000, COMINOR was transferred to Compagnie générale des matières nucléaires (COGEMA), now part of the AREVA group, and in March 2002, COMINOR acquired its 51% shareholding in SMI from the Normandy Mining Group.

In September 2002, Côte d'Ivoire was essentially divided in half following civil unrest and the mining operations were abandoned from December 2002 to June 2003. Production resumed in February 2004.

In 2006 COMINOR was subsumed into the La Mancha Group via a reverse takeover of La Mancha by Compagnie Française de Mines et Métaux (CFMM), a wholly-owned subsidiary of the Areva group. This gave La Mancha an effective 45.9% interest in the Ity Gold Mine. La Mancha took over operation of the mine. La Mancha has subsequently made operational improvements to increase gold production and carried out a series of drilling programme resulting in the extension of the known deposits and discovery of additional deposits in the permit areas.

The early exploration history of the Ity area is summarised in Table 6.1_1

Table 6.1_1
SMI Gold Project
Exploration Before 1995

Dates	Company	Exploration	Results
1956-1958	BUMIFOM	Soil geochemistry for Cu and Au over the KroZyale, Ity and Pepleu areas Pits over Ity, Flotouo and Zia	Discovery of the laterite deposit at Flotouo
1959-1962	BRGM	Exploration for Cu and Au using grids of pits in the low areas and soil geochemistry over a 100m x50m grid at Ity-Flotouo, east of the Cavally River and Zones of Neo (Morgan)-Doui	No anomaly is known to have been found and no documentation appears to have been preserved
1968-1972	BRGM	Exploration for Cu	unknown
1973-1975	BRGM	Stream sediment sampling for Au	Several anomalies found with values 100-500ppb Au
1979	GEOTEREX	Airborne geophysics: magnetics, EM, over the Toulepleu-Ity belt radioactivity	23 Electromagnetic (EM) anomalies identified
1980	BRGM	Ground geophysics over the main anomalies and soil geochemistry Prospection sulphide masses and Au	

Exploration between 1995 and 2011 concentrated on areas that are not the subject of this report. Exploration carried out over the properties which are the subject of this report is detailed in Sections 6.2-6.5.

On November 12, 2012 La Mancha delisted from the Toronto and Frankfort stock exchanges (http://www.lamancha.ca/en/news/2012/la-mancha-announces-completion-of-compulsory-acquisition-by-weather-ii). The last publically reported mineral resources and mineral reserves for the Ity Mine were as at December 31, 2011 (Table 6.1_2).

In 2014 a change of shareholders was authorised by the government of the Côte d'Ivoire. La Mancha was able to acquire additional shares for SODEMI giving it a majority of the shares in SMI. The new set of shareholders is: Groupe La Mancha (55%), SODEMI (30%), State of Côte d'Ivoire (10%) and Groupe DIDIER DROGBA (5%).

Table 6.1_2 SMI Gold Project Ity Historical Mineral Resources 2011			
La Mancha (45.9% attributable)	**Tonnes**	**Au (g/t)**	**Au (oz)**
Proven Reserves	-	-	-
Probable Reserves	535,450	4.85	83,540
Total Reserves	**535,450**	**4.85**	**83,540**
Measured Resource	1,147,500	4.46	164,600
Indicated Resource	1,520,200	2.69	131,500
Total Measured and Indicated	**2,667,700**	**3.45**	**296,100**
Inferred Resource	4,053,900	1.60	208,700

A qualified person has not done sufficient work to classify the historical estimate as current mineral resources or mineral reserves; and the Issuer is not treating the historical estimate as current mineral resources or mineral reserves.

The mineral resources shown include the mineral reserves. The mineral resources and reserves were reported in accordance with the requirements of NI43-101.

This is a historic resource estimate which has been replaced by the current mineral resource estimation reported in this document.

6.2 History: Aires de Lixiviation (Heap Leach Pads)

The Aires de Lixiviation (Heap Leach Pads) represents the residues of the leach pads which were in operation from 1990 to 2009. In 2010 the residues were estimated at 5.68Mt at 1.11g/t Au (Islip, 2014). This Inferred Mineral Resource (reported in accordance with the requirements of NI43-101) was estimated from production records over the period the leach pads were in operation.

A qualified person has not done sufficient work to classify the historical estimate as current mineral resources or mineral reserves; and the Issuer is not treating the historical estimate as current mineral resources or mineral reserves.

This is a historic resource estimate which has been replaced by the current mineral resource estimation reported in this document.

No other evaluation work was undertaken prior to 2013.

6.3 History: Teckraie

Teckraie is the historical waste dump from the Flotouo deposit. The cut-off grade at the time was 3g/t Au. No evaluation work has been done on this dump prior to the current study.

6.4 History: Daapleu

Historical exploration at Daapleu is presented in Table 6.4_1

Table6.4_1

SMI Gold Project

Exploration Undertaken At Daapleu After 1995

Dates	Type of Work	Results
1995	Geophysics	Analysis of Data from Geoterrex Surveys
1996	Stream sediment sampling	2059 Samples taken
1995-1996	Soil Geochemistry	11365 samples taken on a 200x50m grid reduced to 100m x50m
1997	Drilling Core	34 boreholes totalling 3751m from three sites, Le Plaque, Daapleu and Morgan
1998	Evaluation	Study of gold mineralization at Le Plaque
1999	Ground Magnetics	Over areas of Le Plaque-Floleu, Daapleu, Gbeitouo and Bakatouo (Morgan) 248000 stations over a grid 100m x12.5m

Three large pits are exploited by the artisanal miners. Two of these are oriented east-west and a third at N50°near the village. The artisanal miners extract the mineralized oxidized saprolites and the adjacent altered daaplites. The gold is washed at the Cavally River and recovered as a fine grained “gold powder”.

6.5 History: ZiaNE

Historical exploration at ZiaNE was included as part of the overall exploration and evaluation programme of SMI. In 2008 52 boreholes for 4234.55m of core, were drilled. There are an additional 32 boreholes drilled in the 2015 campaign with a total meterage of 19,526m.

6.6 History: Verse Ouest Rock Dump

Between 1996 and 2007, the cut-off of the mine was 2g/t Au. The material with gold grade less than 2g/t Au was dumped at Verse Ouest. The low grade clays with 1 to 2g/t Au were dumped at Verse Ouest from 2008 to 2013. No evaluation work has been done for this dump prior to the current evaluation.

6.7 History: Mont Ity

Refer to general history of Ity deposits (Section 6.1). New drilling was done in 2014 and comprised 31 boreholes of which six were for metallurgical samples, five were for hydrology studies. The remainder were drilled to confirm the geological model and are incorporated into the mineral resource estimate.

6.8 History: Walter

Two exploration campaigns have been undertaken at Walter, the first in 2008-2009 and a second 2013-2014. At total of 97 boreholes were drilled of which 72 were cored and 25 were Reverse circulation drilling. A summary of the drilling is given in Table 6.8_1. The earlier campaign was to delineate the deposit to enable a mineral resource to be estimated. The second campaign tested the extensions to the northeast, southwest and filled in gaps to reduce the drilling grid to 25m x25m.

Table 6.8_1
SMI Gold Project
Walter Exploration

Campaign	Drilling Type	Number of Boreholes	Cumulative Drilling metres (m)	Average Length per borehole (m)
2008	Diamond Drilling	34	2092	62
	Reverse Circulation	2	120	60
2009	Reverse Circulation	4	242	61
	Reverse Circulation - Diamond Drilling	6	613	102
2013	Diamond Drilling	3	530	177
2014	Diamond Drilling	29	3386	117
	Reverse Circulation	19	1891	100
Total : Diamond Drilling		**72**	**6621**	**92**
Total : Reverse Circulation		**25**	**2253**	**92**
Total		**97**	**8874**	**92**

6.9 History: Gbeitouo

Gbeitouo was discovered during regional exploration in the 1990. Drilling began in 2007. The history of Gbeitouo exploration is given in Table 6.9_1.

Gbeitouo was explored through four drilling campaigns from 2007 to 2013 and two initial well campaigns (in 1996 and 1999) that have not been considered for the mineral resource estimations because of the lack of information. A total of 156 holes for a total length of 12,998m were drilled, either by diamond core (7,307m), reverse circulation (4,666m) or rotary air blast (1,025m). The first DD-RC campaign and the second RAB campaign (2007-2009) were to delineate the deposit to enable a mineral resource estimation. The third DD campaign (2010) tested the extension of the mineralization to the Southwest. The fourth and last DD campaign (2013) tested the Northeast, Southwest and depth extensions of the deposit, and duplicated drill holes from previous campaigns. The drilling grid was 40m x 30m intercepting the main ore bodies with an angle close to perpendicular.

Table 6.9_1
SMI Gold Project
Gbeitouo Exploration after 1995

Year	Work	Description
1995	Regional Geophysics	Géoterrex Survey of 1979 : magnetics, electromagnetic
1996	Regional Stream Sediment Sampling	2,059 samples
1995-1996	Regional Soil Geochemistry	11,365 samples on a grid of 200x50m, reduced 100x50m
1996	Pits	64 pits on a grid 30x25m and 30x12.5m
1999	Pits	74 pits totalling 1058m, grid 200x25m
1999	Magnetics	2 rectangles and 2 dipôle-dipôle profiles
2007-2009	RC et DD Drilling	78 boreholes totalling 6,898m (4666m RC + 2.232m DD)
2007-2009	RAB Drilling	41 boreholes totalling 1,025m
2010	DD Drilling	4 boreholes totalling 522m
2013	DD Drilling	33 boreholes totalling 4,554m

6.10 Historic Gold Production

Historic gold production from the Ity Mine is given in Table 6.10_1.

Table 6.10_1
SMI Gold Project
Historic Gold Production Ity Mine

Year	Ore Mined (t)	Grade Mined (g/t)	Gold Produced (kg)	Gold Produced (oz)
1990/91	160,937	10.3	723	23,259
1991/92	112,597	8.7	1,248	40,124
1992/93	170,181	9.6	1,192	38,324
1993/94	320,559	10.3	1,246	40,060
1994/95	2,093	9.1	1,326	42,632
1995/96	395,695	6.9	1,276	41,024
1996/97	324,595	6.2	1,582	50,862
1998	303,355	6.3	1,464	47,069
1999	310,449	6.8	1,432	46,040
2000	330,136	5.7	1,542	49,576
2001	404,415	5.2	1,858	59,736
2002	283,151	5.4	1,600	51,441
2003	0	-	0	0
2004	483,577	3.9	1,263	40,606
2005	443,581	3.8	1,335	42,920
2006	387,836	3.6	1,323	42,535
2007	444,047	3.6	1,243	39,963
2008	520,051	4.4	1,694	54,463
2009	490,198	3.3	1,608	51,698
2010	367,721	4.0	1,155	37,134
2011	385,523	3.0	1,143	36,748
2012	530,114	4.0	1,693	54,431
2013	706,192	4.2	2,552	82,062
TOTAL	**7,877,003**	**5.0**	**31,498**	**1,012,710**

7 GEOLOGICAL SETTING AND MINERALIZATION

7.1 Regional Geology

The description of the regional geological setting is taken primarily from the End of Campaign reports prepared by SMI for the Aires de Lixiviation, Teckraie and Daapleu (Febvey and Bottero 2013). The Qualified Person is familiar with most of the references used and is in agreement that the description fairly represents the generally accepted interpretation of the regional geology.

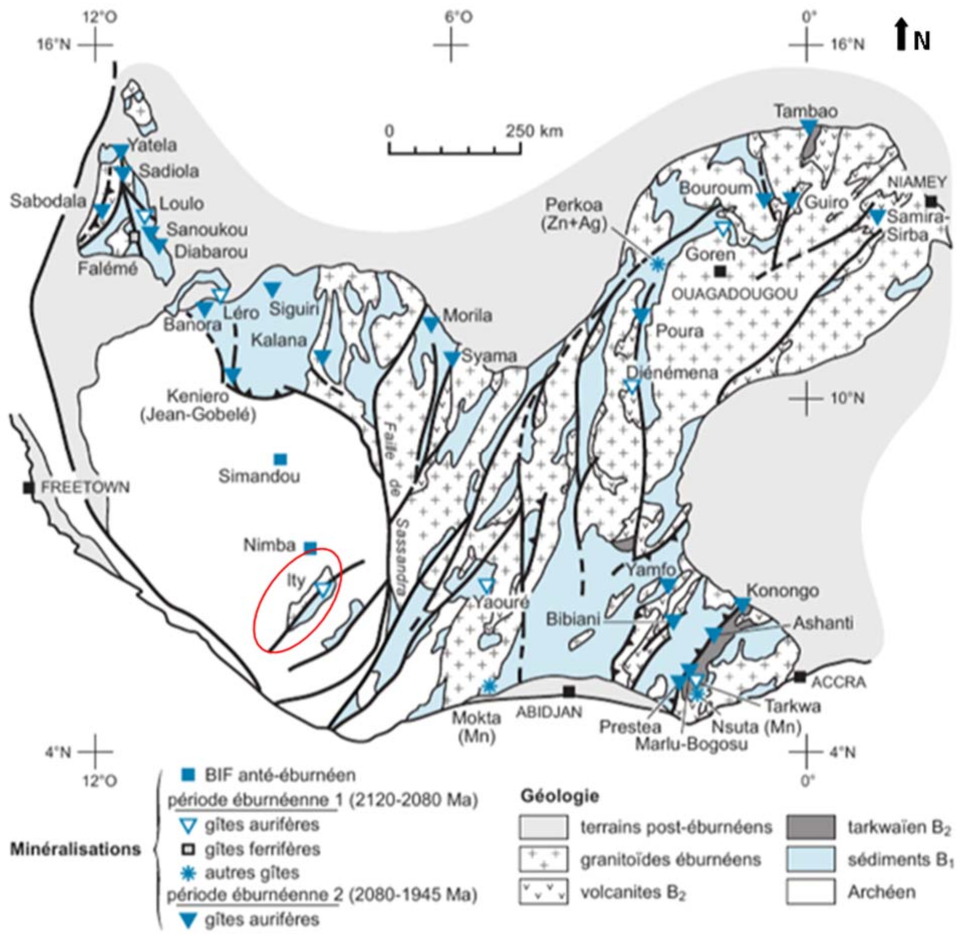
The Ity deposits are located in the Lower Proterozoic Birimian Formations of Toulépleu-Ity klippe. The Toulepleu-Ity klippe is a small remnant of Birimian in the West African Craton which spans ten countries, between Côte d'Ivoire, Senegal, Niger and Ghana.

Milesi et.al. (1989) and BRGM (1986, 1989), proposed a definition of the Birimian with a lithostratigraphic succession separated into two large groups:

- A Lower Birimian (B1) set essentially flyschoid basin fill. The whole basin is affected by three cycles of deformation:
- D1 (2090-2100Ma) phase of major collision: duplication of the lower Proterozoic on the gneissic Archaean basement, a break in all B1 sedimentation and intrusion of syn-kinematic granites;
- D2 and D3 (2090-1970Ma) responsible for the intrusion of granites mantle between 2080 and 1945my (D2 large sinistral offsets, related overlaps and folding; D3 dextral offsets and associated folds);
- The upper Birimian (B2), volcanic-dominated, with where fluvio-deltaic formations are intercalated in volcano-sedimentary facies.

Figure 7.1_1 shows a simplified geology of the West African Craton, the location of the principal gold and base metal deposits and the Birimian window which contains the Ity deposit.

Figure 7.1_1
Simplified Geology of the West African Craton



According to Milesi et.al. (1989), the Eburnean metallogenic cycle, rich in gold and base metals lasted 150Ma with:

- A first period at the time of the filling of the B1; stratiform deposits of Mn, Fe, Au, Zn-Ag are being put in place at about 2150Ma at the top of the stratigraphic pile. This period ends with the deposition of gold mineralization in conglomerates;
- The second, late-orogenic metallogenic period appears with the latter brittle deformation phases of D1 and D2. It is marked by mesothermal mineralization, followed by quartz veins and paragenetic Pb-Zn-Ag-Bi deposits dated at approximately 201Ma.

The deposits encountered in West Africa in the Birimian are diverse. Examples of deposit types are:

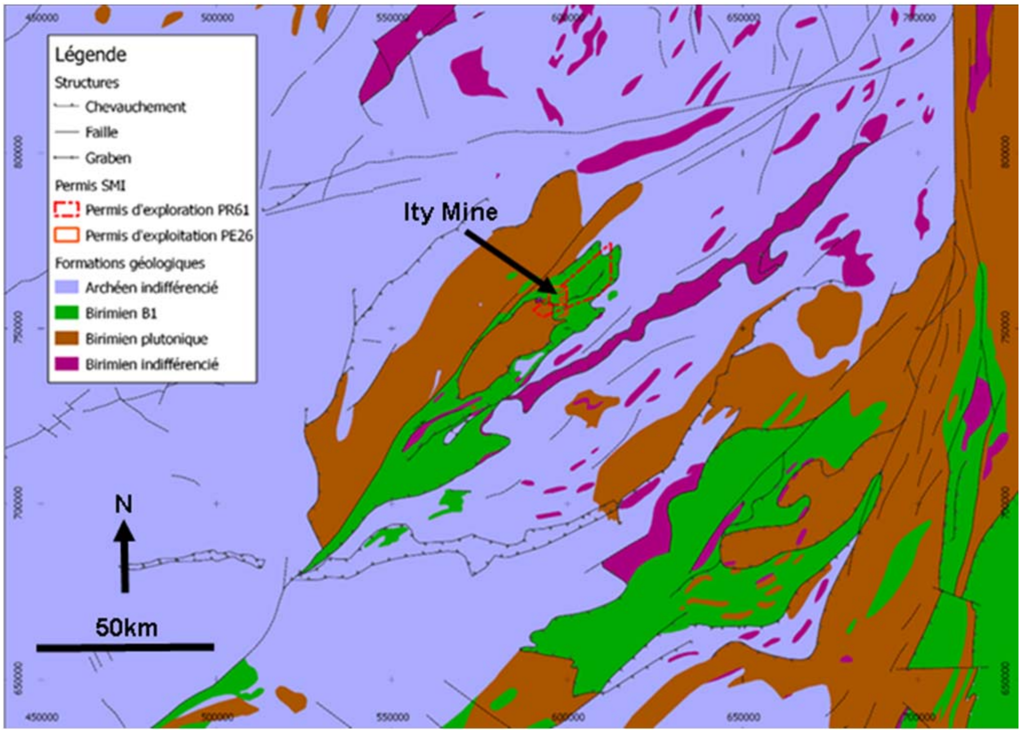
- Gold mineralization associated with major shear zones for example, Obuasi (AngloGold Ashanti/Randgold Resources) along Ashanti Fault Zone in Ghana.
- Gold Mineralization associated with conglomerates at the base of paleo-channels (placers) as in the deposit at Tarkwa in Ghana (Iamgold).
- Volcanic Massive Sulphides in the lower Birimian for example the Zinc deposit at Perkoa in Burkina Faso (Blackthorn Resources and Glencore International, project in development).
- Sedex deposits of the Nstuta manganese mine in Ghana operated by the Ghana Manganese Company Limited since 1916. Mineralization is associated with turbidites within a volcano-clastic terrane (van Bart, 2001).
- Gold skarn at Ity. Ity is the only known Au skarn in the Birimian however iron skarns are known in the Kéniéba-Kedougou Inlier of the Faleme District in Mali and Senegal (Shartz & Melcher, 2004).

Figure 7.1_2 shows the location of the Toulépleu-Ity klippe and the location of the SMI permits. Two different packages of Birimian rocks are found in the klippe.

- On the west, plutonic and metamorphic rocks;
- Sediments and volcano-sedimentary packages (B1) to the east.

Birimian formations overlie the Archaean basement and were emplaced by large regional thrust-faulting.

Figure 7.1_2
Simplified Geological Map of the Toulépleu-Ity Klippe



The Birimian B1 formations correspond to meta-sedimentary series (pelites, gresopelites and carbonates) which have been subjected to greenschist-lower amphibolite facies regional metamorphism. The Toulépleu-Ity klippe is oriented NE-SW. The emplacement of diorites and granodiorites in the meta-carbonate sediments resulted in contact metamorphism causing skarn development with masses and stockworks of sulphides and magnetite containing gold mineralization. These phenomena are accompanied by extensive hydrothermal alteration (Palanque, 2004). Sedimentary and volcano-sedimentary formations of the Toulépleu-Ity klippe are part of the B1 terrane and are therefore affected by the three tectonic phases described previously.

7.2 Local Geology

The Ity area is characterized by a series of granodioritic intrusions into a sedimentary sequence of volcano-sediments and carbonates. The volcanic deposits are tuffaceous with chemistry that ranges from basic to acidic. All formations have been subjected to regional metamorphism.

The deposits of Ity, Zia, Walter and Flotouo are skarns developed at the contacts of the granodiorite with the carbonates. The Teckraie is the rock dump of the Flotouo open pit and sits on top of a weathered granodiorite. The Daapleu deposit is characterized by the presence of a “rhyolitic” intrusive surrounded by a package of volcanosediments. The “rhyolite” is locally called “daaplite” and is leucocratic (grey to white), microgranular, schistose and rich in micas, essentially a fine grained granite. The Gbeitouo deposit is in the volcano sediments.

Abbreviations below represent stratigraphic codes used in the Ity database.

7.2.1 Laterites

Laterites are soils without texture, formed by supergene alteration of iron rich rocks and are generally red in colour. Four categories have been identified on Mining Permit PE26. The succession described below has been observed to be generally less than 10m thick.

- **Lateritic clays (LF)** these are found at the top of the sedimentary pile and include limonites and the topsoil. Residues of organic material found in this layer give the laterite a dark red-brick to brown colour.
- **Lateritic gravels (LG)** have a brick-red to brown clay matrix (about 30% of the volume) and contain abundant concretions of iron oxides and hydroxides (hematite, goethite and magnetite) as rounded pisoliths from millimetres to centimetres in size. Dendrites of manganese oxide (pyrolusite) several centimetres long coat fractures and pore spaces.
- **Mixed Laterites (LM)** are similar to the gravels in appearance but have a higher proportion of matrix to concretions.
- **Mottled laterites (LT)** vary in colour from red-orange to yellowish orange with patches of white kaolinite. Rare pisoliths and traces of iron oxides are present in this layer.

In all lateritic profiles millimetre scale fragments of magnetite and quartz are present.

7.2.2 Saprolites (Argiles)

The saprolites in the Ity area have a plastic texture and a grainsize of less than 2μm. The saprolites are designated silts, sandy silt and breccia and all retain texture of the protolith to a greater or lesser extent. The saprolites are the result of supergene alteration, hydrothermal alteration or a combination of the two. The facies vary in colour as a function of the protolith and degree of oxidation.

Oxidized Saprolites (Argiles Oxidées AO) - are essentially oxides and hydroxides of iron (Fe^{2+} and Fe^{3+}) which are present in a wide range of colours, yellow, orange, brick-red violet etc. The oxidized saprolites are subdivided into three types, Redox front (AOR), saprolite rich in iron oxides and manganese (AOX) and sandy saprolites (AOS).

Reduced Saprolites (Argiles Réduites AR) - are coloured green to white or light grey. They are generally found deeper than that oxidized saprolites and correspond to the water table limit. The minerals in this zone are principally kaolinite and hydrated minerals, tremolite and actinolite. There is a subtype which has a higher percentage of sandy material and is designated ARS in the geological logs.

In the saprolites breccias are coded **BAO** and **BAR** depending on the surrounding lithology.

7.2.3 Rock Dumps

Rock Dumps present as oxidized saprolite breccia with a brownish orange matrix with an assemblage of centimetre sized clasts of different colours (orange, green, grey, whitish, yellow, mauve and some with granular textures) giving a multi-coloured deposit. Various clasts of competent material have been identified in the dumps. These include centimetre sized fragments of quartz and gravels, lateritic zones contain pisoliths and iron oxides. In the northern area at Teckraie, the base of the rock dump is lined with fine grey material, compacted by the weight of the surrounding material. These fine particles impregnate the laterites which separate the rock dump from the altered granodiorite below. This facies is also in the leach pads.

7.2.4 Daapleu Rhyolite (Daaplite, IFMD)

The granitic intrusive at Daapleu is locally called a rhyolite as it has a fine texture. The rhyolite is leucocratic (grey to white), microgranular, schistose and rich in sericite and contains fine-grained pyrite or magnetite disseminated and in fractures. Numerous pink tinged silicified zones have been identified (possibly hematite). Several zones of intercalated volcano-sediments have been intersected near the edges. The rhyolites are crossed by veins of quartz ± tourmaline.

7.2.5 MetavolcanoSediments

The volcano-sediments present are dark greyish-brown to grey-green and finely laminated. Minerals are primarily amphibole, chlorite, biotite, traces of magnetite, calcite as veinlets and fracture coatings, and quartz veins with tourmaline. Disseminated and massive pyrite is found within the lamination in proximity to the daaplite contact and diminishes with depth (away from the contact). In some places the metavolcanic sediments contain abundant amounts of calcite (ex. Borehole DA13-016).

7.2.6 Other Lithologies

Greenish **microcrystalline carbonates (CM)** with chlorite-epidote alteration, disseminated pyrites and magnetite (DA13-023).

Coarse-grained grey-green **mafic intrusive (IMG**) composed of amphibole, magnetite and chlorite with fine-grained disseminated pyrite and calcite veins.

Coarse-grained grey **felsic intrusive (IFG)** riche in sericite, magnetite and large straw-like crystals of muscovite (borehole DA13-015).

Grey-green **mafic-porphyritic intrusive (IMP)** with chlorite alteration and phenocrysts of green amphibole (borehole DA13-023).

7.3 Deposit Geometry

A plan of the SMI operations with the positions of the deposits is given Figures 4.1_3. Approximate dimensions of the deposits are shown in Table 7.3_1

Table 7.3_1
SMI Gold Project
Approximate Dimensions of the Deposits

Deposit	Length (Plan) (m)	Width (Plan) (m)	Depth Extent (vertical) (m)	Strike	Dip
Aires	460	500	40m	NA	NA
Teckraie	360	215	35m	NA	NA
Verse Ouest	550	430	35m	NA	NA
Daapleu	1,200	350	>200m	N50°E, N78°E	50-68°W-NW
ZiaNE	545	245	125m	N40°E	25°NW
Mont Ity	990	540	250m	N34°E	32-43°NW
Walter	600	150	150m	N45°E	22-60°NW
Gbeitouo	300	25 (thick)	150m	N30°E	40-55°NW

8 DEPOSIT TYPES

8.1 Introduction

The SMI property deposits are part of a class of deposits called orogenic gold deposits. These can be described as gold-bearing quartz veins, stringers and wall rock replacement accompanied by only minor sulphides that are localized by brittle to ductile structures within variable rock types.

These deposits account for up to 18% of the world's gold production, ranking them second only to production from placer deposits. Deposits range in size from 0.5t to 1,600t of contained gold with most, typically, containing between 1t and 20t gold. Gold grades are highly variable, but values of >1g/t Au for open-pit and >5g/t Au for underground operations can be economic. Deposits of this type occur in various countries, including Australia, Brazil, DRC, Canada, Ghana, Tanzania, the USA and Zimbabwe.

The rock types that host orogenic gold deposits are highly varied. Orogenic gold deposits are hosted by rocks that have been subjected to a range of metamorphic conditions (from sub-greenschist though to granulite facies). However, the majority of deposits (and especially the larger ones) occur within rocks that have been metamorphosed to greenschist facies (within a metamorphic pressure-temperature regime broadly corresponding to the brittle-ductile transition).

Where gold deposits have been described, the nature of the gold distribution was found to be highly variable between deposits. Mineralization occurs in swarms of discontinuous veins of varying thickness and extent and as disseminated impregnations in sheared and altered rock. Gold occurs as native gold and/or associated with sulphides, with pyrite and arsenopyrite being the most commonly reported, however other metals such as copper and nickel can occur in economic quantities. Veins follow brittle fractures, bedding planes, shear zones and schistosity.

8.2 Skarn Deposits

The following is a short description of the Ity deposit geology to indicate the style of mineralization at ZiaNE, Mont Ity and Walter and of the material from which the Aires and Teckraie dumps have been derived. The primary difference between Mont Ity and ZiaNE appears to be the lack of karst development at ZiaNE due to the position of the granite in the footwall. Walter is considered the North-eastern extension of Mont Ity, and is composed of a mix of endo- and exo-skarns developed at the interface between the carbonate and the granodiorite.

The interpreted section (Figure 8.2_1) is situated in the centre of the Zia NE and Mont Ity deposit. In this section four types of mineralization are seen.

- Skarns in fresh rock;

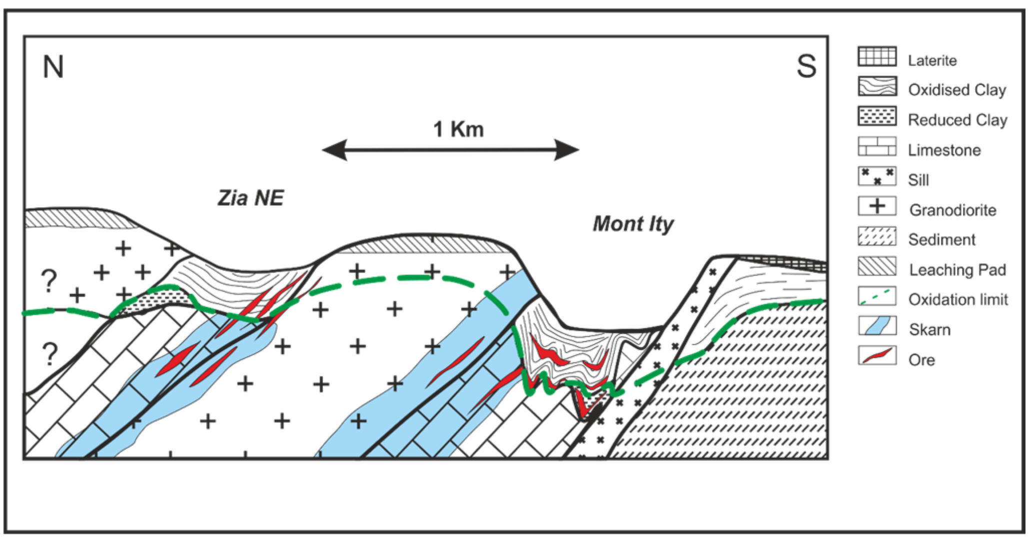
- Reduced saprolites;
- Oxidized saprolites;
- Laterites.

The skarn corresponds to a sulphur rich skarn (pyrite-pyrrhotite-chalcopyrite, 3-10%) with accessory magnetite. These mineralized zones form discontinuous, sub parallel lenses at the contact with the granodiorite. In the north part of the deposit economic grades and thicknesses were intercepted in the boreholes from the 2013 campaign. The sulphide mineralization was intersected in the carbonates and the granodiorite at ZiaNE and is continuous with the mineralization in the oxidized portions of the skarn.

The mineralized portions of the reduced saprolites correspond to the skarns which have been oxidized and have had the carbonates dissolved. These are rocks rich in chlorite, tremolite and/or actinolite. The sulphides are partially oxidized. The reduced saprolites are the transition zone between the oxidized material and the fresh rock.

The oxidized saprolites form the major part of the mineralization at Mont Ity. The mineralization was originally a skarn which has undergone severe supergene alteration. The alteration was enhanced by the dissolution of the sulphides. The alteration was responsible for the generation of karst into which the saprolite material collapsed. This is the explanation for the geometry of the deposit. The laterites have historically been mined at Mont Ity and are found in a small zone in the southeast of the pit.

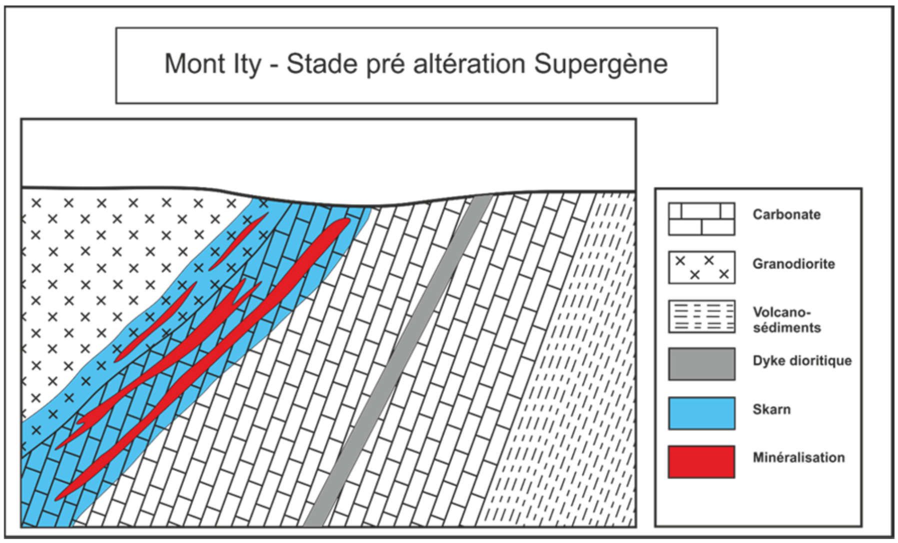
Figure 8.2_1
Schematic Geological Section of the Mont Ity deposit.



The Mont Ity deposit is an unusual deposit not only because Proterozoic skarn deposits are rare but because the supergene alteration has completely changed the deposit geometry.

Figure 8.2_2 shows the Mont Ity deposit as interpreted before the supergene alteration. The primary mineralization is found in the endo- and exoskarn. The mineralized zones is found as discontinuous, sub parallel lenses in contact with the granodiorite and carbonates The primary Au (Cu-Mo-Ag-Zn) is associated with the intrusion of the granodiorite. The intrusion of the granodiorite is accompanied by the emplacement of a dyke of similar composition in the carbonates.

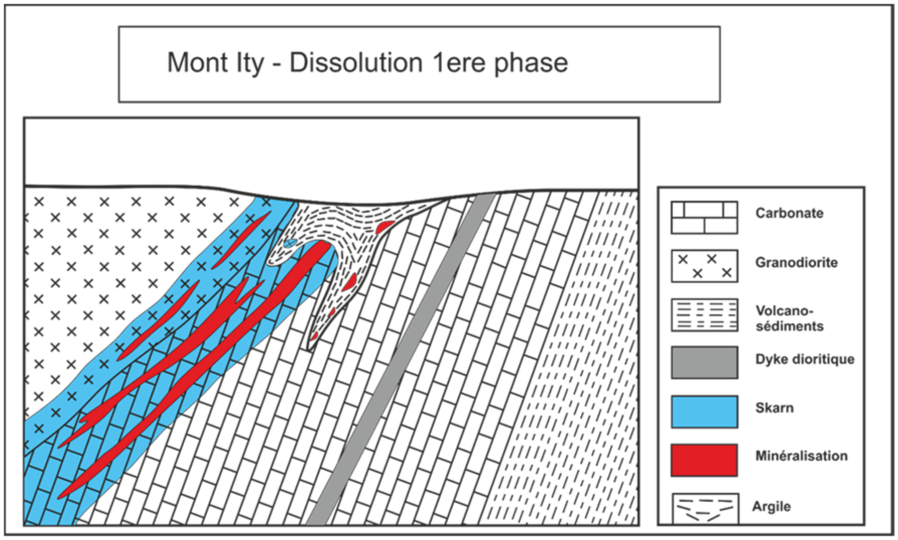
Figure 8.2_2
Interpreted Pre-alteration Stage of the Ity Deposit



The first stage of supergene alteration is characterized by the infiltration of meteoric water. The meteoric water reacted with the sulphide rich mineralization, especially in the massive sulphide zones. Oxidation of the pyrite in an aqueous solution generates sulphuric acid. The acid then reacts with the host carbonate. The Fe is found as goethite, ferrihydrite and other Fe-Mn oxides. The dissolution of the carbonated results in the formation of CO_2 and voids.

Oxidation of the sulphides results in the dissolution of the adjacent carbonates and creates cavities (Figure 8.2_3). The instability in the system causes the collapse of the mineralized zone into these karsts. The carbonates and the calcsilicates zones in the skarns were not pure calcite. This results in the formation of different decarbonized clays. The well mineralized zones in the karst are described a zones rich in iron and magnesium oxides, the products of the oxidation of the primary mineralization. This oxidation was accompanied by a loss of volume in the mineralized zones resulting in an enrichment of the gold.

Figure 8.2_3
Schematic Diagram of the First Phase of Alteration



The alteration process became self-propagating as the oxidation front went deeper. The dissolution became deeper and collapse followed. Erosion and laterization affected the upper parts of the deposit. The laterite zones rich in gold in the southwest of the pit are probably oxidised clays which collapsed as erosion removed the surface and were themselves laterized. Such a phenomenon would explain the lack of root zone in the mineralization. This also implies that there is a lack of mobility of the gold in the laterites at Mont Ity.

8.3 Shear Zone Deposits

The Daapleu and Gbeitouo deposits resemble typical shear zone deposits of the West African granite-greenstone terrane. The deposit itself is associated with a major regional shear zone but is developed on a secondary structure (Figure 7.1_1 and 7.1_2). The host-rock lithologies can be any form of sediment, carbonate or igneous rock with the main feature being a shear zone between two contrasting lithologies. Mineralization may also be spatially related to the emplacement of intrusives. The gold mineralization is mesothermal in origin and occurs as free gold in quartz vein stockworks and zones of silicification, associated with arsenopyrite and to a lesser extent pyrite and antimony. Depending on the geological terrane other metals may be associated with the gold and arsenic.

The gold mineralization is found in linear zones in or near the contacts between two different rock types. The contacts show evidence of shearing. Alteration is weak to severe depending on the development of the system.

The Daapleu deposit is hosted at the contact of the granitic intrusive and the volcano-sediments and within the intrusive itself. The Gbeitouo deposit is mostly hosted in meta-volcanosediments is considered to be a structurally controlled deposit similar to Daapleu.

9 EXPLORATION

The Aires de Lixiviation are residues of a heap leach operation, Verse Ouest is a rock dump and Teckraie is a rock dump of the Flotouo open pit. No exploration has been done over these areas. Walter and Gbeitouo have been assessed in historical campaigns and most recently in 2013-2014. ZiaNE is on the Ity Gold Mine property and has been assessed in historical campaigns and most recently in 2015. Mont Ity is an operational mine and has been assessed in historical campaigns or more recently by drilling. All recent evaluation has been in the form of drilling and is detailed in Section 10.

Daapleu has been the subject of both historical evaluation and recent work in 2013 and 2104. Such work is described in detail in Kone and Furic, 2014 and summarized below.

- No soil or stream sediment sampling has been undertaken on the property in the latest exploration campaign.
- No trenches or pits have been dug for mapping and sampling.
- No geophysical surveys have been undertaken in this exploration campaign.
- Mapping and prospecting consists of mapping and sampling of the artisanal workings at Daapleu in October and November 2013. Mapping of the pits was to establish the chemical signature of the mineralization, structural control on the mineralization and to map the lithological contacts.

Sampling was in the form of grab samples horizontal channel samples and vertical channel samples. Some evidence of the horizontal sampling was still in existence the time of the site visit by Coffey. Most of the sampling evidence has been destroyed by mining or erosion.

The following are general observations for the pit mapping.

Brick-red lateritic gravels cover most of the area mapped. Thickness does not exceed 3m. They cover a thin zone of red saprolites. Mauve coloured sandy saprolites were encountered in all three pits. They are interpreted as either altered mafic intrusives or as altered meta-volcano-sediments. Yellow sandy saprolite with sericite is common in the material extracted.

10 DRILLING

Due to the large number of boreholes drilled and samples taken it is not feasible to record all intersections. The reader is referred to Section 14, Mineral Resource Estimates for representative sections and distributions of gold values.

Drilling procedures referred to in this section are for the drilling campaigns 2013-2015. All other drilling is considered historical as it was done by a previous owner. Methodologies would not necessarily have been the same. Historical information is discussed under Data Verification (Section 12).

10.1 Drilling Methods

Drilling methods used by the drilling contractors follow generally accepted industry practice. AirCore drilling was not in progress at the time of the sites visits and no assessment has been made. Diamond drilling (DD) was in progress on Mining Permit PE26 at Walter during the 2014 site visit and on Daapleu and Ity Flat area the 2015 site visit. There are no specific procedures manuals relating to the actual drilling as this is the responsibility of the drilling contractor.

Drilling was observed and the following general comments apply. The drilling equipment appeared to be in good repair, the drilling team appeared to be experienced and familiar with the equipment. Technicians on site worked fluently and appeared to be well trained. The sites were well ordered, clean and set up so that there was enough space to work safely.

SMI has a comprehensive procedures document that describes the standards procedures for both diamond drilling and reverse-circulation (RC) drilling (Conventional and AirCore) at the drill site. The manuals suggest site layouts and give procedures and examples of the handling of samples, marking of boxes, cores, chipbags and boxes etc. The general procedures for RC, AirCore and DD are shown in Figure 10.1_1 and general procedures for DD are shown in Figure 10.1_2.

Core is boxed, marked and oriented at the drill rig. Friable core is packed in plastic to minimized loss during transport and handling. Meterage is measured, recorded and recovery calculated at the drill site. Once drilling is completed the site is cleared, sumps drained and boreholes marked with PVC pipe with all relevant borehole information.

RC samples are collected in bags and either spilt on site (older drilling) or split in the core shed (newer drilling). Reference samples are stored in chip trays for logging.

A summary of the drilling for all eight deposits is given in Table 10.1_1.

In Gbeitouo, only the South-Western half has been estimated. Three of the diamond boreholes, most of RAB drilling, and a large part of historical drillings were therefore not included in the mineral resource estimate.

Figure 10.1_1
General Procedures RC and AirCore Drilling

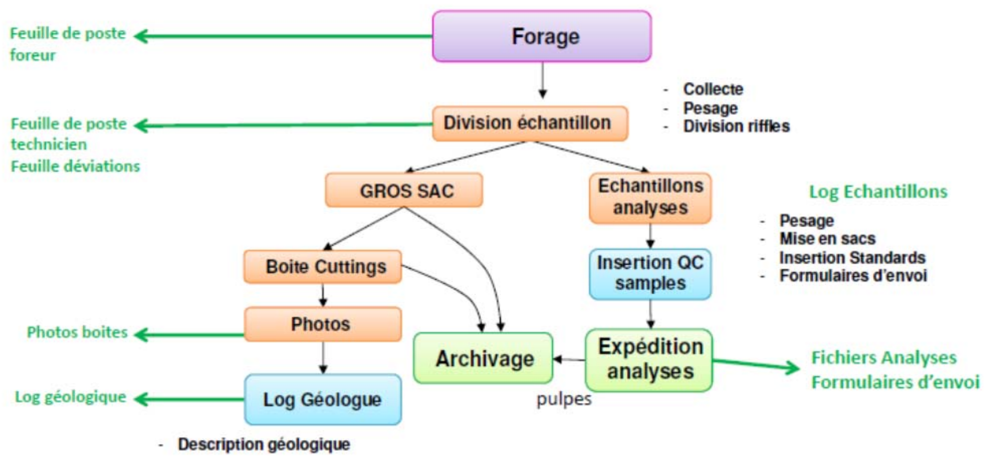


Figure 10.1_2
General Procedures Diamond Drilling

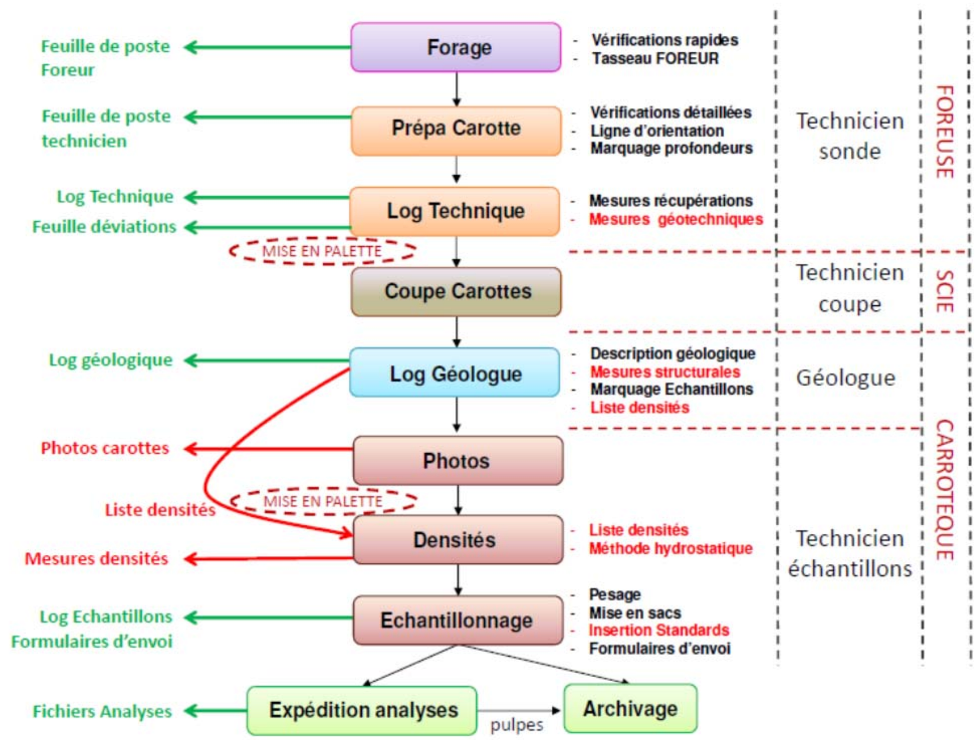


Table 10.1_1
SMI Gold Project
Drilling Summary

Deposit	Method	Boreholes	Metres	Year	Purpose
Aires	AirCore	89	4,249	2014-2015	40 x40m grid to sample the residues
	AirCore	70	2,206	2015	Sampling of slopes
Verse Ouest	Diamond	32	1,180	2013-2014	Irregular grid sampling of residues
Teckraie	Diamond	31	1,079	2013	Test for deeper mineralization and twin holes
	RC	2	28	2013	Delineation
	AirCore	85	3191	2013-2014	Test for Au grades, infills and twin holes
Daapleu	RC	19	1,926	2003	Delineation
	Diamond	13	995	2008	Delineation
	RC	23	1,558	2008	Delineation
	RC	5	408	2013	Delineation
	Diamond	48	7,507	2013	Infill
	Diamond	44	6,480	2014	Resource definition to the south and twining
	Diamond	79	10,821	2014-2015	25 x50mgrid, 4 vertical , rest inclined 50-60 degrees, Infill
	Diamond	375	19,526	2008/2014	2008 holes reassayed only geometry and sampling
ZiaNE	Diamond	9	1,025	1996	Reconnaissance
	Diamond	42	3,524	2008	Delineation
	RC	10	926	2008	Delineation
	Diamond	74	10,414	2012	Infill and extension
	Diamond	16	1,902	2013	Infill and extension
	Diamond	70	7,276	2014	Infill and extension
	Diamond	32	2,779	2015	Infill
My Ity	Diamond	31	2,519	2000-2001	Check for deeper mineralization
	RC	89	7,402	2000-2001	Check for deeper mineralization
	Diamond	18	1,101	2002	Twin holes and sterilizing the area west of the Mount Ity deposit.
	RC	36	1,635	2002	Twin holes and sterilizing the area west of the Mount Ity deposit.
	RC	156	3,727	2011-2012	Define the clay mineralization at depth
	Diamond	53	10,435	2011-2012	Define the clay mineralization at depth
	Diamond	139	20,726	2013	30X30m grid to define the laterites and deeper mineralization
	Diamond	24	3,045	2014	30X30m grid to define the laterites and deeper mineralization
	RC	5	523	2014	30X30m grid to define the laterites and deeper mineralization
	Diamond	34	2,092	2008	Delineation
Walter	RC	2	120	2008	Delineation
	RC	4	242	2009	Delineation

Table 10.1_1
SMI Gold Project
Drilling Summary

Deposit	Method	Boreholes	Metres	Year	Purpose
	(RC)-DD	6	613	2009	Delineation
	Diamond	3	530	2013	Infill and extension
	Diamond	29	3,386	2014	Infill and extension
	RC	19	1,891	2014	Infill and extension
	RC	78	4,666	2007-2009	Delineation
Gbeitouo*	Diamond	31	2,237	2007-2009	Delineation
	RAB	19	2,240	2007-2009	Surface exploration
	Diamond	3	63	2010	Infill
	Diamond	33	4,554	2013	Infill

In Gbeitouo, only the South-Western half has been estimated. Three of the diamond holes. most of the RAB drilling, and a large part of historical drilling were therefore not included in the mineral resource estimate
*Boreholes included in the resource estimate

10.2 Other Sources of Data Used for Resource Definition

No other sources of subsurface data were used in the mineral resource estimation. Topography is affected by the underlying geology and artisanal workings on the surface expressions of the mineralization. Both the topography and artisanal workings along with geological maps, where available, were used to verify the geological and mineralization models at Daapleu and ZiaNE.

10.3 Surveying

10.3.1 Borehole Collars

All borehole collars are sited and checked by DGPS by qualified staff. Some Daapleu drilling is visible in satellite images. Collar positions were plotted on the satellite images to verify positions and the coordinate transformations applied. Collars plot where expected. Elevations are compared to the topographic survey and can be corrected if necessary. Positions appear to be accurate.

10.3.2 Downhole Surveying

Deviations on diamond and reverse circulation boreholes at Daapleu were measured using the Reflex EZ SHOT™ system. The first measurement is between 10 and 15m to verify the inclination and orientation of the borehole. Measurement is taken at 25m intervals for the first 100m then at 50m intervals until the end of borehole. The last measurement is at the end of the borehole. Orientation of the core was undertaken on fresh rock using the ACTII system with measurements approximately every 30m.

A full procedures manual for downhole surveying including a quality control/verification procedure has been prepared by SMI.

Coffey did not observe any surveying as there were no boreholes at the drilling stage where surveying was possible. However the database was interrogated and where anomalies were found the data was either corrected or removed.

Three boreholes at the Aires were checked for deviation from vertical. No significant deviation was found and all boreholes are considered to be similar. Aircore boreholes are not surveyed as the side walls are not stable. Boreholes are shallow and no significant deviation is expected.

10.3.3 Surface Topography

Surface topography for the Daapleu, Verse Ouest, Zia, Walter is from a Lidar survey over both Mining Permit PE26 and PR61.

Surface topography of the Aires and Teckraie, Mont Ity and Gbeitouo are from surface surveys by the SMI survey staff. Survey data is collected in MARREC system used at the mine and converted to UTM-WGS84. The conversion system is documented and is available from the mine.

10.4 Qualified Person’s Comments (Mudau)

Drilling and survey procedures observed are to acceptable industry standards, are appropriate to the deposits being drilled and are appropriate for mineral resource estimation.

10.5 Qualified Person’s Comments (Bosc)

Walter and Gbeitouo still have a large proportion of historical boreholes for their mineral resource estimates. Historical drilling was poorly documented between 2002 and 2012. Sufficient additional drilling allowed verification of historic drilling for use in industry standard resource estimates. Drilling practices from 2012 onward were all documented and regularly assessed by independent senior consultants and are to acceptable industry standards, are appropriate to the deposits being drilled and are appropriate for mineral resource estimation.

11 SAMPLE PREPARATION, ANALYSES AND SECURITY

11.1 Sampling

Sampling of all SMI projects follows the same protocols. The processes described below applies to all four project areas for drilling campaigns of 2013-2014 and any resampling of historical drilling during this period. SMI has procedures manuals which document all sampling protocols in detail. In addition regular monitoring of sampling procedures is undertaken to ensure compliance and to make changes any procedures that may not be appropriate for the intended outcomes of the exploration programme.

11.1.1 Diamond Core Samples

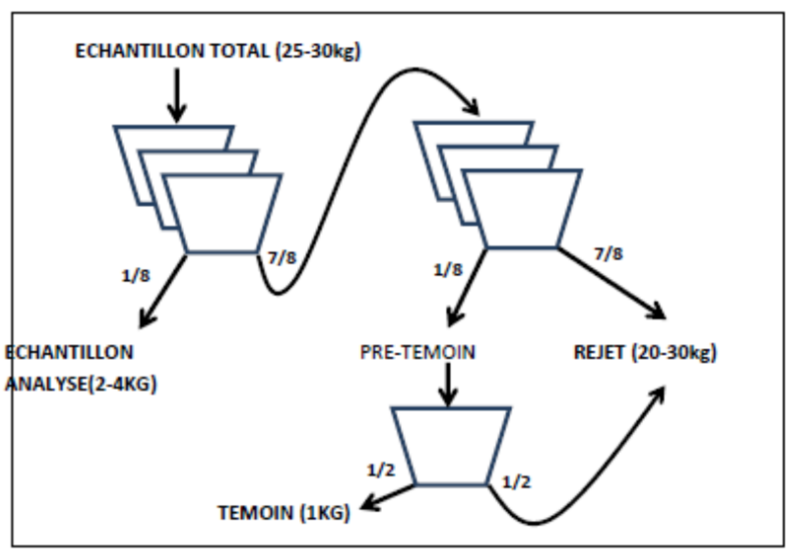
The sampling procedures are documented in standard procedures manuals. The following is a summary of the main features;

- Sample lengths should be between 0.5 and 1.5m;
- There is a procedure for dealing with loss zones, ground core etc;
- Intact core is cut with a diamond saw; friable core is cut with a blade;
- Specific formats for marking core and sample bags are laid out.

11.1.2 RC Samples

The sampling procedures are documented in standard procedures manuals. The sample splitting procedure at the rig or at the sample preparation facility for RC samples is presented in Figure 11.1.2_1.

Figure 11.1.2_1
RC Splitting Sequence



SEQUENCE DE DIVISION ECHANTILLONS RC

It is noted that SMI does not use a cyclone splitter to collect the samples but rather splits manually. It is also noted that a three stage splitter is used to reduce the samples.

Qualified Person's Comments (Mudau): The splitting equipment was discussed with SMI exploration staff and the reasons for not using a splitter mounted on the cyclone. Equipment quality, availability and wet samples appeared to be the main problem. Manual splitting can lead to sample bias especially with the three stage splitter which are not always manufactured or assembled correctly. Problems generally are lack of good alignment of the three splitters, poor levelling and fatigue in the technical staff are the main contributors to biased sampling. SMI appears to be aware of the problem and has the correct equipment.

11.1.3 Sample Preparation

Sample preparation facilities were inspected in May 2014 by K. Body and April 2015 by M Mudau. Sample preparation facilities were set up in early 2014 and comments below apply to these facilities. Assay methods are discussed in Section 11.3.

Qualified Person's Comments (Mudau): SMI has established a sample preparation facility on site for the preparation of exploration samples for analysis. This facility is separate from the mine sampling and testing facility. The QP did not visit Bureau Veritas (BV) in Abidjan but did visit the site facility to view the preparation process.

- The facility is an open air facility but with closed sections for the splitting and millings stages;
- Core cutting is in a separate room that does not open onto the preparation facility;
- Equipment is new and appears in good repair;
- Staff appear to be well trained and could explain, with understanding, the processes they were carrying out and the potential sources of error;
- Errors in insertion of quality control standards continue to occur however steps are being put in place to reduce the potential for error;
- Supervision by experience exploration staff is necessary to ensure that procedures are followed;
- The 2015 site visit noted some housekeeping issues. Recommendations have been made to SMI to address the problems of dust in the open air portion of the facility.

Qualified Person's Comments (Bosc): Walter and Gbeitouo databases contain historical samples, which, until 2012, were processed and assayed on-site. Historical sample preparation documentation shows a number of similarities with later sample preparation. Quality and repeatability has been carefully assessed by samples from historical boreholes re-submitted as umpire samples to an accredited laboratory with fire-assay with recent drilling campaigns.

From 2012 to 2104, half core and split-RC samples were submitted to Bureau Veritas in Abidjan, who performed all sample preparation and assay with procedures similar to other gold projects in the region.

11.2 Assaying

SMI uses four analysis techniques on the samples from the exploration programmes. Fire Assay with an Atomic Absorption finish is the primary technique for gold. Three other methods are used depending on the gold grades. Full assay certificates are provided by the laboratories.

Fire Assay (BV code FA450) –Nominal 50g charge analysed. Silver used as secondary collector, Au is determined with AAS finish. Samples are analysed at the Abidjan facility.

ICP-ES (BVcode ACQ300) is carried out at the Acme labs facility in Vancouver for samples greater than 0.5 g/t Au

Fire Assay with gravimetric finish (BV FA550) is carried out on all samples with grade greater than 30g/t

ICP- multi-element analysis by Aqua Regia digest for 36 elements is done for samples of greater than 0.5g/t Au by AMCE laboratories in Vancouver Canada. It must be noted that Aqua Regia is a partial digest and major elements are not used for whole rock analysis.

Qualified Person's Comments (Mudau): Assay methods are appropriate for the deposit types encountered on the property. The full suite of boreholes for Daapleu has not been analysed for minor and major elements and not all of the ICP assay results were available at the time of the mineral resource estimation. Of the results analysed only arsenic as was useful for defining the mineralized zones at Daapleu. No ICP results were available for the other deposits. Usefulness of ICP results for other deposits is still to be assessed.

11.3 Other Samples - Verification Assays

Samples from historical boreholes have been taken for analysis to verify the accuracy of the assays. Historical sampling from Daapleu appears to be accurate and can be used in mineral resource estimation. Where samples have been rejected the samples along with reasons have been recorded in the exploration database.

Historical boreholes from ZiaNE have been reanalysed. The verification exercise showed that historical assays done at the SMI laboratory at the time are unreliable. There was no correlation between the historical assays and the verification assays. To this extent all boreholes have been reanalysed and these new assays used for the mineral resource estimation.

11.4 Bulk Densities

11.4.1 Methodologies

Bulk densities have only been measured on core for all deposits. Measurements have been taken according the SMI procedures manual. For the 2015 drilling campaign the procedures manual has been extensively edited. However the actual measurement procedures have not changed.

SMI uses various methodologies to measure density. The method chosen depends on the type of material. Three general methods are used, described as **hydrostatic, filled volume** and **volume displacement**.

The **hydrostatic method** is used for whole core and consists of taking measurement of the mass of the core in air and suspended in water. The density is calculated as a ratio of the dry weight: difference dry wright and suspended weight.

The **filled volume method** is used for unconsolidated material from core or RC drilling. In this method a container of known mass is filled, lightly compacted and weighed. The density is calculated as the ratio of Mass:volume.

The **volume displacement** method uses a graduated cylinder filled to a set volume. The piece or pieces of rock are immersed in the water and the change in volume recorded. The density is calculated as the mass of the rock:change in volume. This method has a large error due to the lack of accuracy of the graduated cylinder used for measurement. This method is only used where the other two methods are not feasible.

Porous samples are covered with plastic wrap (food grade) or paraffin wax before immersion in water. Procedures are set out in the manual for calculating densities if the sample is wet or covered with paraffin wax.

Densities are normally measured on dry samples. Where samples are not dried, this is documented and a separate calculation is used.

11.4.2 Deposit Densities

Densities statistics are presented for each deposit in Section 14.

11.4.3 Qualified Person's Comments (Mudau)

The QP has reviewed the various methods for measuring and calculating density. The methods used are reasonable and there are several methods available which are considered appropriate for the material being measured. Because the samples are small, errors will be fairly common. It has been suggested to the site geologists that a bulk density be calculated per box from the nominal drilling diameter, length of core and weight of core as a check against densities measurements on small pieces. SMI has scales that can measure the larger weighs of full boxes.

A second bulk method for RC samples is to plot the histogram of the RC full sample weights/m^3 recovered and assess the statistical distribution of the samples. Where recoveries are high the mean gives a good estimate of the density of the rock drilled.

11.5 Analytical Quality Control (QA/QC) Procedures and Data

11.5.1 Introduction

A quality assurance and quality control (QA/QC) programme was undertaken. The QA/QC programme identifies various aspects of the results that could have negatively influenced the subsequent mineral resource estimate. It is possible to identify samples that have been swapped, missing samples, and incorrect labelling amongst other aspects.

The QA/QC aims to confirm both the precision and accuracy of the laboratory and thereby confirm that the data used in the mineral resource estimate is of sufficient quality.

The control samples used during the campaigns on the Aires, Teckraie, Verse Ouest, Daapleu, ZiaNe and Mont Ity project areas contained within this report comprised of standards, blanks and field duplicates. The intended aim should be approximately 5% coverage for standards, blanks and duplicates. The quality control data was analysed on an on-going basis and generated some queries with the laboratory.

Definition of terms related to the QA/QC protocols applied and subsequent evaluations are provided below:

A **standard** is a reference sample with a known (statistically) element abundance and standard deviation (certified independently). Reference standards are used to gauge the accuracy of analytical reporting by comparing the pre-determined values to those reported by the analytical laboratory used during an exploration project.

A **blank** is a standard with abundance of the element of interest below the level of detection of the analytical technique (certified independently).

A **duplicate/replicate** is the split of a sample taken at a particular stage of the sampling process; e.g. Field Duplicate.

<u>Certified Standards – Client</u>

Commercial reference standards sourced from three different manufacturers

<u>Standards – Laboratory</u>

Commercial reference standards sourced from three different manufacturers

<u>Field Duplicates Diamond Core – Client</u>

Field duplicates are a split of the unprocessed sample- quarter core in the case of diamond drill boreholes. The aim of which is to assess the total sampling error.

Field Duplicates RC – Client

Field duplicates are a split of the unprocessed sample- a split off of the original sample collected from the drilling rig. The aim of which is to assess the total sampling error. This is routinely done every 50 samples.

Coarse Reject Duplicates – Client

Coarse rejects are taken on the split after the first crush. Normally undertaken at the sample preparation site. This is routinely done every 50 samples.

Coarse Reject Duplicates – Laboratory

Coarse rejects are taken on the split after the first crush. Coarse rejects are taken by the Bureau Veritas laboratory to check their own sample preparation.

Pulp Duplicates ("B" sample) – Client

Routinely done every 50 samples.

Pulp Duplicates ("B" sample) – Laboratory

Pulp duplicates are taken by the laboratory to check their own systems. The frequency varies but appears to be a minimum of five per batch at Bureau Veritas, Abidjan.

Repeat Assays (Same Pulp) – Laboratory

Routinely done.

Umpire and Check Assaying

Check assaying, where pulp rejects are submitted to a second, independent laboratory, has been undertaken on all historical drilling especially where a recognised commercial laboratory was not used. Umpire assays have not been performed on the current drilling.

11.5.2 Quality Control Assessment

Quality control monitoring protocols involved submission of blanks, duplicates and certified reference standards with the core sample batches. These control samples were inserted within the samples in a systematic manner on each project area. During different campaigns on these project areas the duplicates have comprised of a quarter split of the core, a coarse split or a pulp. A total of 18 different standards have been used of varying grades. A summary of the expected values for all these standards can be seen in Table 11.5.2_1. The standards were supplied by Geostats, Gannet Holdings and Rock Labs of Australia. Two different sources of blank material were used, beach sand and coarse rock chips that were confirmed to not contain any Au. All assays for the most recent exploration campaigns were done by Bureau Veritas laboratory, Abidjan, Côte d'Ivoire. In addition to the above, six batches of samples were sent to ALS Chemex, Ouagadougou, Burkina Faso as umpire checks. These samples came from the Mont Ity, and Zia NE project areas. A summary of the Quality Control samples used is given in Tables 11.5.2_2 and 11.5.2_3.

Table 11.5.2_1
SMI Gold Project
Summary of the Expected Au Value of the Certified Reference Material Used

Standard	EV Au ppm	-2stddev	+ 2stddev	Supplier
G303-2	4.15	3.81	4.49	Geostats Pty Ltd
G310-10	48.53	45.19	51.87	Geostats Pty Ltd
G311-9	10.01	10.97	9.05	Geostats Pty Ltd
G397-3	1.72	1.5	1.94	Geostats Pty Ltd
G901-7	1.52	1.4	1.64	Geostats Pty Ltd
G901-8	47.24	44.14	50.34	Geostats Pty Ltd
G908-8	9.65	8.89	10.41	Geostats Pty Ltd
G909-5	2.63	2.43	2.83	Geostats Pty Ltd
G910-5	5.23	4.81	5.65	Geostats Pty Ltd
G912-1	7.29	6.69	7.89	Geostats Pty Ltd
G912-4	1.91	1.73	2.09	Geostats Pty Ltd
G912-7	0.42	0.38	0.46	Geostats Pty Ltd
G996-4	0.51	0.43	0.59	Geostats Pty Ltd
G998-1	2.95	2.71	3.19	Geostats Pty Ltd
G998-6	0.8	0.92	0.68	Geostats Pty Ltd
SK62	4.075	3.795	4.355	Rock Labs
SN60	8.595	8.149	9.041	Rock labs
ST502	48.53	45.19	51.87	Gannet Holdings Pty Ltd

Table 11.5.2_2
SMI Gold Project
Summary of the Number of Control Samples

Aires, Teckraie, Verse Ouest, Daapleu, ZiaNe and Mont Ity			
Control Type	Submitted Rate of Control	Total Number of Samples	Coverage%
STANDARDS	4044	147,756	2.70%
BLANKS	7502		5.10%
DUPLICATES	5443		3.70%
UMPIRE	509		0.30%

Table 11.5.2_3
SMI Gold Project
Summary of the Number of Control Samples

Gbeitouo			
Control Type	**Submitted Rate of Control**	**Total Number of Samples**	**Coverage%**
STANDARDS	85	4,547	2%
BLANKS	181		4%
DUPLICATES	292		6%
UMPIRE	-		-
Walter			
Control Type	**Submitted Rate of Control**	**Total Number of Samples**	**Coverage%**
STANDARDS	301	4,974	6%
BLANKS	388		8%
DUPLICATES	354		7%
UMPIRE	-		-

11.5.3 Qualified Person's Comments (Mudau)

In general the results of the assays were within in acceptable limits. Standards which return values within acceptable limits, usually two standard deviations, more than 90% of the time are considered to indicate accurate assays. Only four standards had greater than the number of fails in batches. Two of these have very low grades, <=0.5g/t, and the poor performance is attributed to the poor accuracy of the assay method at these concentrations. Of the two other standards, G998_01 and ST502, G998-01 falls within acceptable limits 85% of the time but ST504 was outside limits 50% of the time. This standard generally performed poorly and it is considered that the standard itself was the problem and not the analytical method. This standard is no longer used. Minor sporadic contamination is evident in some blanks with 14 samples returning grades above 0.5ppm. This contamination, whilst minor, should be closely monitored with the laboratory.

Of all duplicate pairs 81% are within 20% HARD precision limits. Many duplicate pairs can be identified as fails. It is not unexpected that the precision slightly poor even once all samples below ten times the detection limit have been removed. A number of duplicate samples submitted were quarter core rather than a split of the original after initial crushing which provides a poor comparison. It is also understood that all project areas except Daapleu contain coarse gold and therefore a high nugget effect is likely. With this in mind the precision of the assay results is deemed acceptable however it is suggested that the obvious outright fails be checked in case of sample transposition.

Only 509 samples have been submitted for Umpire analysis. The samples were selected from Mont Ity and ZiaNE project areas and were submitted in two batches during the 2013 campaign. The comparison between the two laboratories is very poor with only 48% of the data falling within 10% HARD precision limits. In order to complete Umpire analysis correctly the pulp tested at the primary laboratory should be re-submitted to the umpire laboratory. From the data regarding the umpire samples it is not clear if this was done. Some samples are identified as pulps others are not and appear to have been created from the reject material and crushed and pulverised before being sent to the umpire laboratory. However, even if the precision limit is increased to 20% approximately 70% fall within acceptable limits. These samples are not acceptable as umpire samples and the results should be rejected.

The quality control program has improved in the last three years. SMI has migrated to an Acquire database for its data management and all quality control analyses are routinely run using the built-in analysis routines. In general the quality control programme is well managed on the sample collection, preparation and analytical side. The lack umpire of samples is a significant gap in the programme. The analytical results presented for use in the mineral resource estimation are considered to be within the acceptable limits of accuracy and precision for the deposits being evaluated.

11.5.4 Quality Control for Walter (Bosc)

During the 2013 campaign, quality control procedures involved the systematically insertion of blanks, certified standards and duplicates which represent about 20% of the total samples (Table 11.5.2_3). All assays were done by fire assay by Bureau Veritas laboratory, Abidjan, Côte d'Ivoire.

There were two kinds of blank: (i) beach sand collected close to Abidjan (190 samples); (ii) granite from SISAG quarry in Attinguié (198 samples). They were previously tested and were confirmed barren. Only two blank samples were contaminated (0.5% of total blanks) during Walter samples analyses. Three standards provided by Geostats Pty were used: G310-10, G909-8 and G912-1. Refer to Table 11.5.2_1 for expected values.

Three hundred and one (301) standard samples were used for Walter study and only seven of them were anomalous (2.3% of total standard samples), probably due to transposition. Three hundred and fifty four (354) "field duplicates" were collected as quarter core.

The pair results showed important dispersion linked to gold inherent variability, but still the correlation was good with no visible sampling errors. The Rank HARD plot was established using Au values higher than 0.3ppm and indicated that 28% of the data had a HARD higher than 20% representing a medium repeating quality. Still it can be explained by the gold inherent variability. In 2014, five drill holes from the 2008 campaign were re-assayed with quarter cores and by fire assay by Bureau Veritas laboratory in Abidjan, representing 4.5% of the total campaign samples. Twenty two percent (22%) of the samples analysed were quality control samples (blank, standard, duplicate). Good repeatability was observed although there was still some dispersion issue due to gold inherent variability. The analytical results presented for use in the mineral resource estimation are considered to be within the acceptable limits of accuracy and precision for the deposits being evaluated.

11.5.5 Quality Control for Gbeitouo (Bosc)

During the 2013 campaign, quality control procedures involved the systematically insertion of one blank, one certified standard and one duplicate about every 25 samples (Table 11.5.2_3). All assays were done by fire assay by Bureau Veritas laboratory, Abidjan, Côte d'Ivoire. The blank was made of beach sand that had not been tested and certified by an external laboratory at the time of the study. It was used to test the contamination during pulverisation and gave generally gold values lower than 0.05ppm. However minor contamination was noticed with values between 0.1ppm and 0.2ppm. The standards that were used were supplied by Geostats Pty and are G901-7, G397-3, G909-5 and G998-1. Refer to Table 11.5.2_1 for expected values.

The results of the analyses indicated that the high-value standard (G901-8) systematically showed a positive bias which was considered acceptable as sulphides-rich layers were scarce. The other standards were most of the time within the -2stddev / +2stddev range showing that the laboratory analyses were of good quality. The duplicates were obtained using two separate quarters of core, belonging to the right half of the initial core. The analytical results presented for use in the mineral resource estimation are considered to be within the acceptable limits of accuracy and precision for the deposits being evaluated.

11.6 Data Management

11.6.1 Database

Historically data management was done through used of a custom built database using public domain software as a base. This was used during previous campaigns to address the need for some form of standard data capture. The author was not a professional programmer or database expert and while useful, the software has failings. SMI migrated to the AcQuire database software in 2014. This is a widely used commercial database that is especially appropriate to operations such as SMI. Validation of historical data has been undertaken by SMI with reviews by Coffey and Arethuse over the last few years. All historical data has been migrated and validated in this new system. The software is still new to SMI and modifications to some portions of the database may be needed. More operator training is also needed.

11.6.2 Borehole Logging

Borehole logging uses standard logging templates and codes. Logging protocols are given in the exploration procedures manuals.

11.6.3 Sampling Records

Sample logging uses standard templates and procedures compatible with the working database software. Protocols are defined in the relevant procedures manuals.

11.6.4 Sample Storage

Sample storage for all drilling is at the SMI exploration camp at the Ity Gold Mine. The core storage facilities were catalogued in 2014/2015 to assist in housekeeping and easy access of the borehole samples or cores. Core is stored in either wooden boxes or metal trays. RC samples are stored in containers with shelving installed. Two archive samples are stored, washed samples in chip trays and an archive sample taken at the drill rig before sample preparation.

Pulps are retrieved from the analytical laboratory and stored in containers in boxes.

12 DATA VERIFICATION

12.1 Site Visit

All Coffey site visits were undertaken between 20 and 28 May 2014 (Body, 2014) and between 12 and 21 April 2015 (Mudau, 2015). Amongst numerous visits, ARETHUSE specifically performed two assessments of exploration procedures in February and October 2013. One of the objectives was to verify data used in the mineral resource estimation. Aspects of the drilling and borehole identification are discussed in Sections 10. Assay and sampling have been discussed in Sections 11. Additional verification was made by random selection of boreholes from Daapleu, Mont Ity, ZiaNE, the Aires, Teckraie and Verse Ouest to check the accuracy of logging and data records. Boreholes were chosen from different areas of the deposits. Some of the boreholes chosen were twins of diamond core and RC drilling. Borehole logging is acceptable and rock identification between diamond core and RC chips is consistent. However, some boreholes from Mont Ity and Daapleu need to be relogged because there are logging errors. This has been communicated to the SMI geologists.

Figure 12.1_1
Comparison of RC and Diamond Core Twins

12.2 Historical Data Validation

There is a large volume of data collected from various exploration programmes prior to the current programmes, which began in 2013. In converting this data to electronic format substantial validation of the data has been done to confirm consistency and accuracy. Accuracy and completeness of record keeping, logging, surveys and assays have been assessed in the validation procedures.

All data that has been validated to date has validation codes attached to them in the database. Where there are multiple data sets of the same type the data sets are ranked on accuracy and a preferred data is recorded for use in geological modelling and mineral resource estimation. Assay procedures have been evaluated for accuracy. Assays have been validated for individual campaigns, laboratories and methods. Validation has included reassaying of many of the older boreholes. Where data is found to be accurate, the historical data is flagged for use. In the case of ZiaNE, reassaying of historical boreholes showed the assays to be inaccurate and the entire borehole set was reassayed.

Independent audits and reviews have been undertaken by both Coffey and Arethuse since 2013. Validation exercises are extensively documented in SMI reports as well as mineral resource estimation reports by Arethuse and Coffey.

12.3 Off-Site Data Validation

Off-site data validation by Coffey and Arethuse includes:-

- Quality control analysis to identify any irregularities.
- Comparison of twin boreholes.

The findings of the quality control results are discussed in Section 11 and the twin borehole drilling below.

12.3.1 Aires

Four diamond drill boreholes were drilled by SMI to verify the results obtained from the initial RC drilling. This drilling enabled a comparison to be made between the two different types of drilling undertaken and the variability of mineralization over a short distance.

The twin borehole drilling although limited to four boreholes confirmed that the mineralization is fairly well defined by the RC drilling. From the limited data the average grade of the dump decreased in two twin diamond drilled boreholes and mean grade increased in two, compared to the original RC drilling. The RC average grade for all 196 samples within the four mineralized zones was 1.16g/t compared to 0.94g/t for the diamond drilling a difference of 23%. The difference in grade is attributed to the high nugget nature of gold mineralization and one outlier of 52.7g/t returned for borehole S831 from 0m to 1m, which was not replicated in the twin borehole S1372. Capping the outlier to 15.6g/t as per Section 2.7, the average grade is reduced to 0.96g/t or a 2% difference between the original borehole and the twinned borehole.

12.3.2 Verse Ouest

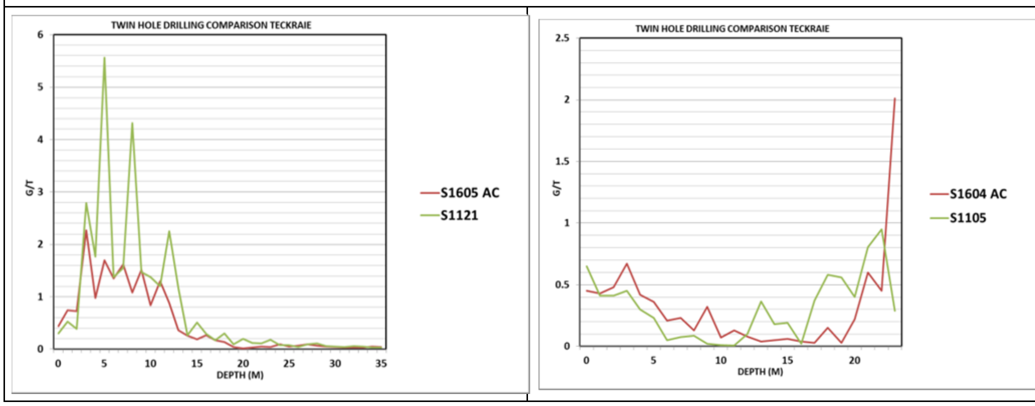
No boreholes were twinned at Verse Ouest.

12.3.3 Teckraie

Twelve diamond drill boreholes were drilled by SMI to verify the results obtained from the RC drilling at Teckraie. This drilling enabled a comparison to be made between the two different types of drilling and the variability of mineralization over a short distance. Comparisons of the original boreholes compared to the twin boreholes are presented below Figure 12.3.3_1.

The comprehensive twin drilling confirmed that the mineralization is fairly well defined by the RC drilling. From the data, the average grade of the dump decreased in seven twin diamond drilled boreholes while the remaining five increased in grade. The difference in grade between the individual twin samples is attributed to the random construction of the dump and the high nugget nature of gold mineralization. There however appears a bias at the upper assay grades, with higher grade outliers associated with the diamond drilling. For example an assay grade of 72.0g/t Au was returned for borehole S905 at 20m to 21m which was not replicated in the original borehole. This difference is attributed to the different drilling and sampling methodologies applied, with the air drilling results tending to be smoothed in comparison to the core drilling. This is not regarded as critical for the mineral resource estimation and has been partly addressed by high grade capping (Section 14.2.7)

Figure 12.3.3_1
Teckraie
Twin Borehole Drilling Comparison

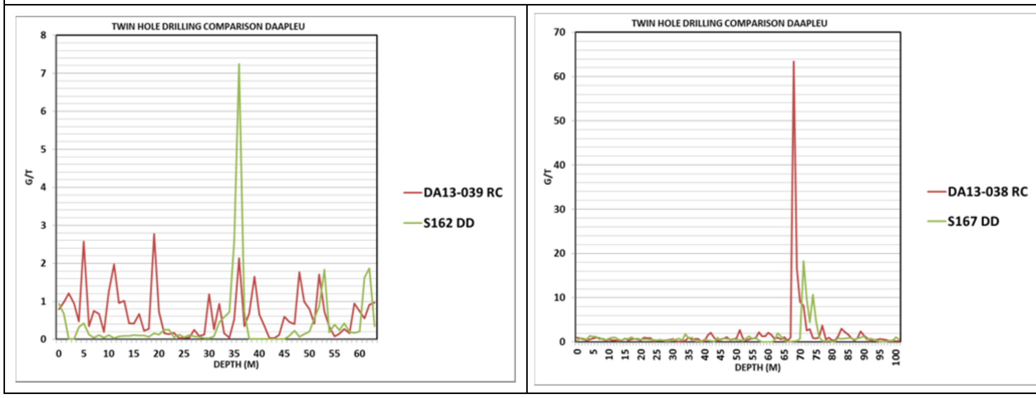


12.3.4 Daapleu

RC boreholes were drilled by SMI in 2013 to verify the results obtained from the initial diamond drilling undertaken in 1997. This drilling enabled a comparison to be made between the two different types of drilling undertaken and the variability of mineralization over a short distance. A comparison of the original boreholes and the twin boreholes is presented in Figure 12.3.4_1.

From the data there is a moderate to good correlation between the original and current drilling for three of the four twin boreholes with the fourth (DA13-039 and S162) displaying a moderate to poor correlation. The average grade of the deposit was lower in three of the four original boreholes compared to the current RC drilling. One sample of 64.43g/t Au returned for borehole DA13-038 was not replicated in the original borehole S167, although high grades in excess of 10g/t Au were obtained in close proximity to the outlier. The difference in grade between the individual twin samples is attributed to the high nugget nature of gold mineralization, the boreholes not being exact twins and the mineralization being slightly off set between boreholes e.g. DA13-047 and S164.

Figure 12.3.4_1
Daapleu
Twin Borehole Drilling Comparison



12.3.5 ZiaNE

No twin borehole comparison is available for Zia Northeast. Data used for the estimation is from the 2014 and 2015 drilling campaign. Assay data from the 2008 drilling campaign has been assessed deemed unreliable and has been replaced with the results of the reassay, in 2014, of all of these cores.

12.3.6 Mont Ity

There are seven diamond boreholes were drilled to confirm the results obtained from the RC samples. Overall, the boreholes compare favourably. Due to nuggety nature of gold and the separation between boreholes of up to 10m, some variation is expected between boreholes but the width of the mineralized zone and major trends in the mineralization are expected to be similar.

12.3.7 Walter

There are five twin borehole sets at Walter. One set of RC/diamond boreholes from 2008 drilling over a 60m interval, two pairs from the 2008 twinned with 2013-14 drilling campaigns and another two sets of RC/Diamond from the 2013-2014 campaign. The boreholes from the 2008 campaign show a highly variable mineralization in the weathered zone. But the higher grade zone below 20m has similar trends in both boreholes.

In the set comparing the 2008 and 2013 drilling the following comments are made:

- Mineralized zones are all defined by a 0.5g/t cut-off, but will present distinct grade variation within the same mineralised envelope;
- The very high grade interval in S1162 is absent from its twin W08-577BIS. These boreholes are 5m apart;
- The grades are generally lower for the 2008 boreholes suggesting a possible under estimation of the grades from these boreholes.

The twin boreholes drilled in the 2013-2014. There is some offset in the high grades between the boreholes. But they show a good correlation between the RC and diamond results. The better similarity between the RC/Diamond of the 3013-2014 campaign can be explained by the smaller distance separating the boreholes than in the other campaigns.

The offsets of mineralization and variation in grades is similar to that seen at Daapleu (Figure 12.3.4_1)

12.3.8 Gbeitouo

An extensive validation exercise has been undertaken to assess the accuracy of historical data and correct errors where possible. Errors were found in most of the data sets.

- Collars were projected to the topographic surface where no elevations were recorded or errors in the elevation were found;
- Grid survey coordinates were converted to UTM;
- Where no downhole surveys were available, the inclination of the collar was taken for the entire hole;
- Minor errors were corrected in the logging and density sampling;
- Cleaning of the assay data to correct errors in records and assign below detection limit codes.

In spite of the cleaning and correction the quality of the data is only sufficient for, at most, Indicated Mineral Resources. This is primarily due to the large amount of historical data in the data set. Since this review was done, SMI has migrated data into a good quality database using commercial software and has undertaken extensive validation of the historical data.

There are 19 sets of twin boreholes to compare the 2008 and 2013 campaigns.

The mineralized zone is well defined by historic boreholes which is acceptable for defining the limits of the mineralization. The offsets of the mineralization and variation in the grades are similar to that seen at Daapleu (Figure 12.3.4_1).

The variability in the results is similar to the results of the 2013 drilling and demonstrate and acceptable sampling method.

The values of the historic assay show a bias of +25% when compared with the 2013 results. This bias is essentially caused by the low grades in the interior of the mineralized zones. If this is a significant error it will cause errors in the interpretation of the mineralized zones and estimation of the grade distribution.

12.4 Qualified Persons Opinion (Mudau) Aires, Teckraie, Verse Ouest, Daapleu, ZiaNE and Mt Ity

The QP's opinion is that the data from twinned boreholes shows that the mineralized zones are predictable and that the differences between the twinned boreholes represent the variability on the deposits. The borehole logging and sampling data for the Aires, Teckraie, Verse Ouest, Daapleu, ZiaNE, and Mont Ity used in this technical report is satisfactory for the purpose of mineral resource estimation and classification reported.

12.5 Qualified Persons Opinion (Bosc) Walter and Gbeitouo

Historical work has been assessed through a varied programme of twinning boreholes, comparing assay populations and geology and databases were thoroughly verified. It's the QP's opinion that most of the results are comparable for resources at an indicated level, and remaining variability is due to both the varied range of practices, all within acceptable level of practices, and the intrinsic variability of the deposits.

13 MINERAL PROCESSING AND METALLURGICAL TESTING

13.1 Heap Leach Operations

No heap leach testwork has been conducted on the project during the last number of years and anything completed historically is no longer available. The heap leach has been in operation for many years and remains in operation and as such production data can be used to give an indication of the metallurgical performance expected from the plant.

It is reported by mine management that regular bottle-roll tests are completed to determine the recoverable gold from a -2mm pulverised 50 gram sample.

Historically, as reported in 2008, regular column leach tests were completed, but this practise has been discontinued.

The analytical techniques available on the mine do not include total contained gold methods and as such the actual head grade samples cannot be determined. Comparing gold recovered with the above determined leachable gold content results in a historical yield of between 75% and almost 80%.

This is not based on test work but actual production data.

13.2 Carbon-in-Leach (CIL) Operations

Considerable metallurgical testwork has been conducted to confirm the metallurgical response for the CIL plant.

The metallurgical testing used for the 2.0Mtpa CIL project was completed during 2014 at ALS Minerals Division (Metallurgy) located in Kamloops, BC, Canada. Additional work was conducted in 2015 but has not been integrated into this report.

Mineralogical and metallurgical test work was completed in order to generate sufficient mineralogical and metallurgical information to:

- Establish the processing route (process flow diagrams);
- Determine the plant operating parameters for the ores to be processed;
- Evaluate the variability in metallurgical performance for the different deposits; and
- Define parameters required for the engineering and design of the plant (process design criteria, mass and water balance and equipment sizing).

The mineralogical study and metallurgical test work program were executed on the geological samples from the following deposit and facies.

- Daapleu deposit included three different geological facies called Daaplite, Volcano sediment and a High Grade contact zone between both;

- Gbeitouo deposit included two different geological facies called Oxidized Clay and Meta-volcano sediment;
- Mont Ity Deep Extension test work was on two different geological facies called Oxidized Clay and Reduced Clay;
- ZiaNE deposit test work was on two different geological facies called Oxidized Clay and Laterite;
- Aires – four composite samples representing four geographical areas of the heap.

13.2.1 Test Work Program

Master composite samples were created, representing the majority of the SMI deposits facies detailed above.

The complete test work program comprised the following:

- Chemical analysis (Head Characterization);
- Physical characterization (Specific Gravity, Bulk Densities (loose and packed));
- Hardness (Hard Unconfined compressive strength (UCS) determinations);
- Grinding test work, including:
  - SMC test work (for SAG mill amenability);
  - JK simulation (for mills sizing);
  - Bond Abrasion Index (Ai) determinations;
  - Bond Rod Work Index (RWi) determinations;
  - Bond Ball Work Index (BWi) determinations;
- Cyanidation/CIL test work (with air and oxygen sparging);
- Gravity concentration;
- Flotation amenability followed by concentrate ultrafine grinding and cyanidation / CIL of products;
- Detoxication test work (cyanide destruction and arsenic precipitation);
- Settling test work;
- Tailings acid generation potential (Acid Base Accounting (ABA)).

13.2.2 Qualified Person's Comments

The sample material was selected and prepared by SMI geologists and personnel to create what is believed to be representative facies samples. The samples were packaged into 19 steel drums and sealed.

Upon arrival at ALS laboratories in Kamloops, the drums were inspected and stored until QP arrival. It was noticed that the seal of two of the drums were broken (Daapleu – Daaplite and Mont Ity Deep Extension – Oxidised Clay). It is believed that the drums were opened and inspected by Canadian customs officers in Vancouver.

13.2.3 Discussion and Process Development

The metallurgical test work results allowed the process development steps described in the following paragraphs.

Crushing

A mineral sizer type crusher has been selected for the soft sticky ore facies, such as oxidized clay, reduced clay and heap leach residues. A jaw crusher has been selected for the more competent (hard) ore facies, such as Daaplite and Volcano sediments.

Grinding

The test work allowed a preliminary sizing of the mills. The grinding mill has been sized to process ore at an average rate of 254tph (tonnes per hour) with a finished product 80% passing 75µm. These results are preliminary and the mills sizing will need to be revisited during the definitive study phases of the project.

Gravity Concentration

Gravity concentration did not improved overall gold recoveries and not been considered in the process development as the mean gold particle diameter is only in the 18µm range.

Pre-leach Thickening

A high rate thickener has been selected for the pre-leach thickener. The thickener underflow density of 43% (w/w) is anticipated. The settling test results are preliminary and the thickener sizing will need to be revisited during the definitive study phases of the project.

Carbon-In-Leach (CIL)

Whole ore cyanidation leach tests were performed and a final grind of 75µm has been selected with air sparging for the process design criteria.

The cyanide leach kinetic curves developed during the test work show that gold extraction with 32-hour retention time has selected for the CIL plant process design criteria.

The gold extraction for the composite samples averaged about 93% for the non-sulphide composites and 72% for the sulphide composites.

The leach results are summarized in Table 13.2.3_1.

Table 13.2.3_1
SMI Gold Project
Leach Summary Results

Deposit	Facies	Au Extraction %	Calc Head g Au/t	Cyanide cons. (kg/t)	Lime cons. (kg/t)
Heap Leach	Residues R01	94.4	1.07	1.1	1.7
Heap Leach	Residues R02	94.1	1.18	0.9	1.9
Heap Leach	Residues R03	89.3	1.32	1.2	1.8
Heap Leach	Residues R04	88.7	0.67	1.0	1.8
Daapleu	Daaplite	67.7	2.52	0.7	0.6
Daapleu	High Grade Contact	56.4	17.7	0.7	1.6
Daapleu	Metavolcano sediment	79.2	2.64	0.9	0.6
Gbeitouo	Oxidized Clay	94.9	3.58	0.6	2.6
Gbeitouo	Metavolcano sediment	58.6	3.67	1.3	1.5
Zia Nord Est	Oxidized Clay	90.9	5.28	1.2	4.6
Zia Nord Est	Laterite	97.7	1.65	0.5	5.7
Mont Ity	Oxidized Clay	96.1	8.42	1.4	6.0
Mont Ity	Reduced Clay	96.1	5.88	3.3	2.3

Flotation

Most of the ore types tested are free-milling. However the facies containing sulphide minerals, namely Daapleu –Daaplite, High Grade contact and Metavolcano sediment and Gbeitouo Metavolcano sediment have shown to be partially refractory in nature.

Flotation of these sulphide minerals followed by ultrafine grinding to below 20µm and cyanidation have not improved gold recovery over direct cyanidation.

Thus flotation has not been considered at this stage for the project, but this may be reviewed, subject to more test work.

Cyanide Detoxification

Four cyanidation tailings samples were subjected to cyanide destruction test work using the SO_2/air process. Residual CN_{WAD} levels less than 2.0mg/L were attained for all four cyanidation tailings samples to confirm that this process is acceptable for detoxification.

The inclusion of an arsenic removal stage after cyanide detoxification will need to be considered, as some treated effluents contained an elevated level of arsenic. An arsenic removal test was undertaken on treated detox slurry to demonstrate that arsenic can be removed using standard practices such as ferric sulphate and sulphuric acid. The arsenic level in solution was reduced to 0.1mg/L.

Inadequate work has been completed around the tailings detoxification and more work will be required.

13.2.4 Additional Metallurgical and Geochemical Test Work

The mining plan shows that some geological facies have not been tested during the PFS. These facies should be tested to confirm the adequacy of the currently developed process.

Additional mineralogical and metallurgical test work is also required to firm up the process flowsheet that has been developed. The additional test work will allow determination of optimum operating parameters (final grind, reagent consumption, etc.) in order to minimize CAPEX and OPEX.

The increase in mineral resources of the sulphide facies may warrant to investigation of the pressure oxidation process (POX) of the sulphidic facies. In doing so, previous flotation will need to be repeated and optimized to produce the sulphide concentrate.

Screening level geochemical test work program will also be required to characterize key rock types in the vicinity of ore zone of the multiple deposits. This is to determine probable loadings of acidity, metals and sulphate salinity that may be associated with tailings materials and confirm problematic rock types that will be the focus of the test work program required to characterize waste rock materials generated by the project.

13.2.5 Status of Testwork

The quality and quantity of testwork performed for the 2Mtpa CIL is considered adequate for the PFS level developed for the project.

The ore facies not containing sulphide is substantially free-milling and is not preg-robbing in nature. The ore facies containing sulphide is partially refractory and direct cyanidation (CIL process) yields lower gold recovery.

The additional test work is to include additional variability samples and is to concentrate upon the ore to be delivered during the first five years of the project.

14 MINERAL RESOURCE ESTIMATES

All mineral resources are declared as at 31 July 2015. Mineral resources as reported in this section have been constrained by pit shells using the Lerchs-Grossman algorithm, cost, pit slope angles and recovery parameters relevant to the deposits at Ity. The gold price used is US$1500 which is approximately 30% higher than the spot price at 31 July 2015. This allows a broader package, including marginal mineralization, to be defined and excludes areas that are unlikely to be mined. The pit shells included all mineralization regardless of classification. Input parameters are given in Table 14_1. No pit shells were applied to the Heap Leach (Aires), Teckraie and Verse Ouest as these have 0g/t Au cut-off and all material is assumed to be available for mining.

Table 14_1
SMI Gold Project
Pit Shell Input Parameters

Parameter	Unit	Daapleu	Zia NE	Mont Ity	Walter	Gbeitouo
Gold Price	$/oz	1,500	1,500	1,500	1,500	1,500
Gold Price	€/0z	1,364	1,364	1,364	1,364	1,364
Refining & Selling cost	%	4%	4%	4%	4%	4%
Exchange Rate	$/€	1.1	1.1	1.1	1.1	1.1
Process Recovery	%	73%	96%	90%	86%	73%
Mining Cost	€/t	2	2	2	2	2
Process Cost	€/t	13	11	13	11	15
Slope Angle	degree	40	30	30	30	40
Reporting cut off	g/t	0.5	0.5	0.5	0.8	0.8

14.1 Aires de Lixiviation (Old Heap Leach Pads)

14.1.1 Introduction

Coffey has estimated the mineral resource for the SMI Aires as at 31 July 2015. The volume modelling and mineral resource estimation was completed in the 3D software package Datamine™ Studio 3 and Isatis. The Aires were divided into material placed on the leach pads (Domain 1) and gold in the soil below the leach pad (Domain 2). The grade estimation was completed using a Nearest Neighbour estimate for the pad and Inverse Distance Weighting to 3rd power (ID^3) for the soil. This estimation approach was considered appropriate based on review of a number of factors, including the quantity and spacing of available data, the style and geometry of gold distribution and the constraints imposed by leach pad design. The estimation was constrained by hard boundaries based on surface survey data and drilling patterns.

14.1.2 Data Validation

The grade estimation was based on the entire borehole database comprising both RC and diamond drilling. No boreholes or data were excluded from the mineral resource estimation.

The database has been reviewed and validated by Coffey prior to commencing the mineral resource estimation. These included:

- Checking for overlapping intervals;
- Consistency of depths between different data tables;
- Checking gaps in the data;
- Replacing less than detection limit samples with half the detection limit (0.005g/t);
- Collar elevation validation.

No samples were deleted from the database. Any missing values due to core loss were allocated an absent value (“-”).

14.1.3 Geometry and Modelling

The material is partially leached, open pit material, which has been placed on the Aires in 50m wide by approximately 5m high strips on eight levels. There is some short scale continuity due to the mining method from the pits. No geological modelling, other than the domaining between the mined rock and the underlying in-situ soils was attempted.

The boundary between the rock dump and in-situ soil was interpreted from borehole data using cross sections parallel to the orientation of the drill lines. Lidar survey data was used to define the outline of the dump.

14.1.4 Mineralization Interpretation

The Aires are the residues of a discontinued heap leach pads. A description of grade distribution is contained in Section 8.

14.1.5 Compositing

The lengths of the samples were assessed prior to selecting an appropriate composite length for undertaking statistical analyses and grade estimation. The minimum and maximum lengths were 0.05m and 4m respectively. Summary statistics of the sample length indicates that 21.97% of the samples were sampled at less than 1m intervals, 76.67% of the samples were sampled at 1m intervals, and 1.36% greater than 1m.

Compositing was on 5m intervals, to correspond with the block model vertical dimension, while the soil was composited at 1m intervals due to the thin nature of the domain.

14.1.6 Statistical Analysis

Statistical analysis was undertaken on assay composites for the complete drilling datasets per mineralized domain. All composites inside the individual modelled surfaces were flagged by level. A total of 4,644 samples were used in the modelling process from a total of 151 RC and diamond boreholes. Separate statistics were generated for each domain and are presented in Table 14.1.6_1.

Table 14.1.6_1
SMI Gold Project
Aires : Raw Statistics per Domain (Au g/t)

Area	No of Samples	Min	Max	Mean	Std Dev	Variance	CV
Raw Data							
Domain 1	4,644	0.005	100	1.16	2.33	5.43	2.01
Domain2	196	0.030	16.40	0.97	1.44	2.07	1.49

The population of gold grades is lognormal; for both the dump and the soil, which is typical of many gold deposits.

For both domains the coefficient of variation (CV) is moderate for a gold deposit (high geostatistically) as a result of mixing due to mining operations. A high CV is consistent with the presence of high outlier grades that potentially require cutting (capping) for grade estimation. High grade capping is discussed in Section 14.1.7.

14.1.7 High Grade Capping

For the Aires (Domain 1) six values were capped to 19.1g/t, for the soil (Domain 2) one value of 16.4g/t Au was capped to 8.54g/t. The impact of the cutting is shown in Table 14.1.7_1. Estimations were done including and excluding top capping.

Table 14.1.7_1
SMI Gold Project
Aires: Summary of Upper Cuts Including Uncut and Cut Statistics for Mineralized Composites (Au g/t)

	Uncut Statistics					Cut Statistics				
Domain	Number of Data	Mean	Std. Dev.	CV	High Grade Cut	Mean	Std. Dev.	CV	Number Data Capped	Reduction in Mean Grade
Dump	4,644	1.16	2.33	2.01	19.70	1.12	1.51	1.35	6	3.0%
Soil	196	0.97	1.44	1.49	8.54	0.93	1.07	1.15	1	4.0%

14.1.8 Bulk Densities

While it is noted that density changes with depth from about 1t/m^3 at the upper surface to 1.9t/m^3 at the base, the change is not uniform. Sampling has only been undertaken on the diamond boreholes. The density values applied are a single average value for each domain (Table 14.1.8_1).

Table 14.1.8_1
SMI Gold Project
Aires: Bulk Density (t/m^3)

Attribute	Number	Minimum	Maximum	Mean	Standard Deviation	CV
Dump	116	1.01	1.96	1.34	0.18	0.13
Soil	Property average			1.62		

14.1.9 Variography

The material was randomly placed on the dump with only very short range continuity. No variograms were calculated or modelled for this deposit.

14.1.10 Block Modelling

The parent block sizes selected to estimate the deposit approximates half the borehole spacing. Sub-blocking (8x8 sub cells) was allowed for good volume definition.

The block models were constructed with parameters as displayed in Table 14.1.10_1.

Table 14.1.10_1
SMI Gold Project
Aires: Block Model Construction Parameters (m)

Domain	Direction	Origin	Extent	Parent Block Size
1	**X**	597,452	1,180	20
	Y	760,094	1,220	20
	Z	-4.5	665	5
2	**X**	597,452	1,180	20
	Y	760,094	1,220	20
	Z	-4.5	665	5

14.1.11 Grade Estimation

Grade estimation was performed using Nearest Neighbour (Domain 1) ID^3 (Domain 2) as this gave a gold distribution closest to the borehole grades.

The Nearest Neighbour estimate selects the value of the nearest assay grade and does not consider the value of the neighbouring points nor does it involve weighting sample values. This estimation technique was deemed appropriate to be applied to Aires as the pad is man-made and deposited randomly. Nearest neighbour adequately maps any continuous mineralization without introducing any smoothing and artificial continuity.

Due to the nature of the soil deposit and the uniformity of the domain, ID^3 was considered appropriate to be applied in the estimation as there is some continuity of the mineralization in the domain.

Inverse Distance grade estimations were also performed on the Aires material and the difference in gold grades between the Nearest Neighbour estimate and the ID^3 used in the mineral resource classification to assess variability between the estimations.

14.1.12 Estimation Parameters

Hard domain boundaries were used throughout preventing samples lying outside the domain from being used for the estimation. A three-pass estimation strategy was applied to each zone, applying an expanded and less restrictive sample search to the second and subsequent estimation passes and only considering blocks not previously assigned an estimate.

The sample search parameters are supplied in Table 14.1.12_1.

Table 14.1.12_1
SMI Gold Project
Aires: Search Parameters

Domain	Estimation Pass	Search Distance			Min. No of Comp.	Max. No. of Comp.	Max No of Composites Per Borehole	Search Direction
		X(m)	Y(m)	Z(m)				
1	1	40	40	5	1	1	1	Isotropic
	2	80	80	10	1	1	1	Isotropic
	3	120	120	15	1	1	1	Isotropic
2	1	40	40	10	6	20	3	Isotropic
	2	80	80	20	6	20	3	Isotropic
	3	200	200	50	2	20	3	Isotropic

14.1.13 Model Validation

The estimates were reviewed visually and statistically prior to being accepted. The review included:

- Comparison of the estimate mean versus the mean of the composite dataset;
- Visual checks of cross sections, long sections, and plans;
- Comparison of Nearest Neighbour estimate using Inverse distance estimates.

14.1.14 Depletion

No mining has taken place within the area of mineralization hence no depletion has been applied to the block model.

14.1.15 Mineral Resource Classification

Confidence levels for key criteria are listed in Table 14.1.15_1. Classification may have been downgraded in some areas due to lower confidence in the data as listed in Table 14.1.15_1. Applying the following parameters, mineral resource classification codes were assigned to the block model:

Parameters for Classification (Nearest Neighbour estimate compared to ID^3)

- Measured Mineral Resources (all criteria to be fulfilled):
  - First search volume
  - Absolute difference in grade between the two estimates is less than 0.5g/t Au
- Indicated Mineral Resources(all criteria to be fulfilled):
  - First and second volume
  - Absolute difference in grade between the two estimates is greater than 0.5g/t Au and less than 1.0g/t Au
- Inferred Mineral Resources:
  - Absolute difference in grade between the two estimates is greater than 1.0g/t Au

Table 14.1.15_1
SMI Gold Project
Aires: Confidence Levels of Key Criteria

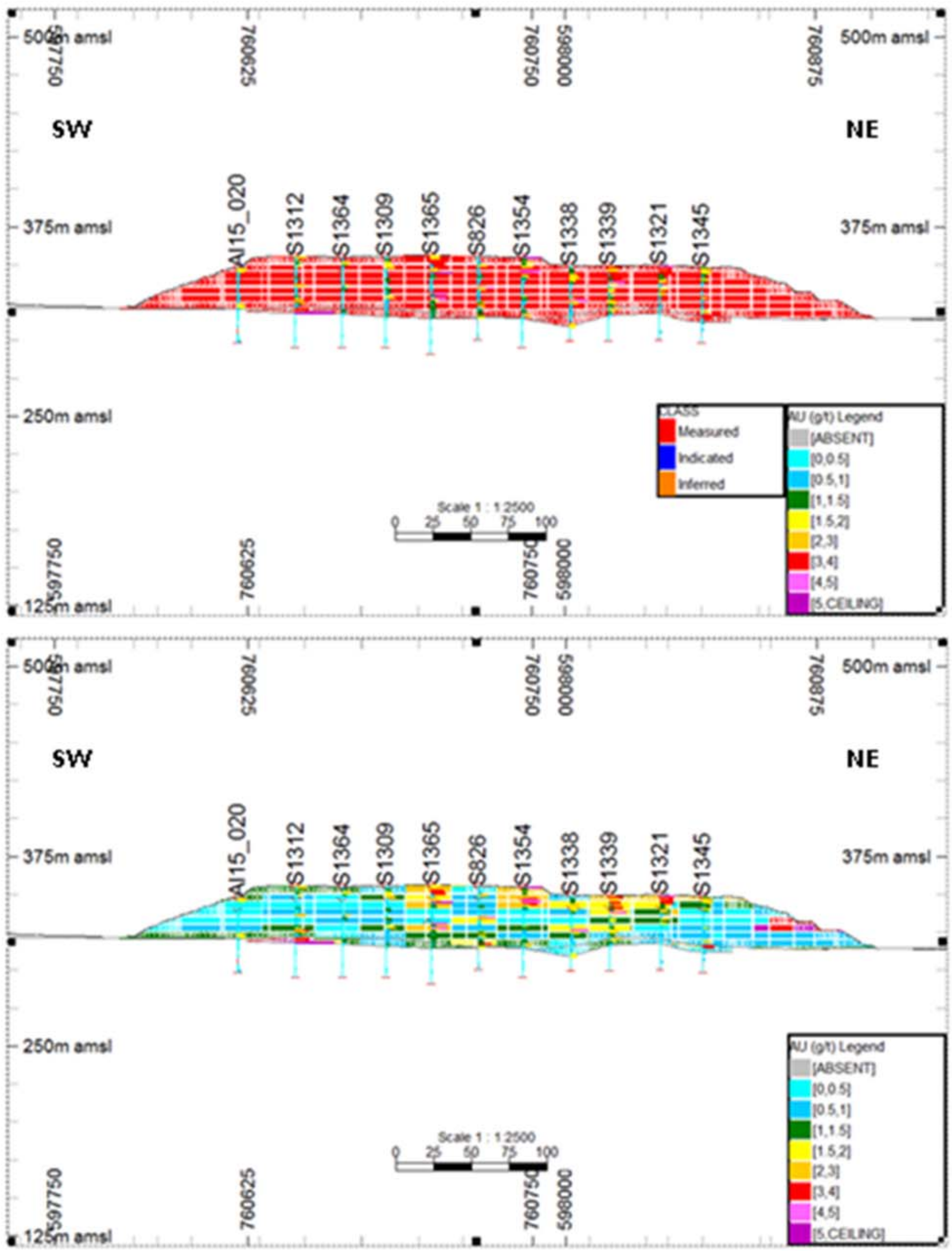
Factors	Discussion	Confidence
Drilling Techniques	Diamond / RC - Industry Standard approach.	Moderate/High
Logging	Standard nomenclature has been adopted.	High
Drill Sample Recovery	Recoveries are of acceptable standard.	Moderate
Sub-sampling Techniques and Sample Preparation	Diamond and RC sampling performed to industry standard techniques.	Moderate/High
Quality of Assay Data	Appropriate quality control procedures are available.	Moderate/High
Verification of Sampling and Assaying	Coffey has assessed sampling and assaying procedures and considers them of appropriate industry standards.	Moderate
Location of Sampling Points	Survey of all collars was done with accurate survey equipment	High
Data Density and Distribution	Drill spacing. 30x30m grid	High
Audits or Reviews	Data reviewed by Coffey on site.	High
Database Integrity	No major issues were identified.	Moderate/High
Geological Interpretation	Lithological controls are well understood.	High
Estimation and Modelling Techniques	Estimation methodology is considered to be appropriate given the geological setting, and grade distribution	High
Cut-off Grades	A 0g/t Au lower cut-off grade is considered appropriate for reporting of a dump	High
Mining Factors or Assumptions	Dump Mining	High
Metallurgical Factors or Assumptions	Assumed same processing parameters as historical production and metallurgical test work	Moderate/ High

14.1.16 Classification and Grade Models

Sections through the classification and grade models for Aires are shown in Figure 14.1.16_1

The drilling grid is sufficiently tight for this deposit to estimate continuity. The Aires have some internal structure and the leaching process leads to some redistribution of gold. The grade distribution reflects this deposition. The mineral resource is classified as Measured Mineral Resources.

Figure 14.1.16_1
Aires
Mineral Resource Classification and Grade Distribution
Cross Section S1639 Looking North East July 2014



14.1.17 Summary of Mineral Resources

The estimated mineral resources for the Aires are tabulated below per domain perm resource category at a cut-off grade of 0g/t Au (Table14.1.17_1). A cut of grade of 0g/t Au is the preferred mineral resources as there may be some selection when the material is reprocessed.

Table 14.1.17_1
SMI Gold Project
Aires: Mineral Resource (Cut-off 0.0g/t) 31 July 2015

Category	Domain	Facies	Tonnes ('000t)	Au (g/t)	Au ('000oz)
Measured	Dump	Dump	5,860	1.05	197.97
Measured	Soil	Soil	273	0.919	7.97
Total Mineral Resource			6,134	1.04	205.94

Note Rounding has been applied

14.2 Teckraie

14.2.1 Introduction

Coffey has estimated the mineral resource for the Teckraie as at 31 July 2015. The volume modelling was completed in the 3D software packages Datamine™ Studio 3. The volume was divided into; the Teckraie Dump material (Domain 1) and mineralization in the soil below the dump (Domain 2). The grade estimation was completed using a Nearest Neighbour estimate for the dump and Inverse Distance Weighting to the second power ID^2 for the soil. This estimation approach was considered appropriate based on review of a number of factors, including the quantity and spacing of available data, the style and geometry of mineralization and the constraints imposed by mine design. The estimation was constrained by hard geological boundaries based on geological interpretations.

14.2.2 Data validation

See Section 14.1.2.

14.2.3 Geometry and Modelling

The mineralization is associated with low grade open pit material randomly placed onto a low grade stockpile. As a result no modelling, other than the domaining between the rock dump material and the insitu soils was attempted. For grade distribution and dump geometry refer to Section 14.2.16. The boundary between the rock dump and insitu soil was interpreted from cross sections parallel to the orientation of the drill lines. Lidar survey data was used to define outline of the dump, with the mineral resource estimate confined to 15m (half the drill borehole spacing) beyond the drilling limits.

14.2.4 Mineralization Interpretation

Teckraie is a rock dump containing waste from the mining of the Flotouo deposit on the property. A description of the source rock mineralization is given in Section 8.

14.2.5 Compositing

Summary statistics of the sample length indicates that 7.0% of the samples were sampled at less than 1m intervals, 90.7% of the samples were sampled at 1m intervals, and 2.3% greater than 1m. For mineral resource estimation compositing was done at 1m intervals.

14.2.6 Statistical Analysis

A total of 2,249 composites were used in the modelling process from a total of 109 RC and diamond boreholes. Separate statistics were generated for each domain and are presented in Table 14.2.6_1.

Table 14.2.6_1
SMI Gold Project
Teckraie: Composite Statistics per Domain (Au g/t)

Area	No of Samples	Min	Max	Mean	Std Dev	Variance	CV
Domain 1	2,078	0.010	31.90	1.13	1.37	1.88	1.22
Domain 2	171	0.050	71.95	1.33	5.45	29.76	4.11

The soil domain has an extremely high CV (4.11) due to the presence of a single high grade value (71.95 g/t). The impact of capping this high grade value reduces the CV from 4.11 to 0.71. High grade capping is discussed in Section 14.2.7.

The population of gold grades are lognormal; for both the dump and the soil, which is typical of most gold deposits. For the dump domain the CV is relatively low for a gold deposit (moderately high geostatistically) as a result of mixing due to mining operations.

14.2.7 High Grade Capping

For the Dump (Domain 1) four values were capped to 10.87g/t, for the soil (Domain 2) one value of 72.0g/t Au was capped to 4.23g/t. Estimations were done including and excluding top capping and the results reviewed. It was observed that capping reduced the mineral resource gold content, at a zero cut off by 2.6%. This is consistent with the grade reduction in the raw data.

14.2.8 Bulk Densities

The density values applied for Teckraie mineral resource estimate per domain are 1.37t/m^3 for the dump material and 1.62t/m^3 for soil. The dump densities were derived from measurements from dump boreholes. The soil is the average soils density over the mine property.

14.2.9 Variography

As the material was randomly placed on the dump with no spatial continuity the Nearest Neighbour estimate was used in preference to constructing variograms and Kriging.

14.2.10 Block Modelling

The block models were constructed with parameters as displayed in Table 14.2.10_1.

Table 14.2.10_1
SMI Gold Project
Teckraie: Block Model Construction Parameters (m)

Domain	Direction	Origin	Extent	Parent Block Size
1 (Dump)	X	597,217	1,470	15
	Y	758,815	1,485	15
	Z	-243m	1,044	1
2 (Soil)	X	597,217	1,470	15
	Y	758,815	1,485	15
	Z	-243	1,044	1

14.2.11 Grade Estimation

Grade estimation was done using Nearest Neighbour and ID^2. The dump was estimated using the Nearest Neighbour estimate, while the soil was estimated using ID^2. This estimation technique was deemed appropriate to be applied to Teckraie, as the dump is man-made and deposited randomly.

ID^2 grade estimations were also conducted on Teckraie dump material and the difference in gold grades between the Nearest Neighbour estimate and the ID^2 used in the mineral resource classification.

14.2.12 Estimation Parameters

The sample search parameters are supplied in Table 14.1.12_1.

Table 14.1.12_1
SMI Gold Project
Teckraie: Search Parameters

Domain	Estimation Pass	Search Distance			Min. No of Comp.	Max. No. of Comp.	Max No of Composites Per Borehole	Search Direction
		X(m)	Y(m)	Z(m)				
1	1	30	30	5	1	1	1	Isotropic
	2	60	60	10	1	1	1	Isotropic
	3	90	90	15	1	1	1	Isotropic
2	1	30	30	6	6	20	3	Isotropic
	2	60	60	12	6	20	3	Isotropic
	3	150	150	30	2	20	3	Isotropic

Hard domain boundaries were used throughout preventing samples lying outside the mineralized domain from being used for the estimation. A three-pass estimation strategy was applied to each zone, applying an expanded and less restrictive sample search to the second and subsequent estimation passes and only considering blocks not previously assigned an estimate.

14.2.13 Model Validation

The estimates were reviewed visually and statistically prior to being accepted. The review included:

- Comparison of the estimate versus the mean of the composite dataset.
- Visual checks of cross sections, long sections, and plans.
- Comparison of Nearest Neighbour estimate using ID^2, ID^3, ID^4.
- Change of search parameters
- Swath Plots

The model validation checks confirmed the suitability of the methodologies applied and the estimation results.

14.2.14 Depletion

Teckraie is on the edge of the Ity pit and some of the eastern portions have been removed in the pushback. The volumes are small and differences between the topographic surface and the current surface are not material to the overall mineral resource for SMI. Depletion due to mining has not been accounted for in the geological model.

14.2.15 Mineral Resource Classification

All mineral inventory 15m beyond the parameter of the drilling is reported as unclassified due to lack of data. Confidence levels for key criteria are tabulated in Table 14.2.15_1. Applying the following parameters, mineral resource classification was based on the following criteria;

- Indicated (all criteria to be fulfilled):
  - Estimated using the same estimation pass for both methods
  - Absolute difference in grade between NN and ID estimates < 1.0g/t Au
- Inferred:
  - Estimated using different estimation passes
  - Absolute difference in grade between NN and ID estimates is > 1.0g/t Au
  - All soil classified as inferred
- Unclassified:
  - 15m (half the borehole spacing) beyond the edge of the drill fence perimeter

Table 14.2.15_1
SMI Gold Project
Teckraie: Confidence Levels of Key Criteria

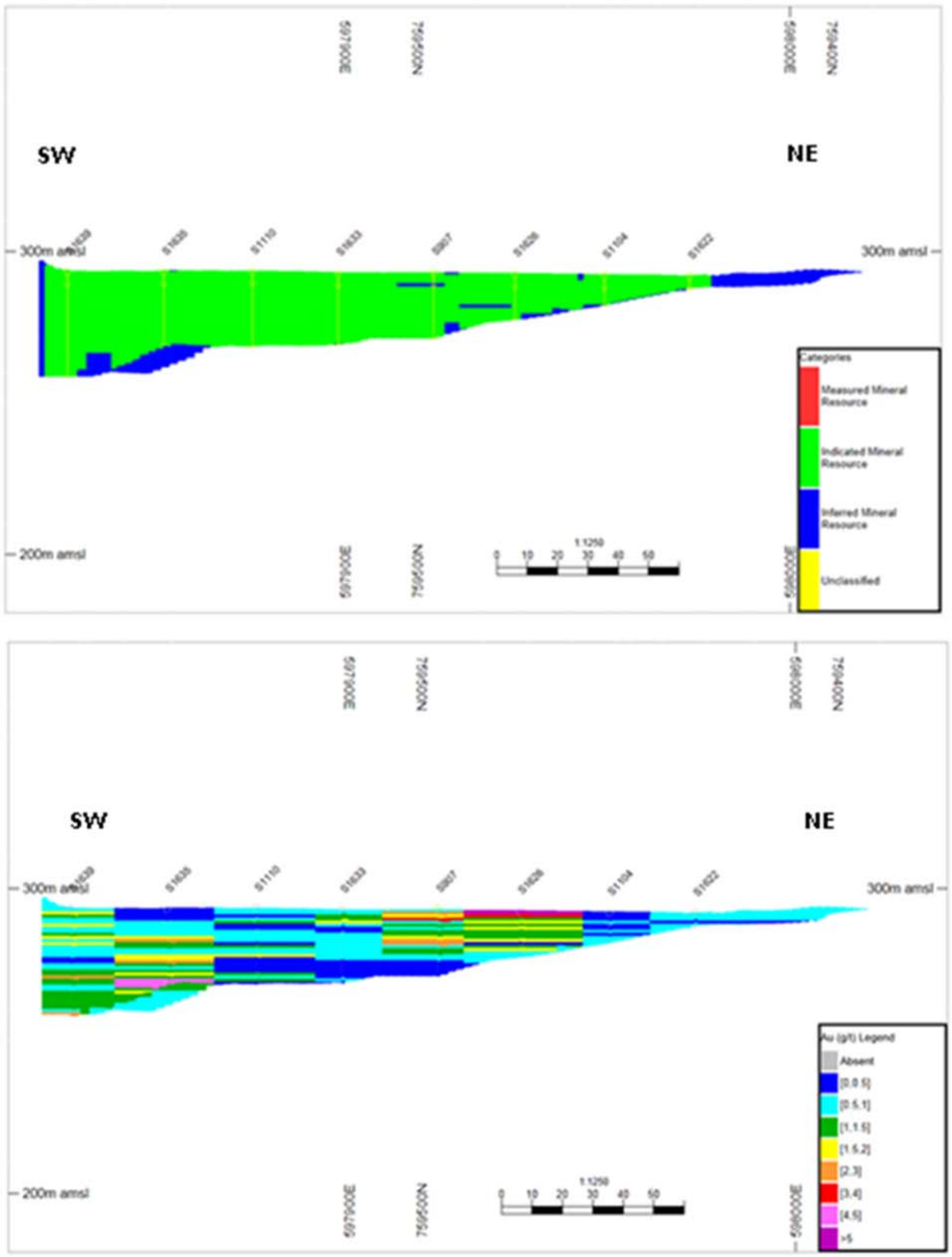
Factors	Discussion	Confidence
Drilling Techniques	Diamond / RC - Industry Standard approach.	Moderate/High
Logging	Standard nomenclature has been adopted.	High
Drill Sample Recovery	Recoveries are of acceptable standard.	Moderate
Sub-sampling Techniques and Sample Preparation	Diamond and RC sampling done to industry standard techniques.	Moderate/High
Quality of Assay Data	Appropriate quality control procedures are available.	Moderate/High
Verification of Sampling and Assaying	Coffey has assessed sampling and assaying procedures and considers them of appropriate industry standards.	Moderate
Location of Sampling Points	Survey of all collars was done with accurate survey equipment	Moderate/ High
Data Density and Distribution	Drill spacing. 30x30m grid	High
Audits or Reviews	Data reviewed by Coffey on site.	Moderate/ High
Database Integrity	No major issues were identified.	Moderate/High
Geological Interpretation	Lithological controls are well understood.	High
Estimation and Modelling Techniques	Estimation methodology is considered to be appropriate given the geological setting, and grade distribution	High
Cut-off Grades	A 0.0g/t Au lower cut-off grade is considered appropriate for reporting considering an the dump will be mined in totality and hence no selectivity applied	High
Mining Factors or Assumptions	Dump Mining	Moderate
Metallurgical Factors or Assumptions	Assumed same processing parameters as historical production and metallurgical test work	Moderate/ High

14.2.16 Classification and Grade Models

Sections through the classification and grade models for Teckraie are shown in Figure 14.2.16_1

Classification is shown for Indicated Mineral Resources and Inferred Mineral Resources. The drilling grid is sufficiently tight for this deposit to estimate continuity. Teckraie is a waste dump with no internal structure. The grade distribution reflects the somewhat random deposition. The mineral resource is classified as Indicated Mineral Resources as the entire dump is at a high enough grade to be considered for reprocessing and the grade distribution is considered representative of what will be extracted.

Figure 14.2.16_1
Teckraie
Mineral Resource Classification and Grade Distribution
Cross Section S1639 Looking North East July 2014



14.2.17 Summary of Mineral Resources

A summary of the estimated mineral resources for Teckraie is tabulated below per domain per mineral resource category at a cut-off grade of 0.0g/t Au (Table 14.2.17_1). A cut-off grade of 0.0g/t Au is deemed the preferred scenario as no selective mining will be undertaken.

Table 14.2.17_1
SMI Gold Project
Teckraie: Mineral Resource (Cut Off 0.0g/t)

Area	Classification	Tonnes ('000t)	Average Grade (g/t)	Au ('000oz)
Dump	Indicated	1,945	1.11	69.52
	Inferred	175	1.04	5.89
Soil	Indicated	-	-	-
	Inferred	128	0.96	3.98
Total	Indicated	1,945	1.11	69.52
	Inferred	304	1.01	9.87
In addition there is another 260,000-280,000 tonnes of unclassified material at approximately 0.9g/t Au				

14.3 Verse Ouest

14.3.1 Introduction

Coffey has estimated the mineral resource for Verse Ouest as at 31 July 2015. The grade estimation was completed using a Nearest Neighbour estimate. This estimation approach was considered appropriate based on review of a number of factors, including the quantity and spacing of available data, the style and geometry of mineralization. The grade estimation was based on the entire borehole database. No boreholes or data were excluded from the mineral resource estimation process.

14.3.2 Data validation

See Section 14.1.2

14.3.3 Geometry and Modelling

Three dimensional models were constructed using Datamine and Micromine software. The base of the dump was interpreted from borehole data using cross sections parallel to the orientation of the drill lines. The 2013 domain was defined by Lidar data for the top surface while the 2014 domain was defined by collar data for the top surface and the Lidar data for the bottom surface. The 2014 domain has small volume. The block modelling and layering is defined on Sections 14.3.10 and 14.3.13.

14.3.4 Mineralization Interpretation

Verse Ouest is a rock dump containing the waste material from mining operations on the property. A description of the mineralization is contained in Section 8. Figure 14.3.13_1 presents a typical cross section of the deposit.

14.3.5 Compositing

The minimum and maximum lengths were 0.10m and 1.55m respectively and samples have an average length of 0.9m. Compositing was done on 5m intervals to correspond with the block model vertical dimension. The borehole samples were flagged based on the level.

14.3.6 Statistical Analysis

A total of 193 composites were used in the modelling process. Separate statistics were generated for each domain and are presented in Table 14.3.6_1.

Table 14.3.6_1

SMI Gold Project

Verse Ouest:1M and 5m Composite Statistics per Domain (Au g/t)

Area	No of Samples	Min	Max	Mean	Std Dev	Variance	CV
Raw Data							
2013	1310	0.005	66.46	0.95	2.49	6.18	1.45
2014	31	0.33	7.56	1.66	1.78	3.17	2.62
5m Composite							
2013	185	0.12	15.43	1.32	1.51	2.28	0.52
2014	8	0.86	4.05	1.76	0.98	0.96	1.07

14.3.7 Outlier Analysis

Some outlier values were identified but it was not deemed necessary to cut or cap the data as capping would not have significant impact on the global mean.

14.3.8 Bulk Densities

The density values applied for Verse Ouest mineral resource estimate is 1.71t/m^3 for the dump material. Table 14.3.8_1 gives the density sample population statistics. The volume replacement method reported unrealistically low densities when compared with the hydrostatic method. The distribution of density data is normal for hydrostatic method and skewed for volumetric method. Density distribution for same lithology would be expected to exhibit a normal distribution rather than the log normal the distribution produced by volumetric method. The data collected using hydrostatic method was used for mineral resource evaluation. One outlier (3.11t/m^3) was identified and capped (at 2.04t/m^3) for mean density determination.

Table 14.3.8_1 SMI Gold Project Verse Ouest: Hydrostatic Bulk Density (t/m^3)						
Attribute	**Number**	**Minimum**	**Maximum**	**Mean**	**Standard Deviation**	**CV**
Dump	16	1.15	2.04	1.71	0.16	0.10

14.3.9 Variography

As the material was randomly placed on the dump with no spatial; no variograms were calculated and modelled.

14.3.10 Block Modelling

The parent block sizes selected to estimate the deposit approximates half the borehole spacing. Sub-blocking (8x8x8 sub cells) was allowed for good volume definition. The block models were constructed with parameters as displayed in Table 14.3.10_1.

Table 14.3.10_1 SMI Gold Project Verse Ouest: Block Model Construction Parameters (m)				
Direction	**Origin**	**Parent Block Size**	**Number of Blocks**	**Sub-Cell**
X	596850	25	78	Yes
Y	758950	25	64	Yes
Z	160	5	52	Yes

14.3.11 Grade Estimation

Grade estimation used the Nearest Neighbour method. A good Nearest Neighbour estimate using an appropriate block size will map-out any real continuity in the deposit. This estimation technique was considered appropriate to Verse Ouest as it is man-made and deposited randomly.

14.3.12 Estimation Parameters

Hard domain boundaries were used throughout preventing samples lying outside a mineralized domain from being used for the estimation. A three-pass estimation strategy was applied, making use of an expanded and less restrictive sample search to the second and subsequent estimation passes and only considering blocks not previously assigned an estimate.

The sample search parameters are supplied in Table 14.3.12_1.

Table 14.3.12_1
SMI Gold Project
Verse Ouest: Search Parameters

Domain	Estimation Pass	Search Distance			Min. No of Comp.	Max. No. of Comp.	Max No of Composites Per Borehole	Search Direction
		X(m)	Y(m)	Z(m)				
1	1	50	50	50	1	1	1	Isotropic
	2	100	100	100	1	1	1	Isotropic
	3	150	150	150	1	1	1	Isotropic

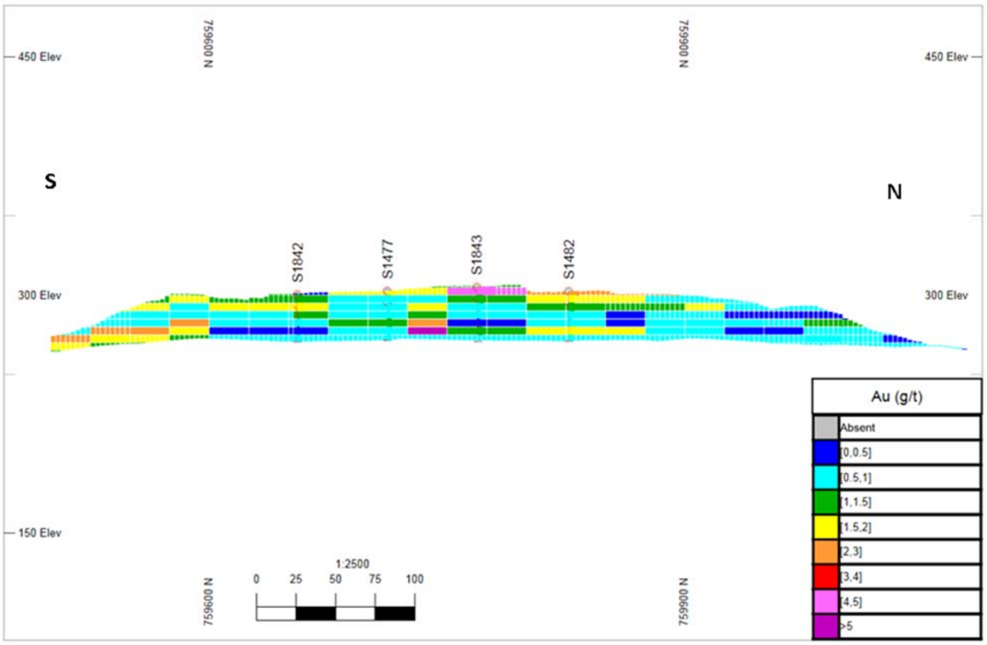
14.3.13 Model Validation

The estimates were reviewed visually and statistically prior to being accepted. The review included the following activities:

- Comparison of the estimate versus the mean of the composite dataset;
- Visual checks of cross sections Figure 14.3.13_1);
- Comparison of Nearest Neighbour estimate using ID estimates;
- Comparison of different estimates using composites;
- Change to search parameters.

The model validation checks confirmed the suitability of the methodology applied and the estimation results.

Figure 14.3.13_1
Verse Ouest
Section through the model and borehole fence



14.3.14 Depletion and Geological Loss

No mining has taken place within the area of mineralization hence no depletion has been applied to the block model. The dump is man-made feature expected to be mined in its entirety. No geological/volume losses are applied.

14.3.15 Mineral Resource Classification

Confidence levels for key criteria are tabulated in Table 14.3.15_1. Classification may have been downgraded in some areas due to lower confidence in the data. Applying the following parameters, mineral resources were classified based on:

- Measured Mineral Resources were not considered as the boreholes are not closely spaced enough to establish continuity with high confidence.
- Indicated Mineral Resources (all criteria to be fulfilled)
  - First search-volume and extrapolated for 25m beyond the drill fence perimeter.
- Inferred Mineral Resources
  - Second pass beyond the edge of the drill fence perimeter.
  - Up to 100m beyond the drill fence perimeter.

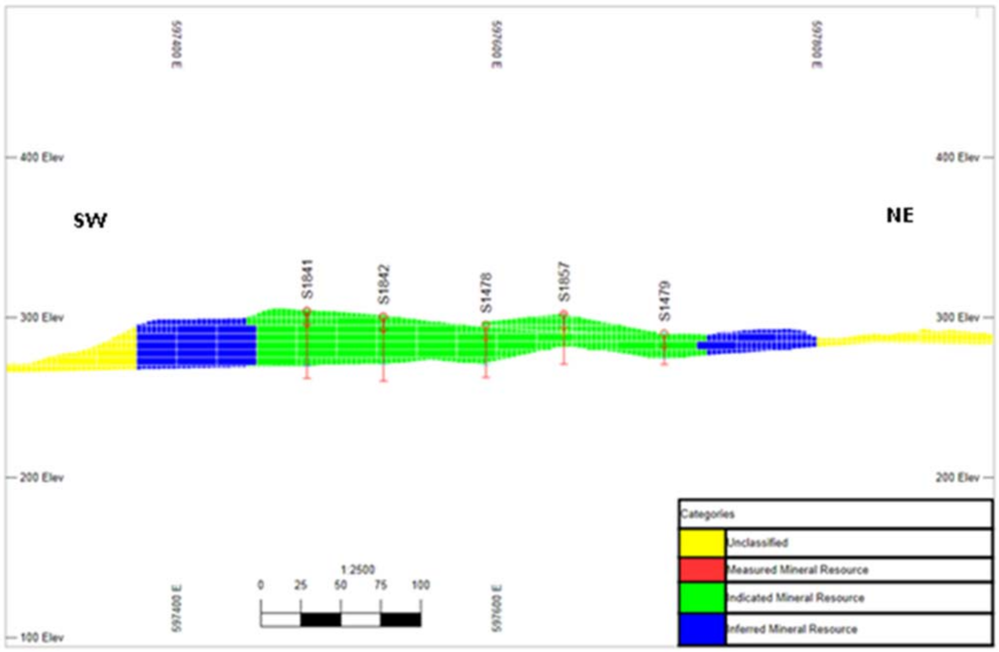
Table 14.3.15_1
SMI Gold Project
Verse Ouest: Confidence Levels of Key Criteria

Factors	Discussion	Confidence
Drilling Techniques	Diamond - Industry Standard approach.	Moderate/High
Logging	Standard nomenclature has been adopted.	High
Drill Sample Recovery	Recoveries are of acceptable standard.	Moderate
Sub-sampling Techniques and Sample Preparation	Diamond sampling performed to industry standard techniques.	Moderate/High
Quality of Assay Data	Appropriate quality control procedures are available.	Moderate/High
Verification of Sampling and Assaying	Coffey has assessed sampling and assaying procedures and considers them of appropriate industry standards.	Moderate
Location of Sampling Points	Survey of all collars was performed with accurate survey equipment	Moderate/High
Data Density and Distribution	Average Drill spacing. 50x50m grid	Moderate/High
Audits or Reviews	Data reviewed by Coffey.	Moderate/ High
Database Integrity	No major issues were identified.	Moderate/High
Geological Interpretation	Lithological controls are well understood.	High
Estimation and Modelling Techniques	Estimation methodology is considered to be appropriate given the grade distribution	High
Cut-off Grades	A 0g/t Au lower cut-off grade is considered appropriate for reporting as the dump should be mined completely	High
Mining Factors or Assumptions	Dump Mining (Surface mining)	High
Metallurgical Factors or Assumptions	Assumed same processing parameters as historical production.	Moderate/ High

14.3.16 Classification and Grade Models

Sections through the classification and grade models for Verse Ouest are shown in Figure 14.3.16_1. Classification is shown for Indicated Mineral Resources and Inferred Mineral Resources. The drilling grid is sufficiently tight for this deposit to estimate continuity. The grade distribution reflects the random deposition of gold-bearing material. The mineral resource is classified as Indicated Mineral Resources where there is drilling and extrapolated in layers for the Inferred Mineral Resources.

Figure 14.3.16_1
Verse Ouest
Mineral Resource Classification



14.3.17 Summary of Mineral Resources

A summary of the estimated mineral resources for the Verse Ouest dump is tabulated below per mineral resource category at a cut-off grade of 0.0g/t Au (Tables 14.3.17_1). A cut-off grade of 0g/t Au is appropriate since the Verse Ouest dump is expected to be mined with no selection.

Table 14.3.17_1
SMI Gold Project
Verse Ouest: Mineral Resource (Cut-off 0.0g/t) 31 July 2015

Category	Domain	Facies	Tonnes ('000t)	Au (g/t)	Au ('000oz)
Indicated	Dump	Dump	3,844	1.22	150.78
Inferred	Dump	Dump	3,591	1.25	144.32
Total Indicated Mineral Resource			**3,844**	**1.22**	**150.78**
Total inferred Mineral Resource			**3,591**	**1.25**	**144.32**

Note Appropriate Rounding has been applied

14.3.18 Comparison with Historical estimates

There are no historical estimates for the Verse Ouest dump.

14.4 Daapleu

14.4.1 Introduction

Coffey has updated the geological model and mineral resource for the Daapleu deposit as at 31 July 2015. The deposit was divided into three domains North, Central and South, based on the geometry of mineralization. The grade estimation was completed using Ordinary Kriging estimates per domain. The estimation was constrained by hard geological boundaries within the zone of mineralization and soft boundaries between mineralized domains.

14.4.2 Data Validation

See section 14.1.2

14.4.3 Geological Interpretation and Modelling

The geological modelling was completed in the 3D software package Datamine™ Studio 3. The model was based on information from survey data, geological mapping, RC and diamond borehole data and sample analyses. The modelling also considered the artisanal mining pit positions.

The geological data and cross sections were used to map the base of the weathered zone. The weathered zone has a depth of about 25m to 35m. The weathered zone is deeper where there are structural features such as shear zones or the Cavally River. The dataset was coded with indicator values based on degree of oxidation;

The partially weathered and fresh lithologies were considered the same as they have similar physical properties. The base of the weathered surface was modelled using DTM Creation routine in Datamine and the oxidation indicators.

Geological Mapping Methodology

The geological model was produced using indicator estimation of the metamorphosed volcano sedimentary unit (VSM) and felsic intrusive - daaplite (IFMD) lithological units. Daapleu is ideally suited to indicator-type estimation because it has two distinct units of sufficient thickness to establish lithological domains. The contact between the two is a zone of mixed layers of IFMD and VSM with poor correlation between individual boreholes. Stratigraphy in the borehole logs was retained as given in the original data set. Only the IFMD and VSM units were considered in the initial exercise

Borehole spacing in the densely drilled northern domain is 20m - 40m. Various models at different block sizes have been run during the current and previous mineral resource estimations at 10m, 5m and 2.5m blocks. A block model of 2.5m x 2.5m x 2.5m was chosen as being suitable for estimating the geology with enough detail to identify the main mineralized zones.

The initial estimation method used was ID^2 to test the search parameters. This gave good results and mapped the logged lithologies well. In an attempt to better the estimation, variograms were modelled for the IFMD. While good omnidirectional variograms were produced, directional variograms in the plane of the main structural trend were less satisfactory. Laterally there is little variation and the variograms were not showing the variability in the mixed zone at all due to the overwhelming amount of data in the thick main body of the deposit. Since the ID^2 estimation gave a good result the kriging option was not pursued further.

The search parameters used in the estimation of geology are presented on Table 14.4.3_1.

Table 14.4.3_1
SMI Gold Project
Daapleu: Geological Modelling Search Parameters

Domain	Estimation Pass	Search Distance			Min. No of Comp.	Max. No. of Comp.	Max No of Composites Per Borehole	Search Direction
		X(m)	Y(m)	Z(m)				
North	1	10	60	50	20	50	10	050/050
	2	20	120	100	20	50	10	
	3	30	180	150	10	50	10	
Central	1	10	60	50	20	50	10	078/068
	2	20	120	100	20	50	10	
	3	30	180	150	10	50	10	
South	1	10	60	50	20	50	10	078/060
	2	20	120	100	20	50	10	
	3	30	180	150	10	50	10	

The results were compared against the raw borehole data using the criteria of the proportion of samples informing the block were greater than 75% IFMD then the block was classified as IFMD. Likewise if the samples informing the block were greater than 75% VSM the block was considered as VSM for the purposes of the geological interpretation. Blocks between the VSM and IFMD where the proportions were both nonzero are considered as contact zone. All other blocks are considered as waste in the mineral resource estimation. The mapped lithologies from the model correlated well with the borehole data and mapped especially well against the artisanal pits (Figure 14.4.3_1). The artisanal pits were generally dug at the lithological contact zone between the VSM and IFMD. The contact has high grade mineralization in the northern portion of Daapleu.

For structural mapping the contact between the IFMD and VSM was taken as 50% level.

14.4.4 Mineralization Interpretation

The gold mineralization models have similar problems to the geological models. The mineralization is spread over a broad zone with no definite contacts. Because gold mineralization is inherently nuggetty defining the edge of the zone based on the gold values of individual samples is likely to result in incorrect boundaries being chosen. Because the mineralization is spread over a broad zone with no definite contacts, the same mapping method as for the geology was applied to the gold using the borehole data. Indicator sets were defined for gold at cut-offs of 0.5g/t, 1.0g/t, 1.5g/t, 2g/t and 3g/t and for arsenic at 50ppm and 5000ppm. Cut-off grades were chosen mostly for convenience however, 0.5g/t Au is the generally agreed cut-off for defining mineralization in this deposit and is close to the cut-off grade from the mining PFS (SNC, July 2015). The higher grades are to check for continuity of mineralization.

The same estimation parameters were used as for the geological mapping.

A set of grade shells were produced for gold using the following criteria

- >30% samples informing the block were greater the 0.5g/t Au;
- >30% of the samples were greater than 1g/t Au;
- >30% of the samples were greater than 2g/t Au;
- >30% of samples greater than 50ppm arsenic;
- >30% of samples greater than 5000pm arsenic.

Of the six shells the model with >30% of sample over 1g/t Au mapped the mineralized package well. The As shell >30% of samples over 50ppm mapped the mineralization in the upper IFMD. It was less useful for the lower areas of the IFMD but does map the higher grade mineralization in the VSM.

The mineralization structure/orientation was then mapped from the gold grade shells and the IFMD and VSM distributions. These structures were used in the domaining of the mineralization into North, Central and South areas. Domaining was used for calculation convenience; there are no distinct geological boundaries between theses domains. The differences are primarily in data density and structural orientation of the VSM/IFMD contact. The mapped mineralization envelopes for 2014 and 2015 mineral resource estimations are shown in Figures 14.4.4_1 and 14.4.4_2. The differences are minor and show that the grades are predictable with high degree of confidence.

Figure14.4.3_1
Daapleu
A section through the Geological Model and Lithological Contact

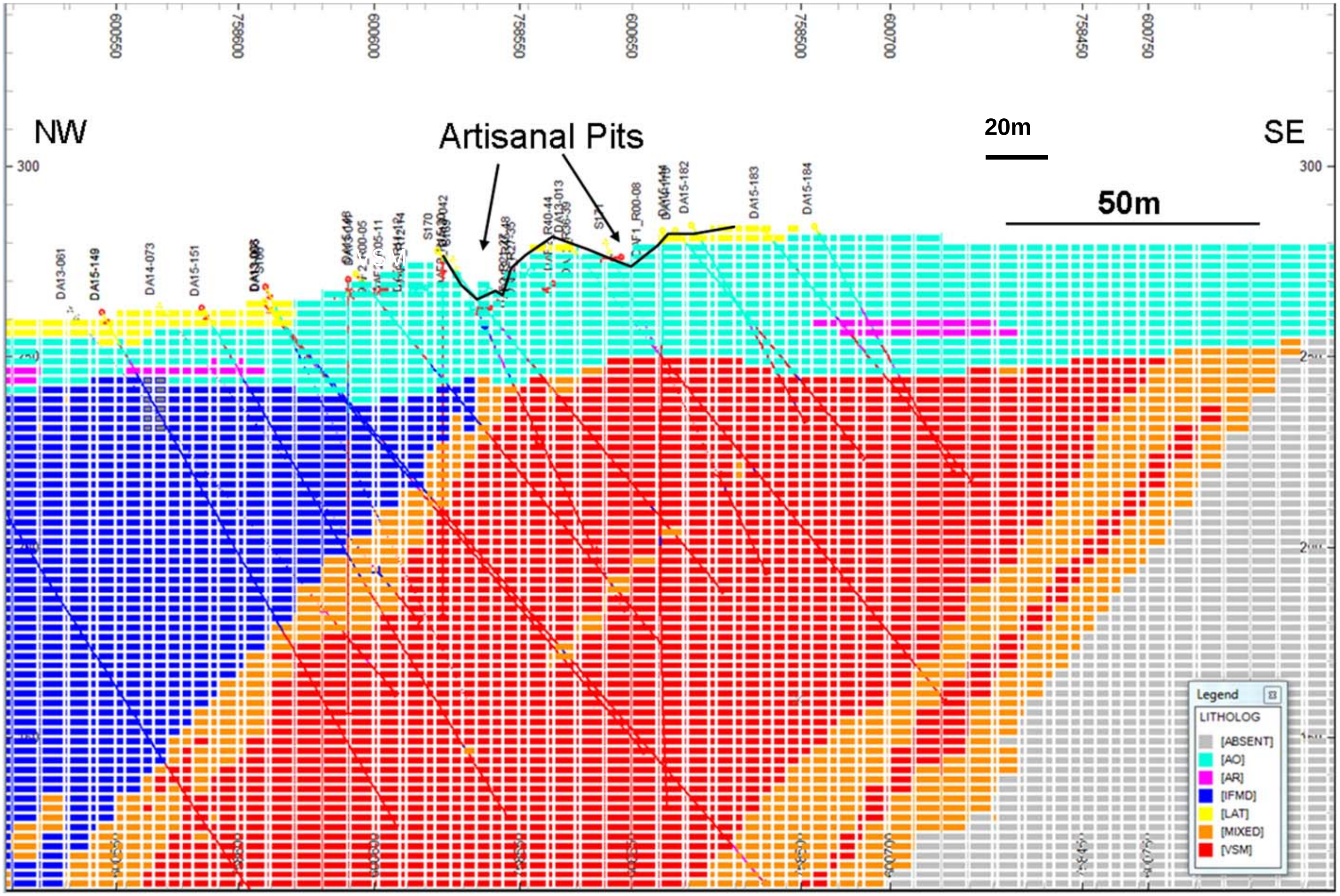


Figure 14.4.4_1
Daapleu

Drilling pattern and Domains Plan View July 2015

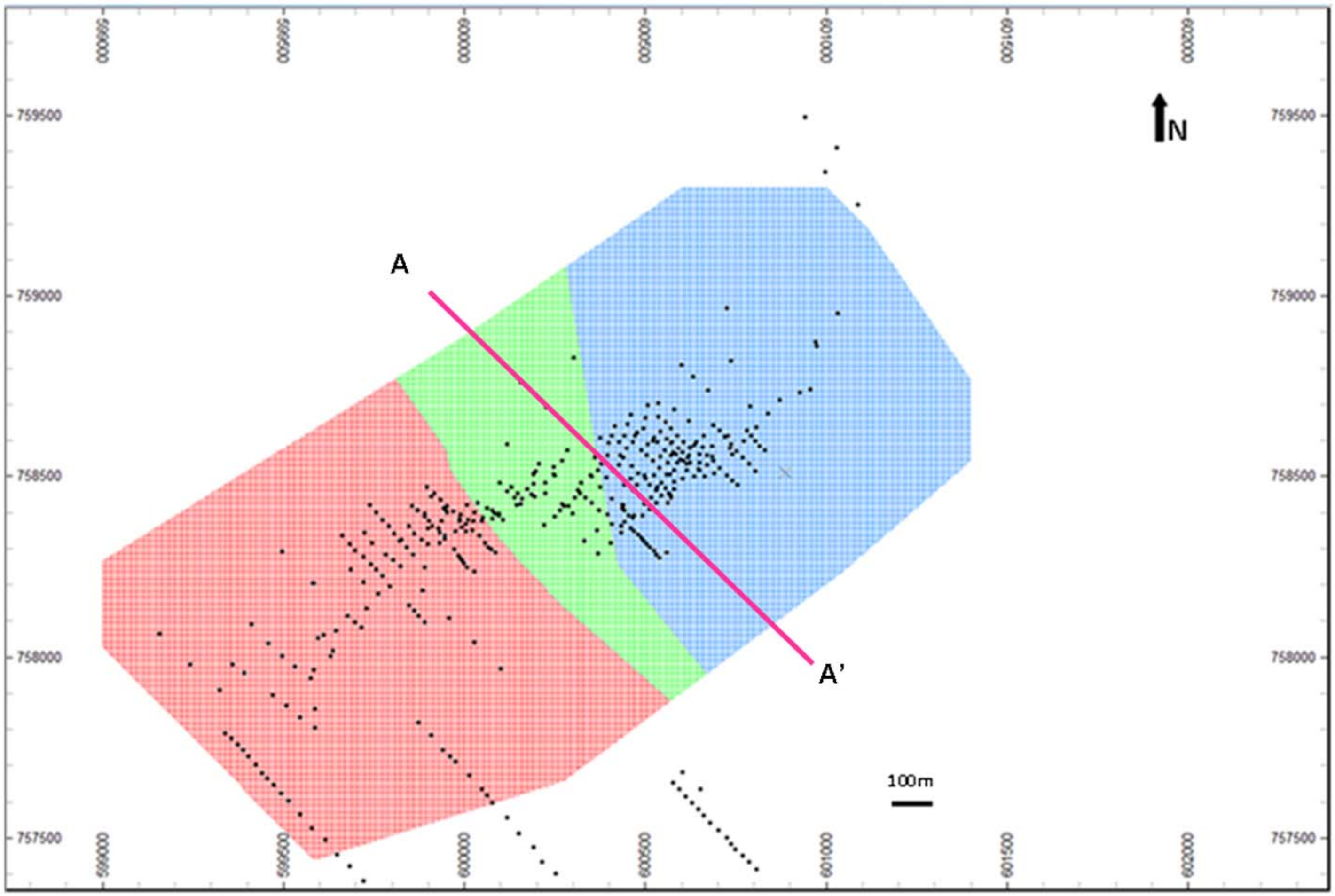
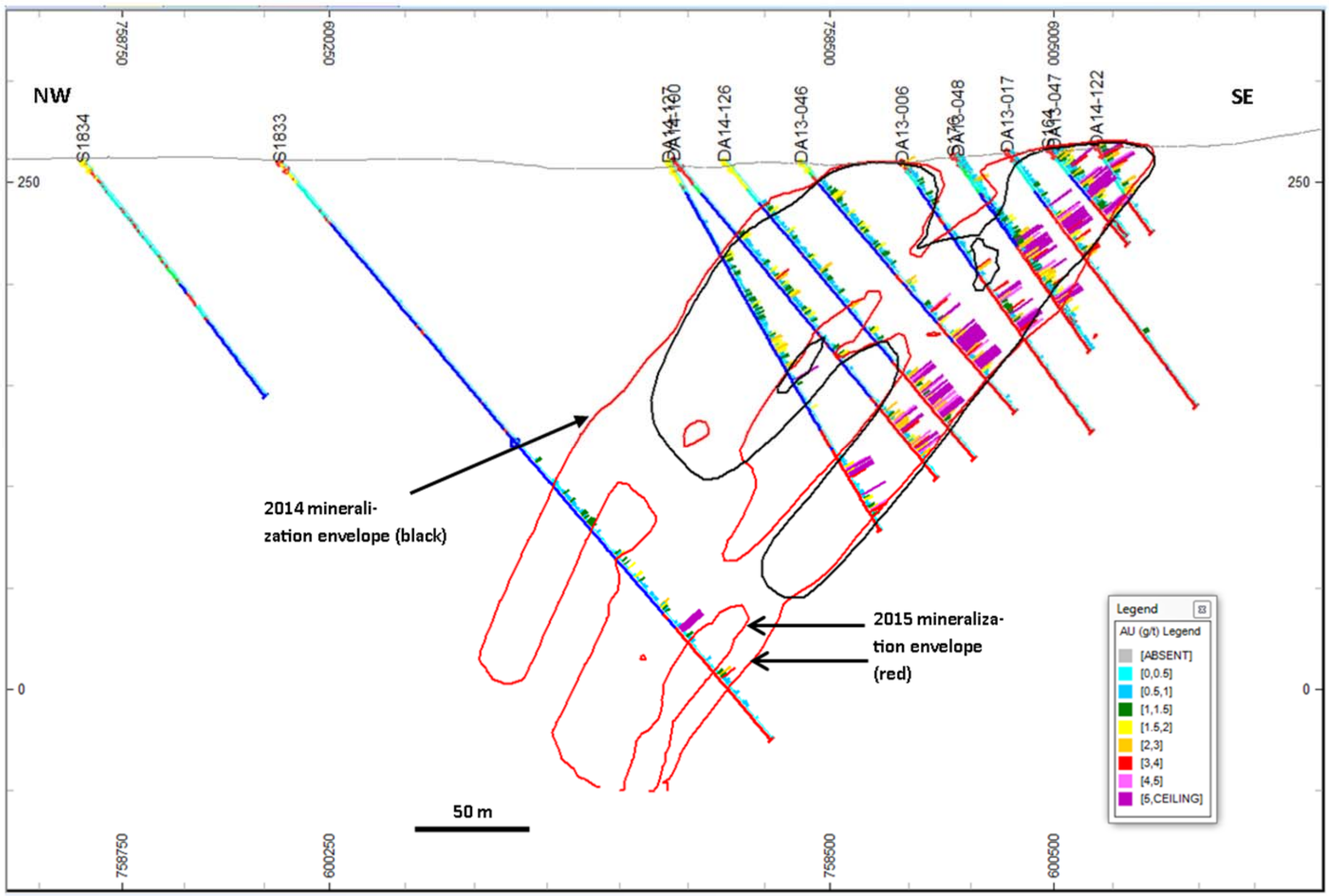


Figure 14.4.4_2
Daapleu
North Domain Cross Section DA14-098– B/H Gold Grade (Au g/t) and Model Lithology (looking North East)



14.4.5 Compositing

Most of the samples were collected at 1m interval. For the mineral resource estimation, compositing was performed per rock type at 1m intervals to preserve the deposit variability in the estimates.

14.4.6 Statistical Analysis

A total of 10,466 composites were used in the estimation process from a total of 181 RC and diamond boreholes within the mineralized zone. Separate statistics were generated for each domain and are presented in Table 14.4.6_1.

Table 14.4.6_1
SMI Gold Project
Daapleu: Composite Statistics per Domain (Au g/t)

Domain	No of Samples	Min	Max	Mean	Std Dev	Variance	CV
North	7538	0.005	62.00	1.61	2.97	8.82	1.84
Central	4229	0.005	38.10	1.01	1.54	2.37	1.43
South	481	0.005	20.87	1.21	1.65	2.72	1.37

For estimation purposes the oxide and fresh domains were treated as a single mineralization domain. Statistics were calculated for the two oxidation zones (oxide and fresh) and for the North, Central and South Domains. All domains and oxidation zones have similar lognormal grade distributions typical of gold deposits. Oxidation and alteration do not appear to have resulted in substantial remobilization or concentration of gold. For estimation purposes the oxide and fresh domains were treated as a single mineralization domain.

14.4.7 High Grade Capping

There are no outliers and no high grade capping was applied.

14.4.8 Bulk Densities

The density values applied for the mineral resource estimate, per rock type, are derived from measurements of the core: oxidized material 1.60t/m^3, Fresh VSM 2.84t/m^3 and IFMD 2.67t/m^3. The standard deviation and CV are low showing that the average density is suitable for use in mineral resource estimation (Table 14.4.8_1).

Table 14.4.8_1 SMI Gold Project Daapleu: Hydrostatic Bulk Density (t/m^3)						
Attribute	**Number**	**Minimum**	**Maximum**	**Mean**	**Standard Deviation**	**CV**
Oxidized Material	146	1.22	2.29	1.60	0.22	0.09
Fresh IFMD	431	1.77	3.71	2.67	0.13	0.03
Fresh VSM	416	1.93	3.71	2.84	0.13	0.03

14.4.9 Variography

For the North and Central Domains experimental directional variograms were generated in Datamine, using all the RC and diamond drilling data composited at 1m interval and contained within the mineralized modelled surface. Soft domaining was applied to include an additional line of boreholes as the boundary between the domains is gradational rather than sharp. Variograms per domain were constructed parallel to the Domains mineralization strike and dip directions. To reduce variance and assist in the variogram construction, the maximum grade outliers per Domain were excluded from the experimental variogram construction.

Down-the-hole variograms were constructed using Isatis software, perpendicular to the mineralization, defining the nugget-sill ratio to be applied for the ordinary kriging (OK) estimate. The down-the-hole variograms were well defined and the relatively low nugget ratio obtained compared to similar deposits is attributed to domaining.

The 2014 variogram parameters were used in the 2015 modelling as there was no significant change in the variograms between the two data sets. The nugget, sills and ranges were all tested per domain in 2015 and found to be the same as those used in the 2014 estimation. This implies that Daapleu grade distribution is stable and highly predictable.

Two structure spherical models were fitted with a nugget value determined by down-the-hole variograms. For the South Domain there was insufficient data to construct meaningful variograms and the variography modelled for the Central Domain was applied to the South Domain.

Table 14.4.9_1
SMI Gold Project
Daapleu: Experimental Semi Variogram Parameters

Domain	Rotation			Direction		Lag (m)	Lag Tolerance	Number of Lags
	Z	Y	X					
North	50	50	-	90/0	0/0	15	50%	10
Down-the-Hole						1	50%	20
Central	70	68	-	90/0	0/0	15	50%	10
Down-the-Hole						1	50%	20

Table 14.4.9_2
SMI Gold Project
Variography Modelled Parameters

Direction	Nugget	Sill 1	Sill 2	Range 1 (m) (X,Y,Z)	Range 2 (m) (X,Y,Z)
North Domain					
Anisotropic Semi-Variogram	1.641	5.868	1.678	17, 44, 4.25	60, 100, 16.6
Central and South Domains					
Anisotropic Semi-Variogram	0.45	0.497	0.595	4, 33, 3	57, 110, 10

14.4.10 Block Modelling

A three-dimensional block model was constructed for Daapleu. Parent block sizes were based on the data configuration (average drill spacing), compositing interval, geometry of the mineralization and suitability for mine planning.

The block models were constructed with parameters as displayed in Table 14.4.10_1.

Table 14.4.10_1
SMI Gold Project
Daapleu: Block Model Construction Parameters - Au Estimation (m)

Domains		Origin	Extent	Parent Block Size
All	**X**	599,000	2400	10
	Y	75,400	1900	10
	Z	-60	500	10

14.4.11 Grade Estimation

Grade estimation was done using OK for all Domains. North and Central Domains were estimated using the modelled variograms and search parameters as supplied in Table 14.4.11_1. The South Domain was estimated using the variogram modelled for the Central Domain. Statistical analysis of the gold distribution in the oxidized and fresh zones (Section 14.4.6) indicates that they are one population and they were combined and estimated as if there was no difference in the host rock. Likewise with the gold mineralization in the IFMD and VSM which were combined as if there was no difference in host rock within each domain.

Table 14.4.11_1
SMI Gold Project
Daapleu: Search Parameters

Domain	Estimation Pass	Search Distance			Min. No of Comp.	Max. No. of Comp.	Max No of Composites Per Borehole	Search Direction
		X(m)	Y(m)	Z(m)				
North	1	10	60	50	20	50	10	050/050
	2	20	120	100	20	50	10	
	3	30	180	150	10	50	10	
Central	1	10	60	50	20	50	10	078/068
	2	20	120	100	20	50	10	
	3	30	180	150	10	50	10	
South	1	10	60	50	20	50	10	078/060
	2	20	120	100	20	50	10	
	3	30	180	150	10	50	10	

14.4.12 Estimation Parameters

Hard domain boundaries were used preventing samples lying outside the mineralized domain from being used for the estimation. Soft domaining within the mineralized domains was permitted, to include an additional line of boreholes outside of the domain boundaries, as the domain boundaries are gradational. A three-pass estimation strategy was applied to each zone, applying an expanded and less restrictive sample search to the second and subsequent estimation passes and only considering blocks not previously assigned an estimate (Table 14.4.11_1).

14.4.13 Model Validation

The estimates were reviewed visually and statistically prior to being accepted. The review included the following activities:

- Comparison of the estimate versus the mean of the composite dataset.
- Visual checks of cross sections, long sections, and plans (Figures 14.4.13_1 to 14.4.13_4).
- Swath Plots

The model validation checks confirmed the suitability of the methodologies applied and the accuracy of the estimation results.

Figure 14.4.13_1
Daapleu
Boreholes and Sections Plan Map

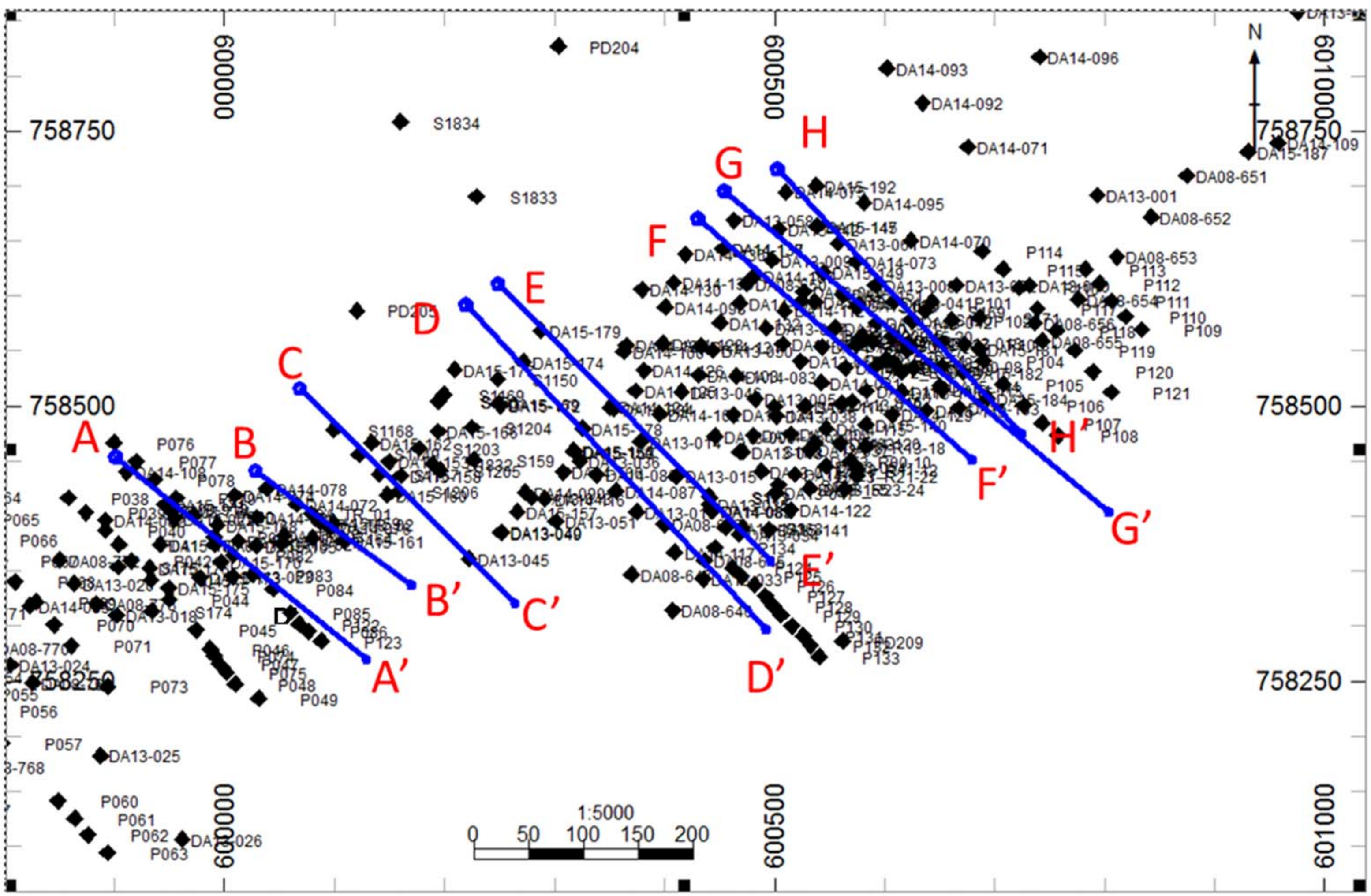


Figure 14.4.13_2
Daapleu
Cross Section C-C'

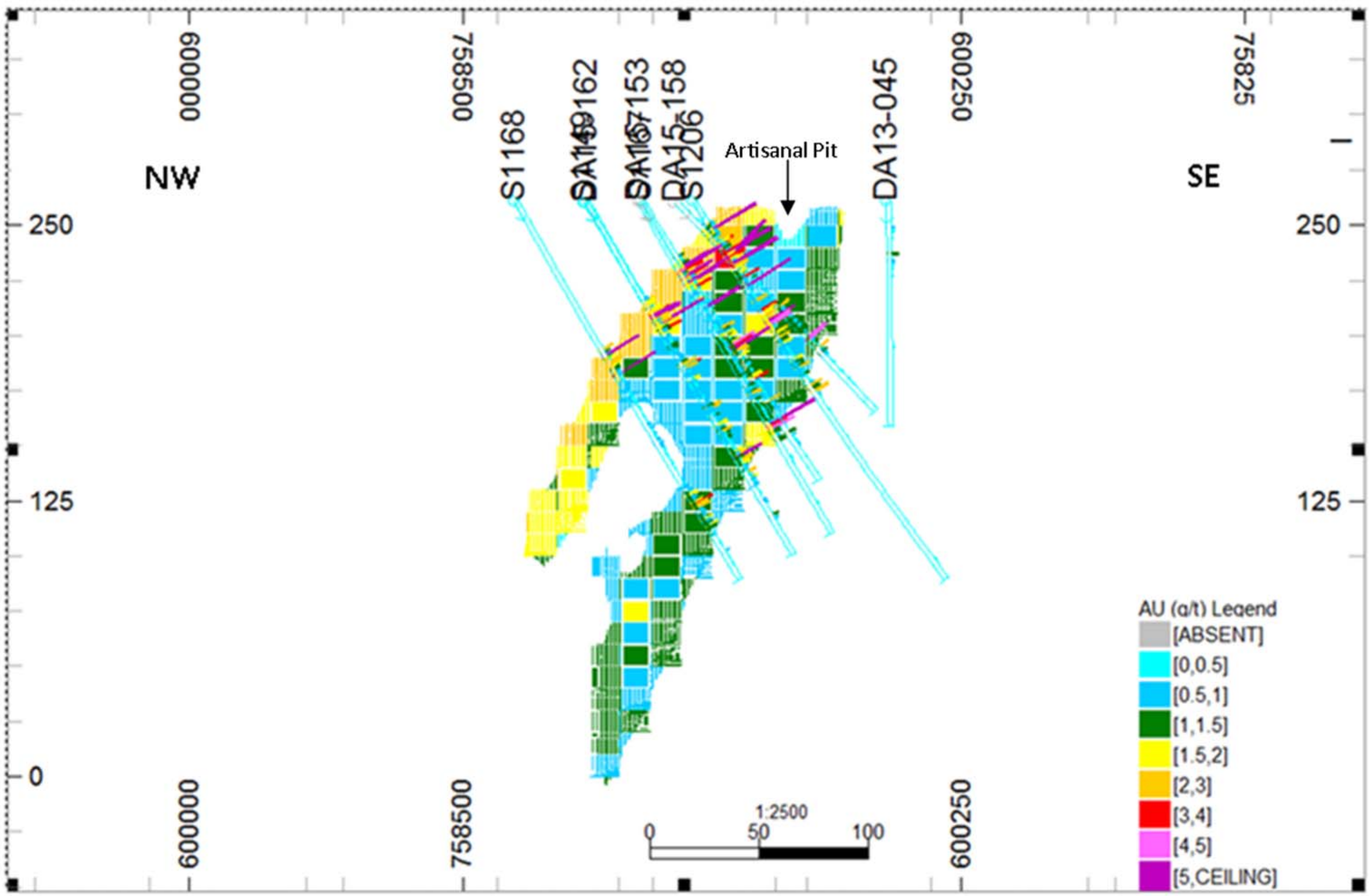


Figure 14.4.13_3
Daapleu

Cross Section E-E'

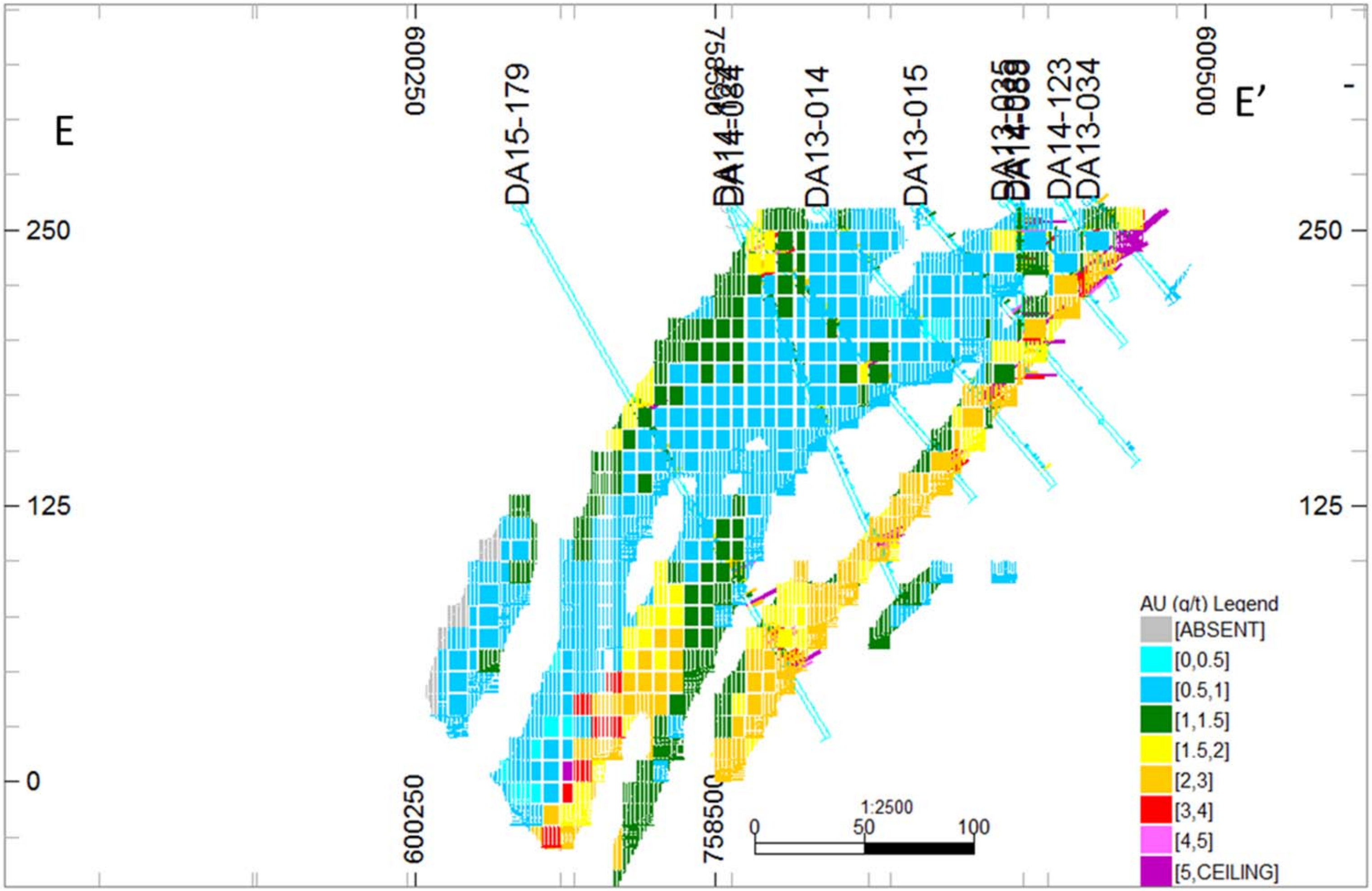
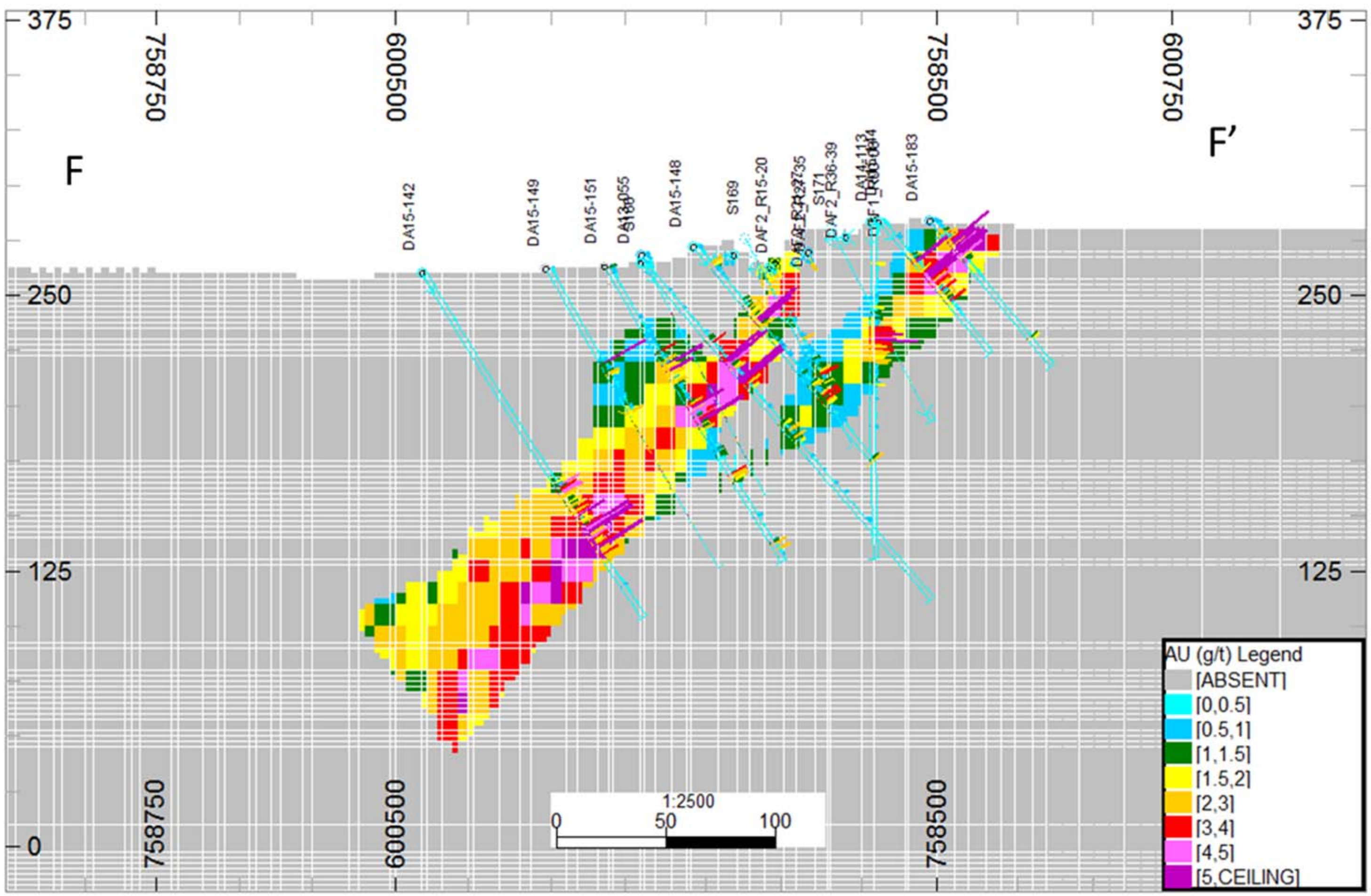


Figure 14.4.13_4
Daapleu
Cross Section F-F'



14.4.14 Depletion and Geological Losses

No mining has taken place within the area of mineralization. No depletion has been applied to the block model. Geological losses where known are accounted for in the geological model and classified as waste. Artisanal mining has been accounted for in the topographic survey. All other losses will be treated at the mine planning stage.

14.4.15 Mineral Resource Classification

Classifications are based on the confidence levels of the key criteria that were considered during the mineral resource estimation. Confidence levels for key criteria are listed in Table 14.4.15_1. Classification may have been downgraded in some areas due to lower confidence in the data. Mineral resource classification is based on:

- Measured Mineral Resources:
  - Estimated within the first search volume;
  - Minimum of three boreholes;
  - 20m borehole spacing.
- Indicated Mineral Resources:
  - Estimated within the first or second search volume.
- Inferred Mineral Resources:
  - Estimated within the second or third search volume.

Table 14.4.15_1
SMI Gold Project
Daapleu: Confidence Levels of Key Criteria

Factors	Discussion	Confidence
Drilling Techniques	Diamond / RC - Industry Standard approach.	Moderate/High
Logging	Standard nomenclature has been adopted.	High
Drill Sample Recovery	Recoveries are of acceptable standard.	Moderate
Sub-sampling Techniques and Sample Preparation	Diamond and RC sampling performed to industry standard techniques.	Moderate/High
Quality of Assay Data	Appropriate quality control procedures are available.	Moderate/High
Verification of Sampling and Assaying	Coffey has assessed sampling and assaying procedures and considers them of appropriate industry standards.	Moderate/High
Location of Sampling Points	Survey of all collars was performed with accurate survey equipment	Moderate/High
Data Density and Distribution	Drill spacing. 20x20m grid	High
Audits or Reviews	Data reviewed by Coffey on site.	Moderate/ High
Database Integrity	No major issues were identified.	Moderate/High
Geological Interpretation	Lithological controls are well understood.	High
Estimation and Modelling Techniques	Estimation methodology is considered to be appropriate given the geological setting, and grade distribution	High
Cut-off Grades	A 0.5g/t Au lower cut-off grade is considered appropriate for reporting	High
Mining Factors or Assumptions	Open Pit	Moderate/High
Metallurgical Factors or Assumptions	Assumed same processing parameters as historical production and metallurgical test work	Moderate/ High

14.4.16 Classification and Grade Models

Sections through the classification and grade models for Daapleu are shown in Figures 14.4.16_1 and 14.4.16_2.

Classification is shown for Measured, Indicated and Inferred Mineral Resources. The drilling grid is sufficiently tight for this deposit to estimate continuity. In Section S1168 (Figure 14.4.16_2) there is insufficient information in the adjacent lines to give the same confidence as the North domain.

Gold mineralization in the North domain occurs in three zones, at the top of the IFMD, in and near the contact between the IFMD and VSM and in the VSM. Only the first two are considered for inclusion in the mineral resources. The zone in the metasediments is thin, poorly defined by drilling, not connected to the main zone of mineralization and would need more information to be considered as potentially economically minable. The mineralization in upper part of the IFMD is a persistent low to moderate grade zone with an arsenic anomaly. The gold mineralization in the contact zone is moderate to high grade with continuity over a few hundred metres. The zone is persistent over all domains.

Gold grades in the Central Domain follow those of the North but with lower grades. The mineralization in the IFMD is persistent but the grade in the contact zone is lower.

Mineralization in the South Domain appears to be only associated with the contact zone.

Figure 14.4.16_1
Daapleu
Mineral Resource Classification Cross-Section G-G'

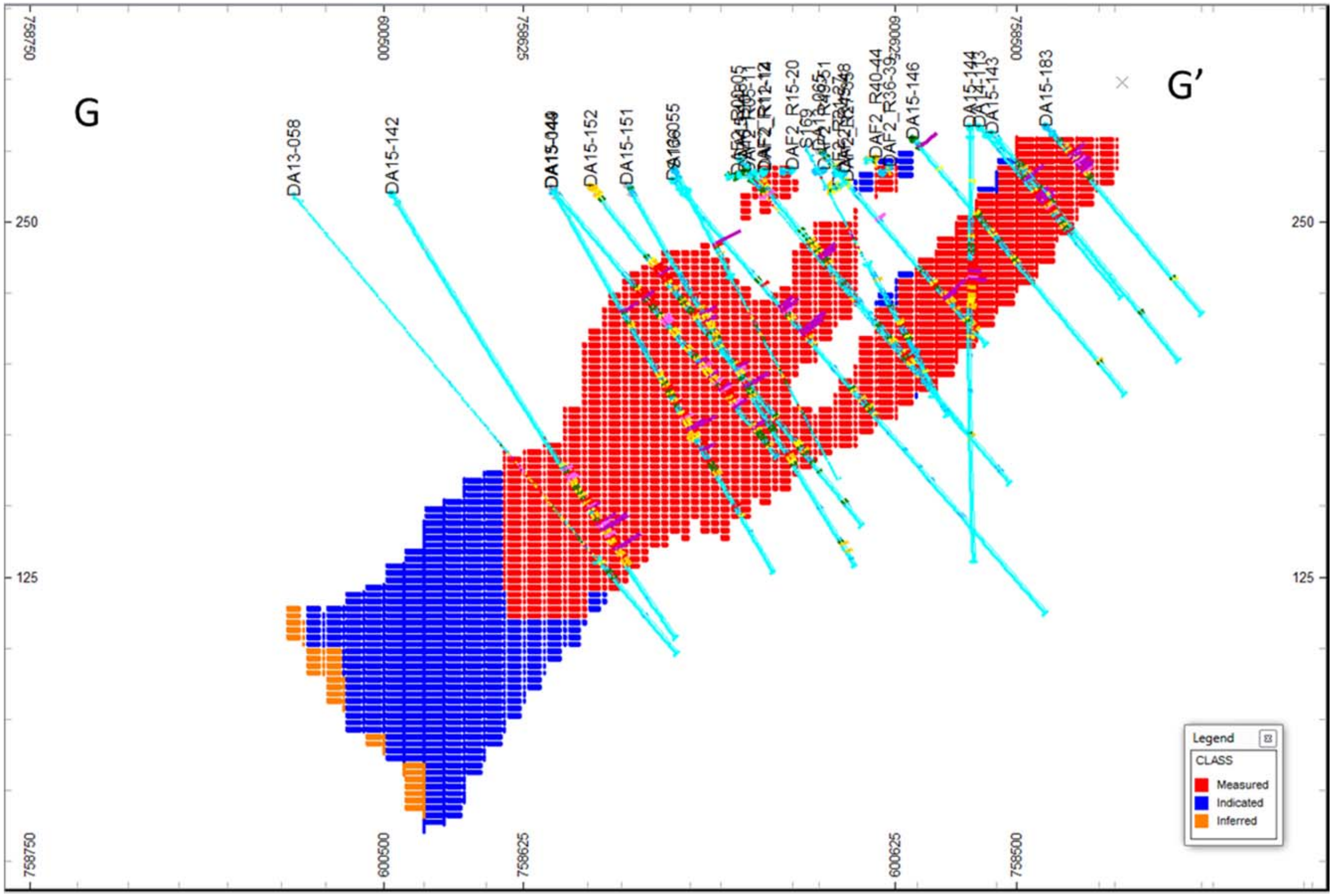
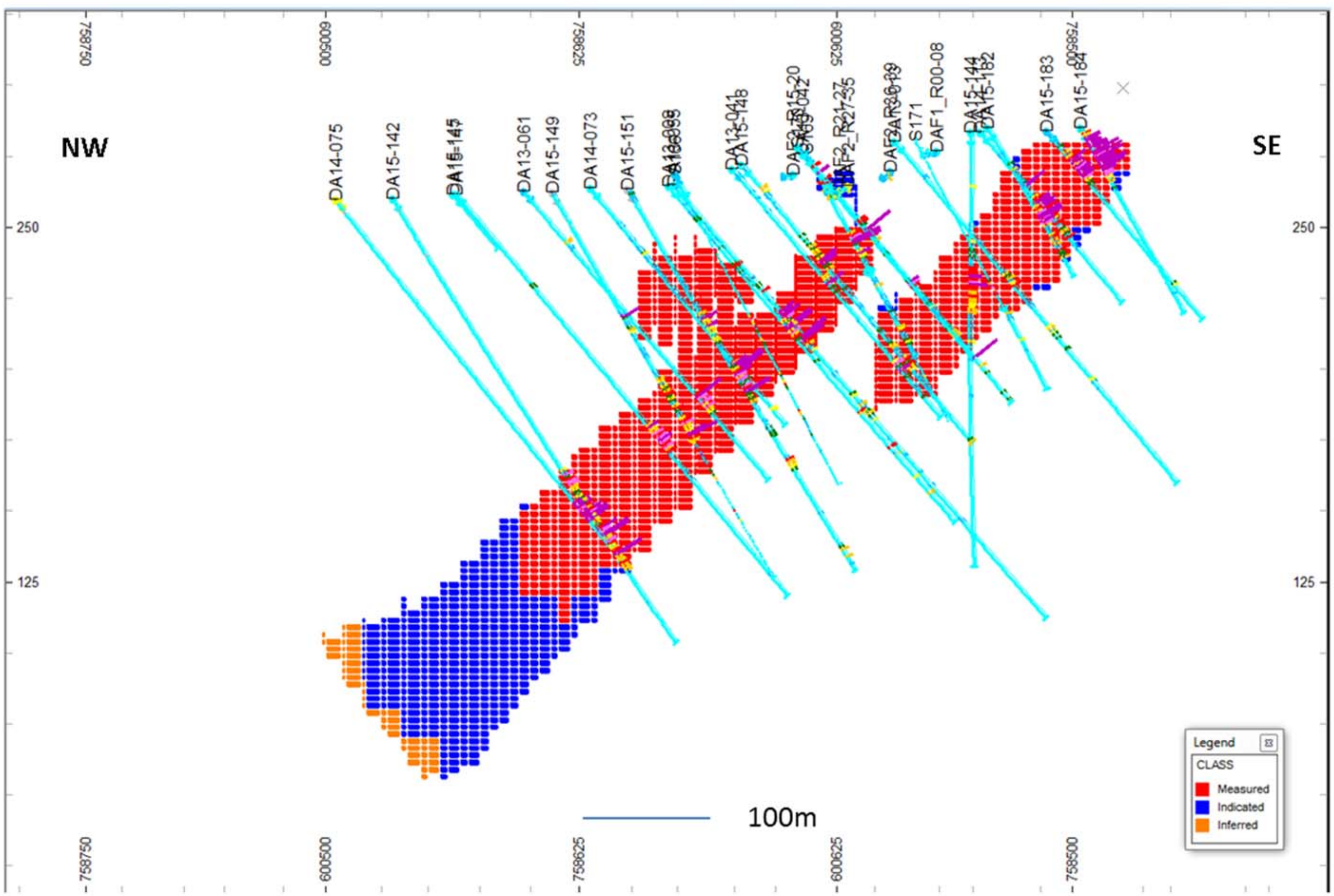


Figure 14.4.16_2
Daapleu
Mineral Resource Classification Cross Section H-H”



14.4.17 Summary of Mineral Resources

A summary of the estimated mineral resources for Daapleu are tabulated per facies, oxidization level and mineral resource category at a cut-off grade of 0.5g/t Au (Table 14.4.17_1). A cut of grade of 0.5g/t Au is the preferred scenario.

Table 14.4.17_1
SMI Gold Project
Daapleu: Mineral Resource (Cut-off 0.5g/t) 31 July2015

Category	Domain	LITH	Au g/t	Tonnes (Mt)	Au('000oz)
Measured	Fresh	VSM	2.13	4370	298.6
Measured	Fresh	IMFG	1.10	13207	467.8
Measured	Fresh	MIXED	2.54	1642	133.9
Measured	Fresh	IM	1.06	657	22.5
Measured	Oxidised	AO	1.51	1113	53.9
Measured	Oxidised	AR	1.47	43	2.0
Measured	Oxidised	LAT	1.14	105	3.9
Measured	Oxidised	IM	1.29	51	2.1
Total Measured Mineral Resources			**1.45**	**21,188**	**984.7**
Indicated	Fresh	VSM	2.06	1835	121.7
Indicated	Fresh	IMFG	1.06	6001	205.2
Indicated	Fresh	MIXED	2.46	1373	108.7
Indicated	Fresh	IM	1.16	176	6.5
Indicated	Oxidised	AO	1.44	190	8.8
Indicated	Oxidised	AR	1.21	4	0.1
Indicated	Oxidised	LAT	1.28	11	0.5
Indicated	Oxidised	IM	1.04	14	0.5
Total Indicated Mineral Resource			**1.46**	**9,603**	**452.0**
Inferred	Fresh	VSM	1.62	571	29.7
Inferred	Fresh	IMFG	0.88	715	20.2
Inferred	Fresh	MIXED	1.87	79	4.7
Inferred	Fresh	IM	1.00	80	2.6
Inferred	Oxidised	AO	0.95	94	2.9
Inferred	Oxidised	AR	1.37	0	0.0
Inferred	Oxidised	LAT	0.98	10	0.3
Inferred	Oxidised	IM	0.91	3	0.1
Total Inferred Mineral Resource			**1.21**	**1,553**	**60.5**

Note Appropriate Rounding has been applied

14.4.18 Comparison with Historical Estimates

Coffey estimated Daapleu mineral resource in 2014. The 2014 model is compared against the 2015 boreholes as shown in Figures 14.4.18_1 to 14.4.18_3. The figures show that the mineralization was correctly identified and the grades are predictable. This has been considered when classifying the mineral resource.

Figure 14.4.18_1
Daapleu
2014 Model versus the 2015 boreholes DA15-171 to DA15-165

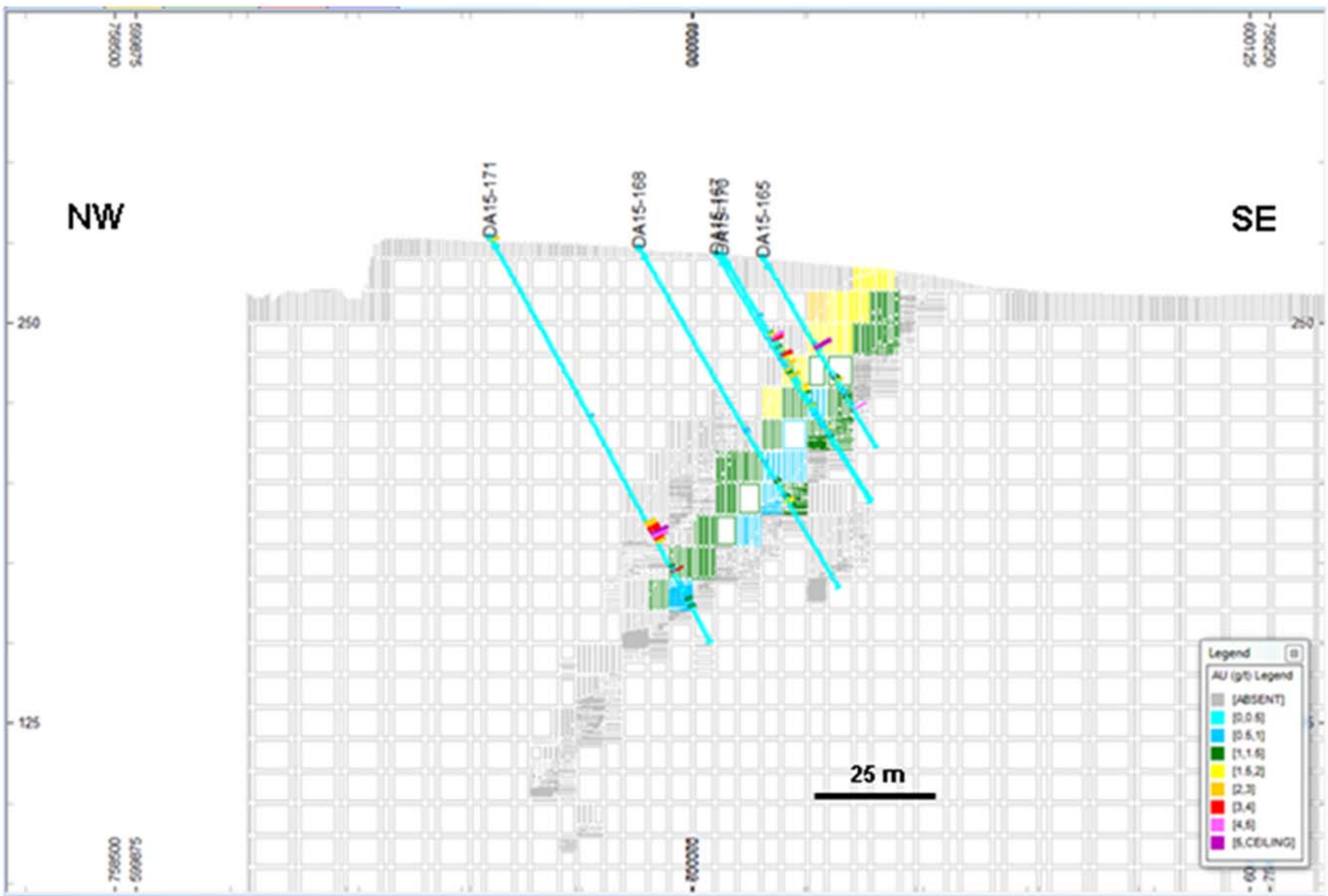


Figure 14.4.18_2
Daapleu
2014 Model versus the 2015 boreholes DA15-179 to DA15-141

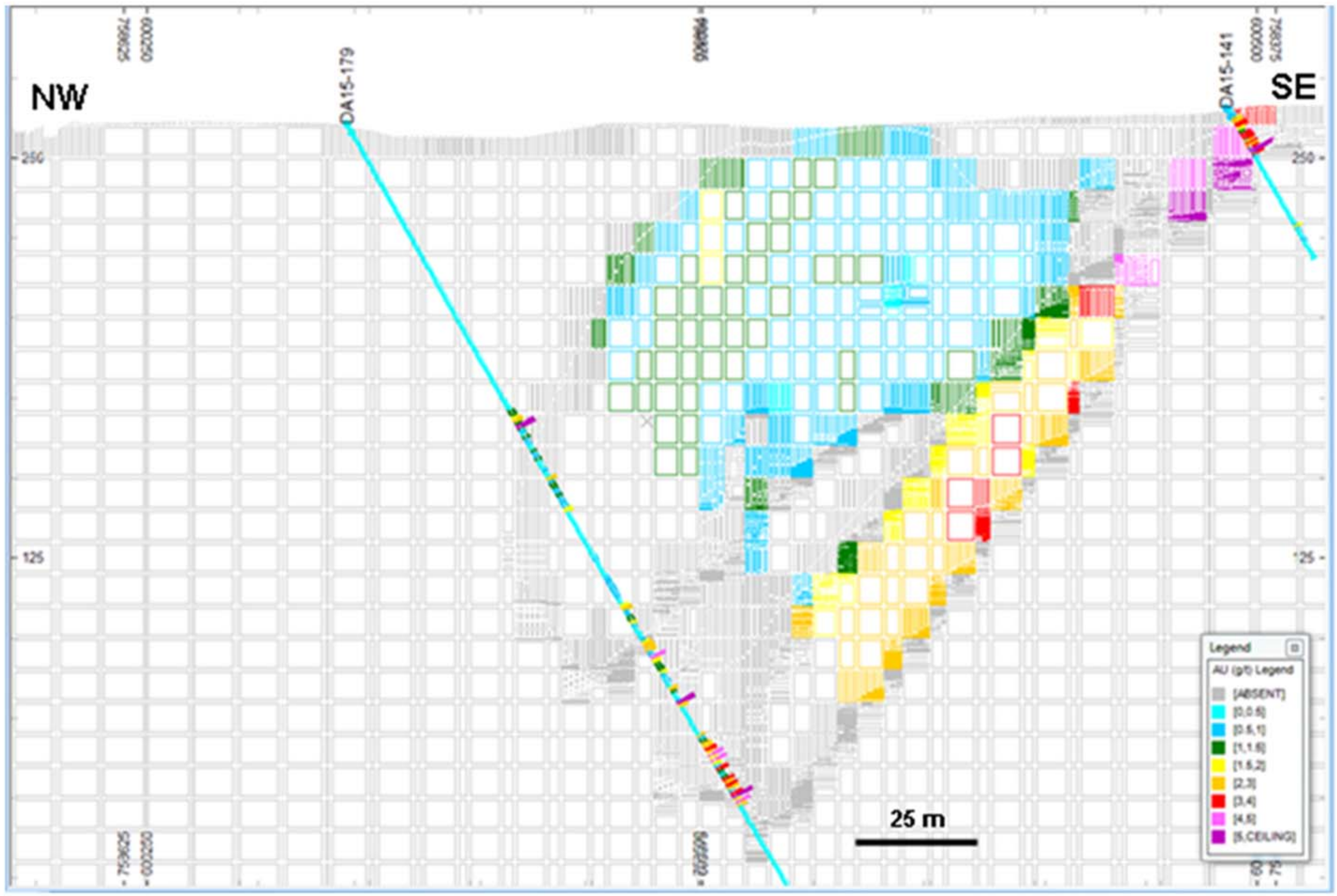
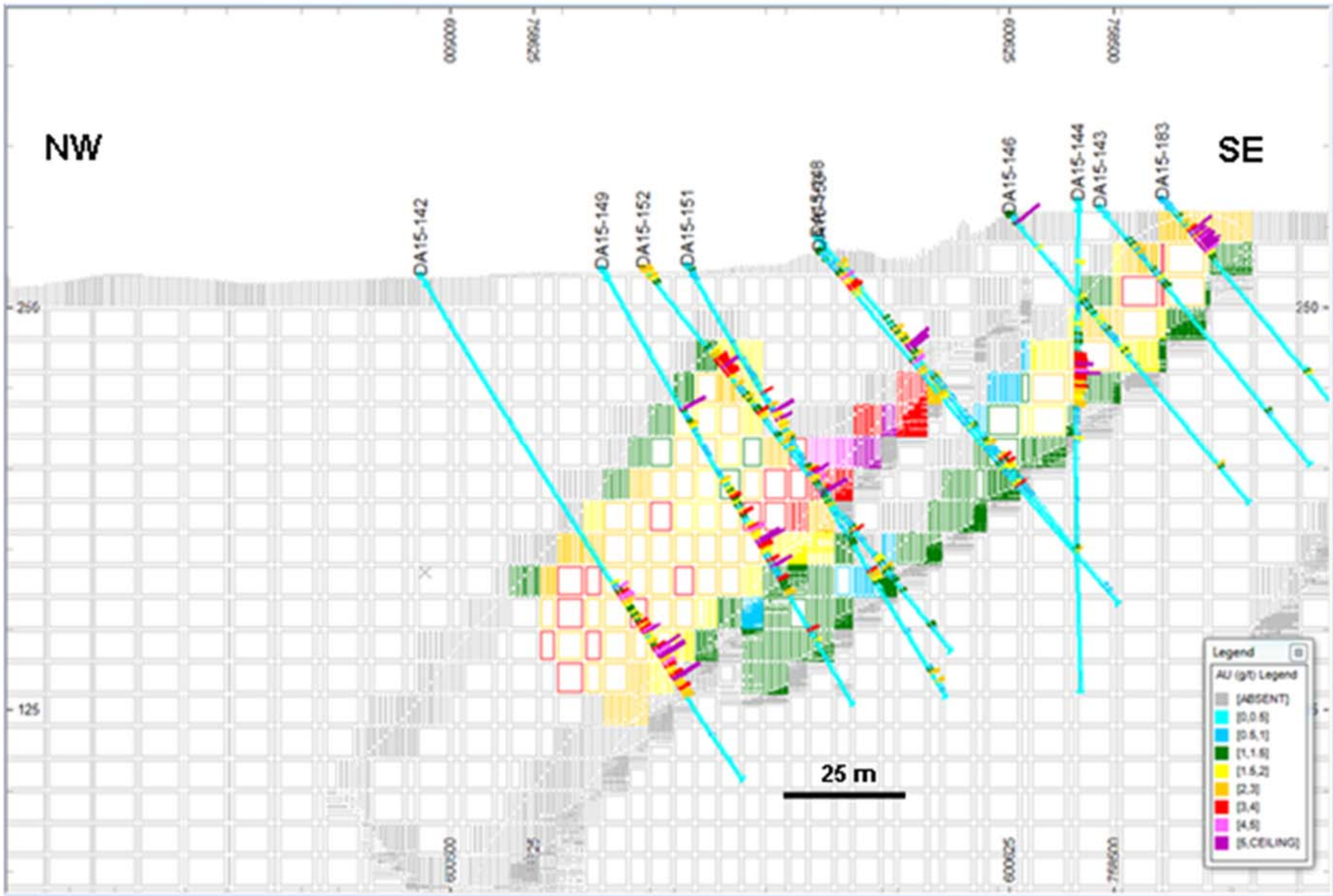


Figure 14.4.18_3
Daapleu
2014 Model versus the 2015 boreholes DA15-142 to DA15-183



14.5 ZiaNE

14.5.1 Introduction

Coffey has updated the mineral resource for the ZiaNE deposit as at 31 July 2015. The geological modelling was completed in the 3D software packages Micromine and Datamine™ Studio 3. The grade estimation was completed using an ID^2 which was considered appropriate based on review of a number of factors, including the quantity and spacing of available data, randomness of the grade; and geometry of mineralization and the constraints imposed by mine design. The grade estimation was constrained by hard geological boundaries based on geological interpretations.

14.5.2 Data Validation

See Section 14.1.2.

14.5.3 Geological Interpretation and Modelling

<u>Introduction</u>

The geological modelling was completed on the 3D software packages Datamine™ (CAE Mining) Studio 3 and Micromine. The geological model was based on information from survey data, geological mapping, RC and diamond borehole data and sample analyses. This geological model was based on current assays results. Historical data was found to be inaccurate and replaced with results of the reassay of this historical drilling.

<u>Geological Modelling</u>

The 2D mineralization sections constructed by the project geologist were analysed and used in improving the understanding of the mineralization style. The sections contained the grade shells of gold above a nominal 0.5g/t Au. The sections were drawn at 335° Azimuth assuming that the mineralization dips at strikes at 335°. The sections showed that the mineralization is interpreted as a series of parallel veins but is highly discontinuous (Figure 14.5.3_1). The veins and gold mineralization are not restricted to any lithology.

Lithological data from the historical boreholes was still considered accurate and this data was combined with the new assays data to form the basis for a new geological model. Geological interpretations were available from the project geologists as hand drawn sections due to insufficient time to prepare a digital geological model on site. Discussions with SMI geologists on possible interpretations guided the modelling process.

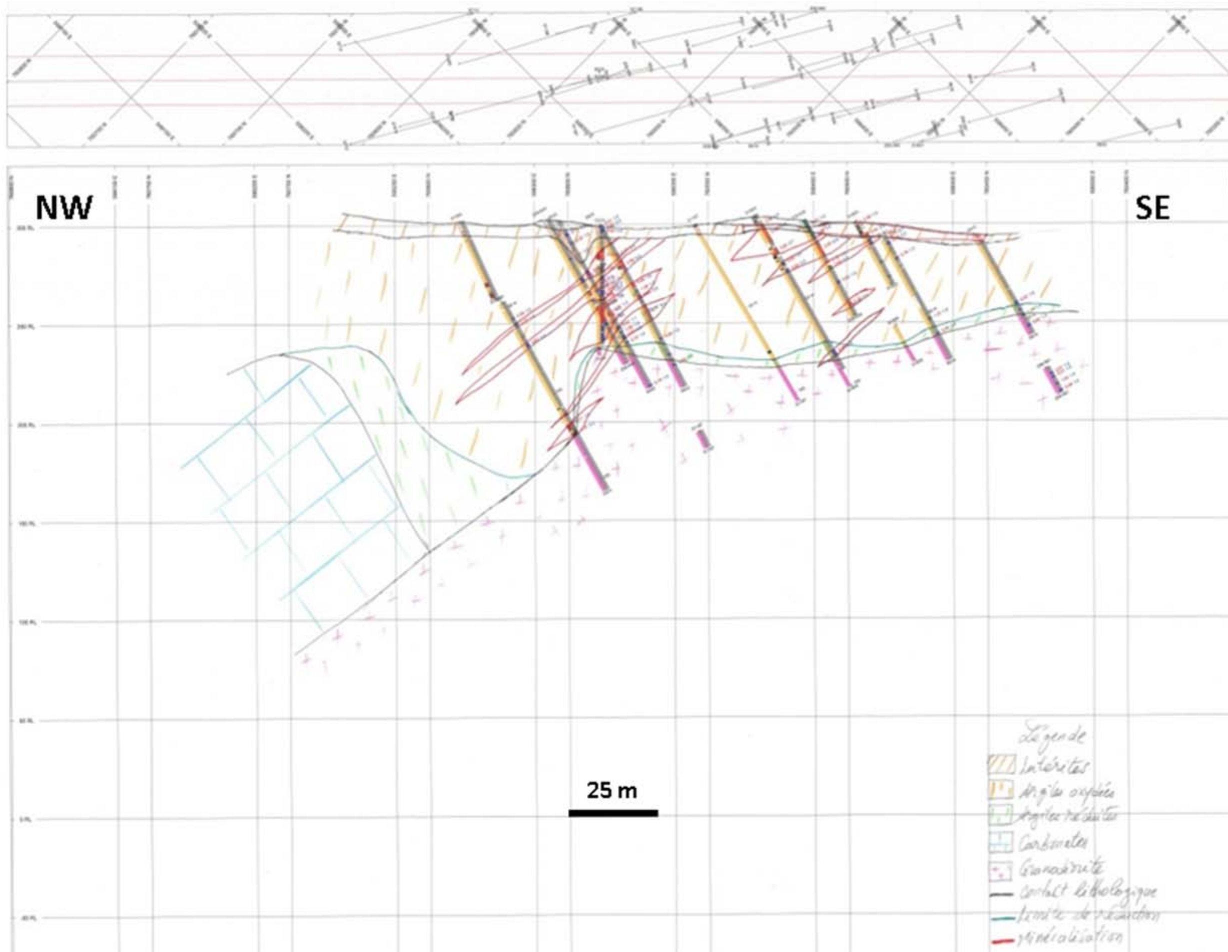
The lithologies were categorized into five main groups:

- Laterite;
- Oxidised Saprolites;
- Reduced Saprolites;
- Granite; and

- Dolomite.
- The mafic intrusives are irregular and were ignored when constructing the geological model.

The lithologies were composited so that top and bottom surfaces could be defined. The laterite is fairly flat and other lithologies have irregular dips. The top and bottom surfaces of major lithologies were mapped using Datamine's Studio 3 DTM creation routine. The dolomite and weathering surfaces were mapped in Micromine and then exported to Datamine for further manipulation.

Figure 14.5.3_1
ZiaNE
Original Geological Model Grade Shells (2014 interpretation)(cut-off 0.5g/t gold)



Weathered Zone

The geological logs and cross sections were used to map the base of the weathered zone. The weathered zone has a depth of 25m to 100m. The transition zone (partially weathered) is very thin and non-existent in some areas. Partially weathered materials were included in the highly weathered zone as they have similar characteristics. The surface was mapped as a DTM using borehole contacts to define the base of the zone.

14.5.4 Mineralization Interpretation

Due the complexity of the mineralized zone the same modelling method as used at Daapleu was tested for ZiaNE. A nominal cut-off of 0.5g/t Au was used at ZiaNE in creating the mineralization volumes. Gold grades above the cut-off were coded 1 and the grade below the cut-off and absent values were coded 0. The indicator estimation was carried out with the coded data (0 and 1) and was completed using the search volume presented in Table 14.5.4_1. The estimation method used was ID^2 as this method tends to map contacts well.

Table 14.5.4_1
SMI Gold Project
ZiaNE: Geological Modelling Search Parameters

Estimation Pass	Search Distance			Min. No of Comp.	Max. No. of Comp.	Max No of Composites Per Borehole	Search Direction
	X(m)	Y(m)	Z(m)				
1	40	40	10	6	20	5	040/025
2	80	80	20	6	20	5	
3	30	180	150	6	20	5	

The isosurfaces on the calculated proportions were created in Datamine. The 0.3 (>=30% of samples above 0.5g/t Au) cut-off isosurface provided the best results when compared against the raw borehole data. The cut-offs of 0.3g/t Au mapped the mineralization well while a cut-off below 0.3g/t Au included a large amount of unmineralized material.

The ID^2 estimation provided acceptable results and the model was retained for the grade estimation. A plan and section showing the mapped mineralized envelope is shown in Figures 14.5.4_1 and 14.5.4_2.

The Nearest Neighbour estimation technique was used to extrapolate the extent of the potential mineral resource model, up to 40m from the boreholes. Outside the 40m extrapolation, everything was considered waste.

Figure 14.5.4_1
ZiaNE

Borehole plan view showing where the mineralization cross-sections were taken

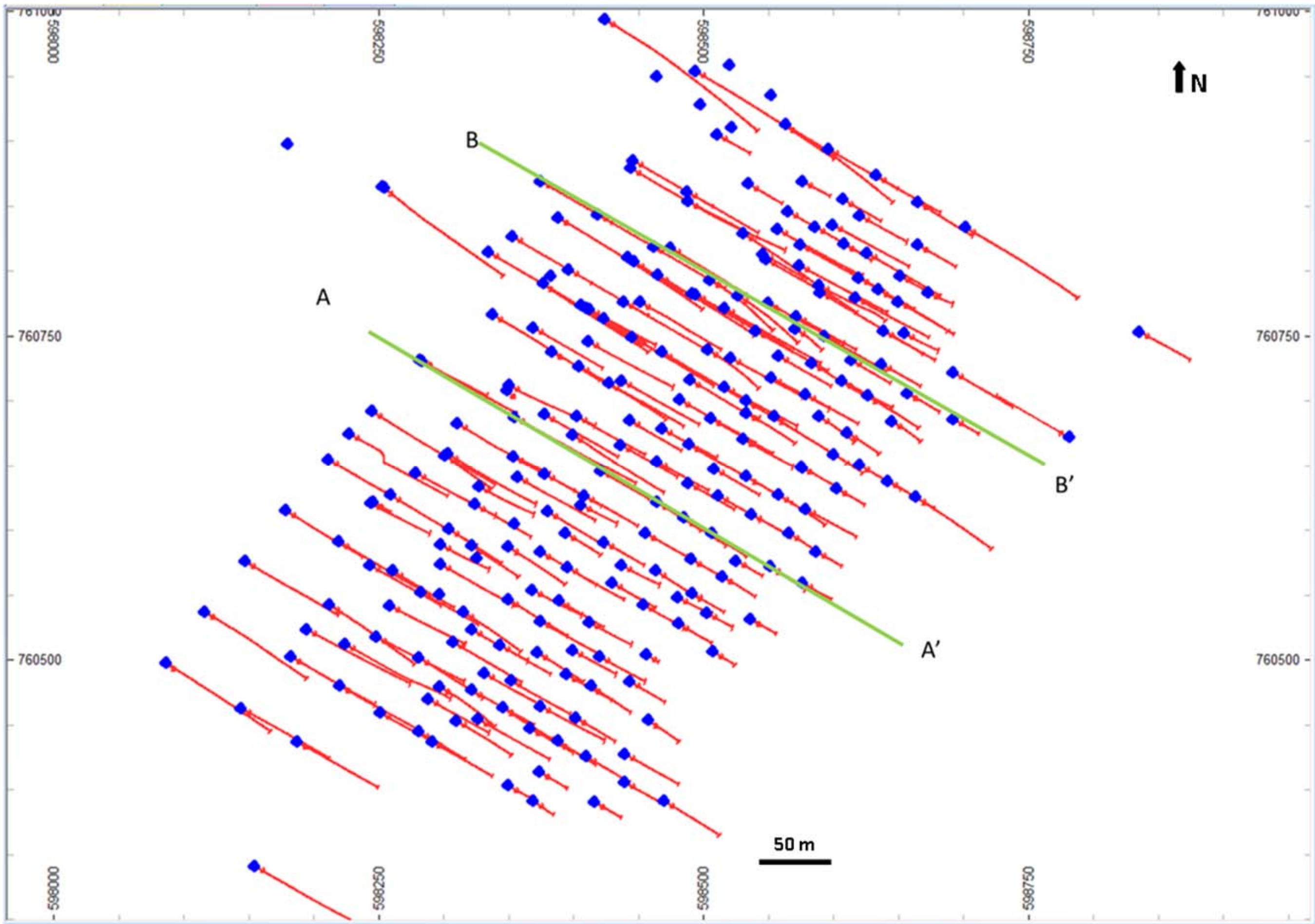
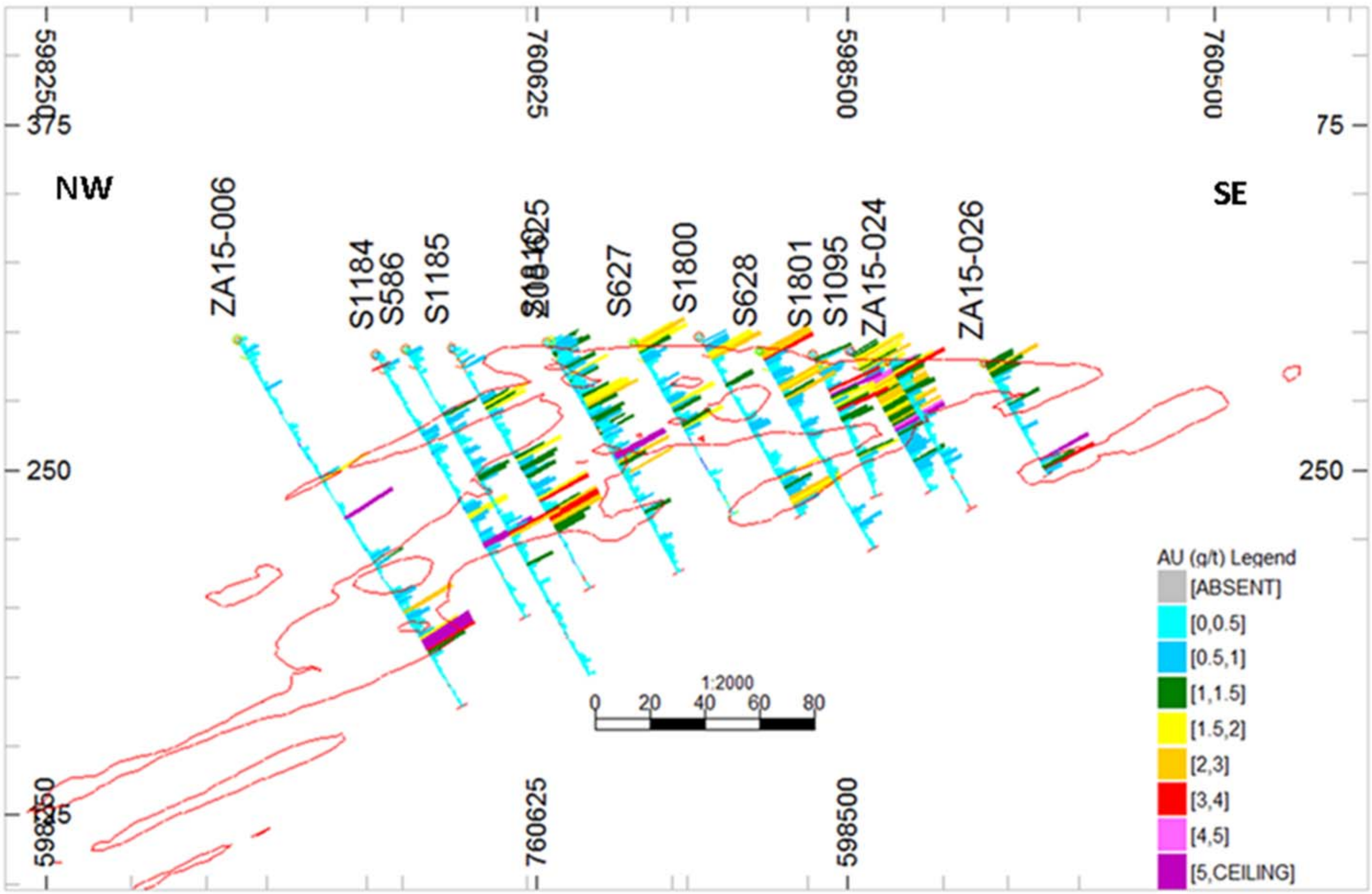


Figure 14.5.4_2
ZiaNE

A section A-A' showing the boreholes and the mineralization volume defined by >30% of samples above 0.5g/t



14.5.5 Compositing

The lengths of the samples were assessed prior to selecting an appropriate composite length for undertaking statistical analyses and grade estimation. The minimum and maximum lengths were 0.010m and 7.0m respectively. Summary statistics of the sample length indicates that 21% of the samples were sampled at less than 0.5m intervals, 30% of the samples were sampled between 0.5m and 1m interval, 38% at a 1m interval, and 11% greater than 1m. The sample length mode is 1m.

14.5.6 Statistical Analysis

Statistical analysis was undertaken on composited and length weighted un-composited (raw) datasets per domain. All composites inside the individual modelled surfaces were flagged as separate domains. A total of 8,759 composites were used in the estimation process from a total of 248 RC and diamond boreholes within the mineralized zone. The statistics generated for the project are presented in Table 14.5.6_1.

Table 14.5.6_1
SMI Gold Project
ZiaNE:1m Composite Statistics within the Mineralized Zone (Au g/t)

Area	No of Samples	Min	Max	Mean	Std Dev	Variance	CV
Raw Data (Length Weighted)							
ZiaNE	8759	0.005	299.3	1.602	6.191	14.93	3.864

The population of gold grades are lognormal, which is typical of many gold deposits. The CV is high which is consistent with the presence of high outlier grades that potentially require cutting (capping) for grade estimation. High grade capping is discussed in Section 14.5.7.

14.5.7 High Grade Capping

For ZiaNE no grade clustering of high values was observed and five values were capped to 100g/t. The impact of the cutting is shown in Table 14.5.7_1.

Grade estimations were performed including and excluding top capping and the results reviewed. It was observed that capping reduced the mineral resource gold content, at a zero cut off by 3.1%. This is consistent with the grade reduction in the raw data.

Table 14.5.7_1
SMI Gold Project
ZiaNE: Summary of Upper Cuts Including Uncut and Cut Statistics for Mineralized Composites (Au g/t)

	Uncut Statistics				High Grade Cut	Cut Statistics				Reduction in Mean Grade
Project	Number of Data Points	Mean	Std. Dev.	CV		Mean	Std. Dev.	CV	Number Data Capped	
ZiaNE	8759	1.60	6.19	3.864	100.00	1.55	4.77	3.066	5	3.1%

14.5.8 Bulk Densities

The density values applied for the ZiaNE mineral resource estimate is an average value per rock type per oxidation level as per Table 14.5.8_1. Density data was collected as explained in Section 11.5. No density values were available for the limestone and a value of 2.6t/m^3 was applied which appropriate for a limestone with 5 to 20% porosity.

Table 14.5.8_1
SMI Gold Project
ZiaNE: Hydrostatic Bulk Density (t/m^3)

Attribute	Number	Minimum	Maximum	Mean	Standard Deviation	CV
Laterite	34	1.04	2.02	1.58	0.28	0.18
Oxidized Clay	101	1.00	2.94	1.43	0.26	0.18
Reduced Clay	22	1.00	2.31	1.45	0.37	0.25
Granodiorite	51	1.01	3.09	2.56	0.28	0.11

14.5.9 Variography

The mineralization appears to be randomly distributed within the mineralized zone with limited spatial continuity. Variograms calculated show no structure.

14.5.10 Block Modelling

A three-dimensional block model was constructed for ZiaNE. Parent block sizes were based on the data configuration (average drill spacing), compositing interval, geometry of the mineralization and suitability for mine planning. The parent block sizes selected to estimate the deposit approximates half the borehole spacing. Sub-blocking (8x8 sub cells) was allowed for good volume definition

The block models were constructed with parameters as displayed in Table 14.5.10_1.

Table 14.5.10_1 SMI Gold Project ZiaNE: Block Model Construction Parameters (m)				
Project	**Direction**	**Origin**	**Extent**	**Parent Block Size**
ZiaNE	X	597,750	1450	10
	Y	759,950	1350	10
	Z	-100	500	5

14.5.11 Grade Estimation

Due to the nature deposit, ID^2 was used to give a good balance between local weighting and smoothing. A Nearest Neighbour estimate with a 40m search radius confined the model to a maximum distance of 40m beyond the drilling extremities. All mineralization outside of the 40m perimeter area was excluded from the estimate. The mineral resource estimate excluded only mineral resources within the laterites and Saprolites (Argiles).

14.5.12 Estimation Parameters

The sample search parameters are supplied in Table 14.5.12_1.

Table 14.5.12_1 SMI Gold Project ZiaNE: Search Parameters								
Domain	**Estimation Pass**	**Search Distance**			**Min. No of Comp.**	**Max. No. of Comp.**	**Max No of Composites Per Borehole**	**Search Direction**
		X(m)	**Y(m)**	**Z(m)**				
1	1	40	40	10	30	50	6	040/025
	2	80	80	20	30	50	6	040/025
	3	120	120	30	3	20	6	040/025

Hard domain boundaries were used throughout preventing samples lying outside the mineralized domain from being used for the estimation. A three-pass estimation strategy was applied to each zone, applying an expanded and less restrictive sample search to the second and subsequent estimation passes and only considering blocks not previously assigned an estimate.

14.5.13 Model Validation

The grade estimates were reviewed visually and statistically prior to being accepted. The review included the following activities:

- Comparison of the estimate versus the mean of the composite dataset;
- Visual checks of cross sections, long sections, and plans;
- Changes to search parameters;

- Swath Plots;
- Distribution of error plots (relative standard deviation) confirmed the random gold distribution.

The model validation checks confirmed the suitability of the methodology applied and the estimation results.

14.5.14 Depletion

No mining has taken place within the area of mineralization; hence no depletion has been applied to the block model.

14.5.15 Mineral Resource Classification

Confidence levels for key criteria are listed in Table 14.5.15_1. Classification may have been downgraded in some areas due to lower confidence in the data. Applying the following parameters, the mineral resource was classified based on:

- Indicated Mineral Resource:
  - Estimated within the laterite or saprolites stratigraphical units.
  - Estimated within a maximum of a 40m radius of drilling.
  - Estimated within the first search volume.
  - Minimum number of samples 30.
- Inferred Mineral Resource (Laterite and Saprolite):
  - Estimated within the laterite or saprolite stratigraphical units.
  - Estimated within a maximum of a 40m radius of drilling.
  - Estimated within the second and third search volumes.
  - Minimum number of samples 3.
- Inferred Mineral Resource (Carbonate and Granite):
  - Estimated within the carbonate or granite stratigraphical units.
  - Estimated within a 40m radius of drilling.
  - Estimated within continuity of saprolite mineralization.
  - Estimated within first, second or third volumes.
  - Minimum number of samples 12.

Table 14.5.15_1 SMI Gold Project ZiaNE: Confidence Levels of Key Criteria		
Factors	**Discussion**	**Confidence**
Drilling Techniques	Diamond / RC - Industry Standard approach.	Moderate/High
Logging	Standard nomenclature has been adopted.	High
Drill Sample Recovery	Recoveries are of acceptable standard.	Moderate
Sub-sampling Techniques and Sample Preparation	Diamond and RC sampling performed to industry standard techniques.	Moderate/High
Quality of Assay Data	Appropriate quality control procedures are available.	Moderate/High
Verification of Sampling and Assaying	Coffey has assessed sampling and assaying procedures and considers them of appropriate industry standards.	Moderate/High
Location of Sampling Points	Survey of all collars was performed with accurate survey equipment	High
Data Density and Distribution	Drill spacing. 20x20m grid	High
Audits or Reviews	Data reviewed by Coffey on site.	Moderate/ High
Database Integrity	No major issues were identified.	Moderate/High
Geological Interpretation	Lithological controls on mineralization are not well understood.	Moderate
Estimation and Modelling Techniques	Estimation methodology is considered to be appropriate given the geological setting, and grade distribution	Moderate/High
Cut-off Grades	A 0.5g/t lower cut-off grade is considered appropriate for reporting	High
Mining Factors or Assumptions	Open Pit	High
Metallurgical Factors or Assumptions	Assumed same processing parameters as historical production and metallurgical test work	Moderate/ High

14.5.16 Classification and Grade Models

Sections through the classification and grade models for ZiaNE are shown in Figures 14.5.16_1 and 14.5.16_2.

The drilling grid is sufficiently tight for this deposit to estimate continuity of a mineralized zone. The gold mineralization within the mineralized zone is random, highly variable and patchy. Variograms calculated showed pure nugget over distances greater than 7m. This appears to be the nature of the deposit and is considered inappropriate to declare Measured Mineral Resource due to the high grade variability of the deposit.

Figure 14.5.16_1
ZiaNE
Cross Sectional View A-A Showing Mineral Resource Classification Looking North East July 2015

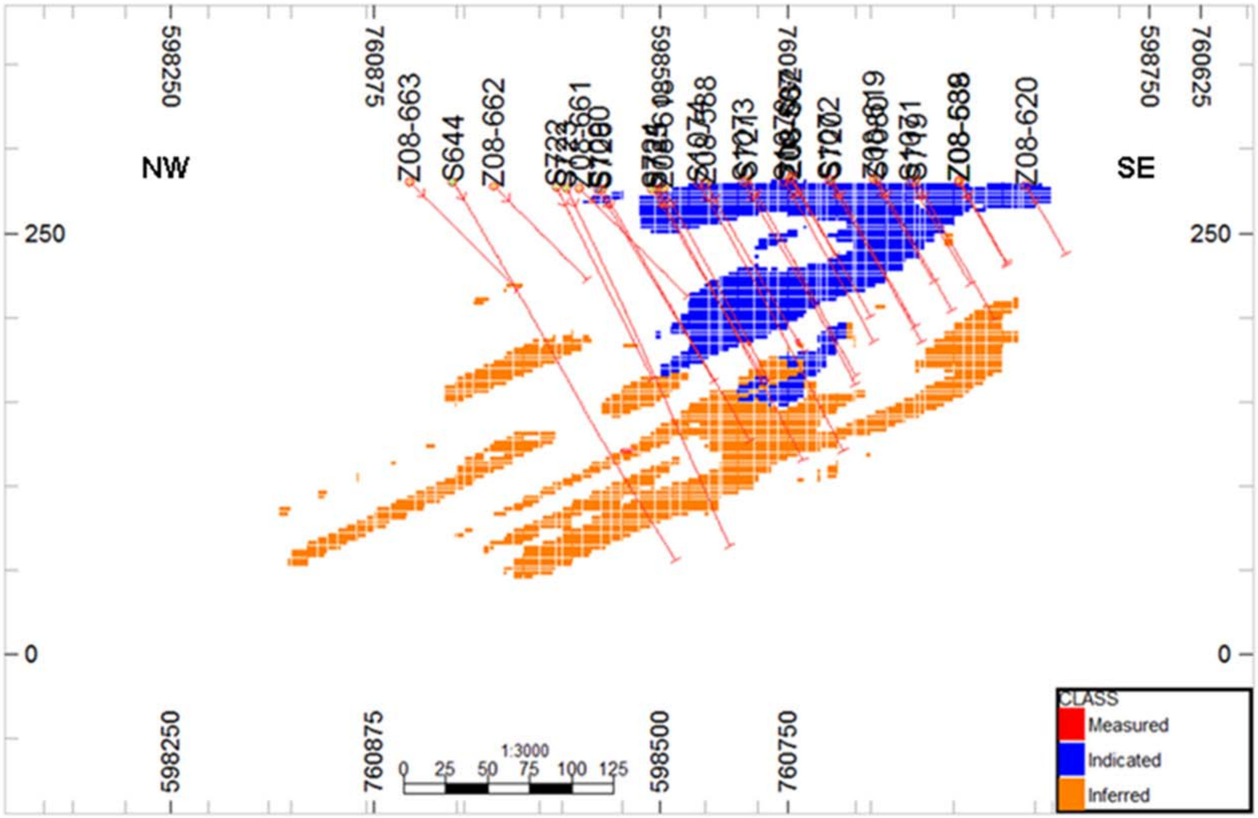
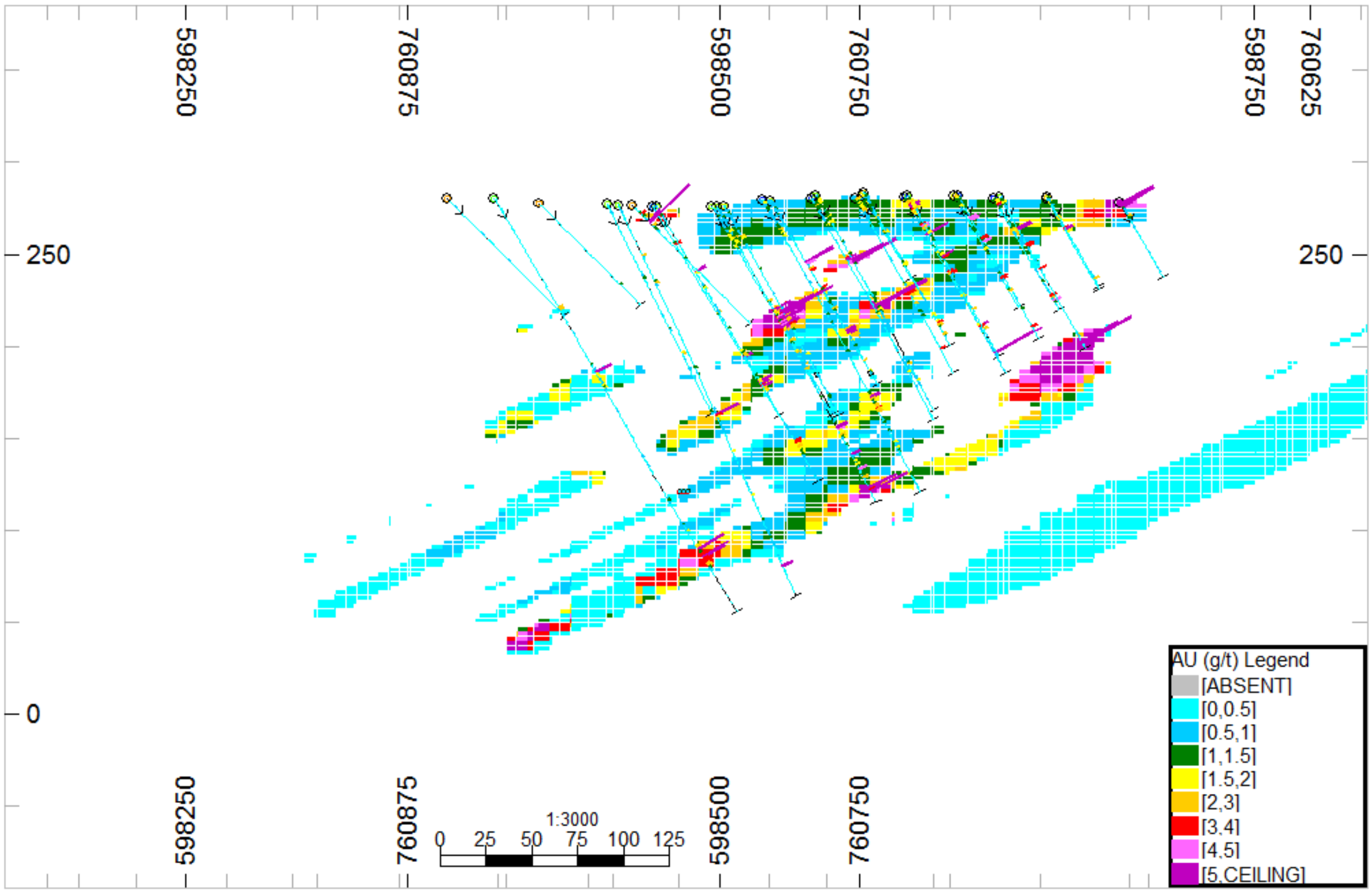


Figure 14.4.16_2
ZiaNE
Cross Sectional View A-A Showing Grade Distribution Looking North East July 2015



14.5.17 Summary of Mineral Resources

The estimated mineral resources for ZiaNE are tabulated below at a cut-off grade of 0.5g/t Au (Tables 14.5.17_1 to 14.5.17_3). Mineral resources have been reported by geological zone. The saprolites and laterites are combined as they are expected to be processed partially on the Heap Leach. The carbonates and granodiorite are reported separately as they are mineralogically different to the saprolites and laterites and may be suitable for processing in a planned CIL plant.

Table 14.5.17_1
SMI Gold Project
ZiaNE: Mineral Resource (Cut-off 0.5g/t) 31 July 2015

Category	Domain	Facies	Tonnes ('000t)	Au (g/t)	Au ('000oz)
Indicated	Oxide	Oxide	6,531	1.25	262.5
Indicated	Fresh	Fresh	209	1.29	8.7
Total Indicated Mineral Resource			**6,741**	**1.25**	**270.9**
Inferred	Oxide	Oxide	398	2.44	31.2
Inferred	Fresh	Fresh	380	1.83	22.4
Total Inferred Mineral Resource			**778**	**2.14**	**53.5**

Note Rounding has been applied

Table 14.5.17_2
SMI Gold Project
ZiaNE: Carbonate Mineral Resource (Cut-off 0.5g/t) 31 July 2015

Category	Domain	Facies	Tonnes ('000t)	Au (g/t)	Au ('000oz)
Inferred	Oxide	Oxide	94	0.80	2
Inferred	Fresh	Fresh	772	1.27	31
Total Inferred Mineral Resource			**866**	**1.22**	**33**

Table 14.5.17_3
SMI Gold Project
ZiaNE: Granodiorite Mineral Resource (Cut-off 0.5g/t) 31 July 2015

Category	Domain	Facies	Tonnes ('000t)	Au (g/t)	Au ('000oz)
Inferred	Oxide	Oxide	94	2.28	6
Inferred	Fresh	Fresh	2,651	1.53	130
Total Inferred Mineral Resource			**2,745**	**1.56**	**136**

14.6 Mont Ity

14.6.1 Introduction

Coffey has estimated the mineral resource for the Mont Ity deposit as at 31 July 2015. The grade estimation was completed using the OK estimation technique. This estimation approach was considered appropriate based on review of a number of factors, including the quantity and spacing of available data, data spatial relationship, the style and geometry of mineralization. The grade estimation was based on the entire borehole database. No boreholes or data were excluded from the mineral resource estimation process.

14.6.2 Data Validation

See Section 14.1.2.

14.6.3 Geological Interpretation and Modelling

Three dimensional modelling was completed using Datamine and Micromine software. The mineralized veins, the bottom surfaces of the oxidation and laterites, oxidized clays, reduced clays (mixed lithology) and solids for carbonates and cavities were modelled in Micromine. The surfaces were extrapolated to cover large area for mining studies.

The blocks above and below the oxidization surface were coded accordingly. The top and bottom surfaces were added to define a lithological package. The topographic surface was taken as top of the laterite. The surface defining the bottom of the laterites was used as a top of the oxidized clays. The reduced clay (mixed lithology) was defined by bottom surface of the oxidised clay and top surface of the granodiorite. The granodiorite was defined as anything below its top surface. The model was coded according to the lithology.

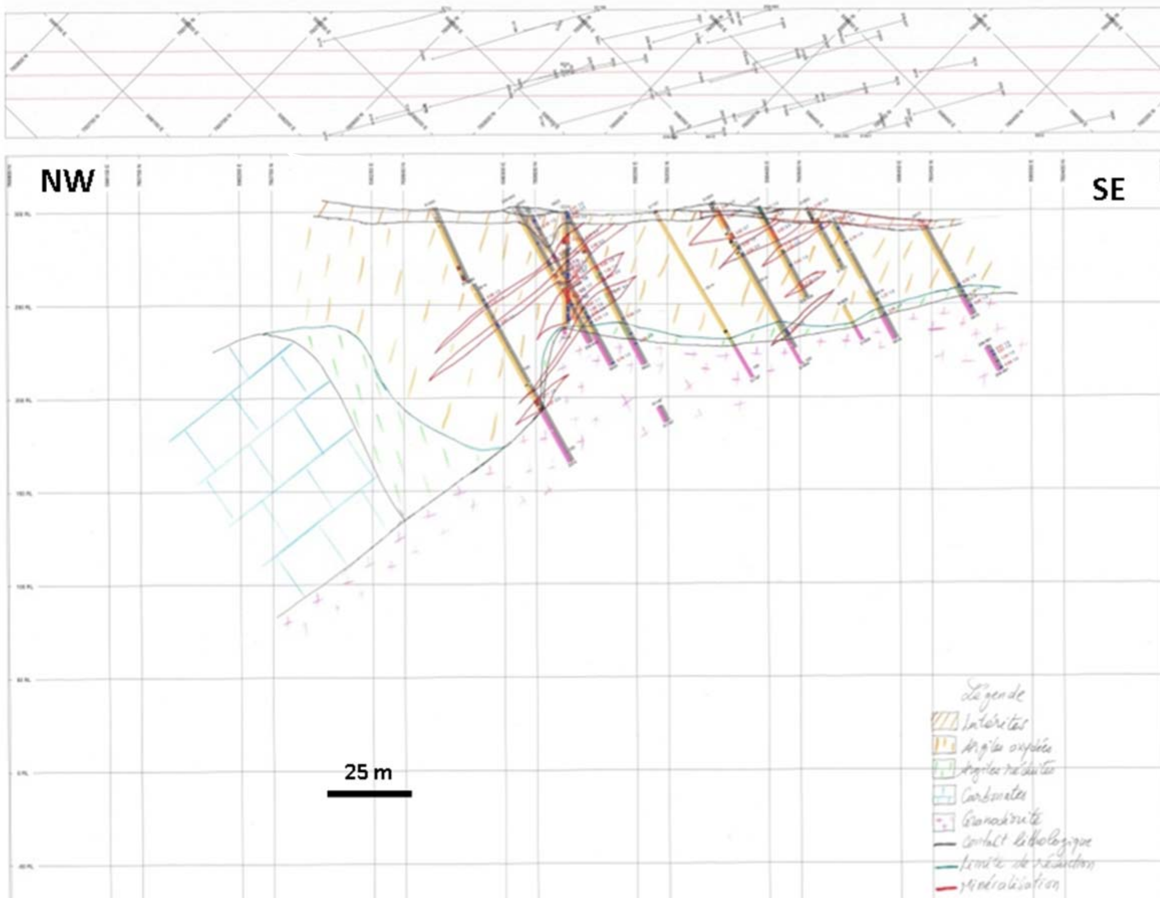
The solids (carbonates and cavity) were filled with blocks and coded accordingly. Their models were added to the main geological model.

14.6.4 Mineralization Interpretation

A description of mineralization is contained in Section 8. The two dimensional sections defining the geometry of the mineralization was provided to Coffey by the SMI site geologist. Figure 14.6.4_1 presents typical cross sections of the deposit. The sections defined Au envelopes using a nominal cut-off of 0.5g/t. The sections were geo-referenced and digitized in Micromine and 3D mineralization envelopes were created.

Based on the physical and chemical properties, the mineralization was separated into three domains, namely oxidized, partially oxidized and fresh domains. There were few samples in the partially oxidized domain and the domain has some resemblance of oxidized zone. The partially oxidized material has similar processing characteristics as the oxidized material. In consultation with project geologists, a decision was taken to combine partially oxidized and oxidized zone into one domain called oxidized domain and estimate as a single unit. The final model was re-coded both with partial and fully oxidized zones for completeness.

Figure 14.6.4_1
Mont Ity
Drawn Section 1



14.6.5 Compositing

A majority of the samples were taken at 1m interval. A 1m interval was chosen for the composite length.

14.6.6 Statistical Analysis

Two domains (Oxidized and Fresh) detailed in Section 14.6.3 were statistically assessed. All composites inside the individual modelled surfaces were flagged as separate domains. Separate statistics were generated for each domain and are presented in Table 14.6.6_1.

Table 14.6.6_1

SMI Gold Project

Mont Ity: Raw, 1m and 2.5m Composite Statistics per Domain (Au g/t)

Domain	No of Samples	Min	Max	Mean	Std Dev	Variance	CV
Raw Data							
Oxide	4544	0.005	116.00	3.187	7.20	51.84	2.26
Fresh	1954	0.005	100.00	2.47	6.35	40.32	2.56
Capped Raw Data							
Oxide	4544	0.005	30.00	2.92	5.23	27.35	1.79
Fresh	1954	0.005	30.00	2.25	4.40	19.36	1.96
1m Composites							
Oxide	4339	0.005	30.00	2.93	4.97	24.70	1.70
Fresh	1810	0.005	30.00	2.20	4.186	17.52	1.90
2.5m Composites							
Oxide	2480	0.005	30.00	2.87	4.56	20.79	1.60
Fresh	1064	0.005	30.00	2.25	3.96	15.68	1.74

Population of gold grades are lognormal; which is typical of most gold deposits. For both domains the CV is high, typical for a gold deposit.

14.6.7 Outlier Analysis

Capping was motivated by the histograms and probability plots. Using a 99% probability, the capping was applied at 30g/t Au.

14.6.8 Bulk Densities

Table 14.6.8_1 shows the distribution of densities. Refer to Section 11.5 for density determination methods. The volume replacement method reported lower density than hydrostatic method. As with Verse Ouest, the hydrostatic method produced a normal distribution which is expected distribution for density. Only hydrostatic measurement were used in the mineral resource estimate

Table 14.6.8_1 SMI Gold Project Mont Ity: Hydrostatic Bulk Density (t/m^3)						
Attribute	**Number**	**Minimum**	**Maximum**	**Mean**	**Standard Deviation**	**CV**
Laterite	16	1.23	2.06	1.52	0.24	0.16
Oxidized Clay	124	1.02	2.63	1.49	0.26	0.18
Reduced Clay	48	1.10	2.76	1.65	0.35	0.21
Carbonate	215	1.07	3.26	2.72	0.29	0.11

14.6.9 Variography

The parameters used to calculate the experimental semi-variograms are given in Table 14.6.9_1. Two structure spherical models were fitted with a nugget value determined by down-the-hole variograms. The modelled variograms and parameters are shown in Table 14.6.9_2.

Table 14.6.9_1 SMI Gold Project Mont Ity: Experimental Semi Variogram Parameters						
Domain	**Rotation**			**Lag (m)**	**Lag Tolerance**	**Number of Lags**
	Azimuth	**Dip**	**Plunge**			
Oxide	214	43	-	20	50%	10
Fresh	214	32	-	20	50%	10

Table 14.6.9_2 SMI Gold Project Mont Ity: Variography Modelled Parameters					
Domain	**Nugget**	**Sill 1**	**Sill 2**	**Range 1 (m)**	**Range 2 (m)**
Oxide	0.416	0.718	0.470	5	40
Fresh	1.00	1.015	0.785	5	91

14.6.10 Block Modelling

The parent block sizes that were selected to estimate the deposit are approximately half the borehole spacing. Sub-blocking was allowed for good volume definition. A parameter file confined the estimate to a maximum distance of 50m for the Indicated Mineral Resource and 100m for the Inferred Mineral Resource beyond the drilling extremities. The block models were constructed with parameters as displayed in Table 14.6.10_1.

Table 14.6.10_1
SMI Gold Project
Mont Ity: Block Model Construction Parameters (m)

Direction	Origin	Parent Block Size	Number of Blocks	Sub-Cell
X	597,500	10	169	Yes
Y	758,490	10	179	Yes
Z	-500	5	258	Yes

14.6.11 Grade Estimation

The estimation was carried-out using OK, lognormal OK and ID techniques for both domains. The veins in each domain were added and estimated together. Adding veins together has several advantages:

- Variography was possible as there were enough data points.
- The veins show that there are from a same system, are basically one population. Separating them will mean dividing the population into sub-domain which in turn has numerous problems.
- Practical and is time saving while using the best approach available so far.

14.6.12 Estimation Parameters

The sample search parameters are supplied in Table 14.6.12_1.

Table 14.6.12_1
SMI Gold Project
Mont Ity: Search Parameters

Domain	Estimation Pass	Search Distance			Min. No of Comp.	Max. No. of Comp.	Max No of Composites Per Borehole	Search Direction
		X(m)	Y(m)	Z(m)				
Oxide	1	40	40	10	6	30	5	Isotropic
	2	80	80	20	6	30	5	Isotropic
	3	120	120	30	6	30	5	Isotropic
Fresh	1	90	90	10	6	30	5	Isotropic
	2	180	180	20	6	30	5	Isotropic
	3	270	270	30	6	30	5	Isotropic

Hard domain boundaries were used throughout preventing samples lying outside a mineralized domain from being used for the estimation. A three-pass estimation strategy was applied, making use of an expanded and less restrictive sample search to the second and subsequent estimation passes and only considering blocks not previously assigned an estimate.

14.6.13 Model Validation

The estimates were reviewed visually and statistically prior to being accepted. The review included the following activities:

- Comparison of the estimate versus the mean of the composite dataset;
- Visual checks of cross sections;
- Comparison of OK, Lognormal OK and IDW estimates.

The model validation checks confirmed the suitability of the methodology applied and the estimation results.

The section positions are shown on Figure 14.6.13_1 and the sections through the model are shown in Figure 14.6.13_2

14.6.14 Depletion

Mining has taken place within the area of mineralization. Depletion has been subtracted from the block model after estimation of the mineral resources. The June 2015 mining surface was used to deplete the mineral resource.

14.6.15 Mineral Resource Classification

Levels for key criteria are tabulated in Table 14.6.15_1. Applying the following parameters, mineral resource classification codes were assigned to the block model:

- Measured Mineral Resource:

  No measured category was declared due to complex geology and mineralization style.
- Indicated Mineral Resource:
  - First and second search-volume and
  - Difference between Au estimated using OK and OKL is less than 1g/t.
- Inferred Mineral Resource:
  - First and second search volume, if the difference between Au estimated using OK and OKL is greater than 1g/t
  - and third pass.

Figure 14.6.15_1
Mont Ity
Drilling Plan view with Sections Indicated

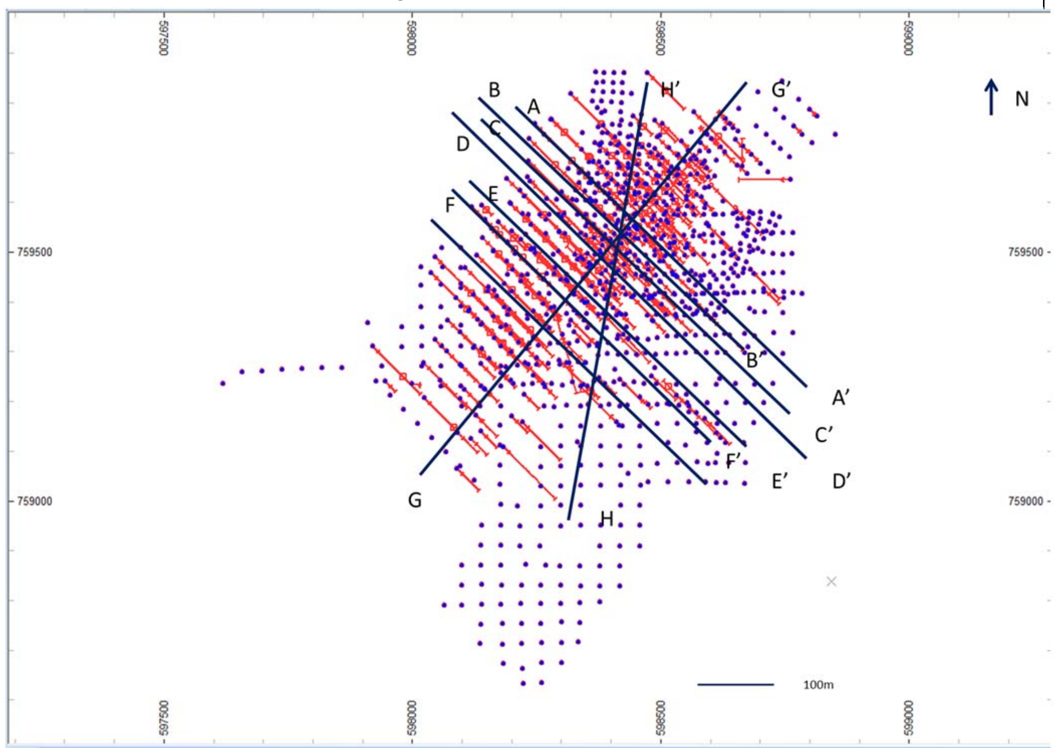


Figure 14.6.13_2
Mont Ity
Section C-C' Through the Model and Borehole Fence

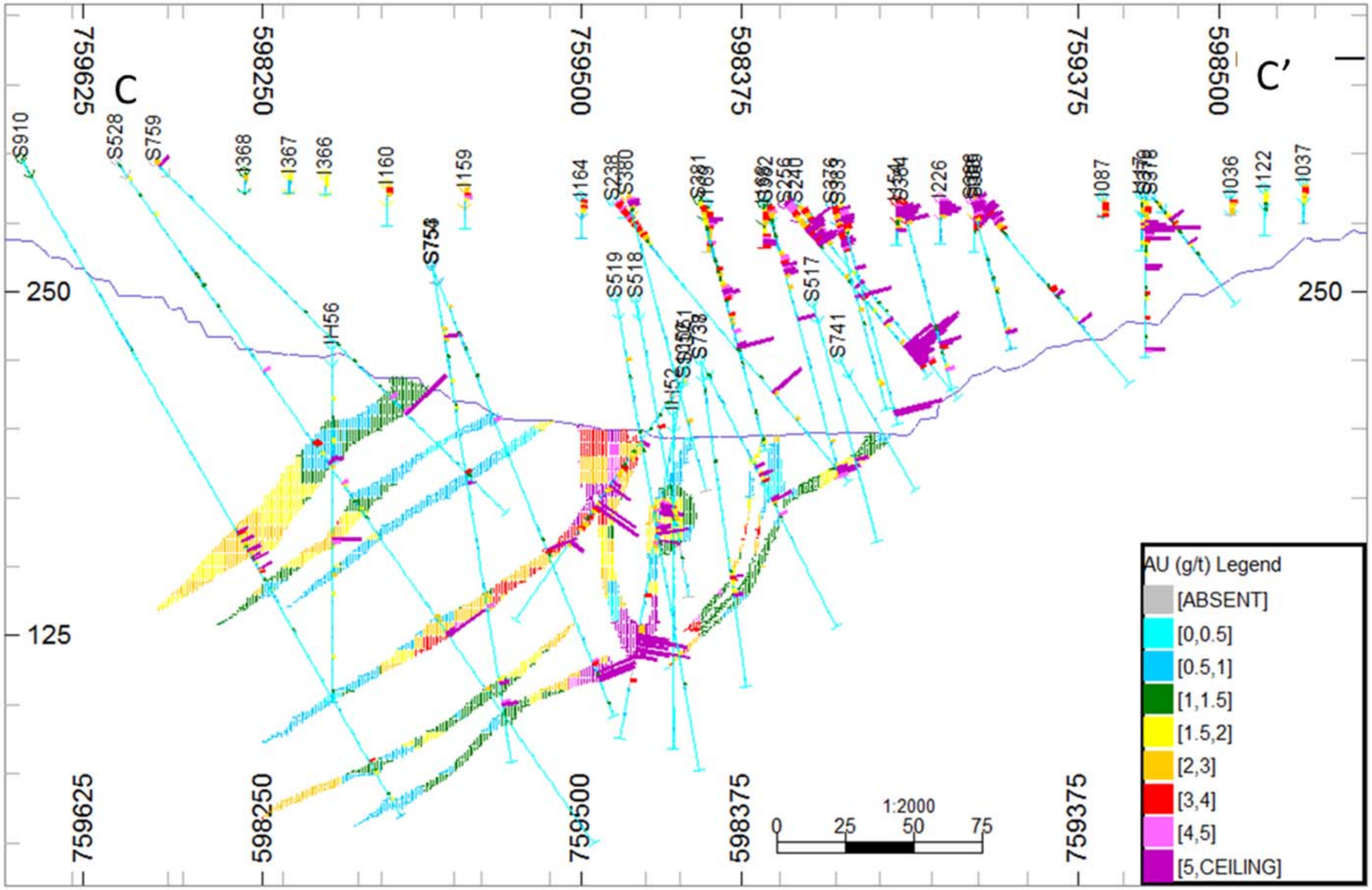


Table 14.6.15_1
SMI Gold Project
Mont Ity: Confidence Levels of Key Criteria

Factors	Discussion	Confidence
Drilling Techniques	Diamond - Industry Standard approach.	Moderate/High
Logging	Standard nomenclature has been adopted.	High
Drill Sample Recovery	Recoveries are of acceptable standard.	Moderate
Sub-sampling Techniques and Sample Preparation	Diamond sampling done to industry standard techniques.	Moderate/High
Quality of Assay Data	Appropriate quality control procedures are available. Errors are identified and corrected or	Moderate/High
Verification of Sampling and Assaying	Coffey has assessed sampling and assaying procedures and considers them of appropriate industry standards.	Moderate
Location of Sampling Points	Survey of all collars was performed with accurate survey equipment	Moderate/High
Data Density and Distribution	Average Drill spacing. 50x50m grid	Moderate/High
Audits or Reviews	Data reviewed by Coffey.	Moderate/ High
Database Integrity	No major issues were identified.	Moderate/High
Geological Interpretation	Lithological controls need to be fully studied.	Medium
Estimation and Modelling Techniques	Estimation methodology is considered to be appropriate given the grade distribution	High
Cut-off Grades	A 0.5 g/t Au lower cut-off grade is considered appropriate for reporting	High
Mining Factors or Assumptions	Open Pit Mining	High
Metallurgical Factors or Assumptions	Assumed same processing parameters as historical production.	Moderate/ High

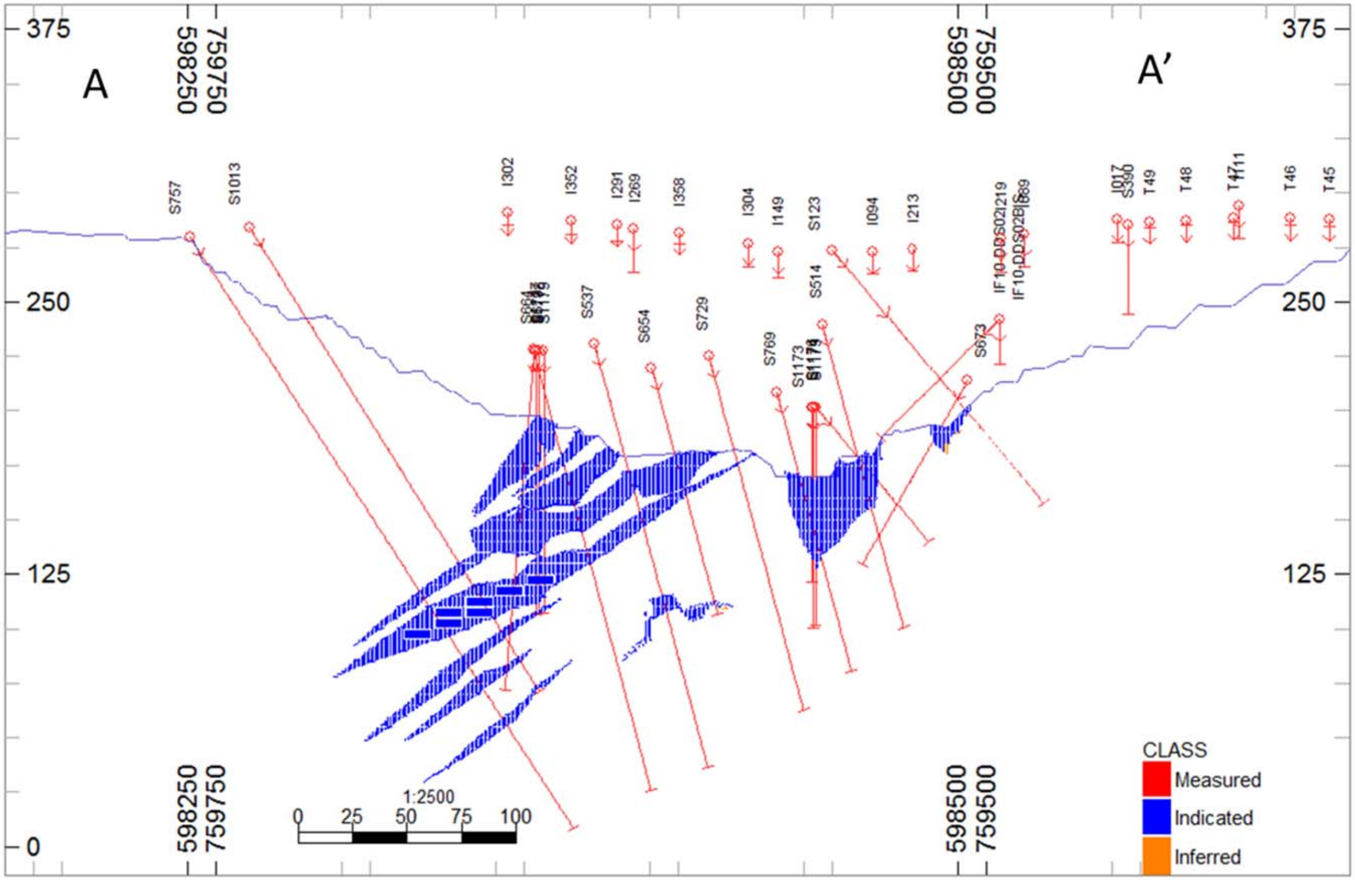
14.6.16 Classification Models

Plans and Sections through the classification for Mont Ity are shown in Figure 14.6.16_1.

Classification is shown for Indicated Mineral Resources and Inferred Mineral Resources. The drilling grid is sufficiently tight for this deposit to estimate continuity. The mineral resource is classified as an Indicated Mineral Resource where there is dense drilling and extrapolated in layers for the Inferred Mineral Resource.

Figure 14.6.16_1
Mont Ity

Section A-A' Through the Model and Borehole Fence



14.6.17 Summary of Mineral Resources

The estimated mineral resources for Mont Ity are tabulated below per category at a cut-off grade of 0.5g/t Au (Tables 14.6.17_1).

Table 14.6.17_1
SMI Gold Project
Mont Ity: Mineral Resource (Cut-off 0.5g/t) 31 July 2015

Category	Domain	Facies	Tonnes ('000t)	Au (g/t)	Au ('000oz)
Indicated	Oxidised	AO	732	2.45	57.6
Indicated	Oxidised	AR	273	3.32	29.2
Indicated	Oxidised	LAT	393	1.01	12.8
Indicated	Oxidised	CC	47	2.91	4.4
Indicated	PO	AO	212	2.86	19.4
Indicated	PO	AR	607	3.05	59.6
Indicated	PO	CC	166	3.74	20.0
Indicated	Fresh	CC	2,117	2.23	151.5
Indicated	Fresh	MIXED	553	1.75	31.1
Total Indicated Mineral Resources			**5,101**	**2.35**	**385.5**
Inferred	Oxidised	AO	18	2.89	1.7
Inferred	Oxidised	AR	3	4.28	0.5
Inferred	Oxidised	LAT	25	0.77	0.6
Inferred	Oxidised	CC	1	4.23	0.1
Inferred	Transition	AO	6	2.62	0.5
Inferred	Transition	AR	17	4.84	2.7
Inferred	Transition	CC	17	4.95	2.6
Inferred	Fresh	CC	14	2.25	1.0
Inferred	Fresh	MIXED	39	2.13	2.7
Total Inferred Mineral Resources			**140**	**2.75**	**12.4**

Note Rounding has been applied

14.6.18 Comparison with Historical Estimates

Historical estimates are not relevant as this is the remainder of a partially mined deposit.

14.7 Walter

14.7.1 Introduction

Arethuse has estimated the mineral resources for the SMI Mont Ity deposit as at 301 July 2015. Geological modelling and mineral resource estimation was done using GEOVIA Surpac 6.6, XLStat, Autotats and Isatis software packages. The grade estimation was completed using the both ID and OK estimation techniques. This estimation approach was considered appropriate based on review of a number of factors, including the quantity and spacing of available data, data spatial relationship, the style and geometry of mineralization. The grade estimation was based on the entire borehole database. Six of the twin boreholes were excluded from the mineral resource estimation process.

14.7.2 Data Validation

See Section 14.1.2.

14.7.3 Geological Interpretation and Modelling

Comments for this section are included in Section 14.7.4.

14.7.4 Mineralization Interpretation

Walter is a vein system similar to Ity and ZiaNE. Walter was modelled in manner similar to Ity where the individual veins were modelled as separate domains with a nominal cut-off of 0.5g/t Au Figure 14.7.3_1. This is considered a real physical limit on gold concentration for this deposit and is less than the current mining cut-off grade. Given the erratic nature of the gold mineralization this lower grade allows for better modelling of continuous units.

Intersections were required to be at least 1m thick with a maximum of 3m internal dilution. Some flexibility in the creation of solids was allowed to preserve the continuity of the mineralization and simplify modelling. The mineralized zones were extended up to 50m from the nearest data point.

The model consists of 16 solids of which two have large volumes and good continuity. The remaining solids are much more restricted. In other cases mineralization was not modelled because the extent was too localized and continuity could not be determined.

The mineralization was found into four rock facies, namely laterites, granodiorite, marble and volcanosediments (Figure 14.7.4_2). Based on the physical and chemical properties, the mineralization was separated into three domains, namely oxidized, partially oxidized and fresh domains.

Figure 14.7.4_1
Walter
Geological Interpretation of Veins
Digitized Section 8 towards NW showing Mineralised Solids on a 25m drilling grid

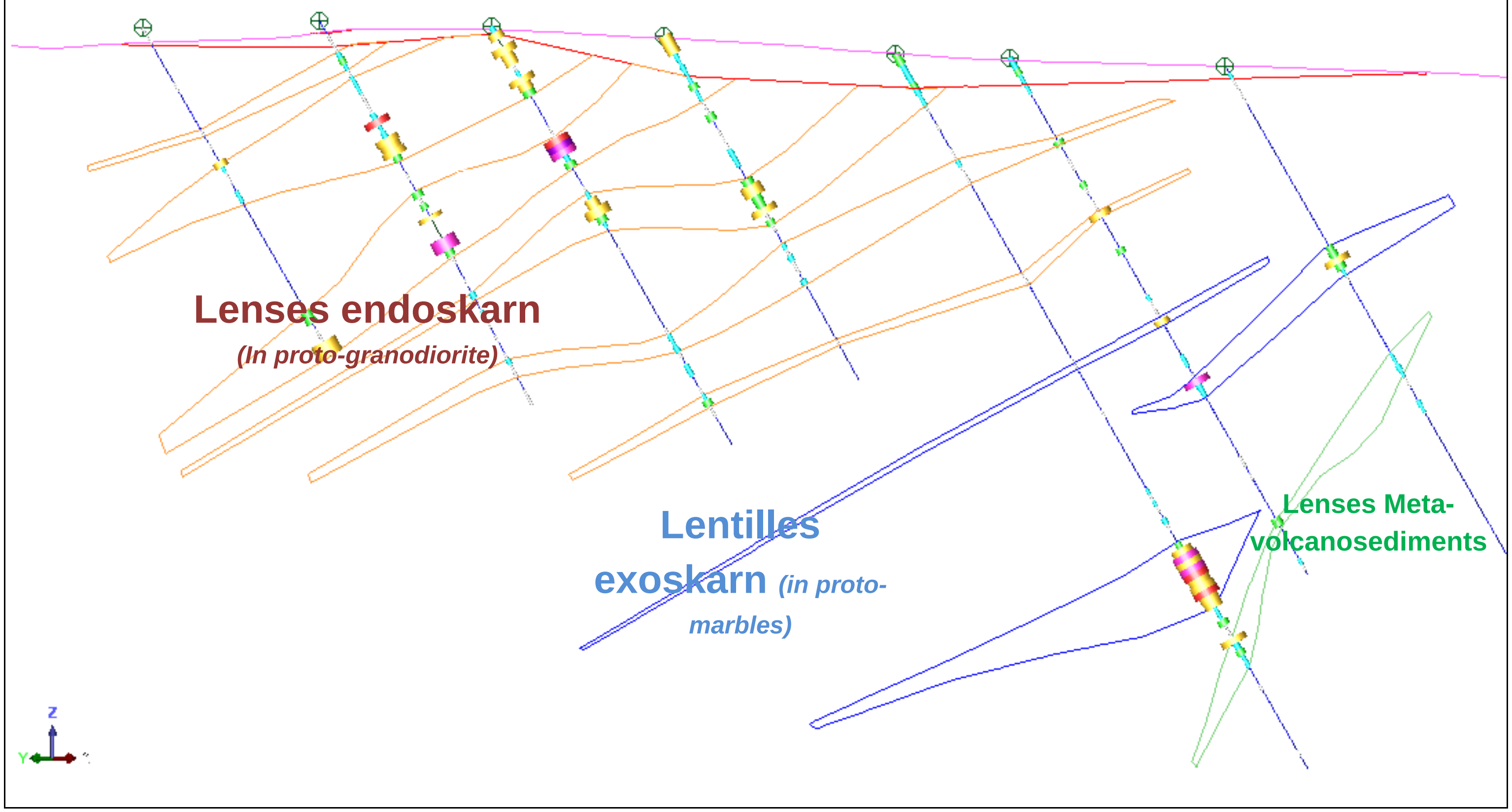
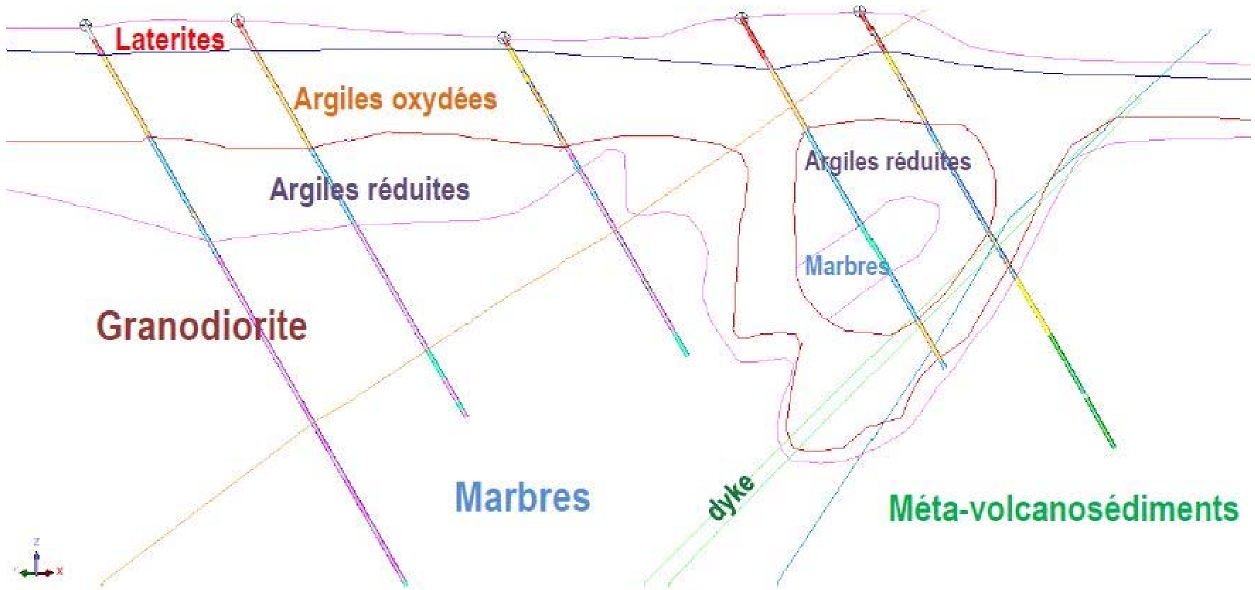


Figure 14.7.4_2
Walter
Geological Interpretation of Veins
Digitized Section 5 towards NW showing the Geological Model on a 25m drilling grid



14.7.5 Compositing

Most of the samples were taken at 1m interval. A 1m interval was chosen for the composite length.

14.7.6 Statistical Analysis

Mineralized intersections were taken from within mineralized domains on composites of 1m. Five of the domains had too few samples to calculate meaningful statistics. Population statistics are given in Table 14.7.6_1

Table 14.7.6_1
SMI Gold Project
Walter: Composite Statistics per Domain 1-9 (Au g/t)

	solid 1	solid 2	solid 3	solid 4	solid 5	solid 6	solid 7	solid 8	solid 9
Number of Samples	780	266	95	56	14	21	93	87	104
Minimum	0.07	0.0605	0.11	0.26	0.4	0.37	0.13	0.06	0.15
Maximum	108.06	39.60	8.10	3.09	4.12	7.14	7.83	6.78	23.93
Median	1.17	0.94	0.79	0.62	1.08	0.75	0.76	0.87	1.13
Mean	2.59	2.05	1.24	0.88	1.38	1.54	1.28	1.37	1.9
Variance	39.87	14.72	1.41	0.4	0.98	3.36	1.98	1.65	7.99
Ecart Type	6.31	3.84	1.19	0.63	0.99	1.83	1.41	1.28	2.83
CV	2.43	1.87	0.96	0.72	0.72	1.19	1.1	0.94	1.49
Trimean	1.34	1.09	0.92	0.71	1.14	0.92	0.85	0.98	1.18
	solid 10	solid 11	solid 12	solid 13	solid 14	solid 15	solid 16 (laterites)		
Number of Samples	123	23	15	28	4	18	227		
Minimum	0.113	0.23	0.36	0.2045	0.37	0.4029	0.06		
Maximum	25.52	1.37	3.16	9.56	22.64	4.58	7.88		
Median	1.7	0.7	0.6	0.96	4.58	0.84	0.81		
Mean	3.92	0.82	0.83	1.49	8.04	1.13	0.96		
Variance	25.62	0.15	0.46	3.36	102.87	0.93	0.48		
Ecart Type	5.06	0.39	0.68	1.83	10.14	0.96	0.69		
CV	1.29	0.48	0.81	1.23	1.26	0.86	0.72		
Trimean	2.28	0.79	0.65	1.01	2.9	0.9	0.84		

Population of gold grades are lognormal; which is typical of most gold deposits. For both domains the CV is high, typical for a gold deposit. A low CV in this data set reflects a lack of data rather than a low variability.

14.7.7 Outlier Analysis

Capping was applied at 40g/t Au as motivated by the histograms and probability plots, and clustering for the largest mineralized domain. This has the apparent effect of lowering the metal content by 7% relative to the uncut population. This top cut was applied to all domains.

14.7.8 Bulk Densities

Walter has a bimodal density distribution with the softer oxidized/weathered saprolites being one population and the hard fresh rock another one. Several attempts have been made to establish a density against lithology but data remained too widely distributed to be used here. Eventually dry bulk densities have been assigned per domains (Figure 14.7.8_1).

Table 14.7.8_1
SMI Gold Project
Walter: Hydrostatic Bulk Density (t/m^3)

Attribute	Number	Minimum	Maximum	Mean	Standard Deviation	CV	Assigned density
Laterite	6	1.04	1.85	1.51	0.30	0.20	1.45
Clay Rocks	67	1.04	2.84	1.71	0.40	0.23	1.60
Fresh Rocks	64	1.29	3.25	2.55	0.54	0.21	2.70

14.7.9 Variography

Variograms were modelled for domains 1- 3, 7, 8-10 and 16. The other domains had too few data to calculate variograms. Domains 8-10 were modelled together as they are geologically similar (exoskarn) and to ensure enough samples for the calculations. The variogram models have a spherical structure for solids 1-3 and 8-10, and a Gaussian structure for solids 7 and 16. Ellipsoids are sub-parallel to the ore bodies, and the main axis is most of the time sub-horizontal and in the lengthening of the solids. Along the main axis the ellipsoids are slightly elongated (major/semi-major ratio around 1.0-1.5). The ranges are generally 40m, except for solids 7 and 16 which are 90 and 200m respectively. No minor axis was modelled for solid 16, thus an omnidirectional variogram was used.

The variogram models parameters are given in Table 14.7.12_1.

14.7.10 Block Modelling

The parameters of the block model are displayed in Table 14.7.10_1. The block model was orientated according to the mean orientation of the mineralised lenses. The blocks dimensions were selected according to the drilling grid mesh, the dimensions of the mineralised lenses and the level of characterisation of the Au grades. The blocks dimensions are about a third of the drilling mesh (25mx25m).

Table 14.7.10_1 **SMI Gold Project** **Walter: Block Model Construction Parameters (m)**				
Direction	**Origin**	**Parent Block Size**	**Number of Blocks**	**Sub-Cell**
X	598,970	5	80	No
Y	760,320	10	110	No
Z	100	5	40	No
Rotation	Bearing 045	Dip:0	Plunge:0	

14.7.11 Grade Estimation

The estimation was carried-out using the ID and OK techniques depending on the amount of data in each domain. Domains with variograms modelled (Section 14.6.9) were modelled using OK and the rest with ID^3. Estimation Parameters are given in Section 14.7.12_1.

14.7.12 Estimation Parameters

The sample search parameters are supplied in Table 14.7.12_1.

Hard domain boundaries were used throughout preventing samples lying outside a mineralized domain from being used for the estimation. A three-pass estimation strategy was applied, making use of an expanded and less restrictive sample search to the second and subsequent estimation passes and only considering blocks not previously assigned an estimate.

14.7.13 Model Validation

The estimates were reviewed visually and statistically prior to being accepted. The review included the following activities:

- Comparison of the estimate versus the mean of the composite dataset.
- Visual checks of cross sections.
- Swath Plots

The model validation checks confirmed the suitability of the methodology applied.

14.7.14 Depletion

Mining activity resumed in April 2015, and resulted in 139,000t@1.21g/t Au = 5.4koz depletion of total mineral resources (5% of total ore, and 2.7% of contained gold). Although not material compared to the total mineral resources of the deposit, and given the indicative confidence level of the resources, mineral resources at 31 July 2015 have been adjusted accordingly

Table 14.6.12_1

SMI Gold Project

Walter: Estimation and Search Parameters

Domain		Granodiorite						Marble		Volcased	Laterite
Solids		1	2	3	4	5-6	7	8-10	11-12	13-15	16
Max solid size		450m	450m	300m	375m	170m	400m	400m	130m	90m	400m
Solid dip		-30	-25	-32	-30	-30	-26	-30	-30	-60	0
Solid dip direction		310	310	315	310	310	310	305	310	300	0
INTERPOLATION METHOD		OK	OK	OK	ID3	ID3	OK	OK	ID3	ID3	OK
SEARCH ELLIPSOID	**Plunge**	-9.6	-7.9	2.6	0	0	-7.8	-20	0	0	0
	Bearing	22.9	22.7	49.2	35	35	23.7	354	30	30	2.66
	Dip	37.3	27.5	34.5	30	30	24.9	23	28	60	0
	M /Sm	1	1.1	1.3	1	1	1	1	1	1	3
	M / Mi	7.9	10	12.8	10	10	35	1.2	10	10	50
PASS 1	**max dist major (m)**	40	40	40			80	60			150
	max dist vert. (m)	30	30	30			40	40			20
	min samples	20	20	20			20	20			20
	max samples	30	30	30			30	30			30
	discretisation pts	4	4	4			4	4			4
PASS 2	**max dist major (m)**	100	80	80	70	60	150	160	60	70	206
	max dist vert. (m)	30	30	40	40	40	60	60	40	40	20
	min samples	10	10	10	10	10	10	10	10	10	10
	max samples	30	30	30	30	30	30	30	30	30	30
	discretisation pts	4	4	4	4	4	4	4	4	4	4
PASS 3	**max dist major (m)**	999	999	999	999	999	999	999	999	999	999
	max dist vert. (m)	999	999	999	999	999	999	999	999	999	999
	min samples	1	1	1	1	1	1	1	1	1	1
	max samples	30	30	30	30	30	30	30	30	30	30
	discretisation pts	4	4	4	4	4	4	4	4	4	4
KRIGING PARAMETERS	**nugget**	0.1	0.11	0.13			0.08	0.27			0.06
	type struct	sph	sph	sph			gau	sph			gau
	S1	0.97	0.85	1			0.86	0.88			0.92
	P1	40	40	43			90	33			206
	S2	x	x	x			x	0.09			x
	P2	x	x	x			x	77			x

14.7.15 Mineral Resource Classification

Levels for key criteria are tabulated in Table 14.7.15_1. Applying the following parameters, mineral resource was based on;

- Measured Mineral Resource:

  No measured category was declared due to complex geology and mineralization style.

- Indicated Mineral Resource:
  - Estimated by OK
  - Several intersections in a domain and a large number of samples
  - First and second search-volume

- Inferred Mineral Resource:
  - Estimated using ID or OK third pass
  - third pass.
  - Solids with few intersections and low average grade

Topography was also a criterion for the laterites.

Table 14.7.15_1
SMI Gold Project
Walter: Confidence Levels of Key Criteria

Factors	Discussion	Confidence
Drilling Techniques	RC/Diamond - Industry Standard approach.	Moderate/High
Logging	Standard nomenclature has been adopted.	High
Drill Sample Recovery	Diamond drill-holes recoveries are of acceptable standard. RC recoveries are not available.	Moderate
Sub-sampling Techniques and Sample Preparation	Diamond sampling done to industry standard techniques. RC sample preparation are less accurate but acceptable.	Moderate/High
Quality of Assay Data	Appropriate quality control procedures are available. No quality control data for historical drill-holes.	Moderate/High
Verification of Sampling and Assaying	Arethuse has assessed sampling and assaying procedures and considers them of appropriate industry standards.	Moderate
Location of Sampling Points	Survey of all collars was performed with accurate survey equipment	Moderate/High
Data Density and Distribution	Average Drill spacing. 25x25m grid	Moderate/High
Audits or Reviews	Site visit by Arethuse on 1-2/10/2013. General Ni43-101 site audit in 2013. All procedures are considered of appropriate industry standards.	Moderate/ High
Database Integrity	No major issues were identified.	Moderate/High
Geological Interpretation	Geological bodies are well defined in the 2014 end of campaign report. Mineralized deposits have been outlined with high confidence for the two main solids. Other small envelopes are more hypothetic.	Moderate
Estimation and Modelling Techniques	Estimation methodology is considered to be appropriate given the grade distribution	High
Cut-off Grades	A 0.8g/t lower cut-off grade is considered appropriate for reporting. A 0.5g/t geological cut-off grade has been used for wireframing.	High
Mining Factors or Assumptions	Open Pit Mining	High
Metallurgical Factors or Assumptions	Assumed same processing parameters as historical production or CIL project.	Moderate/ High
Historical Drilling	Legacy holes represent 47 % of holes and 33% of samples, are poorly documented for all items listed above, and lack recovery and QAQC data. Intensive data verification allowed the inclusion within the resource model at an indicative level	Low

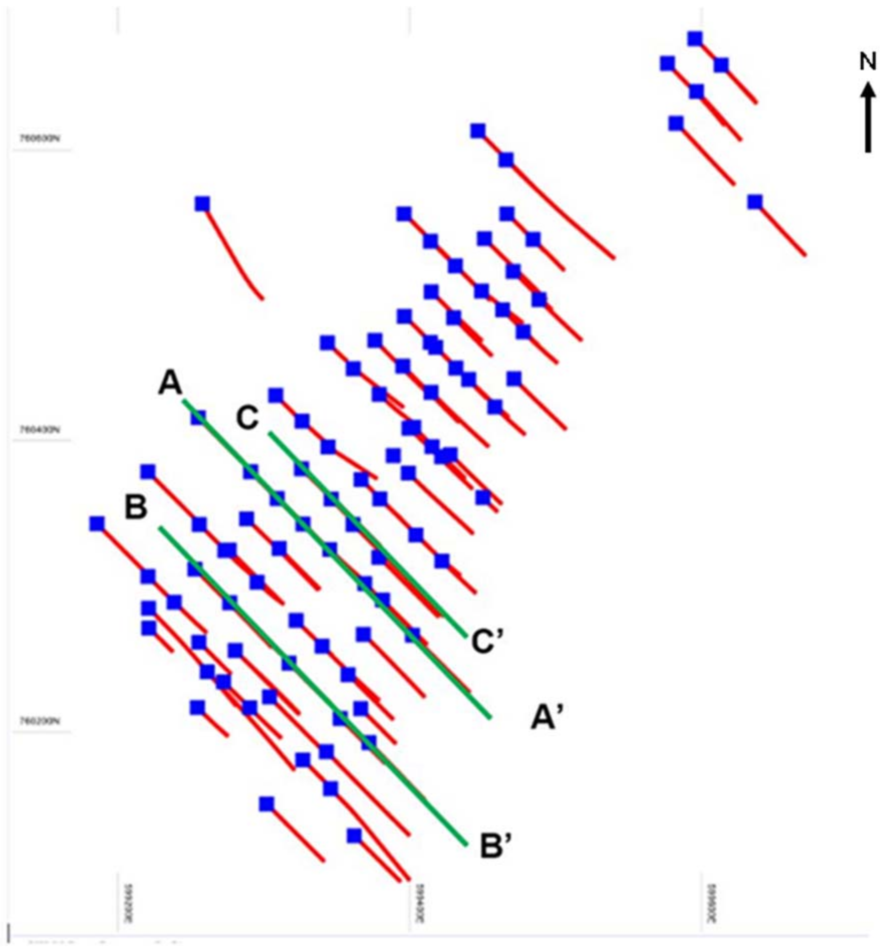
14.7.16 Classification Models

Plans and Sections through the classification for Mont Ity are shown in Figure 14.7.16_1 to 14.7.16_3.

Classification is shown for Indicated Mineral Resources and Inferred Mineral Resources. The drilling grid is sufficiently tight for this deposit to estimate continuity. The mineral resource is classified as Indicated Mineral Resource where there is dense drilling and extrapolated in layers for the Inferred Mineral Resource.

Figure 14.7.16_1
Walter

Drilling Plan view with Sections Indicated



Boreholes are 25m apart

Figure 14.1.1614.7.16_2
Walter

Section C-C' Grade Distribution Through the Model and Borehole Fence

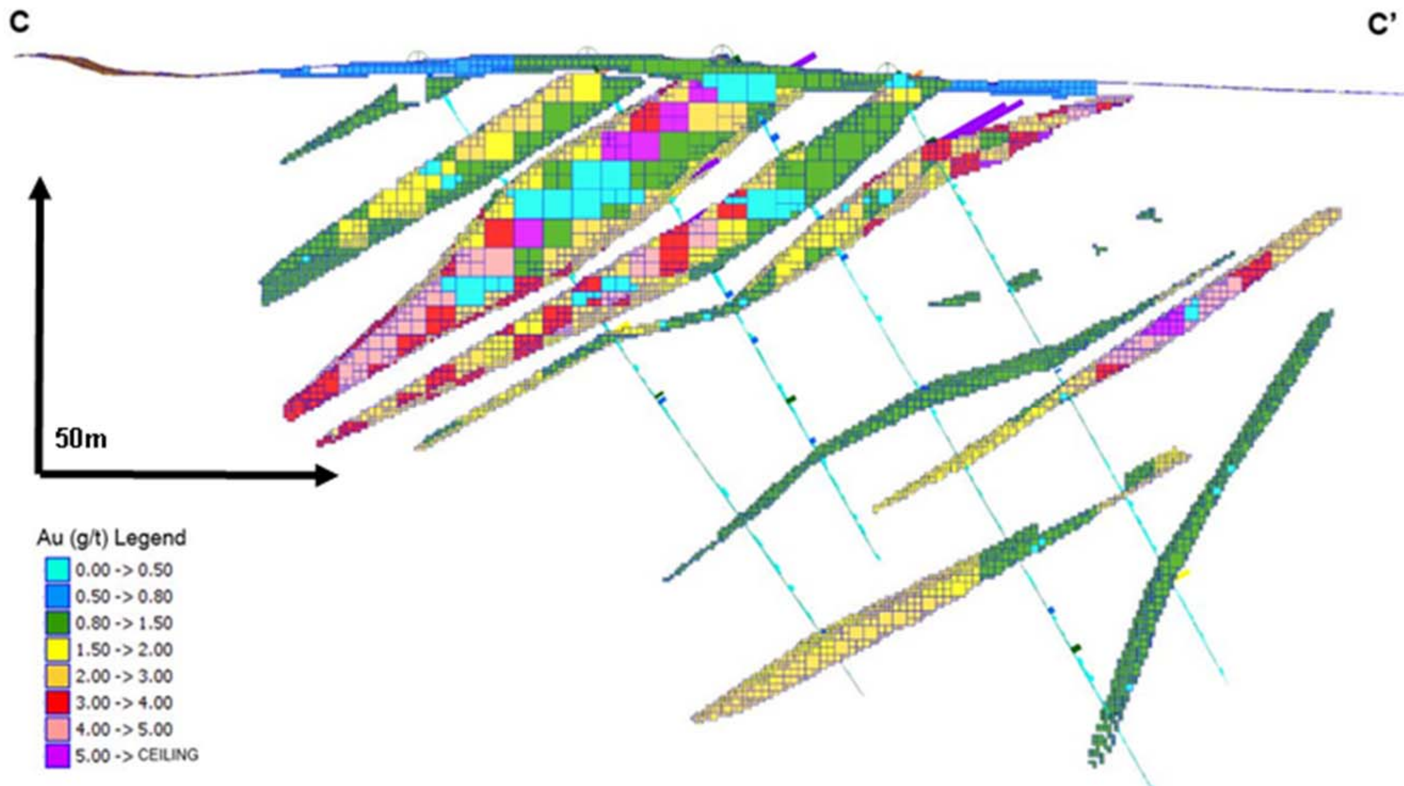
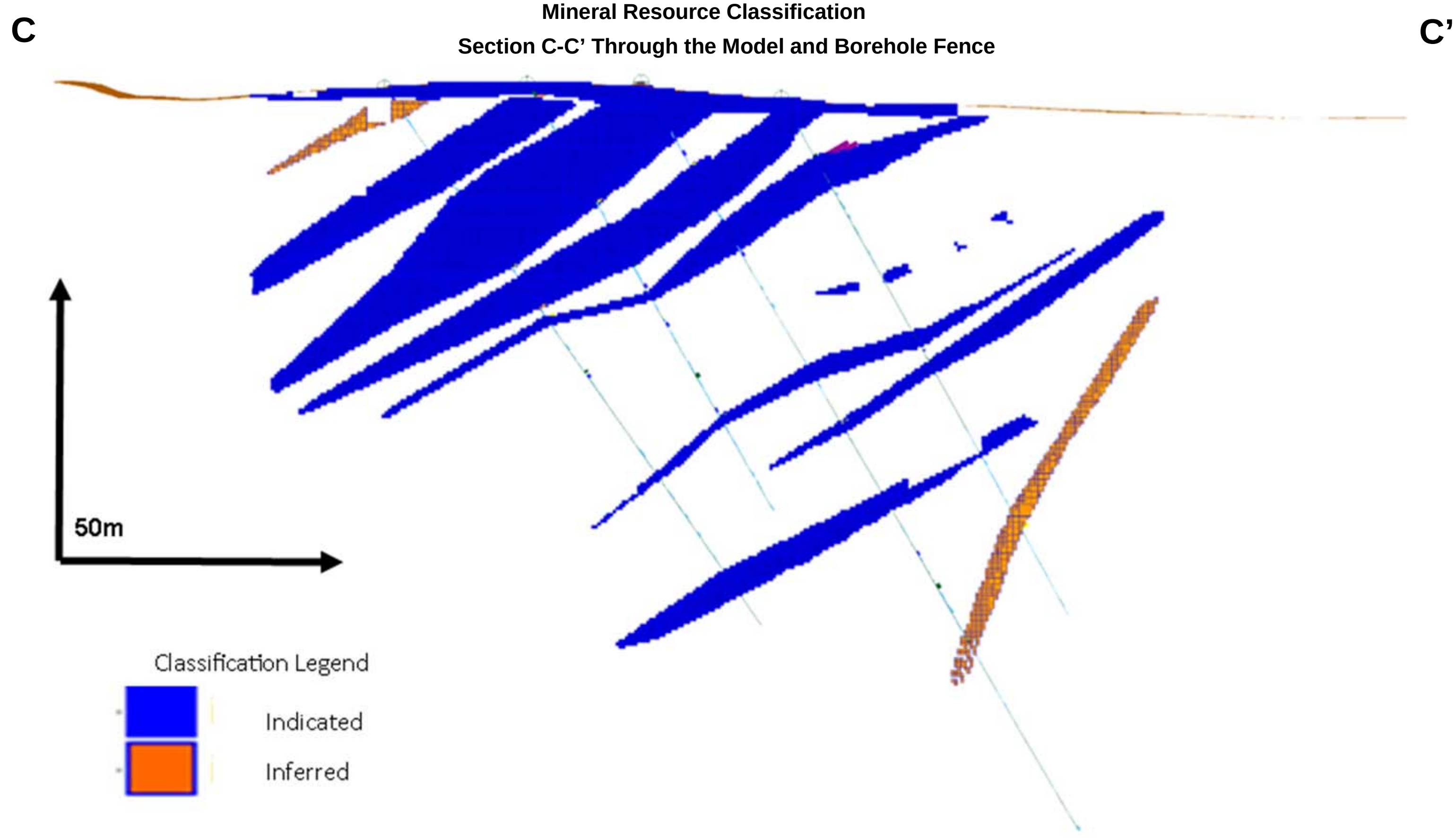


Figure 14.7.16_3
Walter

Mineral Resource Classification

Section C-C' Through the Model and Borehole Fence



14.7.17 Summary of Mineral Resources

The estimated mineral resources for Mont Ity is tabulated per Facies, oxidized domain and mineral resource category at a cut-off grade of 0.5g/t Au (Tables 14.7.17_1).

Table 14.7.17_1
SMI Gold Project
Walter: Mineral Resource (Cut-off 0.5g/t) 31 July 2015

Category	Domain	Facies	Tonnes ('000t)	Au (g/t)	Au ('000oz)
Indicated	Oxidized	AO	837	2.74	73.7
Indicated	Oxidized	AR	430	2.16	29.8
Indicated	Oxidized	Laterite	227	1.04	7.6
Indicated	Fresh	endoskarn	758	2.14	52.1
Indicated	Fresh	exoskarn	359	2.20	25.3
Total Indicated Mineral Resources			**2,612**	**2.24**	**188.5**
Inferred	OX	AO	51	1.16	1.9
Inferred	OX	AR	50	1.450	2.3
Inferred	OX	LAT	3	0.75	0.1
Inferred	Fresh	endoskarn	86	1.6	4.4
Inferred	Fresh	exoskarn	9.6	1.21	0.4
Inferred	Fresh	Volcano Sed	1.4	0.99	0.03
Total Inferred Mineral Resources			**200**	**1.42**	**9.13**

Note Rounding has been applied

14.7.18 Comparison with Historical Estimates

Historical estimates are not relevant as this is the remainder of a partially mined deposit.

14.8 Gbeitouo

14.8.1 Introduction

Arethuse has estimated the mineral resource for the Gbeitouo deposit as at 27 November 2013. Geological modelling and mineral resource estimation were done using GEOVIA Surpac 6.5, XLStat and Autostats software packages. The grade estimation was completed using the OK and ID estimation techniques. This estimation approach was considered appropriate based on review of a number of factors, including the quantity and spacing of available data, data spatial relationship, the style and geometry of mineralization. The grade estimation was based on the entire borehole database. No boreholes or data were excluded from the mineral resource estimation process.

14.8.2 Data Validation

See Section 14.1.2

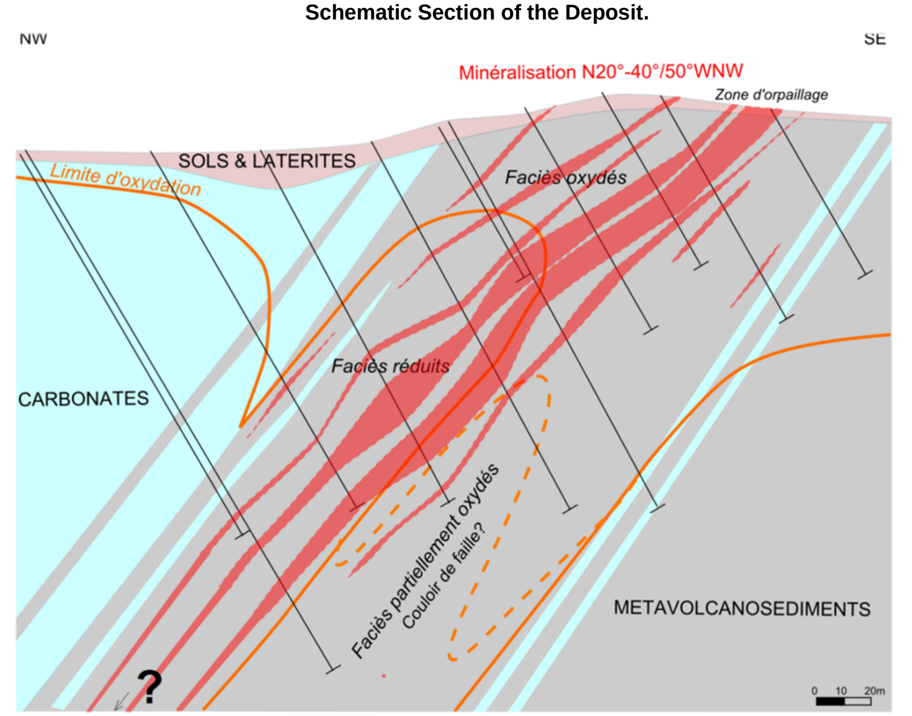
14.8.3 Geological Interpretation and Modelling

Three dimensional modelling was completed using GEOVIA Surpac 6.5 software. Four geological entities were modelled: laterites footwall, unaltered carbonates, unaltered metavolcanosediments and the hanging-wall of the substratum in Metavolcano-sediments. Thus laterite and clayey saprolite were deduced from these elements. Mineralization was modelled as envelopes with a minimal cut-off of 0.8g/t Au where intersections were greater than 1m, internal dilution was not more than 3m and some flexibility was allowed in the digitization of boundaries to conserve the continuity of the volumes. The model consists of 11 solids, nine in the clayey area and two in the laterites. There is one large continuous solid with many mineralised borehole intersections. There are another six which are smaller and sit above the large solid. The last two are of limited extent and uncertain and sit below the large body.

14.8.4 Mineralization Interpretation

Like Mont Ity, ZiaNE and Walter, Gbeitouo is a series of parallel and subparallel mineralized lenses which azimuth is N030° and dipping 40-55° to the northwest (Figure 14.8.4_1). The main mineralised lens is 300m long, 25m thick and has a vertical extension of 150m. The Gbeitouo mineralization is hosted within a Metavolcano-sedimentary sequence. Carbonates are found at the hanging wall. The area is covered by a thin soil and laterite layer.

Figure 14.8.4_1
Gbeitouo
Schematic Section of the Deposit.



14.8.5 Compositing

Most of the samples were taken at 1m interval. A 1m interval was chosen for the composite length.

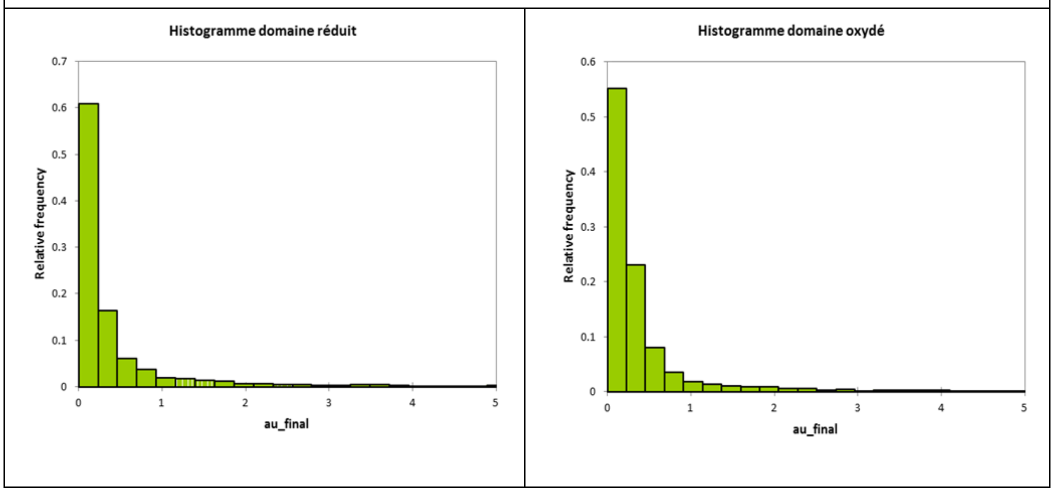
14.8.6 Statistical Analysis

Two domains (Oxidized and Fresh) detailed in Section 14.8.4 were statistically assessed. Two domains were statistically assessed: (i) laterites (solids 10-11); (ii) saprolite and fresh (solids 1-9). All composites inside the individual modelled volumes were flagged as separate domains. Separate statistics were generated for each domain and are presented in Table 14.8.6_1. Seven of the solids do not have enough samples to have representative statistics and are thus only indicative.

The oxidised and reduced domains were also compared separating the samples with the 3D geological model. The obtained gold grades histograms are displayed in Figure 14.8.6_1. Population of gold grades are lognormal; which is typical of most gold deposits.

Figure 14.8.6_1
Gbeitouo

Gold grades histograms for the reduced (left) and oxidised (right) domains



14.8.7 Outlier Analysis

Outlier analysis was undertaken considering the CV, confidence interval (95%), metal content, spatial distribution of high grade samples, and the shape of cumulative frequency plots. Capping was applied at 15.5g/t.

Table 14.8.6_1

SMI Gold Project

Gbeitouo: Raw and Composite Statistics per Domain (Au g/t)

Raw Samples													
	Solid 1	Solid 2	Solid 3	Solid 4	Solid 5	Solid 6	Solid 7	Solid 8	Solid 9	Solid 10	Solid 11	Solids 10-11	Solids 2-9	Solids all
Number Samples	720	39	223	44	25	15	14	9	6	20	8	28	375	1123
Minimum	0.01	0.34	0.02	0.05	0.26	0.24	0.02	0.87	0.28	0.80	0.56	0.56	0.02	0.01
Maximum	45.52	6.04	43.40	2.00	2.75	2.34	2.33	5.64	3.71	2.98	1.08	2.98	43.40	45.52
Median	1.39	1.28	0.96	0.93	1.06	0.97	0.9	1.35	1.56	1.25	0.86	1.05	0.99	1.18
Mean	**2.58**	**1.67**	**1.6**	**1.02**	**1.15**	**1.13**	**0.95**	**2.24**	**1.62**	**1.59**	**0.87**	**1.38**	**1.48**	**2.18**
Variance	14.4	1.68	9.87	0.26	0.3	0.41	0.5	3.11	1.65	0.53	0.03	0.49	6.27	11.62
Standard Deviation	3.8	1.29	3.14	0.51	0.55	0.64	0.7	1.76	1.28	0.73	0.16	0.7	2.5	3.41
CV	**1.47**	**0.78**	**1.97**	**0.5**	**0.47**	**0.57**	**0.74**	**0.79**	**0.79**	**0.46**	**0.18**	**0.5**	**1.69**	**1.56**
Trimean	1.62	1.41	1.05	0.94	1.12	1.02	0.82	1.76	1.21	1.34	0.88	1.17	1.08	1.36

Composites														
	Solid 1	Solid 2	Solid 3	Solid 4	Solid 5	Solid 6	Solid 7	Solid 8	Solid 9	Solid 10	Solid 11	Solids 10-11	Solids 2-9	Solids all
Number of Samples	692	36	206	37	23	15	11	9	4	22	9	31	341	1064
Minimum	0.01	0.40	0.06	0.06	0.26	0.55	0.02	0.87	1.13	0.80	0.56	0.56	0.02	0.01
Maximum	36.96	6.04	43.40	2.00	1.68	2.34	2.33	5.64	3.71	2.98	1.08	2.98	43.40	43.40
Median	1.53	1.4	1	0.93	1.03	1.37	1	1.35	2.07	1.25	0.86	1.01	1.03	1.32
Mean	**2.71**	**1.69**	**1.66**	**1.09**	**1.09**	**1.26**	**1.17**	**2.24**	**2.25**	**1.53**	**0.89**	**1.34**	**1.55**	**2.3**
Variance	13.43	1.71	10.18	0.22	0.19	0.21	0.41	3.11	1.16	0.49	0.02	0.44	6.53	11.15
Standard Deviation	3.67	1.31	3.19	0.47	0.43	0.45	0.64	1.76	1.08	0.7	0.15	0.66	2.55	3.34
CV	**1.35**	**0.77**	**1.93**	**0.43**	**0.4**	**0.36**	**0.55**	**0.79**	**0.48**	**0.46**	**0.17**	**0.49**	**1.65**	**1.45**
Trimean	1.78	1.33	1.11	1	1.07	1.27	1.09	1.77	1.81	1.34	0.88	1.15	1.14	1.5
TOPCUT	**15.5**		**15.5**										**15.5**	**15.5**
Metal cut (%)	**4.4**		**8.2**										**5.3**	**4.5**

Table 14.8.6_1

SMI Gold Project

Gbeitouo: Raw and Composite Statistics per Domain (Au g/t)

Composites														
	Solid 1	Solid 2	Solid 3	Solid 4	Solid 5	Solid 6	Solid 7	Solid 8	Solid 9	Solid 10	Solid 11	Solids 10-11	Solids 2-9	Solids all
Number of samples	692		206										341	1064
Minimum	0.01		0.06										0.02	0.01
Maximum	15.50		15.50										15.50	15.50
Median	1.53		1										1.03	1.32
Mean	**2.59**		**1.52**										**1.47**	**2.2**
Variance	8.81		2.6										1.94	6.65
Standard Deviation	2.97		1.61										1.39	2.58
CV	**1.14**		**1.06**										**0.95**	**1.17**
Trimean	1.78		1.11										1.14	1.5

14.8.8 Bulk Densities

Bulk densities were taken on 246 in the 2013 campaign. Some quality control samples (12 duplicates) tend to show a good repeatability in the measurements. All lithologies show a range of values and the deposit as a whole is bimodal with a lower density saprolites and laterite and a higher density for the unaltered rock. Average bulk densities were used in the estimation.

- Laterites – 1.8t/m^3
- Saprolites - 1.4t/m^3
- Unaltered rock - 2.75t/m^3

14.8.9 Variography

A variogram for the combined volumes of the six vein structures (solids 1-6) are presented in Table 14.8.9_1. The anisotropy ellipsoid is subparallel to the trend of the mineralization. Variograms were modelled as nested spherical structures.

Table 14.8.9_1
SMI Gold Project
Gbeitouo: Variography Modelled Parameters

Domain	Nugget	Sill 1	Sill 2	Range 1 (m)	Range 2 (m)
Solids 1-6	0.6	4.9	2.7	39	88

14.8.10 Block Modelling

The block models were constructed with parameters as displayed in Table 14.8.10_1. Gbeitouo was estimated on a rotated block model to align with the borehole pattern. The block model was designed to take into account the drilling grid, dimensions of the mineralized lenses and the grade distribution.

Table14.8.10_1
SMI Gold Project
Gbeitouo: Block Model Construction Parameters (m)

Direction	Origin	Parent Block Size	Number of Blocks	Sub-Cell
X	601300	5	60	No
Y	760,400	10	45	No
Z	80	5	44	No

14.8.11 Grade Estimation

The mineral resource estimation was carried-out using the ID and OK techniques depending on the amount of data in each domain. Domains with variograms modelled were modelled using OK and the rest with ID^2. Estimation Parameters are given in Section 14.8.12.

14.8.12 Estimation Parameters

The sample search parameters are supplied in Table 14.8.12_1.

Table 14.8.12_1
SMI Gold Project
Gbeitouo: Search Parameters

		Au/solid 1	Au/solid 2	Au/solid 3
	Type of interpolation	**Ordinary Kriging**	**ID2**	**ID2**
Kriging ellipsoid 3 x 3 x 3 discretisation points	Nugget (c0)	0.59		
	1st Structure (c1, a1)	4.91		
		38.5		
	2nd Structure (c2,a2)	2.67		
		88.7		
	Major/semi-major	1.1		
	Major / minor	6.4		
	Bearing Major	331.4		
	Plunge	-42.5		
	Dip	22.3		
Search Ellipsoid	Max distance (m)	80	60	60
	Major/semi-major	1.1	2	1
	Major / minor	6.4	5	5
	Bearing Major	331.4	330	0
	Plunge	-42.5	-34	0
	Dip	22.3	22	0
	Search Distance Pass 1 and 2	80 (pass 1) 150 (Pass 2)	60	60
	Search Distance Other Pass	500	500	500
No of informing samples	Min	20	8	8
Pass 1	Max	30	30	30
No of informing samples	Min	10 (Pass 2)	1	1
Pass 2 and Pass 3	Max	1 (Pass 3)		

Hard domain boundaries were used throughout preventing samples lying outside a mineralized domain from being used for the estimation. A three-pass estimation strategy was applied, making use of an expanded and less restrictive sample search to the second and subsequent estimation passes and only considering blocks not previously assigned an estimate.

14.8.13 Model Validation

The estimates were reviewed visually and statistically prior to being accepted. The review included the following activities:

- Comparison of the estimate versus the mean of the composite dataset;
- Visual checks of cross sections;
- Swath Plots.

The model validation checks confirmed the suitability of the methodology applied.

14.8.14 Depletion

No mining has taken place and no depletion has been applied.

14.8.15 Mineral Resource Classification

Levels for key criteria are tabulated in Table 14.8.15_1. Applying the following parameters, mineral resource classification codes were assigned to the block model:

Parameters for Classification

- Measured Mineral Resources:

  No measured category was declared due to complex geology, mineralization style and database issues for historical campaigns.

- Indicated Mineral Resources:
  - Ordinary kriging
  - Good continuity of the mineralised lenses
  - Low kriging variance
- Inferred Mineral Resources:
  - ID^2
  - Smaller bodies resulting in a small number of samples
  - Weak continuity of the mineralised lenses
  - Topography low confidence for laterites

Table 14.8.15_1
SMI Gold Project
Gbeitouo: Confidence Levels of Key Criteria

Factors	Discussion	Confidence
Drilling Techniques	Diamond & RC - Industry Standard approach.	Moderate/High
Logging	Standard nomenclature has been adopted.	High
Drill Sample Recovery	Recoveries are of acceptable standard.	Moderate/High
Sub-sampling Techniques and Sample Preparation	Diamond sampling done to industry standard techniques.	Moderate/High
Quality of Assay Data	Acceptable quality control procedures are available.	Medium
Verification of Sampling and Assaying	Arethuse has assessed sampling and assaying procedures and considers them of appropriate industry standards.	Moderate/High
Location of Sampling Points	Survey of all collars was performed with accurate survey equipment.	Moderate/High
Data Density and Distribution	Average Drill spacing. 40x30m grid	Moderate/High
Audits or Reviews	On-site visit by Arethuse in October 2013 (2 days). General Ni43-101 site audit in 2013. All procedures are considered of appropriate industry standards.	Moderate/ High
Database Integrity	Several issues were identified and corrected.	Moderate/High
Geological Interpretation	Mineralogy and structural features need to be fully studied.	Medium
Estimation and Modelling Techniques	Estimation methodology is considered to be appropriate given the grade distribution.	High
Cut-off Grades	A 0.8g/t lower cut-off grade is considered appropriate for wireframing and reporting.	High
Mining Factors or Assumptions	Open Pit Mining.	High
Metallurgical Factors or Assumptions	Assumed same processing parameters as historical production or CIL project.	Moderate/High
Historical Drilling	Legacy holes represent 52 % of samples, are poorly documented for all item listed above and lack recovery and QAQC data. Intensive data verification allowed the inclusion within the resource model at an indicative level	Low/

14.8.16 Classification Models

An example of a section through the classification for Gbeitouo is shown in Figures 14.8.16_1 and 14.8.16_2. Classification is shown for Indicated Mineral Resources and Inferred Mineral Resources. The drilling grid is sufficiently tight for this deposit to estimate continuity. The mineral resource is classified as an Indicated Mineral Resource where there is dense drilling and as an Inferred Mineral Resource elsewhere.

Figure 14.8.15_1
Gbeitouo
Drilling Grid and Section Showing Grade Distribution

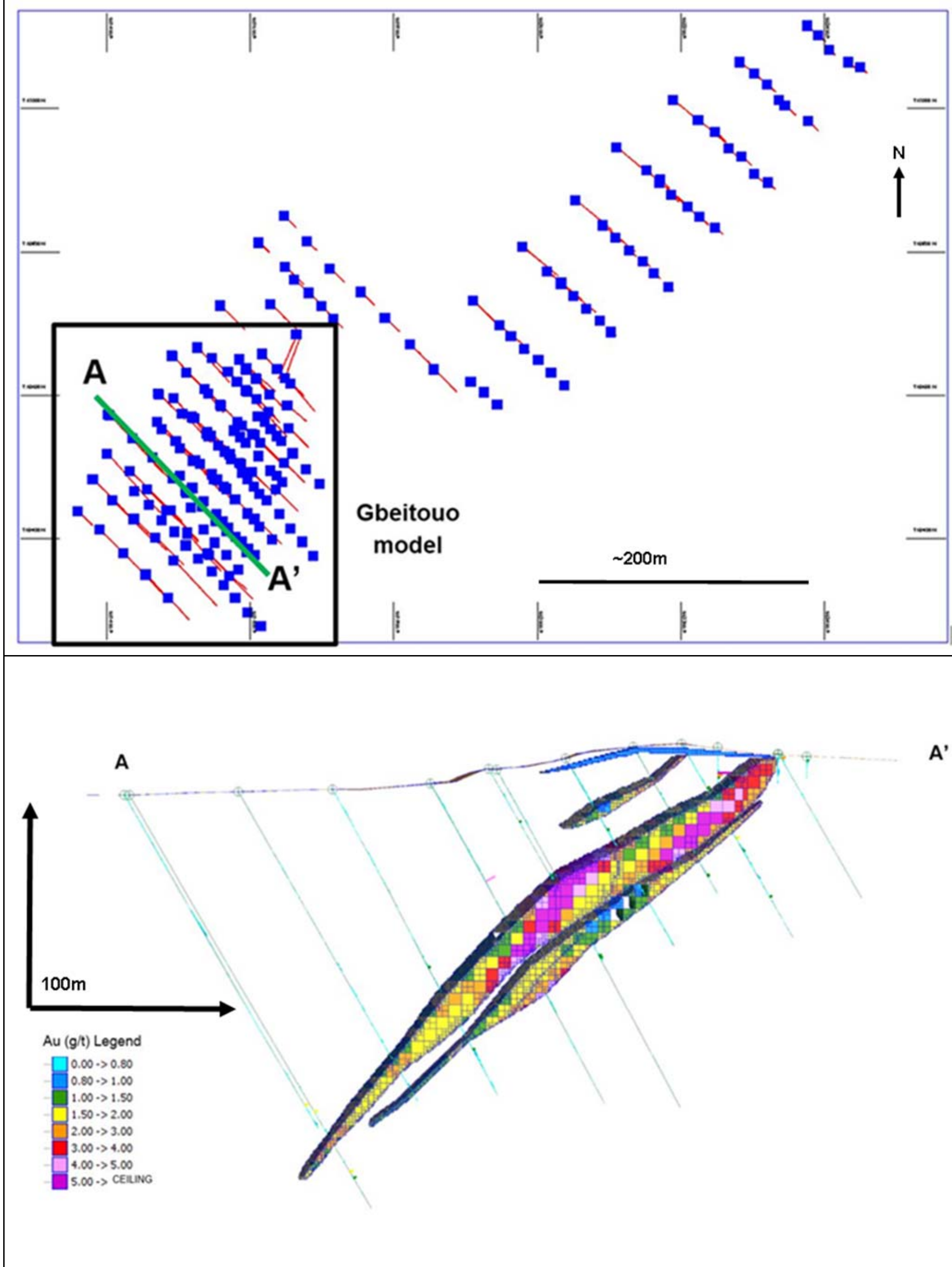
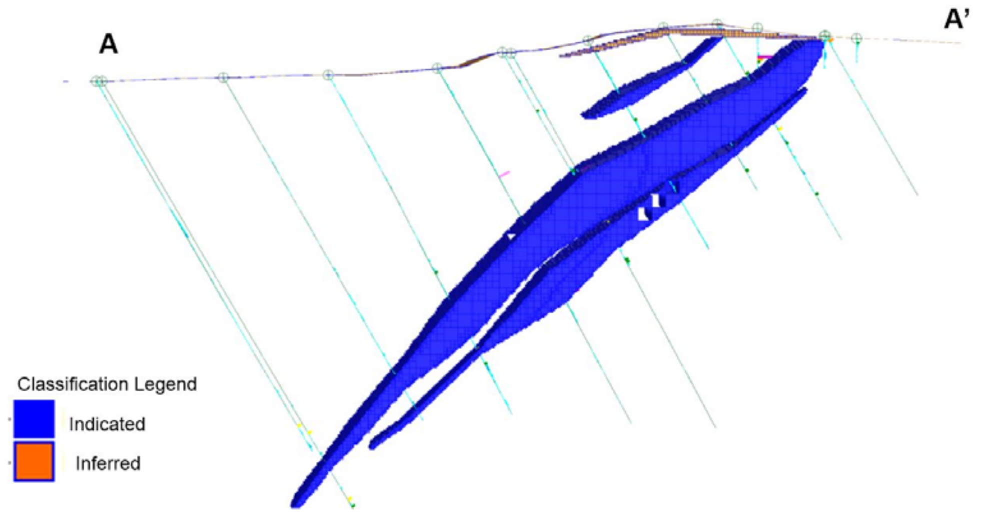


Figure 14.8.16_2
SMI Gold Project
Gbeitouo: Section A-A' Through the Model and Borehole Fence Showing Model Classification



14.8.17 Summary of Mineral Resources

The estimated mineral resources for the Gbeitouo are tabulated per facies, oxidization zone and mineral resource category at a cut-off grade of 0.8g/t Au (Table 14.8.17_1).

Table 14.8.17_1
SMI Gold Project
Gbeitouo: Mineral Resource (Cut-off 0.8g/t) 31 July 20151

Category	Domain	Facies	Tonnes ('000t)	Au (g/t)	Au ('000oz)
Indicated	Oxidised	AO	567	2.46	44.7
Indicated	Fresh	VSM	1,387	2.24	100.0
Total Indicated Mineral Resources			1,954	2.30	144.7
Inferred	Oxidised	AO	15.6	1.16	0.6
Inferred	Oxidised	LAT	39.9	1.35	1.7
Inferred	Fresh	VSM	1.3	1.14	0.03
Total Inferred Mineral Resources			56.8	1.29	2.3

Note Rounding has been applied

14.8.18 Comparison with Historical Estimates

There are no historical estimates for this deposit.

14.9 Summary of Mineral Resources

A summary of all mineral resources is given in Table 14.9_1

Table 14.9_1
SMI Gold Project
Mineral Resources as At Effective Date 31 July 2015

Deposit	Cut-off grade	Measured			Indicated			Inferred		
		Tonnes ('000)	Au g/t	Au oz	Tonnes ('000)	Au g/t	Au oz	Tonnes ('000)	Au g/t	Au oz
Mont Ity	0.5g/t Au				5,100	2.35	385,600	140	2.75	12,400
Daapleu	0.5g/t Au	21,188	1.45	984,700	9,604	1.46	452,000	1,553	1.21	60,500
ZiaNE	0.5g/t Au				6,741	1.56	337,900	3,838	1.78	219,800
Walter	0.5g/t Au				2,613	2.24	188,500	200	1.42	9,100
Gbeitouo	0.8g/t Au				1,954	2.30	144,700	57	1.29	2,300
Aires leach pads	0.0g/t Au	6,134	1.04	205,900						
Verse Ouest dump	0.0g/t Au				3,844	1.22	150,800	3,591	1.25	144,300
Teckraie dump	0.0g/t Au				1,945	1.11	69,500	304	1.01	9,900
Total		**27,322**	**1.36**	**1,190,600**	**31,801**	**1.69**	**1,729,000**	**9,683**	**1.47**	**458,300**

Note:

- Mineral resources include mineral reserves
- Numbers may not sum exactly due to rounding.

15 MINERAL RESERVE ESTIMATES

15.1 Mining of Heap Leach Operations

Mineral reserves estimates are based on the geological models of April 2014 for Mont Ity, May 2014 for Walter, September 2014 for ZiaNE and Teckraie. There has been depletion at Mont Ity and Walter and new mineral resource estimates for Mont Ity and ZiaNE in 2015. The changes to the mineral resources at ZiaNE are minor in the oxidized zone not material to the mineral reserve estimation. The changes at Mont Ity and Walter are significant to the deposits themselves but are a small percentage of the overall mineral resource and mineral reserve at SMI. Mineral reserves were updated at the end of 2014 and will be updated again at the end of 2015.

15.1.1 Mining Recovery and Dilution

SMI is an existing conventional Open Pit mine using articulated trucks (40t class) and hydraulic backhoes or front shovel excavators (80t class). Limited drill and blast activities are required as most of the material that is current mined is largely oxidized (clay or laterites).

Reconciliation is conducted on a regular basis by the mine technical services on site, and the results have been reviewed by the Qualified Person.

Table 15.1.1_1 indicates the call factors calculation on the mineral resource block model for the Mont Ity deposit (the only active deposit in 2013 and 2014).

Table 15.1.1_1

SMI Gold Project

Call Factors Calculation for Mont Ity Deposit

	Resource Model			Actuals			Call factors		
	Ore Tonnage ('000)	Grade Au g/t	Contained metal Au kg	Ore Tonnage ('000)	Grade Au g/t	Contained metal Au kg	Tonnes factor	Grade factor	Metal factor
2013									
Lateritic Ore	243	1.85	449	178	1.86	331	73%	101%	74%
Clay Ore	432	5.40	2,335	528	5.08	2,680	122%	94%	115%
2014									
Lateritic Ore	346	1.74	601	306	1.69	516	88%	97%	86%
Clay ore	484	4.62	2,234	557	4.19	2,337	115%	91%	105%

Note Rounding has been applied

The tonnage and grade numbers shown in the table concerning the resource models have been estimated using the end of year's surveys:

- 2013, the resource model has been constrained between the end of 2012 and the end of 2013 topographic surfaces;

- 2014, the resource model has been constrained by the end of 2013 and end of 2014 topographic surfaces.

These numbers have been compared to the actual mine production results, and basic call factors have been estimated. This analysis shows that for both 2013 and 2014, the tonnage call factor on lateritic ore is negative (the mine actual tonnage results are lower than the resource model), whereas the tonnage call factor on Clay ore is positive (mine actual tonnage is higher than the resource model). The grade call factor on the lateritic ore is generally in line with the resource model (respectively 101% and 97% in 2013 and 2014), whereas it is negative concerning the clay ore (respectively 94% and 91% in 2013 and 2014).

Overall, the call factor on total metal extracted from mining activities is positive for the clay ore (115% in 2013 and 105% in 2014) and negative for the lateritic ore (74% in 2013 and 86% in 2014).

The tonnage call factors calculated on site and used to develop the short and medium term planning sequences are in line with those calculated above: the tonnage call factor on clay ore is 115% and the tonnage call factor on lateritic ore is 90%. On the other hand, the call factor used to estimate the metal recovered is more conservative compared to the one calculated above, especially for clay ore: the call factor on total metal extracted for lateritic ore is 80% (in line with the 2013 and 2014 calculated call factors), and 92% for clay ore (compared to 110% on average for 2013 and 2014).

The mineral reserve statement and associated reserves estimation has used the call factors calculated by the site technical personnel, (Table 15.1.1_2) and used them for short and mid-term planning for all the deposits that are planned to be processed with the Heap Leach operation.

Table 15.1.1_2
SMI Gold Project
Mining Parameters used for the Mineral Reserve Estimate of the Heap Leach Deposits

	Clay Ore	Lateritic Ore
Tonnage call factor	115%	90%
Metal recovery from resource model	92%	80%

15.1.2 Metallurgical Factors and Assumptions

The SMI current operation comprises mining, crushing and stacking at a rate of 0.95Mtpa, with heap leaching using cyanide to recover just over 80,000 oz. of gold (2014 figures). The current processing facilities are designed for the treatment of oxidized soft clay and laterite ore.

Process costs (inclusive of the general and administrative (G&A) costs) and recoveries used to generate the mineral reserves for the Heap Leach operation are shown in Table 15.1.2_1.

The recoveries used to calculate the mineral reserves are based on SMI recommendations and are in line with 2014 actual results.

Table 15.1.2_1
SMI Gold Project
Processing and G&A Costs by Deposits for the Heap Leach

Deposits	Ore Type	Recovery	Processing and G&A cost (€/t)
Mont Ity, Tontouo, Zia NE, Walter, Teckraie	Laterite	95%	25.04
	Oxidized Clay	82%	31.54

15.1.3 Cut-Off Grade Parameters

The cut-off grade parameters used for the models are based on costs, royalties, process recoveries and metal prices supplied by SMI. The processing costs and recoveries are calculated for each type of ore separately (laterite and clay) but they are assumed to be similar for the different deposits (for example, a lateritic ore coming from Zia NE or Mont Ity will have a same processing cost and recovery). Prices and costs have been supplied in Euros, with an exchange rate of 1€ = 1.15 US$, the cut-off grades are show for each scenario (break-even, marginal and resource) of the deposits in Table 15.1.3_1.

Table 15.1.3_1
SMI Gold Project
Cut-off Grade Calculation for the Heap Leach Operation

		Reserve Cut-off grade[1] (Au g/t) break-even	Reserve Cut-off grade[1] (Au g/t) marginal	Resource Cut-off grade[2] (Au g/t)
Mining costs	€/t	1.9		1.9
Processing and G&A	€/t	31.5	28.0	31.5
Calculated COG	g/t	1.50	1.10	0.95

[1]: reserve cut off grade was calculated using 1150 USD/oz gold price

[2]: resource cut-off grade was calculated using 1600 USD/oz gold price

15.1.4 Pit Optimization Parameters

Pit optimizations have been undertaken for each deposit using the Lerchs-Grossman algorithm in the GEOVIA Whittle 4.5 software program.

The deposits planned to be mined during the 3-year mine plan have been optimized for a “Heap Leach scenario” on top of the optimization done for the “CIL scenario”. The goal was to identify the most profitable shell for a “Heap Leach” scenario for each suitable deposit with the constraint of processing only the oxidized material. These “Heap Leach” shells were contained within the “CIL” shell, and the material mined and processed with the Heap Leach facility is obviously not included in the mineral reserve material for the CIL plant: a projection of the topography as of the end of 2017 was used to constrain the resource base to run the optimizations in the CIL plant PFS.

Some material that is not processable using the Heap Leach facility (essentially reduced clay material and granodiorite) and will be mined before the CIL plant will be operational. SMI aims at stockpiling this material in a dedicated stockpile until the start of the CIL plant. This limited amount of material located inside the Heap Leach pit limit is considered as “mineral reserve material” and will be accounted for in the CIL production plan scenario.

Optimized pit shells considering only mineral resources of the measured and indicated categories have been calculated for the Mont Ity, Tontouo, Zia NE, Walter and Teckraie deposits. Table 15.1.4_1 lists the parameters used in the definition of the optimized pit shells for mineral reserves.

Table 15.1.4_1
SMI Gold Project
Technical and Economic Parameters used for the Whittle Optimisations

Description	Unit	Amount
Exchange rates	EUR to USD	1.15
Discount Rate	%	10
Processing Throughput	tpa	950,000
Gold price	USD$	1150
Royalties	%	3.5
Slope angles	Degrees	Cf Section 16.2
Mill recovery	%	Cf Section 15.1.2
Mining recovery	%	Cf Section 15.1.1
Mining Dilution	%	Cf Section 15.1.1
Mining costs	€/t	1.9 EUR/t (SMI information)
Milling costs	€/t	Cf Section 15.1.2

The optimized pit shells are converted into final pit shells (or pit design shells) with the addition of a dedicated ramp for each different pit and a minimum width in the bottom of each different pit. The pit design parameters are detailed in Section 16.

15.1.5 Mineral Reserves

The mineral reserves calculation for the Mont Ity deposit and the Walter deposit were done using the end December 2014 topographic surveys from which the mine declared production for the January 2015 to July 2015 period was removed by depletion.

Mineral reserves in those pit design shells are inclusive of mining dilution and mine recovery, considering mill recovery and are summarized in Table 15.1.5_1.

Table 15.1.5_1
SMI Gold Project
Mineral Reserves for Heap Leach Operation as at 31 July 2015

Deposit	Category	Tonnes ('000)	Grade (Au g/t)	Contained Gold (kg)	Contained Gold ('000oz)	Processing Method
Mont Ity	Probable	775	3.71	2,874	92	Heap Leach
Walter	Probable	356	2.82	1,004	32	Heap Leach
ZiaNE	Probable	213	1.48	315	10	Heap Leach
Teckraie	Probable	913	1.31	1,199	39	Heap Leach
Total	**Probable**	**2,257**	**2.39**	**5,393**	**173**	**Heap Leach**

Note Rounding has been applied

15.2 CIL Operations

Mineral reserves for the CIL operations on a per pit basis are presented in Table 15.2_1. Only Measured and Indicated Mineral Resources have been included for the estimation of Probable Mineral Reserves. The mineral reserves are based on a mine schedule producing 2.0Mtpa ore.

Table 15.2_1

SMI Gold Project

Mineral Reserves for Carbon-in-Leach Operation as at 31 July 2015

Description	Proved Reserve			Probable Reserve		
	Tonnes (‘000)	Au g/t	Au (’000oz)	Tonnes (‘000)	Au g/t	Au (‘000 oz)
Mont Ity				183	7.51	44
Daapleu				15,219	1.61	787
Walter				1,053	2.00	68
Zia Ne				3,952	1.60	204
Gbeitouo				1,264	2.56	104
Aires				6,135	1.04	206
Stockpiles				161	3.17	16
Total	**0**	**0**	**0**	**27,968**	**1.59**	**1,429**

Base case production scheduling was completed on a bench-by-bench level for all deposits. Daapleu and Ity were designed with interim pits targeting high-grade material. Initial Whittle Multimine results were used as a guideline for scheduling pit priorities. Review of the Multimine schedule showed opportunity to reduce initial capital and risk associated with the Walter and Gbeitouo deposits. To mine the Daapleu pit an important section of the Cavally River needs to be diverted and lot of risks related to hydrogeology will remain. For this reason, Walter deposit was pushed to Year 4. Table 16.4.5_1 depicts the mine schedule.

15.2.1 Mining Recovery and Dilution

The mining dilution and recovery criteria are presented in Table 15.2.2_1. The mining recovery used is standard from the industry for similar type operations and material types. A mining dilution exercise was carried out for each deposit where each block model was re-blocked to different selective mining unit (SMU) sizes to see the effect to mining dilution.

Table 15.2.1_1 SMI Gold Project CIL Operations: Dilution and Recovery	
Criteria	**Unit**
Mining Dilution	Accounted in the re-blocking. See Table 15.2.1_2
Mining Recovery	95%

The dilution is applied directly in the resource model by creating a mining model that is a reblocked resource model including all internal and peripheral waste. Effective dilution from the reblocking process is given is Table 15.2.1_2.

Table 15.2.1_2
SMI Gold Project
Effective Dilution from Reblocking Process

Pit	Block Size	Dilution
Daapleu	10x10x5	3%
Gbeitouo	10x10x5	4%
Ity	5x5x2.5	8%
Walter	5x5x2.5	8%
Zia	5x5x2.5	8%

Block Size Selection

For the 2Mtpa PFS it was decided that the mining dilution of the various deposits will be simulated through reblocking of the mineral resource models. Once the reblocking is performed, a block can only contain one type of rock and one grade, no partial percentage is allowed within a single block. If the grade of a block is above the economic cut-off grade, it will be considered as ore and waste otherwise.

This approach simulates SMU that could be selectively mined by the operational team. The following factors are taken into account in selecting the SMU block size:

- Grade control methodology
- Mining method (Open Pit / Underground)
- Mining equipment size
- Use of blasting
- Return of experience when available

The deposits considered for the PFS were split into two main categories:

- Hard rock pits: Gbeitouo / Daapleu
- Clay / soft rock pits: Ity, Zia NE, Walter

Hard rock pits

The hard rock pits are anticipated to be grade controlled through systematic RC drilling and will require blasting.

- Standard borehole spacing is typically in the range of 10m x 5m to 10m x 10m.
- Drilling burden and spacing will be in the range of 4m x 4m to a depth of 6m in the ore.

Based on the mining practice planned for the deposits a typical block size for the SMU is 10m x 10m x 5m. This is a very standard block size for the equipment planned in a hard rock pit. A SMU block size of 10m x 10m x 5m was selected for the Daapleu and Gbeitouo pits

Clay/soft rock pits rock pits

The clay/soft rock pits are anticipated to be grade controlled through trenching as is performed currently in Mont Ity and will not require blasting.

- Standard GC trenching spacing is typically with 1 meters interval samples along lines spaced at 6.5m.
- No blasting is required and therefore the GC process can be performed every 2.5m in elevation.

The various potential block sizes for the clay pits were checked versus past production in order to check which one provide the best results in a model to mine production reconciliation. This analysis shows that reblocking the model to a 5m x 5m x 2.5m dimension gives a good estimate of the grade (grade reconciliation is gives a 1% error with the actuals) and gives a similar result in term of tonnage dilution compared to the one currently used by the planning department on site (12% difference between the actuals and the block model predictions). Thus a SMU block size of 5m x 5m x 2.5m was selected for Ity, Zia NE, Walter pits.

The selected minimum block sizes are as follows:

- Ity, Zia NE, Walter: 5m x 5m x 2.5m
- Daapleu / Gbeitouo: 10m x 10m x 5m

15.2.2 Metallurgical Factors and Assumptions

The processing recoveries are presented in Table 15.2.2_1.

Table 15.2.2_1
SMI Gold Project
Process Recovery

Facies	Recovery
Gbeitouo	
Argiles oxydées (1AO1)	95%
Laterite (1L1)	95%
MVS (1MV1)	58%
Daapleu	
Argiles oxydées (5AO1)	90%
Laterite (5L1)	97%
Daaplite (5D1)	67%
Transition Zone (5DM1)	75%
MSV (5MV1)	80%
Walter	
Argiles oxydées (3AO1)	90%
Argiles réduites (3AR1)	96%
Laterite (3L1)	97%
Granodiorite (3G1)	80%
Mont Ity Extension	
Argiles oxydées (2AO1)	96%
Argiles réduites (2AR1)	96%
Laterite (2L1)	95%
Granodiorite (2G1)	80%
Carbonate (2C1)	80%
ZiaNE	
Argiles oxydées (4AO1)	90%
Laterite (4L1)	97%
Granodiorite (4G1)	80%
Carbonate (4C1)	80%

15.2.3 Cut-off grade selection

The mineral resource cut-off grade is used to demonstrate the potential of the mineral resource and is not applied prior to pit optimization. The actual ore cut-off is determined during the pit optimization process. A preliminary cut-off was obtained at the end of the PFS update as a result of the pit optimization process using the Lerchs-Grossman algorithm. These cut-off grades were then used for reporting the mineral reserves. See Table 15.2.3_1 for the cut-off grade used in each pit.

Table 15.2.3_1 SMI Gold Project Cut-off Grade Calculation for the CIL Operation	
Pit	**Cut-off Grade Au (g/t)**
Gbeitouo	0.60
Ity Ext	0.65
Walter	0.65
Zia	0.60
Daapleu	0.65

15.2.4 Pit Optimization Parameters

The mine operation cost estimation based on the tonnage of each type of material from the different pits and the specific pit location. Using these parameters, the cycle times were calculated based on SMI production factors and hauling distances for each pit. Finally, an operating cost per type of material was calculated based on the labour cost, fuel consumption, maintenance cost, etc.

The mining costs used in the PFS update are presented in Table 15.2.4_1.

Table 15.2.4_1 SMI Gold Project Technical and Economic Parameters used for the Whittle Optimisations		
Description	**Unit**	**Amount**
Exchange rates	EUR to USD	1 Euro = 1.1USD
Discount Rate	%	10
Processing Throughput	tpa	2,000,000
Gold price	USD$	1200
Royalties	%	3.5
Slope angles	Degrees	Section 16.2.1
Mill recovery	%	Section 15.2.2
Mining recovery	%	Section 15.2.1
Mining Dilution	%	Section 15.2.1
Mining costs	€/t	Section 21.2.2
Milling costs	€/t	Section 21.2.2

16 MINING METHODS

16.1 Hydrogeological Work

Hydrogeological studies are common to both the Heap Leach and CIL operations. There is a lack of hydrogeological studies for the project. The limited available data are related to Mont Ity area. The most significant works for the Ity pit were reported by BRGM (1993), Durant et Violet (2003) and ANTEA (2009). According to these studies, there are two different groundwater flow systems: shallow groundwater (perched) encountered at the interface between laterite and saprolite and deep groundwater encountered at depth with preferential flow through fractures and karstic features. It has been reported that the original groundwater was about 10m below the ground surface. Currently, groundwater level is low at the Ity pit due to pit dewatering. However, seepage has been observed in the as-built saprolite pit slope as reported in the technical report. Groundwater levels in saprolite are not clear yet because no piezometers have been installed to measure the water levels in this material (Mecater, 2014).

The conceptual hydrogeological system and pit dewatering considerations for the PFS are solely developed based on the review of limited hydrogeological studies carried out at Mont Ity area.

Dewatering of existing pits is carried out using wells both perimeter and in-pit. This water is pumped to a holding tank before being released into the environment. The recent measurement at the Ity pit indicated that wells installed in granodiorite west of the pit have production rate of less than $10m^3$/hr while the wells in karstic zones associated with carbonate-rich rocks and marbles have the highest productivities with values higher than $100m^3$/hr. Wells in the footwall have productivities in the range of 10-$50m^3$/hr.

For the other pits in the vicinity of the Ity pit (Walter, Zia Nord Est), permeability is expected to be less than observed in the Ity pit because the formations are observed to be less karstic. Therefore, it is expected that a dewatering scheme used at Ity pit will be used for the future pits.

No data exist for sites east of the Cavally River (Daapleu, Gbeitouo). Due to the proximity to the river, it is anticipated that the water table could be very high, potentially close to the surface or the water level in the river. It is also anticipated that some inter-connexion will exist between the river and the surrounding aquifers. It can also be speculated that the fact that the geological formations in the area appear tighter and that there are no significant karsts in the area, groundwater inflow to the pits at east Cavally will be reduced. Therefore the dewatering requirement for on both sides of the river could be different. This needs to be investigated and confirmed during the next phase of the project. In the analyses carried out for the design of the pit slopes, it was assumed that the pit walls are effectively depressurised through the dewatering of the pits.

In 2015, SMI has carried out a hydrogeological campaign to better define the hydrogeological systems and groundwater flow regimes for each pit. The results are being analysed and therefore were not included in this report.

16.2 Mine Geotechnical Work

Geotechnical work is common to both the Heap Leach and CIL operations. Geotechnical work was undertaken during the PFS by SNC-Lavalin during the CIL Plant PFS, and based as well on the actual observations at the current operating mines. The study undertaken by SNC-Lavalin was limited to pit slopes assessment and was carried out in two steps: fieldwork and slope design.

- Field work: It consisted of geotechnical mapping at the Ity Pit and review of existing exploration cores from the boreholes at the Mont Ity Extension, Daapleu, Gbeitouo, Walter and ZiaNE pits. The work was conducted from 23rd May to 9th June 2014 as interim geotechnical work. During the fieldwork, a total of 15 windows were mapped at the current Ity pit; and the core from 12 exploration boreholes was reviewed. The findings of the fieldwork are presented in the technical report.
- Pit slope design: The pit slope design involved the following:
  - Development of preliminary geotechnical model;
  - Selection of geotechnical parameters;
  - Sectorization of the pits;
  - Kinematic analyses at different slope angles for deferent materials in different sectors at different scales;
  - Mass failure analyses considering circular failure at different slope angles for different materials for inter-ramp and overall slopes;
  - Design for bench slopes, interamp slopes and overall pit slopes.

All stability analyses were conducted for the Ity Extension and Daapleu pits. As stated above, two types of analyses carried out are kinematic analyses and rock/soil mass failure. Stability analyses have been conducted for the pit slopes at the bench scale, inter-ramp scale and overall pit slopes. In general, the results of the stability analyses suggest that the failures of the soil pit slopes are controlled by both structures and strength of the soil mass; the rock slope stability is controlled by the geological structures.

The summary of the pit slope recommendations for the Heap Leach and CIL operations is presented in the Table 16.2_1.

Table 16.2_1
SMI Gold Project
Geotechnical Parameters

<table>
<tr><th rowspan="2">Domain</th><th rowspan="2">Material Name</th><th rowspan="2">Bench Face Angle (°)</th><th rowspan="2">Bench Height (m)</th><th rowspan="2">Bench width (m)</th><th rowspan="2">Inter-ramp angle (°)</th><th colspan="2">Geotechnical bench</th></tr>
<tr><th>Width (m)</th><th>Vertical interval between two adjacent geotechnical benches (m)</th></tr>
<tr><td colspan="8">Mont Ity Extension</td></tr>
<tr><td rowspan="3">Northwest (270 to 360°)</td><td>Laterite / saprolite</td><td>45</td><td>10</td><td>9</td><td>28</td><td rowspan="2">25</td><td rowspan="2">40</td></tr>
<tr><td>Granodiorite and skarn</td><td>60</td><td>10</td><td>11</td><td>31</td></tr>
<tr><td>Marble</td><td>73</td><td>10</td><td>7</td><td>45</td><td>20</td><td>60</td></tr>
<tr><td rowspan="3">Southeast (90 to 180°)</td><td>Laterite / Saprolite- <80m high</td><td>47</td><td>10</td><td>11</td><td>26</td><td>25</td><td>40</td></tr>
<tr><td>Laterite / Saprolite >80m high</td><td>42</td><td>10</td><td>11</td><td>24</td><td>25</td><td>40</td></tr>
<tr><td>Marble</td><td>73</td><td>10</td><td>7</td><td>45</td><td>20</td><td>60</td></tr>
<tr><td colspan="8">1. 30m wide geotechnical bench should be maintained at saprolite/rock contact,
2. Slope angle of the bench face adjacent to and under a ramp should be 30° in saprolite, granodiorite and skarn.
3. Due to the potential for excessive wedge failures in the bench faces of granodiorite and skarn slopes in the hanging wall area, bolting should be considered to stabilize bench faces in order to increase rock fall catchment in this area.</td></tr>
<tr><td colspan="8">Walter</td></tr>
<tr><td rowspan="2">Hanging wall (North-West wall) (270 to 360°)</td><td>Laterite /saprolite</td><td>45</td><td>10</td><td>9</td><td>28</td><td rowspan="4"></td><td rowspan="4">40</td></tr>
<tr><td>Skarn</td><td>60</td><td>10</td><td>11</td><td>31</td></tr>
<tr><td rowspan="2">Foot wall (South-East wall) (90 to 180°)</td><td>Laterite / Saprolite</td><td>47</td><td>10</td><td>11</td><td>26</td></tr>
<tr><td>Skarn</td><td>60</td><td>10</td><td>11</td><td>31</td></tr>
</table>

Table 16.2_1
SMI Gold Project
Geotechnical Parameters

Domain	Material Name	Bench Face Angle (°)	Bench Height (m)	Bench width (m)	Inter-ramp angle (°)	Geotechnical bench	
						Width (m)	Vertical interval between two adjacent geotechnical benches (m)
1. Only one 25m wide geotechnical bench is recommended, 2. Slope angle of the bench face adjacent to and under a ramp should be 30°. 3. Due to potential for excessive wedge failures in the bench faces of skarn slopes, bolting should be considered to stabilize bench faces in order to increase rock fall catchment in this area.							
ZiaNE							
Hanging wall (North-West wall) (270 to 360°)	Laterite / saprolite	45	10	9	28	N/A	N/A
Foot wall (South-East wall) (90 to 180°)	Laterite / saprolite	47	10	11	26		
1. Slope angle of the bench faces adjacent to and under a ramp should be 30°.							
Gbeitouo							
Hanging wall (North-West wall) (270 to 360°)	Laterite /Saprolite	45	10	9	28	N/A	N/A
	Volcanic sediment	64	10	7	40		
Foot wall (South-East wall) (90 to 180°)	Laterite /Saprolite	47	10	11	26		
	Volcanic sediment	60	10	9	34		
1. In the hanging wall rock slopes, the high potential for toppling failure exists. Therefore, bolting should be used to stabilize the bench face to mitigate the potential toppling failures. 2. The potential for excessive wedge failures in the bench faces of rock slopes is high in the footwall domain according to current data. Bolting should be considered to stabilize bench faces in order to increase rock fall catchment in the areas. 3. Slope angle of the bench face adjacent to and under a ramp should be 30° in saprolite and 40° in volcanic sediment.							

Table 16.2_1
SMI Gold Project
Geotechnical Parameters

Domain	Material Name	Bench Face Angle (°)	Bench Height (m)	Bench width (m)	Inter-ramp angle (°)	Geotechnical bench	
						Width (m)	Vertical interval between two adjacent geotechnical benches (m)
Daapleu							
NW Domain (270 to 360°)	Laterite /Saprolite	45	10	9	28	25	40
	Daaplite	64 (50)	10	7	40	25	60
	Volcanic sediment	64	10	7	40		
NE Domain (0 to 90°)	Laterite /Saprolite	45	10	9	28	25	40
	Daaplite	70 (50)	10	8.5	40	25	60
	Volcanic sediment	70	10	8.5	40		
South Domain	Laterite /Saprolite	47	10	11	26	25	40
	Daaplite	60(50)	10	9	34	25	60
	Volcanic sediment	60	10	9	34		

1. 30m wide geotechnical bench at saprolite/bed rock contact should be maintained if overlying soil is ≥ 30m thick.
2. In the NW domain, the potential for toppling failure is high in the rock slopes. Therefore, bolting should be used to stabilize the bench face to mitigate the potential toppling failures.
3. In the rock slopes in the South domain and NE domain, the potential for excessive wedge failures in the bench faces is high according to current data. Bolting should be considered to stabilize bench faces in order to increase rock fall catchment in the areas.
4. Slope angle of the bench face adjacent to and under a ramp should be 30° in saprolite in all sectors, and 40° in daaplite and volcanic sediment in the South domain.
5. Angles in the brackets are the bench face angles for the slopes in the upper most 10m contact zone.

16.3 Heap Leach Operations

16.3.1 Introduction

SMI started its mining operation in the area in the early 90's with a 200ktpa processing capacity. Since that time the facilities have been upgraded to process approximately 950ktpa of ore using Heap Leaching processing method.

The typical mining equipment used for ore and waste extraction is a 70-80t class excavator and 40t class articulated trucks. Another smaller excavator (2m^3 bucket) is also available for better selectivity in some areas where waste and ore zones are closely alternating.

The main method currently used for geological grade control is based on trenching, done by a small excavator (Liebherr R924 type of excavator). The trenches are dug over a depth of approximately 50cm. All the trenches are perpendicular to the main geological structures controlling the shape of mineralization, and they are 7.5m apart. A sample of 3kg to 5kg is taken every meter inside the trenches. Geological mapping is then done based on observations made in the trenches. After being surveyed all the information is imported into the mining software used on site (Surpac).

This grade control method provides good quality results and good reliability, but it has some limitations as it tends to slow down the mining rate.

16.3.2 Geotechnical Engineering Assumptions

Refer to Section 16.2.

16.3.3 Pit Designs Parameters

The selected optimum shells were then designed using Surpac mining software in order to integrate ramp access and catchment berm design. The mining method being conventional open pit using excavators and haul trucks (as well as drilling and blasting when required), the design criteria used for the pit designs were the following:

- Haul road width: 15m
- Ramp grade: 10%
- Final bench height: 5m or 10m depending on the deposits.
- Batter angle: according to geotech recommendations
- Berm width: according to geotech recommendations
- Minimum mining width: 20m

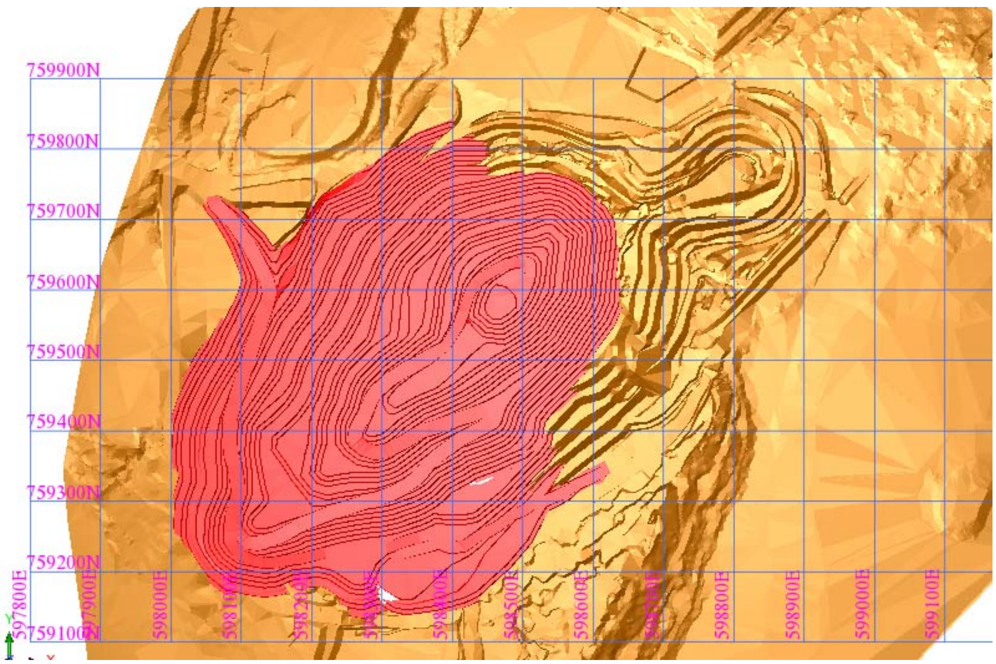
16.3.4 Pit Designs

Mont Ity

The Mont Ity deposit is the main source of fresh ore of the current operation, and will be the main source of ore during the next three years of Heap Leach operation.

The “Heap Leach” pit is shown on the Figure 16.3.4_1. It has been designed to optimize the recovery of oxidised material (laterites and oxidized clays) and consists of three different spatially independent phases (“pushbacks”) with the dumping areas on the North (Verse Flotouo) or East (Verst Est) of the pit. The Mont Ity pit strip ratio will average approximately 8.78:1 (Waste:Ore), which is low compared to industry average in Western Africa.

Figure 16.3.4_1
Plan View Showing Mont Ity Pit – Heap Leach Scenario (blocks are 100mx100m)

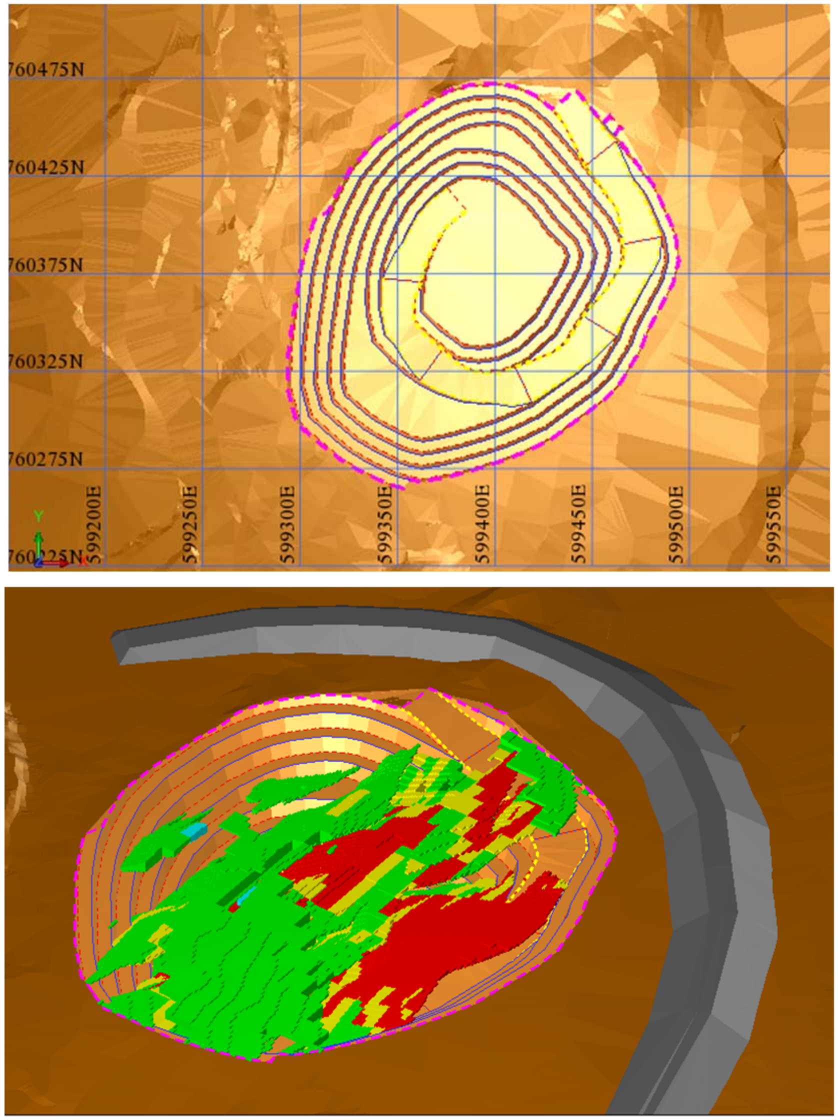


Walter

Mining of the Walter Pit (Figure 16.3.4_2) will occur in two phases: the first phase is part of the 3-year plan aimed at recovering only the oxidized and shallow ore of this deposit in order to be processed in the Heap Leach operation.

Walter Heap Leach pit is supposed to be mined in 2017, and will need a temporary dyke on the east side of the pit, between the pit limit and the Cavally River, in order to prevent flooding from the river. The Walter “Heap Leach” pit strip ratio will average approximately 1.33:1 (t:t), which is extremely favourable compared to the industry average.

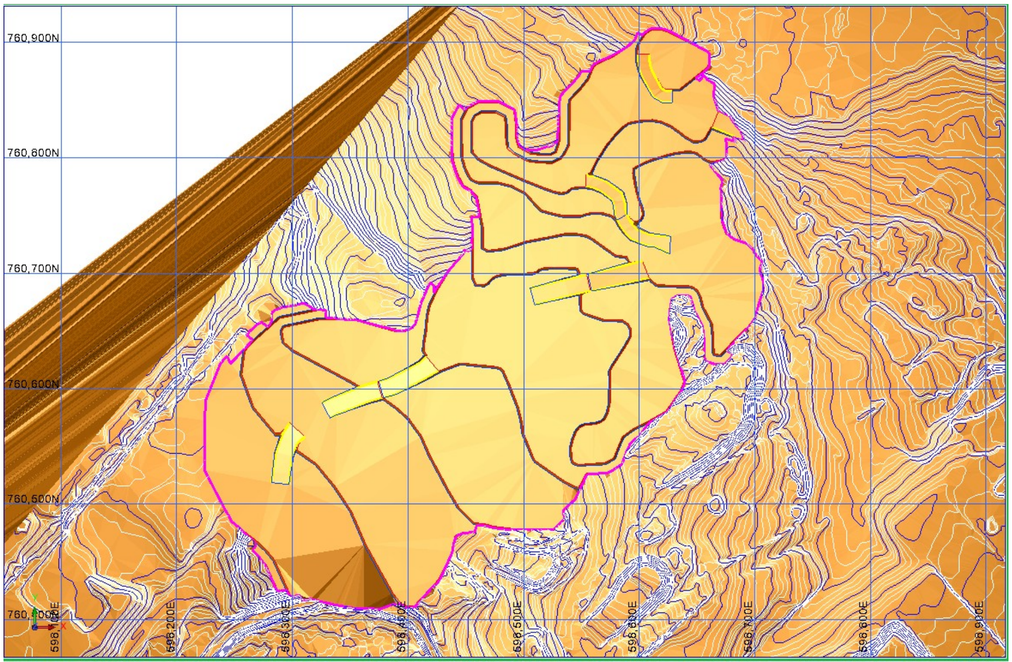
Figure 16.3.4_2
Walter Heap Leach Pit in Plan View and Oblique View Showing Mineralized Blocks (grid blocks are 50mx50m)



ZiaNE

Like the Walter deposit, mining at ZiaNE (Figure 16.3.4_3) will occur in two distinct phases. A first phase of the pit will be mined for the Heap Leach operation, targeting only the shallower lateritic material to be processed in years 1-3. The optimization done on ZiaNE for the Heap Leap operation considered only the lateritic ore as the current mining will need more lateritic ore in the near future in order to have the proper blend between clay and laterite in the heaps. ZiaNE "Heap Leach pit" is supposed to be mined in 2015 and its strip ratio will average approximately 1.57:1 (t:t), which is again extremely favourable compared to the industry average.

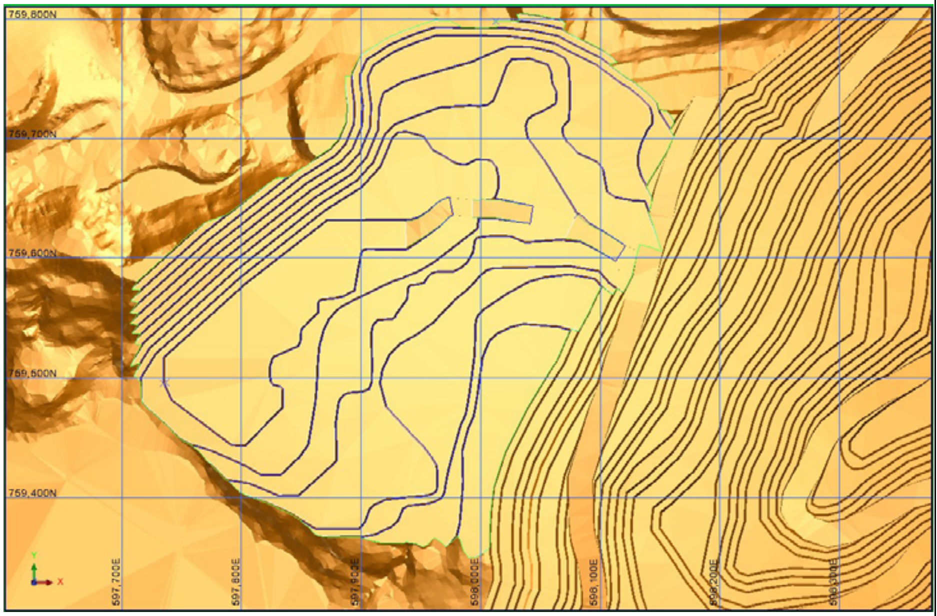
Figure 16.3.4_3
ZiaNE Heap Leach Lateritic Pit - Plan View (grid blocks are 100mx100m)



Teckraie

The Teckraie dump will be mined in 2016-2017 towards the end of the heap leach operation, as its average grade is less favourable than the previously mined deposits. The Teckraie pit strip ratio will average approximately 1.73:1 (t:t). Figure 16.3.4_4 shows an isometric view of the pit design.

Figure 16.3.4_4
Teckraie Dump Heap Leach Pit - Isometric View (grid blocks are 100mx100m)

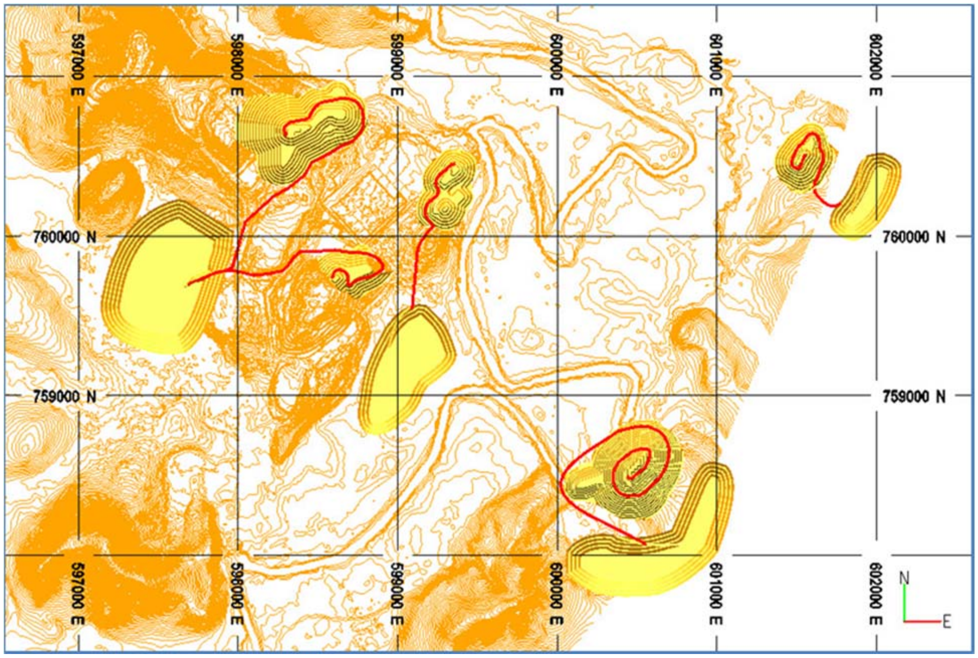


16.4 CIL operations

16.4.1 Pit Optimization Parameters

The block models for the Mont Ity Gold deposits (Ity Flat, Gbeitouo, Walter, Zia and Daapleu) were provided by Arethuse Geology and Coffey in various block model formats. SNC-Lavalin standardized each block model for import into Whittle as a Multimine project. Pit optimizations for design purposes were conducted using the Lerches-Grossman algorithm in GEOVIA Whittle. SNC-Lavalin and SMI jointly selected the required optimization parameters to determine the most economic open pit profile. The mine plan based on June 2015 mineral resource models and inclusive of pit design parameters discussed in Section 16.4.3 and is shown in Figure 16.4.1_1

Figure 16.4.1_1
Plan View Showing the Designed Pits, Dumps and Haulage Distances



16.4.2 Geohydrology and Geotechnical Engineering Assumptions

Refer to Section 16.1and 16.2, respectively

16.4.3 Pit Designs Parameters

The selected optimum shells were then designed using Minesight mining software in order to integrate ramp access and catchment berm design. The mining method being conventional open pit using excavators and haul trucks, as well as drilling and blasting, the design criteria used for the pit designs were the following:

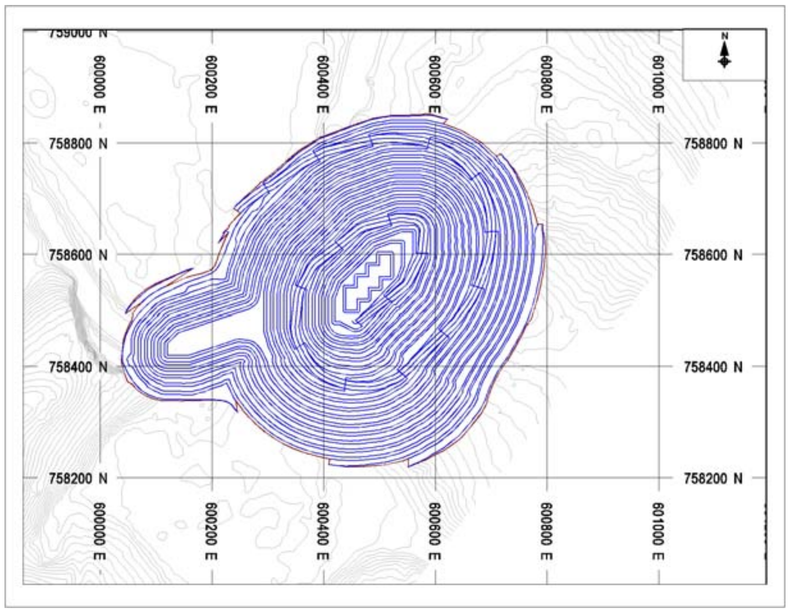
- Haul road width: 15m;
- Ramp grade: 10%;
- Final bench height: 5m or 10m depending on the deposits;
- Batter angle: according to geotech recommendations;
- Berm width: according to geotech recommendations;
- Minimum mining width: 20m.

16.4.4 Pit designs

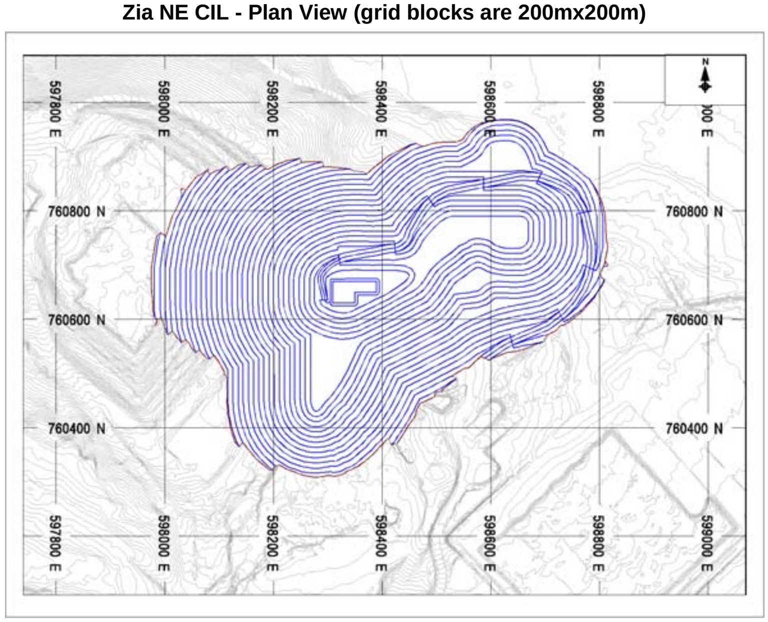
Daapleu and ZiaNE

Figure 16.4.4_1 shows a plan view of the pit design.

Figure 16.4.4_1
Daapleu Pit – Plan View (grid blocks are 200mx200m)



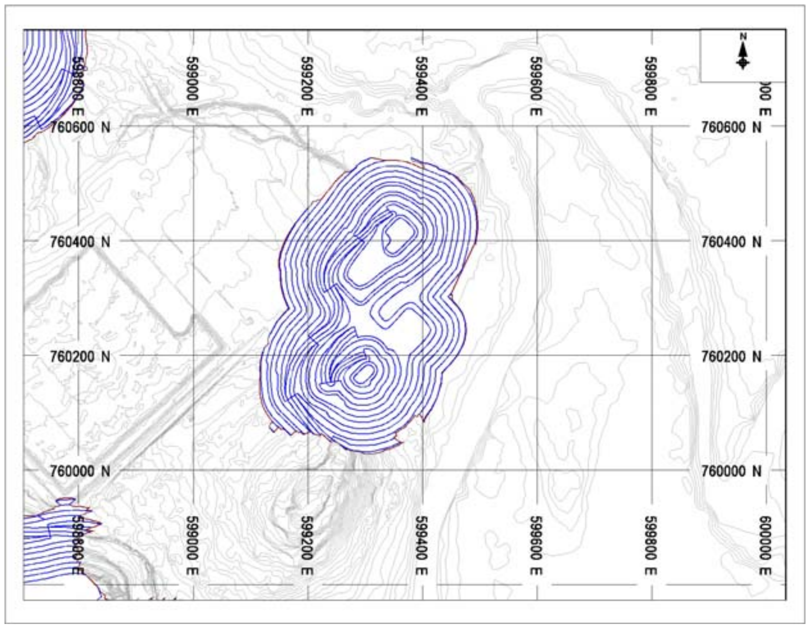
Zia NE CIL - Plan View (grid blocks are 200mx200m)



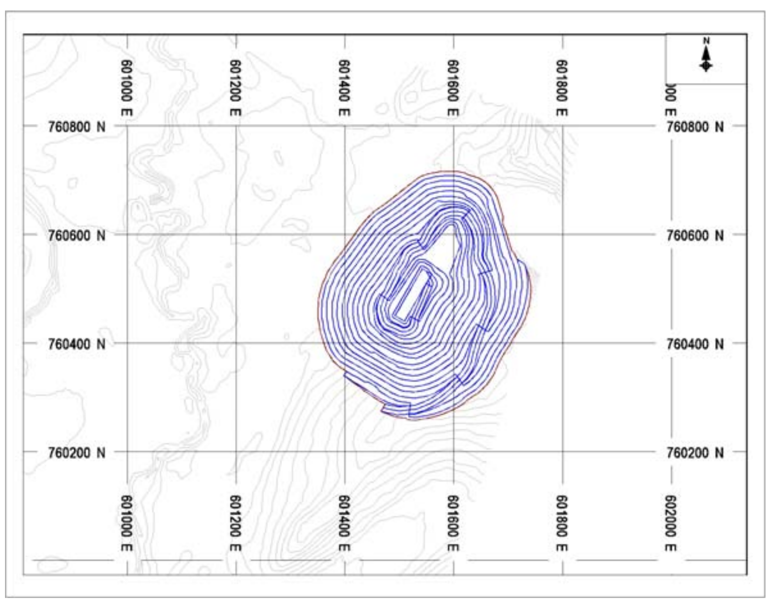
Walter and Gbeitouo

Figure 16.4.4_2 shows an isometric view of the pit design.

Figure 16.4.4_2
Walter CIL Pit in Plan View (grid blocks are 200mx200m)



Gbeitouo Pit – Plan View (grid blocks are 200mx200m)



16.4.5 CIL Mine Schedule

Table 16.4.5_1 summarises the mine schedule of the pit design.

Table 16.4.5_1
SMI Gold Project
Mine Schedule per Year

Production Plan by Pit		Total/Avg	Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10	Y11	Y12	Y13	Y14
DAAPLEU	Ore, kt	15,219	1,551		839	947	23	1,955	2,000	2,000	2,000	2,000	1,904			
	Grade, g/t	1,61	2.09		1.63	1.45	1.13	1.33	1.24	1.43	1.64	1.76	1.96			
	Au, kg	24,476	3,235		1,371	1,370	26	2,592	2,486	2,868	3,274	3,517	3,737			
	Waste, kt	32,323	5,773		5,708	4,469	1,304	3,307	3,614	3,292	2,301	1,460	1,096			
ZIA NE	Ore, kt	3,952	217	559	1,161		1,970	45								
	Grade, g/t	1,60	3.17	1.63	1.61		1.43	1.03								
	Au, kg	6,335	687	911	1,873		2,818	46								
	Waste, kt	14,832	2,401	4,034	4,378		4,019									
GBEITOUO	Ore, kt	1,264		1,264												
	Grade, g/t	2,56		2.56												
	Au, kg	3,234		3,234												
	Waste, kt	6,396		6,396												
WALTER	Ore, kt	1,053				1,053										
	Grade, g/t	2,00				2.00										
	Au, kg	2,104				2,104										
	Waste, kt	5,303				5,303										
ITY	Ore, kt	183	6	176												
	Grade, g/t	7,51	4.27	7.63												
	Au, kg	1,372	27	1,346												
	Waste, kt	2,577	2,088	489												
AIRES (Leach Pad tailings)	Ore, kt	6,135											96	2,000	2,000	2,039
	Grade, g/t	1,04											1.04	1.04	1.04	1.04
	Au, kg	6,405											100	2,088	2,088	2,129
	Waste, kt															
STOCK	Ore, kt	161	161													
	Grade, g/t	3,17	3.17													
	Au, kg	511	511													
	Waste, kt															
TOTAL	Ore, kt	27,968	1,935	2,000	2,000	2,000	1,993	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,039
	Grade, g/t	1,59	2.31	2.75	1.62	1.74	1.43	1.32	1.24	1.43	1.64	1.76	1.92	1.04	1.04	1.04
	Au, kg	44,438	4,460	5,490	3,244	3,475	2,844	2,638	2,486	2,868	3,274	3,517	3,837	2,088	2,088	2,129
	Waste, kt	61,431	10,262	10,920	10,085	9,773	5,322	3,307	3,614	3,292	2,301	1,460	1,096			

17 RECOVERY METHODS

17.1 Heap Leach Operations

The existing heap leach process will continue to be used as long as there is weathered ore to be treated. Whilst the recovery from the heap leach is not as metallurgically efficient as the CIL route, the tailings from the heap leach can be reprocessed through the CIL plant.

The heap leach process consists of blending the sources of ore (namely laterite and saprolite) crushing to nominally smaller than 20mm with agglomeration of the fines with up to 20kg/t Au of cement. The agglomerated ore is then placed onto the heap leach pads and irrigated for about 60 days with a cyanide solution, in two stages.

The gold released from the heap leach pads is directed to the solution ponds prior to being directed to the carbon-in-solution (CIS) columns for gold adsorption. The resulting barren solution is directed to the barren solution pond and pumped back to an older heap leach pad for continued gold extraction. The basic flowsheet is as depicted in Figure 17.1_1.

The carbon is recovered and the gold is eluted by the ZADRA process with carbon being regenerated for reuse in the CIS plant. The gold is recovered by electrowinning and smelted into doré, prior to be dispatched for refining.

The heap leach process is reportedly recovering between 75% and 80% of the recoverable gold, but as there is no total gold analysis, the actual recovery is unknown. The old heap leach pads from the earlier mining operations contain between 1g/t Au and 1.2g/t Au as reported in the geological section of this report. It is assumed these values are total gold.

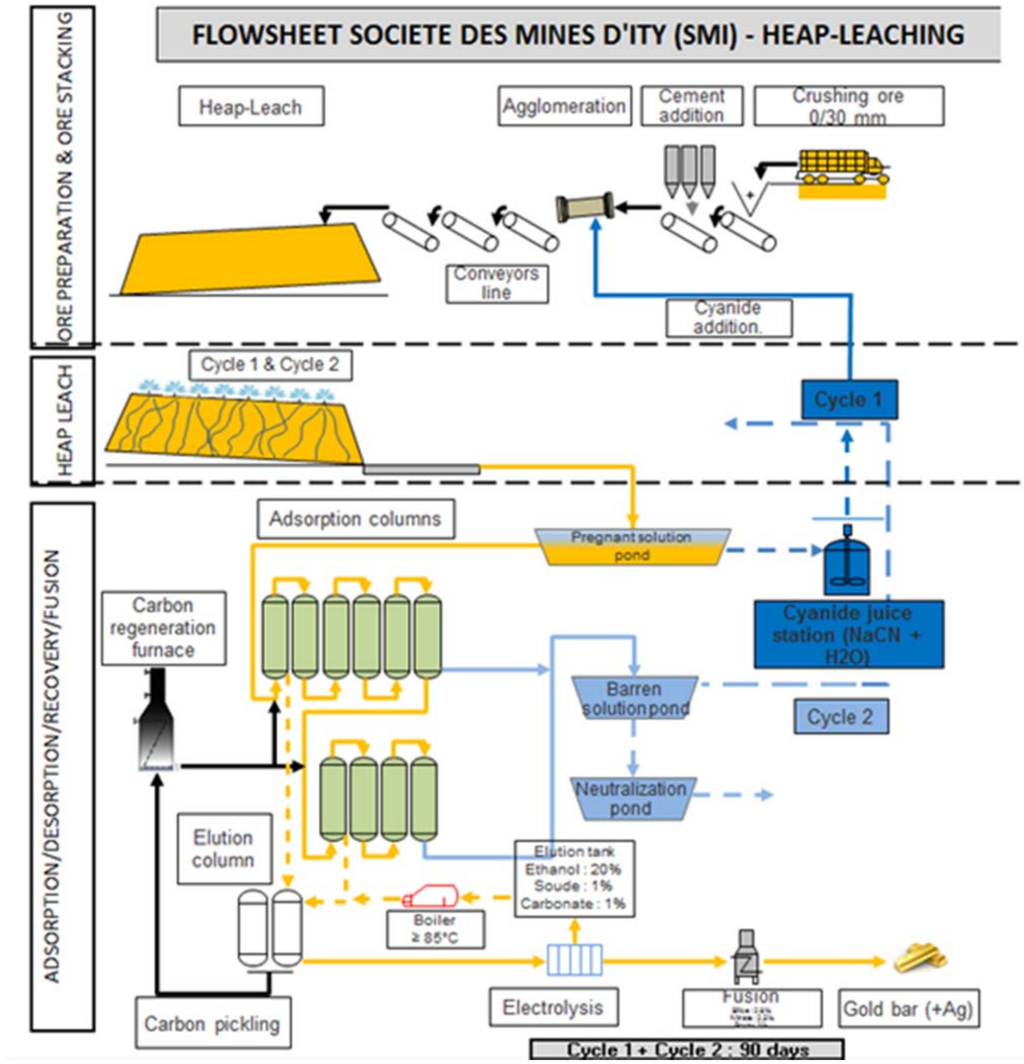
During lift management, a 1.2mm HDPE barrier liner is placed between the under material and the new production. This is one way of managing production from the heap but can sterilise areas and volumes in the old material from recovery.

Considering the head grade of the Ity Mine, the heap leach process route would not have been the preferred technical option, but there may have been other considerations during the selection process for the process route.

Cyanide detoxification with sodium hypochlorite is reported to be conducted on any excess solution that may flow from the ponds intermittently, but generally during excessive weather events.

The available heap leach pads can accommodate up to an additional 5Mt by going to lift number 5, or even more if need be by an additional lift.

Figure 17.1_1
Heap Leach Flow Sheet



17.1.1 Utilities Requirements

Electrical Energy

As this is an operating plant, the actual energy consumption is available from production records. The heap leach plant consumed 6,372MWhr during the 12 months ending June 2015. This is a consumption rate of about 6.5kWhr/tonne treated.

Water Consumed

The process plant consumed a total of 96,200m^3 of fresh water during the 12 months ending June 2015. This is a consumption of less than 100 litres per tonne treated. All other process water requirements are made up of rain water and water from the mining pits. The mine pits provided 231,000m^3 during the same period.

17.1.2 Reagents

The major reagents consumed in the heap leach plant are as detailed below:

- Cement: used for agglomeration – 17.4kg/tonne treated
- Cyanide: gold extraction – 2.0kg/tonne treated
- Activated Carbon: gold recovery – not reported but there are excessive quantities of activated carbon around the CIS plant

Sodium Hypochlorite – detoxification chemical – it was reported that €750,000 was spent on this reagent during the last 12 months. It is strongly recommended that mine management investigate alternative methods to detoxify solution prior to release.

17.1.3 Maintenance

During the site visit, whilst some issues were identified, the level of maintenance is generally acceptable, but requires good management and supervision to ensure that standards are maintained. The housekeeping is acceptable, although spillage from the many conveyors could be reduced. Safety issues require continuous management attention.

17.1.4 Future Operations

The future Heap Leach operations are expected to carry on beyond the commissioning of the CIL plant, scheduled towards the beginning of 2018. The current forecast production, as detailed in Section 22 of this report, is expecting between 800,000t and 1,000,000t to be placed per year on the heaps. Based on the historical performance for the last 12 months, these production rates have been achieved and there is no reason to suspect that they cannot be achieved going forward, subject to appropriate maintenance regimes being enforced and adequate control of good safety and housekeeping standards.

The gold recovery is forecast to be greater than 84% of the recoverable gold. This is higher than has been reportedly achieved on an annual basis, but seems to have been achieved in recent months.

17.1.5 Qualified Person's Comments

The heap leach plant is performing adequately. However maintenance and general housekeeping requires attention. These aspects can impact significantly upon production.

Based on the achievements during the last 12 months, there is no reason to suspect that the plant will not be able to achieve up to 1,000,000t placed per annum. It is also apparent that up to an additional 5Mt can be placed on the heaps.

The heap leach plant is operating on the day-to-day basis with technical support from metallurgists running column leach tests and other functions, but it is apparent that there is a lack of experience of similar operations. There are many suggested improvements that can be implemented to improve production or reduce costs. The management team is very willing to consider productivity improvements.

17.1.6 Analytical Facilities

There is a basic analytical facility available on the mine which can determine the leachable gold in the ore, when crushed and pulverised to smaller than 75µm. This is adequate as an approximation for the mining and processing plant performance but is not regarded by the QP as adequate for evaluation purposes. The laboratory does send daily samples to an accredited SGS facility in Abidjan for total gold determination on an irregular basis and the data between the mine and SGS is compared, eventually. It seems that the laterites are in close agreement but the clays have a distinct separation, indicating locked gold in this material.

The laboratory can analyse for gold and copper in solutions only. There is no environmental laboratory. In the past there was a small wet chemistry section, but this is now in disuse. A small muffle furnace is available for analysing gold on activated carbon and other techniques requiring 'ashing'.

A control laboratory is located at the CIS plant to determine solution gold values, cyanide strength and solution pH. This is for control purposes only.

A metallurgical laboratory performing ore stability and column leach tests is in operation and the data generated is used to determine operational parameters such as cement consumption and cyanide requirements, as well as the release rate of gold from the heap.

This analytical facility is regarded by the QP as adequate for the Heap Leach operation.

The 2Mpta CIL PFS has included staff to operate a laboratory, and a modern laboratory is specifically mentioned in the infrastructure description but is not detailed.

17.1.7 Qualified Person's Comments

It is recommended by the QP that a well-managed full analytical and environmental laboratory be provided with any future projects, or even earlier if possible.

17.2 CIL operations

The CIL process plant design includes primary crushing, two stage grinding, pre-leach thickening, leach and carbon-in-leach (CIL), detoxification (cyanide destruction and arsenic precipitation), gold elution/carbon regeneration and refining operations. The process flowsheet is illustrated in Figure 17.2_1.

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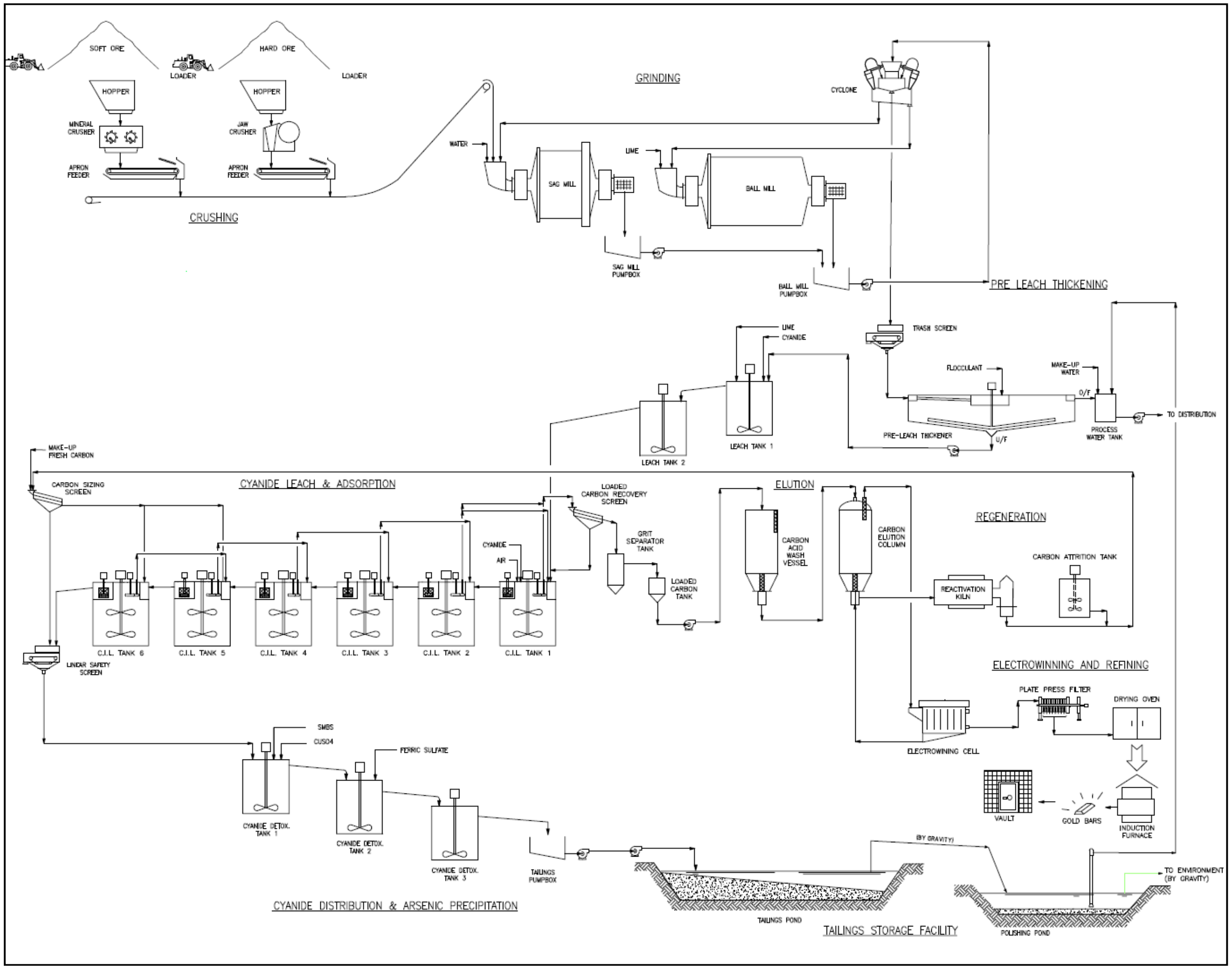
Figure 17.2_1
CIL Flow Sheet



17.2.1 Primary Crushing

Ore is trucked to the crushing area in mine trucks, and is either directly dumped into the truck dump hoppers or placed in a run-of-mine stockpile for later reclaim using a front-end loader.

Softer and stickier ores, such as oxidized or reduced clay and laterite lithologies, are sent to a mineral sizer crusher installation. The mineral sizer has been designed with a capacity of 282tph and will operate 24 hours per day. Harder ore, such as the granodiorite, daaplite and meta-volcano sediments lithologies, are sent to jaw crusher installation. The crusher has been designed with a capacity of 282tph and will operate 24 hours per day.

Both crushers discharge are conveyed directly to the primary SAG mill. A coarse ore stockpile between the crushing stations and the SAG mill is not part of the design because of the soft and very sticky characteristics of about 50% of the plant feed material, such as oxidized and reduced clays, heap leach residues, etc. These types of material consolidate and agglomerate and are extremely difficult to withdrawn from stockpile. With the present concept including two different crusher types with their own run-of-mine stockpile, each one having the capacity to meet full plant tonnage, it is anticipated that 90% plant availability can be maintained, but this will need to be reconsidered during a future feasibility study as crushing circuits are normally prone to poor availability.

However, at a later stage of the project, at higher tonnage, an intermediate coarse ore stockpile may have to be introduced. In this instance, reclaiming of the ore is by front end loader rather than feeders are likely the route to go because of the soft and very sticky characteristics of a major portion of the material.

17.2.2 Grinding

The primary grinding mill has been sized to process ore at an average rate of 254tph, with a 90% availability. The SAG mill size is 6.7m diameter by 3.4m long (effective grinding length), driven by a 2,600 kW motor equipped with a variable speed drive (VFS). The secondary ball mill is 4.8m diameter by 7.2m long driven by a 2,600kW motor.

This circuit is designed to operate with a circulating load of up to 250% utilizing hydro-cyclones. The cyclone underflow stream is redirected to the SAG and ball mill feed chutes in the following proportions:

- Circulating load to SAG mill: 50%;
- Circulating load to ball mill: 200%.

The cyclone cluster consists of ten off 375mm diameter cyclones, with eight (8) cyclones in operation and two on stand-by. Cyclone overflow is collected in a common launder, which flows to the pre-leach thickening area.

17.2.3 Pre-Leach Thickening

The purpose of the pre-leach thickening area is to increase the solids content of the ground ore slurry feeding the leach and CIL circuits from approximately 30.0% solids to 43.0% solids. The water recovered at the thickener overflow is re-used as process water throughout the plant.

The pre-leach thickener is preceded by a linear trash screen to prevent oversized grit and general blasting and other trash from entering the leach and CIL circuits. The screen undersize falls into a collection launder that feeds the thickener feed box. Diluted flocculant is added to the feed box to promote particles sedimentation in the thickener. Thickener underflow is sampled (for head grade determination) and then pumped to the leach and CIL circuit.

17.2.4 Leach and Carbon-In-Leach

In the leach and CIL circuit, gold present in the pulp is dissolved using cyanide and then adsorbed onto activated carbon. The circuit consists of two leach tanks followed by six CIL tanks with a total of 32-hour residence time in the eight tanks.

Cyanide is added to the leach tanks for gold leaching. Lime can also be added to maintain the pH level at 10.5 - 11.0. Cyanide solution can also be added to the first and third CIL tanks.

All eight tanks are fitted with an agitator, incorporating dual axial flow impellers. Air is introduced into each tank through a bottom entering line beneath an inverted cone, located below the lower impeller of the agitator.

Activated carbon is added to the last CIL tank and carbon is advance intermittently from tank to tank counter-current to the slurry flow by the vertical recessed impeller pumps. Loaded carbon recovered from the first CIL tank is pumped to the loaded carbon recovery screen. The recovered carbon is pumped in 4t batches to the carbon acid wash vessel located in the carbon acid wash and elution area.

Slurry from the last CIL tank flows by gravity to the linear safety screen.

17.2.5 Detoxification

The detoxification circuit consists of a linear safety screen, used to capture fugitive loaded fine carbon, and three cyanide detoxification tanks providing about one hour retention time each.

In the first cyanide detoxification tank, Sulphur dioxide (SO_2) is added in the form of sodium metabisulphite solution. Copper sulphate is added to catalyse the reaction. Compressed, air is injected to oxidize the cyanide contained in the CIL tails. A second and third detoxification tanks are installed in order to precipitate the arsenic present in the slurry. A solution of ferric sulphate and sulphuric acid is used to precipitate the arsenic.

Slurry exiting the third tank is pumped to the TSF for disposal.

Tailings Storage Facility

The tailings dam is discussed elsewhere in this document. The solution recovered from the TSF is recycled back to the process plant to be used as make-up water.

17.2.6 Carbon Acid Wash and Elution

The acid wash circuit, using hydrochloric acid, removes acid soluble impurities that have accumulated on the activated carbon during the CIL process steps, such as lime scale and some heavy metals. After the acid wash process, residual acid solution is neutralized with a caustic rinse cycle. The acid wash and neutralization cycle is expected to take up to 4 hours

The acid washed carbon is introduced to the elution column which is operating at elevated temperature and pressure to strip the gold from the carbon. The stripping cycle starts with the introduction of cyanide and sodium hydroxide (caustic) solutions. This barren solution is heated through heat exchangers and a heater prior to entering the elution column. The eluate solution, at up to 145°C, enters the pressure column and up-flows through the contained carbon bed. The solution strips the metals that are loaded onto the activated carbon and exits from the top of the column,

This pregnant solution is pumped to the electrowinning cells via recovery heat exchangers, where gold (as metal) is recovered onto stainless steel cathodes. The elution operation is expected to take up to 12 hours. Under normal design conditions, one elution cycle is required per day. However, when high grade ore is process through the CIL plant, two acid wash and elution cycles can be accommodated per day.

17.2.7 Electrowinning and Smelting

The purpose of electrowinning is to recover by electrolysis the gold and silver dissolved in the concentrated solution following the hot elution. After electrolysis, the gold is smelted into doré (gold bars) in an induction furnace.

Electrowinning and smelting are located within a secured portion of the process plant. The gold bars are kept into a secured vault prior to shipment.

17.2.8 Carbon Regeneration

Stripped carbon is transferred to the carbon regeneration circuit where the carbon is screened and delivered to the regeneration kiln, operating at about 700°C. After passing through the kiln, the carbon discharges into a quench tank.

The carbon regeneration kiln is designed to regenerate the entire carbon stream and restore the activity of the stripped carbon.

Carbon losses are made up by introducing fresh attrited carbon into the circuit as required.

17.2.9 Reagents

The reagents used in the process plant are summarily described as follows:

- Grinding Media: for milling in the SAG and Ball Mills;
- Hydrated lime: for pH control in the grinding, leach and CIL circuit. However, at a later stage of the project, the usage of quick lime may prove to be advantageous and considered, particularly at higher plant throughput.
- Sodium cyanide: for gold dissolution in the leach and CIL circuit and for the barren stripping solution preparation;
- Hydrochloric acid for the carbon acid wash circuit.
- Sodium hydroxide (caustic): for the carbon neutralization in the acid wash circuit, and for pH control of the barren solution in the elution circuit;
- Flocculant: to assist pre-leach thickener underflow sedimentation and overflow clarification;
- Sodium metabisulphite: for cyanide destruction;
- Copper sulphate: to catalyse the cyanide destruction reaction;
- Ferric Sulphate: to precipitate arsenic in detoxified tails;
- Sulphuric acid: to dissolve ferric sulphate which requires a pH <3 to solubilize.

17.2.10 Plant Services

Plant/Instrument Air

Three compressors are provided for instrument and plant air requirements.

Low Compressed Air

Process air for leaching is supplied by three low pressure compressors. An air receiver is provided between the compressor and distribution.

Fresh Water

Fresh water is sourced from existing mine wells and is stored in a fresh/fire water storage tank. The lower portion of the tank provides for demand of fire water and the top portion of the tank provides storage for fresh and gland water.

Process Water

The process water tank is fed from three sources. The main source is the pre-leach thickener over flow, the second source of water is recycled water from the polishing pond located at TSF, and finally the make-up water is coming from the fresh water well.

18 PROJECT INFRASTRUCTURE

18.1 Current Infrastructures

18.1.1 Mining Facilities

The following mining facilities are located on the Ity site:

- Mining administration building;
- Main workshop and repair facilities, to maintain the mining fleet;
- Mining equipment re-fuelling centre;
- Explosive storage, located away from the main facilities;

18.1.2 Process Plant

The processing plant and administration facilities consist of the following:

- Plant administration buildings such as the security office, workshop, administration offices and metallurgical lab;
- Warehouses;
- Water services inclusive of raw water abstraction, potable water, fire water;
- Medical facilities located at the site entrance.

18.1.3 Power

The electrical power is supplied from the Ivorian national grid as well as diesel generators. The current power supply from the national grid being unstable, the back-up diesel generators capacity is sized to maintain all activities on site, including normal operation of the plants facilities during power outages.

18.1.4 Site Access

Access to the site for employees and contractors is possible via tar road from Abidjan in approximately eight hours. Alternatively, air transportation is possible from Abidjan to Man in two hours and then road from Man to the site in additional hours. The current logistical scheme for people transportation will be used for the future CIL operations as well.

Contracted buses provide transportation to work for personnel living in the nearby villages of the Ity site.

18.1.5 Security

The main entrance security office is located on the Main Site access road. All visitors to the mine complex report to this security gate for authorization prior to entry. Personal protection equipment (PPE) is available for issue from this point if required.

18.1.6 Accommodation

The accommodation camp is located on a hill top to house senior and junior staff members. Staff accommodation consists of:

- Individual block building for senior managers;
- Shared block buildings with 3 bedrooms for junior staff;
- Kitchen and camp dining room;
- Laundry;
- Potable water plant;

The camp can accommodate approximately 200 persons.

18.1.7 Transport and Logistics

Cote d'Ivoire has been developing country infrastructures for years with a wide network of tar roads available as well as 2 industrial ports (Abidjan / San Pedro). Existing transport infrastructures are sufficiently developed and maintained to support active mining operations in the country, including for the Ity operations. SMI has been operating the Ity site for more than 20 years based on existing infrastructures (roads/port/tc.) without interruption due to logistical issues. Equipment, Materials and consumables transportation from the port in Abidjan to the mine site is carried out by a combination of subcontractors. The distance is approximately 700km (by road), and about 2,000t of consumables are transported each year to the site of the heap-leach operations..

Airfreight cargo service into Côte d'Ivoire is supplied by several scheduled flights.

In addition, the Ity site is accessible via helicopter for Dore transportation to the Abidjan airport, from which it is then exported to Europe. The current logistical scheme for gold export will be used for the CIL operations as well.

18.1.8 Communication

An on-site communication tower allows cellular phone communication through three mobile phone access providers, and internet access. In addition, a fibre optic access was developed in 2014.

The mobile network is accessible in the mine site, the processing facilities, the administration buildings as well as the site camp.

18.2 Site Access and Infrastructure for the CIL Project

Logistics for construction materials and equipment as well logistics for consumables for current and future operations is considered a low risk given the existing infrastructure in Côte d'Ivoire.

A more comprehensive review of the various accesses to the site will be conducted in the next phase of the project to improve the existing scheme and secure the best access to the site for large equipment delivery. In case of oversized and/or overweight equipment, adequately designed equipment will be purchased to ensure safe and efficient delivery to the site

New roads will be designed for 40 t articulated trucks at elevation 262.6m to avoid flooding beyond the 20-year-flood zone limit. A one-way bridge will cross the Cavally River. Preliminary geotechnical information shows that excavation material can be used as backfill for civil work. Potable water will be supplied from a well that will be within 500m from the process plant. The treatment of sewage will be done through a tank followed by a septic field. A fire water network will surround the process buildings. Electricity will be provided by a new transmission line of 33kV (transmission Voltage to be confirmed) This new transmission line will be built by the local Utility CIE (Cote d'Ivoire Electricity) and must be further developed at the next phase. A main substation will step down voltage to 6.6kV for site distribution.

The existing on-site communication system will be available for the CIL Project.

The mobile network is accessible in the mine site, the processing facilities, the administration buildings as well as the site camp.

Construction facilities will include construction site office, concrete batch plant, prefabricated shop and store supply, maintenance shop, storage areas, warehouse, and a laboratory. The construction contractor and labour will be hosted in the hotels of nearby town. A construction camp may be required. This item will need to be confirmed in the next phase of the study.

Buildings comprise a gatehouse including the dry, an administrative office including the infirmary, a metallurgical and assay laboratory and a reagent storage building. All other process plant facilities will be uncovered structures required to support and operate the process equipment. The only enclose area will be the electrical rooms, compressor room, fire protection pump room and refinery area.

18.3 Tailing Storage Facility for the CIL Project

A site selection study was carried out on four potential sites for the TSF within a short pumping distance from the future plant. Three of the sites were discarded, two for lack of detailed topography, proximity to SMI camp and lack of adequate storage capacity and one for potential presence of mineral reserves in one of the abutments. The remaining site, namely "Area 1", was identified as the most suitable location for the future tailings storage facility. The selected TSF site provides storage for approximately 10 years of operation provided the tailings reaches an in situ dry density of $1.3t/m^3$.

The preparation of the TSF basin involves the construction of water management diversion ditches, preparation and grading of the basin floor for liner installation and the construction of a retaining structure. The 44m high dam is to be constructed in several stages; the first two raises are to be constructed using the downstream method and the upstream method thereafter. The geomembrane on the upstream face is made continuous with that of the basin; the membrane is installed on a controlled layer of impervious material providing composite liner effect.

An emergency spillway capable of evacuating the 24-hour probable maximum flood is provided for every stage.

18.4 Water Management for the CIL Project

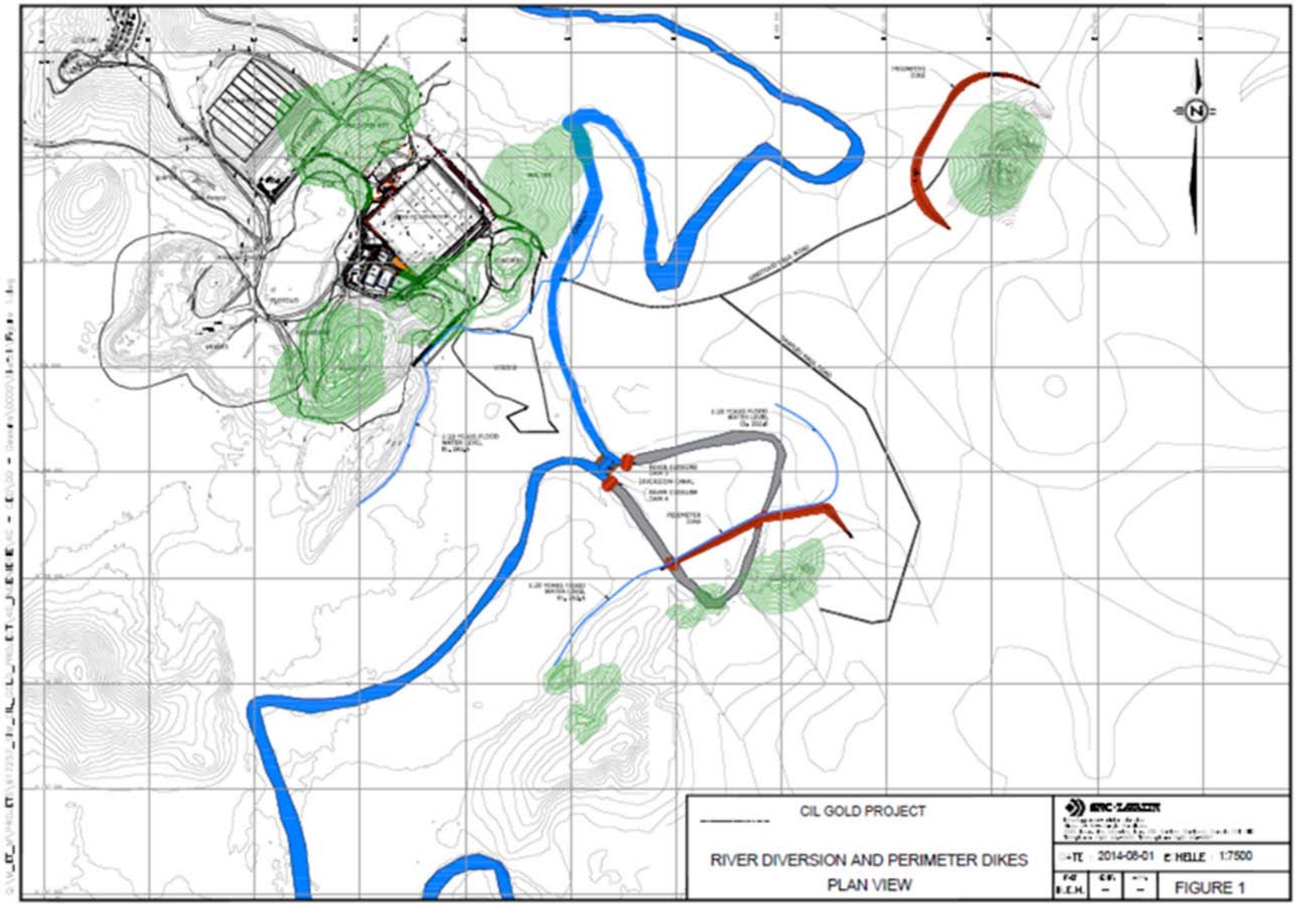
18.4.1 Cavally River

The Cavally River watershed is located in the mountainous central western Côte d'Ivoire. The source of the river is located in eastern Guinea in the area of Nimba Range. Tropical conditions prevail at the mine site at Ity. The climate in the area is characterized by marked dry and wet seasons resulting in a large variation in river flows during the year. The rainy season occurs between April and October and the dry season from November to March

The Cavally River which runs on the eastern side of the current mining operation constitutes a major constraint for the development of the Walter and Daapleu pits. Hence, a diversion of the Cavally River and the construction of perimeter dikes around the Walter, Daapleu and Gbeitouo pits are required.

The original Cavally River diversion plan was to build two diversion canals one for deviating the river from the area around Walter and the other one for deviating the river from the area of Daapleu. A trade-off study carried out after the PFS demonstrated that the capital cost and the risks associated with the diversion of Cavally River for Walter pit were too significant for the quantity of ore recovered from this location. Hence, SMI decided to partly mine the Walter pit and slightly reduce the mine reserve associated with that pit. Therefore, the diversion of Cavally River for Walter pit was cancelled. The layout of the remaining diversion for the bypass of the river at Daapleu pit is presented in Figure 18.4.1_1.

Figure 18.4.1_1
River Diversion and Perimeter Dikes Plan View (grid blocks are 500mx500m



The proposed trapezoidal shaped diversion channel and closure dikes will ensure the normal flow of the Cavally River. During a major rain event, the Cavally River will overflow its banks inundating the floodplain. The diversion channel and closure dikes will then be fully submerged.

Perimeter dikes are required to ensure the stability and continuous safe operation of the different pits located in the floodplain, when Cavally River overflows its banks. The proposed location for the different perimeter dikes is presented in Figure 18.2 and takes into account the required setback with respect to the pit rim. The typical cross section of the dykes is homogeneous embankment to be constructed of impervious material covered with erosion protection material.

18.4.2 Hydrogeology

The conceptual hydrogeological system and pit dewatering considerations at the time of writing are solely developed based on the review of limited hydrogeological studies carried out at Mont Ity area. According to these studies, there are two different groundwater flow systems: shallow groundwater (perched) encountered at the interface laterite and deep groundwater encountered at depth with preferential flow through fractures and karstic features. It has also been reported that the original groundwater was about 10m below the ground surface at Mont Ity.

Groundwater dewatering of existing pit is carried out using wells both perimeter and in-pit. Dewatering water is pumped to a holding tank before to be released to the environment. The recent measurement at the Ity pit indicated that wells installed in granodiorite west of the pit have production rate less than $10m^3$/hr while wells in karstic zones associated with carbonate rocks and marbles have the highest productivities with values higher than $100m^3$/hr. Wells in the footwall have productivities in the range of 10-$50m^3$/hr.

For the other pits in the vicinity of the Ity pit (Walter, Zia Nord Est), permeability are expected to be less than observed in the Ity pit because the formations are observed to be less karstic. Therefore, it is expected that a dewatering scheme used at Ity pit will be used for the future pits.

No data exist for sites east of the Cavally River (Daapleu, Gbeitouo). Due to the proximity to the river, it is anticipated that the water table could be very high, potentially close to the surface or the water level in the river. It is also anticipated that some inter-connexion will exist between the river and the surrounding aquifers. The geological formations in the area appear tighter and given that there are no significant karsts in the area, it is possible that the groundwater inflow to the pits east Cavally River will be reduced. Therefore the dewatering requirement and scheme for both sides of the river could be different. This needs to be investigated and confirmed during the next phase of the project.

In 2015, SMI has carried out a hydrogeological campaign to better define the hydrogeological systems for each pit. The results are being analysed and therefore were not included in this report at the time of writing.

18.4.3 Sitewide Water Balance

The general water management strategy is to divert the non-contact surface runoff away from the mine facilities and manage (collect, control, monitor and treat, if required) the contact water prior discharging to the environment. Final effluents from the mine facilities to the environment should meet the effluent discharge criteria.

Water within the open pits should be collected and pumped out of the active pit areas, and released to the Cavally River if water quality meets the applicable discharge criteria.

At the time of writing this report, it is assumed that there will be no potential Acid Rock Drainage (ARD) and toxic metal leaching issues from the waste dumps. Drainage from the waste dumps could be directly released to the environment with adequate erosion and sediment control measures in place.

The TSF water management system includes a water pond created within the tailings storage basin and a Polishing Pond downstream of the TSF dam. Excess water from the tailings water pond will spill into the Polishing Pond. The two water ponds will provide sufficient residence time for Total Suspended Solid (TSS) control.

Effluents from the open pits, waste dumps, TSF and other mine facilities should be monitored and tested. If the test results indicate any chemical issues, water should be collected and treated prior being discharged to the environment.

A preliminary average annual water balance scheme is developed for the mine site based on the review of limited information on site climate, hydrology and land use. Detailed water management strategy, drainage plan and site water balance should be developed in the next phase of the study.

18.4.4 Geochemistry

Tailings and waste rock materials have yet to be characterized in terms of probable loadings of acidity, metals and sulphate salinity and thus the requirement for water treatment of associated contact water is yet to be determined.

To address this information gap, a staged approach has been planned that comprises the following:

- A screening level geochemical test work program;
- A feasibility level geochemical test work program.

The screening level geochemical test work program will seek to identify potentially acid generating waste rock and tailings materials as well as qualify the likely loadings of acidity, sulphate salinity and leachable metals and metalloids.

The feasibility level geochemical test work program will focus upon problematic waste rock or tailings materials that have been identified by the screening level geochemical test work program. Its intention will be to address data gaps and provide sufficient information to enable the water treatment design for the project (where required).

The screening level for geochemical testing is not available at the time of writing.

19 MARKET STUDIES AND CONTRACTS

The Ity operations have been an ongoing concern for more than 20 years; no additional marketing studies were undertaken for the heap-leach operations and future CIL operations.

The current and future operations produce gold doré bullion that is a fungible commodity for which an efficient global market exists. It is of high value density meaning that the realised price of the contained gold is insensitive to the ultimate location of the customer and refinery as freight costs are negligible in comparison to contained value.

The gold price used in the financial analysis is considered net of US$5/oz for bullion transport, insurance and refining costs.

Gold output from the Ity operations is in the form of doré bars. The doré is shipped to Europe (Switzerland) for refining at Metalor Technologies S.A. The refining contract currently in place between SMI and Metalor is valid for an unlimited period of time.

The SMI does not have any hedging program or forward sales contracts for production coming from the Ity Mine property.

The long term gold pricing forecast used for the heap-leach and CIL operations at €1,045 per ounce net of bullion transport cost is consistent with current gold prices.

No contracts for the sale of the production have been entered into.

No contracts for the construction of the CIL project have been entered into. A contract for the development of the feasibility study of the CIL project is currently active with SNC LAVALIN from Canada. As of the effective date of this report, the main contractors involved with the mine and current heap-leach operations are:

- Fuel supply: Total Côte d'Ivoire;
- Contract security staff: G4S;
- Contract mining: RAZEL;
- Refining: Metalor;

- Reagent supply (cyanide) for 2015-2016 period: AZAL;
- Other reagents supply: LDC and CHIMTEC;
- Cement supply: SOCIM;
- Tyres supply: TRACTAFRIC;
- Catering services: DJM;
- Air transportation: ELITE CORPORATE.

The various contracts were awarded following a competitive bidding process, prices are within the industry range and comparable to other operations in Côte d'Ivoire or West Africa.

20 ENVIRONMENTAL STUDIES, PERMITTING AND SOCIAL OR COMMUNITY IMPACT

20.1 Overview

Several environmental studies have been conducted in the last 15 years. Geostat has conducted two internal reports for SMI: an environmental management plan (Plan de Management Environnemental) dated March 2000 and a rehabilitation plan (Réaménagement du site minier d'Ity) dated June 2005. An EIS for the Ity Mine has been carried out in 2000 by SMI. This study has been used as a reference in the rehabilitation report titled "Réaménagement du Site Minier d'Ity" (SMI, 2005). The Ministry of the Environment also conducted an environmental audit of the Ity Mine at the end of December 2005.

Finally, under the mining project CIL and in order to renew the SMI Mining Permit PE26, two SEIA studies have also been completed:

- *Étude d'impact environnemental et social du projet de construction d'une usine de traitement de minerai de type CIL sur le permis d'exploitation PE26 de la mine d'or ITY* (Roche, 2013).
- *Étude d'impact environnemental et social dans le cadre du projet d'exploitation des gisements de Gbeitouo et de Daapleu dans le département de Blolequin* (2D Consulting, 2015).

In addition to the exploitation of two new deposits, this project includes the diversion of the Cavally River (four river closure dams), the construction of a bridge and of three perimeter dikes to protect Walter, Gbeitouo and Daapleu deposits.

There is an SEIA on progress related to these infrastructures. The public enquiry is planned to start at the end of September 2015. The decree, which authorizes the construction and operation of the projected infrastructures, should be obtained as early as the fourth quarter of 2015.

The three SEIAs were performed according to the Loi Cadre No. 96-766 of 3 October 1996 on the Environmental Code, the Décret No. 96-894 of 8 November 1996 establishing the rules and procedures applicable to studies of the environmental impacts of development projects and the Arrêté No. 00972 of 14 November 2007 on the application of Décret No. 96-894.

The SEIA for the construction for the CIL plant was approved by the Ivorian authorities in December 2013 (Arrêté 008/Mine SUDD/ANDE). A revision will be required for a larger throughput rate of the CIL plant and modifications to the locations of some of the associated infrastructure.

A resettlement action plan is also currently in preparation.

20.2 Project Description

The site currently uses a heap-leach process with cyanide solution application. The development project encompasses a CIL process plant, water plant services and several on-site infrastructures. Descriptions of the mining operations current and planned (Section 16), plant processes (Section 17) and Infrastructure (Section 18) are given in earlier sections.

20.3 Summary of Key Environmental and Social Issues (PFS)

Important social and environmental issues, potential risks and constraints have been identified during the PFS phase in relation to the CIL Gold Project (Roche, 2013; 2D Consulting, 2015). Key impacts that have been addressed within the SEIAs have mainly been derived from project information, field inventories and public consultation, existing studies and experience on similar projects.

The environmental impact studies carried out within the framework of the Ity Mine expansion project show that there are two major critical issues that are actually addressed in further details in the DFS: biodiversity (critical habitats) and the relocation of project-affected people.

No groundwater data exist for east of the Cavally sites (Daapleu, Gbeitouo). Due to the proximity to the river, it is anticipated that the water table could be very high, potentially close to the surface or the water level in the river. It is also anticipated that some inter-connexion will exist between the river and the surrounding aquifers. The geological formations in the area appear tighter and given that are no significant karsts in the area, it is possible that groundwater inflow to the pits at east Cavally will be reduced. Therefore the dewatering requirement for pits located at different side of the river is expected to be different. This needs to be investigated and quantified during the next phase of the project.

The general water management strategy is to divert the non-contact surface runoff away from the mine facilities and manage (collect, control, monitor and treat, if required) the contact water prior discharging to the environment. Final effluents from the mine facilities to the environment should meet the effluent discharge criteria.

Water within the open pits should be collected and pumped out of the active pit areas, and released to the Cavally River if water quality meets the applicable discharge criteria.

In the PFS, it is assumed that there will be no potential Acid Rock Drainage and toxic metal leaching issues from the waste dumps. Drainage from the waste dumps could be directly released to the environment with adequate erosion and sediment control measures in place.

The TSF water management system includes a water pond created within the tailings storage basin and a Polishing Pond downstream of the TSF dam. Excess water from the tailings water pond will spill into the Polishing Pond. The two water ponds will provide sufficient residence time for Total Suspended Solid (TSS) control.

Effluents from the open pits, waste dumps, TSF and other mine facilities should be monitored and tested. If the test results indicate any chemical issues, water should be collected and treated prior being discharged to the environment.

Tailings and waste rock materials have yet to be characterized in terms of probable loadings of acidity, metals and sulphate salinity and thus the requirement for water treatment of associated contact water is yet to be determined.

Many fauna and flora species occurring in the study area depend upon a particular habitat type (or a combination of habitat types), such as the gallery forests. Loss, fragmentation, and degradation of these habitats have a negative impact on the fauna and flora species that depend on them.

Loss of habitat might cause reduction in the populations of species that depend on that habitat. Under normal circumstances, species populations are at “carrying capacity” (e.g. species populations expand until they reach the maximum number that the ecosystem is able to support, thereafter density-dependent mortality keeps numbers at that sustainable level). Even large, mobile species such as mammals or birds cannot simply “move somewhere else” if their habitat is destroyed – other areas will either already be at carrying capacity or be unsuitable.

Habitat fragmentation reduces the viability of populations, because small fragments of habitat can only support small sub-populations of plants and animals, which are more vulnerable to extinction. Minor fluctuations in climate, food availability or other factors that would be unremarkable and quickly corrected in large populations, can be significant in small isolated populations. Fragmentation can cause particular problems for species requiring extensive range to satisfy their ecological needs. Habitat degradation can render habitat unsuitable for many species, or can severely reduce the population size that an area of habitat is able to support.

Any destruction, alteration or fragmentation of the residual primary forest is thus a threat to fauna species. Forest habitats are already experiencing strong pressure within the study area, primarily as a result of clearance for subsistence agriculture.

Among the main threats to the aquatic species, the diversion of the Cavally River may certainly change significantly the hydrological conditions and consequently affect the habitats of certain fish species. This issue is addressed closely in the DFS considering that the initial fish inventory has already identified nine species of conservation concern.

Considering that 18 species of conservation concern (flora, freshwater fish, fauna) are present in the study area and considering that Côte d’Ivoire has the highest level of biodiversity in West Africa, the issue of having potential critical habitats in the study area is actually addressed in accordance with the requirements of the IFC’s Performance Standard 6 during the DFS stage (Biodiversity Conservation and Sustainable Management of Living Natural Resources) which is the internationally recognized reference standard on critical habitats.

Maintaining and expanding the activities of the Ity Mine will have a considerable positive impact on villages located in the surroundings of the mine. In addition to maintaining the current jobs, the continued operation of the mine will have a significant structuring economic effect at the local and regional levels mainly because of the weakness of the industrial sector at the local and regional level.

Several livelihood activities are currently conducted in the study area. The mining of new deposits and the construction of supporting infrastructure is likely to generate a negative impact on some of these traditional activities.

According to 2D Consulting (2015) approximately 330 households in Daapleu will be displaced in addition to a water point, some cemeteries and farms. A new appropriate site for the relocated population was proposed and approved by the displaced population and the Ivorian authorities.

Involuntary resettlement of population is a very sensitive issue and the exercise is usually implemented within the framework of the recognized best practices such as the World Bank Safeguard Policy O.P. 4.12. The exercise is composed of two steps: establishment of the resettlement framework (RF) followed by a resettlement action plan (RAP).

The RF is the resettlement strategy including procedural guidelines for the formulation of resettlement and compensation principles, organizational arrangements and design criteria to be applied in the RAP, aiming at linking and adapting resettlement policies, standards and principles to the project's specific social context and reality. It should be meant to provide an extensive understanding of the situation, and tailor guidelines to ensure the resettlement plan and services will effectively answer the needs of the project and the project affected persons (PAPs) and communities. The resettlement action plan is actually updated to be consistent with the resettlement framework.

20.4 Stakeholder's Identification

Stakeholders consist of organizations and individuals who may be directly or indirectly affected (positively or negatively), or have an interest in the project.

As part of the environmental approval process for the renewal of the Operation License PE26, the surrounding villages have been consulted, including: Ity, Bientouo, Floleu, Trogleu, Krozialé, Ouyatouo and Kouepleu (Roche 2013). People consulted include administrative and traditional authorities, general population, youth, women, village leaders, owners or managers of socio-economic activities.

Overall, the results of the consultation indicate that people are supportive of the project but have several claims (e.g. construction of a water tower, financial aid, local recruitment, acquisition of an ambulance, etc.). The main impacts raised by local population are related to the poor management of resettlement, the limited local recruitment and the positive economic and social benefits.

Also, within the framework of the SEIA for the exploitation of the Gbeitouo and Daapleu deposits, 2D Consulting Afrique conducted public consultation activities in the project area in order to promote a participatory approach in collecting the views of all stakeholders involved in the project and take them into account during its implementation.

The consultations revealed that these stakeholders held diverse views on the SMI's gold mining project in the department of Bloléquin. However, the people consulted can be divided into two groups: those who view the project positively and those who view it positively subject to the concerns rose by stakeholders being addressed.

The concerns expressed are diverse and related to the destruction of plantations, pristine forests, sacred and burial sites, loss of farmlands, relocation of villages and camps and children's future. However, the stakeholders in general want the villages affected by the project to be supported by the Project Developer with the construction of new villages with modern houses and basic social infrastructure, compensation for destroyed plantations and sacred sites and cemeteries, and employment for their children.

The public consultations showed that all the stakeholders consulted (12 groups out of 17) approve the construction of the project on the proposed site. Five (5) other groups welcome the project, albeit with reservations.

20.5 Environmental and Social Scope of Work for the DFS

The scope of work is currently in progress for the environmental and social component of the Definitive Feasibility Study comprises the following elements:

- Establish the complementary baseline surveys for the new sites of the CIL plant tailings site;
- Ensure that the content of the SEIAs for the SMI CIL Gold project fulfills the requirements of the recognized international standards (Equator principles/IFC Performance Standards);
- Conduct noise and ambient air quality measurements (background) for the entire study area;
- Elaborate a synthesis report (SYR) on the three SEIAs to address the cumulative impact issues, including noise propagation assessment, ambient air quality assessment and technological risk assessment.

A synthesis report (SYR) of the three SEIAs of the project will be prepared. The objectives of the impact assessment report are:

- Regroup and synthesize the impacts in a stand-alone report;
- Assess effects on a larger study area;
- Assess effects during a potentially larger period in the future;
- Consider cumulative effects on valued ecosystem components due to interactions with different sources of actions or components;

- Include existing and future reasonably foreseeable actions;
- Evaluate significance in regards to other than just local or direct effects.

The global noise propagation calculation, ambient air quality modeling and technical risk assessment will be conducted at the stage of the synthesis report.

The integrated and social assessment report completion is planned for the end of 2015.

20.6 Environmental Legal Framework

It should be noted that the Environmental Code (Law No. 96 766) and Decree No 96-894 on Environmental impact assessment approval was only adopted in 1996. Consequently, SMI initially operated in 1991 under the following decree – "Permis d'exploitation" (No. 147/Mines/DXX-10/14/1989) issued by the Ministry of Mines. This decree has been reissued several times since 1989 (1994, 1998, 2006, 2008, 2013 and 2014).

According to the legislation of the Côte d'Ivoire Republic there are three major laws which have a concern with the environment: a mining law (Loi No 95-553, Code Minier), an environmental law (Loi No 96-766, Code de l'Environnement), and a water law (Loi No 98-755, Code de l'Eau). Several decrees have been adopted related to these laws.

The mining law No 95-553 dated July 17, 1995 contains a chapter (Articles 76 to 79) on the protection of the environment. Article 77 obliges the titular of a mine to carry out a complete Environmental Impact Study (EIS) and an Environmental Management Program which includes a rehabilitation plan and remediation costs before any exploitation. The obligation of keeping a rehabilitation fund is also prescribed by the article 85. The decree No 96-634 dated August 9, 1996 determines the modes of enforcement of the mining law.

The decree No 98-43 dated January 28, 1998 related to the classified installations having a concern with the environmental protection, fixes the nomenclature of these installations. The Decree No D-03 dated January 6, 2005 is related to the procedure of the environmental audit.

The water law No 98-755 dated December 23, 1998 is related to the management of the water resources and the protection against the contamination of the water sources. The article 49 indicated that any rejects of wastewaters in the receiving medium must respect the standards. Decree No. 01164 fixes the environmental discharge criteria (water, air quality, noise).

20.7 Environmental Reports

An Environmental Impact Study (EIS) for the Mount Ity Mine has been carried out in 2000 by SMI. This study has been used as a reference in the rehabilitation report titled "*Réaménagement du Site Minier d'Ity*" (SMI, 2005). According to Amireault (2006), the Ministry of the Environment conducted an environmental audit of the Mount Ity Mine at the end of December 2005. The report is not available for review.

An environmental management plan (Plan de Management Environnemental) dated March 2000 and a rehabilitation plan (Réaménagement du Site Minier d'Ity) dated June 2005 were elaborated to oversee the operations (Geostat, 2008).

The environmental management plan described the management of the waste rocks, water (underground, surface water, streaming and processes water), fuels, chemical products, wastes, noise and dust. The management of the leaching pads and the cyanide solution ponds are well protected with impermeable membranes and systems which permit to detect any leakage into the ground. The wastewater rejected into the environment passes by a cyanide destruction pound where the cyanide is destroyed with sodium hypochlorite while the pH is adjusted. Suspended particles are allowed to settle in a settling reservoir. Chemical analyses of cyanide and pH determination are made on every step of the process. In order to control the underground water, weekly sampling is carried out in two monitoring wells of the Ity village, from water springs located around the site, in the Cavally river and two other monitoring wells used by the mine. The rainy periods represent a preoccupation for overflow of the pond and also for the runoff water on the site. Precautions have been taking to avoid the overflowing of the ponds. According to environmental management plan, fuels and chemical products are well stored and managed. Noises are reduced by a sound attenuation wall. Heaps are damp by the natural humidity of the ore and by the leaching process.

Wastes are incinerated and buried into the waste rock dumps. These wastes include the empty sodium cyanide drums, the used PVC piping, the domestic wastes from the mine staff, the plastic and metallic packaging from the laboratory, a few tons per year of metal scrap, the solids from the water and oil decanting device and some other waste from the laboratory. Standard procedures is to separate the waste from the sterile rocks in order to avoid the lixiviation of the waste into the waste rock dumps. Normally, waste is stored in an appropriated site as a sanitary landfill constructed with an impermeable layer of clay, thus complying with the Côte d'Ivoire legislation.

The environmental management plan describes that the empty sodium cyanide drums be washed with clear water on the platform of supply reagent in order to eliminate any trace of the solid sodium cyanide. The wash water is drained into the cyanide water pond.

The environmental management plan reveals that the water coming from the dewatering of the pit is used as drinking water and that one of the dewatering well supplies the Ity village fresh water.

The solution ponds are protected by a fence and the site is under a 24 hour supervision preventing animals from drinking in the cyanide water ponds.

The rehabilitation plan (Réaménagement du Site Minier d'Ity) details reclamation procedures, including preliminary cost estimates and rehabilitating the mine site at the end of the mine life (approximately US$ 120,000/year). The report was written in 2008 for the period covering 2005 to 2014. The rehabilitation plan explains how the solution ponds will be finally treated before the evacuation of the water into the environment; the waste rock dumps and the heaps will be reshaped and reforested; the infrastructures will be dismantled, sold, or buried. The rehabilitation program does not include a monitoring program after the closure of the site.

The rehabilitation plan was updated in 2011 in compliance with the mining code (Law No. 95-553) and Decree No. 96-600) that states that the plan should be reviewed every 3 years (AGTS, 2011). The dismantling of the mine infrastructure and the rehabilitating program (duration not indicated) is estimated at approximately US$ 6.9 Million.

The elements of the mine closure (remediation, reclamation), the rehabilitation of the section of the Cavally River that will be dried, including the associated costs, are addressed in the DFS being prepared.

20.8 Environmental Compliance

SMI mandated an external firm to conduct an audit of the heap-leach operations (Roche, 2013).

Most of the recommendations were related to the improvement process (regeneration, coal oven, cyanide dosage, hopper capacity, reduction of the elution cycle, etc.) and health and safety practices. The audit did review neither the environmental management plan nor the implementation of the rehabilitating program.

In accordance with the Environmental Code and Decree No. 98-43 (1998) on environmental classified installations, the Ivorian Antipollution Center (Ministry of Environment) conducts every three months inspections at the mine siteThe following elements are audited:

- Soil contamination;
- Air pollution;
- Water quality;
- Water management;
- Noise.

Preventative and Corrective Actions taken following an audit ensure that non-compliances identified will be audited at the next inspection.

21 CAPITAL AND OPERATING COSTS

21.1 Heap Leach Operations

21.1.1 Capital Costs

The total capital expenditures planned for the Heap Leach operation until the end of 2017 is approximately at 16.6 MEUR.

The breakdown of the planned expenditures is as follows:

- Mining fleet equipment renewal and / or additional equipment: 7.3 MEUR;
- Mine dewatering equipment and borehole drilling: 2 MEUR;
- Processing plant sustaining capital and permanent infrastructures: 2.5 MEUR;
- Other smaller capital items (light vehicles, buses, IT, security, etc.): 4.8 MEUR.

21.1.2 Operating Costs

The costs presented in Table 21.1.2_1 are all compiled form SMI reports. All the unit costs presented herein are representative of past historical costs incurred operationally in 2014 and first half of 2015 and are in line with 2015 all year budget and projections.

Table 21.1.2_1
SMI Gold Project
Summary of Unit Operating Costs

Description	Unit	Value
Mining costs	€ /t moved	1.90
Milling costs	€ /t	18.50
G&A costs	€ '000/yr	12,386

21.2 CIL Operations

SNC-Lavalin's mandate was to develop a PFS level capital and operating cost estimate with a target accuracy of ±30%. The data used to prepare the mining related operating cost estimate are based on a 2Mtpa mining schedule performed with the new geological block models received in June 2015. This mining schedule was based on a mining plan that excludes Inferred Mineral Resource.

21.2.1 Capital Costs (CAPEX)

The estimate has been developed using quoted currencies and converted to Euros using the exchange rate. The installation labour workweek is based on a sixty hour per week work schedule (6 days x 10 hours). The labour anticipated rotation included in PFS estimate is 42 working days (6 weeks) followed by 14 days off (2 weeks). Travelling time will be taken on days off. The construction labour costs are based on sixty-hours per workweek schedule; 6 days 10 hours/day. For the Expatriates, 40 hours per week will be paid at straight time (1.0), 10 hours at time and a half (1½) and the remaining 10 hours at double time (2.0). The rates are based on the project rotation of 42 days in followed by 14 days off. For the local workers, a flat rate is presently assumed for the whole 60 hours per week without overtime premium.

Except for civil and concrete work, skilled workforce will mainly be expatriates. This proportion could be improved during the next phase by assessing the capacity in Côte d'Ivoire of skilled workforce in the mining industry. The construction hours are based on SLI's historical data & experience adjusted for the complexity of specific elements of scope. Material and equipment to site are projected to be transported by the government road from Abidjan's Portual Terminal.

The aggregates required for the concrete will be imported from a source to be determined during the definitive feasibility study, but is presently assumed to be as far as the region of Yamoussoukro. The concrete unit price includes the transportation of the aggregates.

The material take-offs were provided by engineering after reviewing all MTO considering a throughput increase of 2Mtpa. An allowance of 5.0% of direct costs has been included to cover construction indirect. The construction camp has been excluded and is presently considered as part of owner's costs. An allowance of 7% of the equipment purchase value is included under freight item. The assistance during construction and pre-commissioning are included. The commissioning spare parts have been evaluated based on an allowance of 0.5% of the Permanent Equipment value. An allowance is included to cover the Firsts Fills. The fuel is excluded from this allowance.

The contingency has been calculated to both direct and indirect costs excluding Owner's costs, Escalation and Risk. Contingency has been evaluated using a deterministic approach, which is the SLI's standard method for contingency evaluation for this stage of project.

The CAPEX summary breakdown is given in Table 21.2.1_1:

Table 21.2.1_1
SMI Gold Project
Capex Breakdown Summary

Disc	Description	Total 2.0Mtpa Jul 2015 Fx (€)
4G	Mine Area	4,264,188
4M	Tailings	14,559,761
4T	Civil	11,257,277
41	Concrete	9,105,368
42	Structural Steel	7,177,707
43	Architectural	2,737,145
44	Mechanical	37,524,361
45	Piping	13,350,167
46	Electrical	14,335,947
47	Instrumentation	2,467,941
48	**Total Direct Costs**	**116,779,861**
Total EPCM Indirect Costs (under EPCM Control) (excluding owner's costs)		**59,481,162**
9210	EPCM- Salaries and Expenses	19,852,576
9300	Training	0
9400	Construction Field Indirects	5,838,993
9460	Scaffolding Services General Site Wide	1,170,000
9480	Heavy Lifts	1,000,000
9490	CONSTRUCTION CAMP (Rental or Purchase, Infrastructure, Catering Meals & Fuel)	0
9500	Construction & Pre-Commissioning Support	2,389,002
9610	Spare Parts - Commissioning	161,013
9620	Spare Parts - X Years Operation	0
9630	Spare Parts - Capita	966,075
9650	First Fills	502,264
9700	Freight and Handling	2,254,175
9800	Inclement Weather Lost Of Time - Manual Craft Hours Lost + Foremen	0
9910	Contingency	25,347,064
Total Owner's Costs (under Client control)		**22,829,231**
9100	OWNER's Costs	6,898,756
9164	Mine Major Production Equipment	6,396,369
9168	Allowance for upgrade of any offsite facilities (Not included in EPCM Scope)	0
9170	Construction Camp provided by Client (c/w Meals, Catering Costs & Energy	5,000,000
9180	Third Parties Costs (Power provider, Natural Gas provider, Jetty, etc.)	4,534,106
Total Costs (including Mining Fleet c/w Owners' Costs)		**199,090,254**
9920	Escalation	0
9930	Risk	0

21.2.2 Operating Costs (OPEX)

The data used to prepare the operating cost estimate are based on the June 2015 geological block model and associated mining schedule. This mining schedule was based on a mining plan that excludes Inferred Mineral Resources. The target accuracy of this OPEX estimate update is ±30%.

Mining Related Operating Expenditure

The mine operation cost was calculated based on the tonnage of each type of material from the different pits and the specific pit location. Using these parameters, the cycle times were calculated based on SMI production factors and hauling distances for each pit. Finally, an operating cost per type of material was calculated based on the labour cost, fuel consumption, maintenance cost, etc.

The mining costs used in the PFS update are presented in Table 21.2.2_1.

Table 21.2.2_1
SMI Gold Project
Mining Costs CIL

Facies Identification	Whittle Code	Mine OPEX cost Euro
Gbeitouo MVS ore	1MV1	2.34 €
Gbeitouo MVS waste	1MV2	1.79 €
Gbeitouo argile oxidée ore	1AO1	2.83 €
Gbeitouo argile oxidée waste	1AO2	- €
Gbeitouo laterite ore	1L1	1.98 €
Gbeitouo laterite waste	1L2	- €
Gbeitouo Carbonate waste	1C2	- €
Ity Carbonate ore	2C1	- €
Ity Carbonate waste	2C2	1.80 €
Ity granodiorite ore	2G1	- €
Ity granodiorite waste	2G2	- €
Ity argile oxidée ore	2AO1	1.92 €
Ity argile oxidée waste	2AO2	1.89 €
Ity argile réduite ore	2AR1	- €
Ity argile réduite waste	2AR2	- €
Ity laterite ore	2L1	- €
Ity laterite waste	2L2	- €
Walter granodiorite ore	3G1	2.11 €
Walter granodiorite waste	3G2	1.78 €
Walter Carbonate ore	3C1	2.11 €
Walter Carbonate waste	3C2	1.78 €
Walter Argile oxidée ore	3AO1	2.06 €
Walter argile oxidée waste	3AO2	1.84 €
Walter argile réduite ore	3AR1	1.58 €
Walter argile réduite waste	3AR2	1.47 €
Walter laterite ore	3L1	1.83 €
Walter laterite waste	3L2	1.70 €
Zia Carbonate ore	4C1	- €
Zia Carbonate waste	4C2	1.91 €
Zia granodiorite ore	4G1	- €
Zia granodiorite waste	4G2	1.90 €
Zia Argile oxidée ore	4AO1	1.95 €
Zia argile oxidée waste	4AO2	1.79 €

Table 21.2.2_1
SMI Gold Project
Mining Costs CIL

Facies Identification	Whittle Code	Mine OPEX cost Euro
Zia argile réduite ore	4AR1	1.97 €
Zia argile réduite waste	4AR2	1.87 €
Zia laterite ore	4L1	1.52 €
Zia laterite waste	4L2	1.57 €
Daapleu Argile oxidée ore	5AO1	- €
Daapleu argile oxidée waste	5AO2	1.98 €
Daapleu argile réduite ore	5AR1	- €
Daapleu argile réduite waste	5AR2	- €
Daapleu Carbonate ore	5C1	- €
Daapleu Carbonate waste	5C2	- €
Daapleu MVS ore	5MV1	- €
Daapleu MVS waste	5MV2	1.73 €
Daapleu IM ore	5IM1	2.27 €
Daapleu IM waste	5IM2	1.73 €
Daapleu daaplite ore	5D1	2.30 €
Daapleu daaplite waste	5D2	1.76 €
Daapleu daaplite mix ore	5DM1	2.30 €
Daapleu daaplite mix waste	5DM2	1.76 €
Daapleu laterite ore	5L1	- €
Daapleu laterite waste	5L2	- €
Daapleu Argile oxidée ore	55AO1	2.48 €
Daapleu argile réduite ore	55AR1	1.77 €
Daapleu laterite ore	55L1	- €
Daapleu Carbonate ore	55C1	- €
Daapleu daaplite ore	55D1	2.44 €
Daapleu daaplite mix ore	55DM1	2.46 €
Daapleu MVS ore	55MV1	2.42 €
Daapleu IM ore	55IM1	2.40 €
Daapleu argile oxidée waste	55AO2	1.98 €
Daapleu argile réduite waste	55AR2	1.49 €
Daapleu laterite waste	55L2	- €
Daapleu Carbonate waste	55C2	- €
Daapleu daaplite waste	55D2	1.86 €
Daapleu daaplite mix waste	55DM2	1.84 €
Daapleu MVS waste	55MV2	1.82 €
Daapleu IM waste	55IM2	1.77 €
Low Grade Stockpile	LGS	1.32 €
High Grade Stockpile	HGS	1.62 €
Heap Leach 1 ore	6HL1	1.84 €
Heap Leach 2 ore	6HL2	1.58 €

Processing Plant Related Operating Expenditure

The processing cost per material type was evaluated in laboratory tested on samples taken from the site. These samples were subjected to various tests to simulate reagent dosing, wear factors and other parameters. The combination of all these results was used to calculate the processing cost per material type. It is important to mention that metallurgical testing results used in this PFS update are not including the recent laboratory testing results performed in 2015.

The processing costs in the PFS are estimated to be USD 13.67/t (12.43 €/t) on average over the life of the CIL project.

The building maintenance and administrative supplies have been calculated based on building CAPEX value and factored plant labour cost. The labour cost has been estimated based on a plant general crew by function and salary.

Site G&A costs, estimated at USD 9.7/a (8.8m €/a), were provided by SMI.

Power Related Operating Expenditure

The power requirement for the plant has been evaluated at approximately 10.819MW. The PFS study initially evaluated a diesel powered power station at the site with a power cost of 0.19 €/kWh. A study to connect the site to the main electrical grid was conducted, by a third party, and is being considered to supply electrical power for the processing plant. In addition, the biggest impact is the cost of power which is approximately 0.10 €/kWh from the main grid.

The Site General & Administrative fees were provided by SMI.

Table 21.2.2_2 below presents the operating cost summary for each year.

Table 21.2.2_2

SMI Gold Project

CIL Operations Opex Breakdown Summary

	2018	2019	2020	2021	2022	2023	2024
Item	**(€)**	**(€)**	**(€)**	**(€)**	**(€)**	**(€)**	**(€)**
Mine Operating Cost	25,059,000	25,572,144	23,969,344	23,262,001	15,075,033	12,054,096	12,434,673
Concentrator Operating Cost	26,535,000	27,585,545	27,134,530	26,868,810	29,196,514	24,658,622	24,486,903
General Administration and Infrastructure Cost	8,842,000	8,842,000	8,842,000	8,842,000	8,842,000	8,842,000	8,842,000
Total	60,436,000	61,999,689	59,945,874	58,972,811	53,113,547	45,554,718	45,763,576

	2025	2026	2027	2028	2029	2030	2031
Item	**(€)**	**(€)**	**(€)**	**(€)**	**(€)**	**(€)**	**(€)**
Mine Operating Cost	11,795,402	9,999,704	8,450,832	7,496,826	4,306,339	4,306,339	4,377,865
Concentrator Operating Cost	24,428,437	24,498,313	24,586,728	22,684,885	21,566,649	21,566,649	21,896,296
General Administration and Infrastructure Cost	8,842,000	8,842,000	8,842,000	8,842,000	8,842,000	8,842,000	8,842,000
Total	45,065,839	43,340,017	41,879,560	39,023,711	34,714,988	34,714,988	35,116,161

22 ECONOMIC ANALYSIS

An economic analysis has been conducted using a cash flow model prepared on the basis and assumptions as stated in the following discussion. The results of the economic analysis represent forward-looking information (production rates, cash flows, net present value, etc.) that are subject to a number of unknown risks, uncertainties and other factors that may cause actual results to differ materially from those presented here. The analysis shown below does not include financing issues and is presented on an unleveraged free cash flow basis. All amounts are presented on a 100% basis unless stated otherwise. All amounts are for the period ended July 2015 unless otherwise stated.

22.1 Gold price and Exchange rates

While various gold price scenarios were run, the central case has been run using a flat gold price of US$1,150/oz (€1,045/oz), net of €5/oz bullion transport, insurance and refining costs. A flat USD/euro exchange rate of 1.10 has been assumed. No hedging has been assumed within the analysis. Gold payable has been assumed to be 100% of the gold produced.

22.2 Royalties and taxes

Royalties applicable are described in Section 4.4.

A corporate tax rate of 25% has been applied on both the Heap Leach and CIL operations. While there may be a possibility to obtain a 5-year tax holiday on all or some of the deposits mined during the CIL phase, applicable to new projects under the Ivorian mining code, this optimization exercise has not been included in the presented financial analysis.

22.3 Inflation

In line with mineral industry practices, no inflation was applied to the cash flow analysis on both the Heap Leach and CIL operations.

22.4 Operating and Capital Costs

G&A costs integrated into the Heap Leach and CIL operations are based on currently achieved costs. Starting from year 2029 once mining operations cease and the CIL mill is only reprocessing tailings, G&A costs have been reduced from 8.8m€/year to 6.0m€/year, No operator management fees have been included in the model. No exploration costs have been included in the model.

Operating and Capital mining and processing costs modelled are as described in Section 21

22.5 Sustaining Capital

22.5.1 Heap Leach Operation

Roughly €16.6m of sustaining capital has been included in the Heap Leach operation, inclusive of €7.3m for fleet replacement.

22.5.2 CIL Operation

The sustaining capital was estimated on an annual basis accounting for equipment maintenance, infrastructures to access new deposits, TSF upgrades, and replacements necessary to maintain the mining process and treatment. The sustaining is estimated to be €41 million over the life of the project.

22.6 Working capital

22.6.1 Heap Leach Operation

No working capital is assumed to be recovered at the end of the Heap Leach operation.

22.6.2 CIL Operation

A working capital assumption, totalling 2 months of reagents, has been applied to the model for the CIL project.

22.7 Depreciation

22.7.1 Heap Leach Operation

Depreciation schedule has been estimated by allocating investments on a per ounce basis to deposits mined over the remaining Heap Leach life of mine.

22.7.2 CIL Operation

Depreciation for the mill has been modelled using the straight-line method over the life of the project. Depreciation for the mining capex has been allocated of the tonnage moved across the life of mine. Book values of existing assets have been excluded from the depreciation schedule.

22.8 Closure Costs and Salvage Value

The costs for the mine and mill shut-down process and salvage value of the assets have not been included in the model.

22.9 Production Profile and Cash Flow Analysis

22.9.1 Heap Leach Operation

While the Heap Leach operation can extend beyond 2017 based on mineral reserves, the Heap Leach business plan has been limited to end of 2017 as the CIL project is expected to start at the beginning of 2018. The Heap Leach and CIL operations are not assumed to run in parallel.

The Heap Leach business plan is summarized in Tables 22.9.1_1 to 22.9.1_4:

Table 22.9.1_1
Project
Heap Leach Mine Schedule

Mine Schedule	Total/Avg	Aug to Dec 2015	2016	2017
Tonnes moved, t	12,083,504	4,199,262	6,102,818	1,781,423
Waste, t	9,666,028	3,694,679	5,069,994	901,335
Ore mined, t	2,417,476	504,583	1,032,824	880,304
Grade, g/t	2.44	3.47	2.33	1.98
Metal contained, kg	5,904	1,755	2,408	1,740
Metal contained, oz	**189,814**	**56,441**	**77,417**	**55,957**

Table 22.9.1_2
Project
Heap Leach Processing Schedule

Process Schedule	Total/Avg	Aug to Dec 2015	2016	2017
Processed ore, t	2,256,518	444,347	972,588	839,583
Grade, g/t	2.39	3.48	2.26	1.96
Gold Contained, kg	5,393	1,548	2,200	1,644
Recovery rate, %	85%	87%	84%	84%
Gold Production, kg	4,576	1,347	1,848	1,381
Gold Production, oz	**147,135**	**43,297**	**59,424**	**44,414**

Table 22.9.1_3
Project
Heap Leach Business Plan

Financials '000€	Total/Avg	Aug to Dec 2015	2016	2017
Revenue	**153,817**	**45,263**	**62,123**	**46,432**
Gold Sold, oz	147,135	43,297	59,424	44,414
Gold Price, €/oz	1,045	1,045	1,045	1,045
Operating Costs	**-100,142**	**-22,965**	**-44,199**	**-32,978**
Mining Costs	-22,959	-7,979	-11,595	-3,385
Processing costs	-41,757	-8,223	-17,998	-15,536
G&A	-30,043	-5,180	-12,432	-12,432
Royalty	-5,384	-1,584	-2,174	-1,625
EBITDA	**53,676**	**22,298**	**17,924**	**13,454**
Sustaining capex	-16,614	-3,514	-6,900	-6,200
Taxes paid	-6,582	-4,105	-1,646	-832
Post-Tax Free Cash Flow	**30,479**	**14,679**	**9,378**	**6,422**

Table 22.9.1_4
Project
Heap Leach Project Economics in M€

NPV as at July 31st, 2015		US$1,100/oz (€1,000/oz)	US$1,150/oz (€1,045/oz)	US$1,200/oz (€1,091/oz)	US$1,250/oz (€1,136/oz)
Pre-Tax NPV in €m at various discount rates	5%	29	36	42	48
	10%	28	34	40	46
Post-Tax NPV in €m at various discount rates	5%	25	29	34	38
	10%	24	28	32	37

22.9.2 CIL Operation

The CIL project construction is assumed to start at the beginning of 2016 with the first year of production occurring in 2018. The total duration of the project is estimated to be 14 years.

The CIL business plan is summarized in the below Tables 22.9.2_1 to 22.9.2_4.

Table 22.9.2_1
SMI Gold Project
CIL Mine Schedule

	Total/Avg	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Tonnes moved,t (‘000)	89,399	12,197	12,920	12,085	11,773	7,316	5,307	5,614	5,292	4,301	3,460	3,096	2,000	2,000	2,039
Waste, t (‘000)	61,431	10,262	10,920	10,085	9,773	5,322	3,307	3,614	3,292	2,301	1,460	1,096	-	-	-
Strip ratio	2.20	5.30	5.46	5.04	4.89	2.67	1.65	1.81	1.65	1.15	0.73	0.55	-	-	-
Ore tonnes, t (‘000)	27,968	1,935	2,000	2,000	2,000	1,993	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,039
Grade, g/t	1.59	2.31	2.75	1.62	1.74	1.43	1.32	1.24	1.43	1.64	1.76	1.92	1.04	1.04	1.04
Gold contained, (‘000oz)	1,429	143	177	104	112	91	85	80	92	105	113	123	67	67	68

*****Numbers have been rounded

Table 22.9.2_2
SMI Gold Project
CIL Processing Schedule

	Total/Avg	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Ore tonnes, (‘000)t	27,968	1,935	2,000	2,000	2,000	1,993	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,039
Grade, g/t	1.59	2.31	2.75	1.62	1.74	1.43	1.32	1.24	1.43	1.64	1.76	1.92	1.04	1.04	1.04
Gold contained, oz (‘000)	1,429	143	177	104	112	91	85	80	92	105	113	123	67	67	68
Recovery rate, %	80%	81%	82%	84%	83%	91%	71%	70%	72%	73%	73%	75%	92%	92%	92%
Production, (‘000oz)	**1,144**	**116**	**144**	**88**	**92**	**83**	**60**	**56**	**67**	**77**	**82**	**93**	**61**	**61**	**63**

*Numbers have been rounded

Table 22.9.2_3

SMI Gold Project

CIL Business Plan (negative values in red)

In €'000	Total/Avg	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Revenues	1,196,147	**0**	**0**	**121,240**	**150,798**	**92,078**	**96,493**	**86,793**	**62,720**	**58,612**	**69,703**	**80,367**	**85,875**	**97,354**	**64,288**	**64,288**	**65,538**
Gold price, €/oz	1,045	1,045	1,045	1,045	1,045	1,045	1,045	1,045	1,045	1,045	1,045	1,045	1,045	1,045	1,045	1,045	1,045
Gold sold, oz	1,144,140	0	0	115,969	144,242	88,074	92,297	83,020	59,993	56,063	66,673	76,873	82,141	93,122	61,493	61,493	62,689
Operating Costs	**692,882**	**0**	**0**	**64,680**	**67,278**	**63,169**	**62,350**	**56,052**	**47,750**	**47,815**	**47,506**	**46,153**	**44,885**	**42,431**	**34,123**	**34,123**	**34,568**
Government Royalties	41,865	0	0	4,243	5,278	3,223	3,377	3,038	2,195	2,051	2,440	2,813	3,006	3,407	2,250	2,250	2,294
Mining Costs	188,145	0	0	25,059	25,572	23,969	23,262	15,061	12,054	12,435	11,795	10,000	8,451	7,497	4,306	4,306	4,378
Processing Cost	347,609	0	0	26,535	27,586	27,135	26,869	29,111	24,659	24,487	24,428	24,498	24,587	22,685	21,567	21,567	21,896
G&A	115,263	0	0	8,842	8,842	8,842	8,842	8,842	8,842	8,842	8,842	8,842	8,842	8,842	6,000	6,000	6,000
EBITDA	**503,265**	**0**	**0**	**56,560**	**83,520**	**28,909**	**34,142**	**30,742**	**14,970**	**10,797**	**22,198**	**34,214**	**40,990**	**54,923**	**30,165**	**30,165**	**30,970**
Operating cash flow	**439,130**	**0**	**0**	**54,777**	**73,195**	**12,354**	**31,364**	**26,441**	**12,234**	**10,825**	**22,207**	**34,202**	**37,842**	**49,075**	**20,644**	**27,017**	**27,971**
EBITDA	503,265	0	0	56,560	83,520	28,909	34,142	30,742	14,970	10,797	22,198	34,214	40,990	54,923	30,165	30,165	30,970
Income tax payable	64,135	0	0	0	10,214	16,630	2,823	3,920	3,485	0	0	0	3,133	5,843	9,258	3,148	2,967
Working capital	0	0	0	1,783	112	75	44	380	749	29	10	12	15	6	263	0	32
Investing cash flow	**246,726**	**48,173**	**125,251**	**37,193**	**4,649**	**5,736**	**5,736**	**2,244**	**2,244**	**2,244**	**2,244**	**2,244**	**2,244**	**1,800**	**1,800**	**1,462**	**1,462**
Mill Capex	192,694	48,173	125,251	19,269													
Sustaining mill and TSF capex	20,590	0	0	665	665	1,753	1,753	1,753	1,753	1,753	1,753	1,753	1,753	1,309	1,309	1,309	1,309
Initial mining capex	13,275	0	0	13,275	0	0	0	0	0	0	0	0	0	0	0	0	0
Sustaining mine capex	20,167	0	0	3,983	3,983	3,983	3,983	491	491	491	491	491	491	491	491	153	153
Unlevered free cash flow	**192,404**	**48,173**	**125,251**	**17,584**	**68,546**	**6,618**	**25,627**	**24,197**	**9,990**	**8,582**	**19,964**	**31,958**	**35,598**	**47,274**	**18,844**	**25,554**	**26,509**

Table 22.9.2_4 SMI Gold Project CIL Project Economics					
NPV and IRR as at project construction start date		**US$1,100/oz (€1,000/oz)**	**US$1,150/oz (€1,045/oz)**	**US$1,200/oz (€1,091/oz)**	**US$1,250/oz (€1,136/oz)**
Pre-Tax NPV in €m at various discount rates	5%	88	123	159	194
	10%	20	46	72	98
Post-Tax NPV in €m at various discount rates	5%	52	79	106	133
	10%	-6	14	34	54
Pre-Tax IRR		12%	15%	18%	20%
Post-Tax IRR		9%	12%	14%	16%

22.10 Conclusion

The financial analysis supports the economic viability of both the Heap Leach and CIL operations.

23 ADJACENT PROPERTIES

There are no adjacent properties.

24 OTHER RELEVANT DATA AND INFORMATION

There is no other relevant data

25 INTERPRETATION AND CONCLUSIONS

Data - Historical work has been of variable quality. The work undertaken in the last three years is to international standards. Current exploration practices are appropriate to the deposits being evaluated. SMI has assessed all historical data for accuracy and incorporated this data into the database where it was found acceptable for use in geological and mineral resource evaluations.

Procedures in the exploration programmes are continually monitored and reviewed. Procedures are described in detail. Documentation has been updated in 2014/2015 have been updated to include reporting lines and new formats required by the Acquire database. Core storage facilities have been substantially reorganized and catalogued since the first site visit.

Drilling - Drilling is as complete as it can be on the current deposits. Some infill drilling may be needed at ZiaNE and Mont Ity as mining progresses. This would be to fill gaps in the deeper portions. Otherwise drilling can be left for the grade control programme.

Additional drilling is needed at Daapleu to close gaps in the drilling grid. The Cavally River currently prevents drilling these areas. The infill drilling will need to be done once the river diversion is in place. Additional drilling for deeper resources is indicated for future work.

Mineral Resources - The geological models and mineral resources for Daapleu and ZiaNE are the first models constructed for these deposits. Geological models constructed in 2014 have been confirmed as accurate by additional drilling in 2015. The geological model for Mont Ity was substantially revised by site geologist in 2015. Additional drilling has been undertaken for Aires to allow modelling of the slopes of the leach pad.

Mineralization appears to be well mapped on the dumps, at Daapleu and at ZiaNE. This had been confirmed by recent drilling. Mont Ity geology was substantially revised in 2015 and there are still some uncertainties in the Au distributions. This is reflected in the classification of the mineral resources.

Walter and Gbeitouo, being drilled and estimated in 2013, rely for a part on historical boreholes. The improvement of drilling and data verification procedures in 2013 together with the intense in-fill drilling, significantly improved the confidence in the geological model and the grade continuity. The classification reflects the weaknesses outlined by the historical practices.

Metallurgy - The quality and quantity of metallurgical testwork performed for the 2Mtpa CIL is considered adequate for the PFS level developed for the project.

The ore facies not containing sulphide are substantially free-milling and do not show any preg-robbing characteristics.

The ore facies containing sulphide is partially refractory and direct cyanidation (CIL process) yields to lower gold recovery.

The additional test work is to include additional variability samples and is to concentrate upon the ore to be delivered during the first five years of the project.

Mineral Reserves - The decision not to divert the Cavally River next to the Walter pit results in a reduction in mineral reserves from the Walter pit. However, the cost savings from the river diversion greatly outweighs the loss of revenue from reducing the Walter mineral reserve.

High strip ratios in the Ity pit are a result of the large pushback of the north-west wall. Although still economic to mine, there is a small amount of mineral reserve recovered from this pushback, with most of the mineral reserves coming from the Ity Flat area. In future studies it may be worth abandoning this pushback to lower the overall strip ratio of the Ity pit. The resulting loss of mineral reserve would not have a significant impact.

Tailings Storage Facility - Few options were considered for the tailings disposal based on some important assumptions during the PFS. The quantities for the tailing storage facility have been updated based on the 2Mtpa production scenario. Some important assumptions will need to be validated early in the next phase regarding the chosen option.

Geotechnical - A preliminary geotechnical work was carried out during the PFS based on limited data especially for Daapleu and Gbeitouo pits located east of Cavally River. Significant assumptions were also made for Zia NE pit. Pit slopes recommendations provided herein are based on these assumptions.

Hydrogeology - The preliminary assessment of the hydrogeological conditions was solely based on existing report prepared for current pits operating west of the river as well as review of geological setting of the site. Based on the assessment, it was assumed that a dewatering of the pits will be possible via wells and sumps as per current practice at the operating pits.

Geochemistry - No geochemical assessment was performed during the PFS. Daapleu and Gbeitouo have important quantities of sulphide ore that could potentially be acid generating. This could have an important impact on water management and could lead to the addition of a water treatment plant in the project scope of work.

In addition, all aggregate material, with the exception of the concrete aggregates, will come from the granodiorite facies of Ity Mine or other proposed pits. This represents an important assumption that needs to be validated with geochemistry tests during the DFS.

Environmental - The current facilities are operated within the applicable environmental legal framework in the Côte d'Ivoire. These facilities are also subject to a formal inspection every three months by the Environmental Code and the Ivorian Antipollution Center.

The new CIL operations and projected infrastructures are subject to a formal SEIA approval process; the SEIA for the construction of the CIL plant was approved by the Ivorian authorities (December 2013). The SEIA for the operation of the Gbeitouo and Daapleu is completed, and is pending approval. Finally, the SEIA for the projected infrastructures (diversion canal, roads, dykes) is under way.

26 RECOMMENDATIONS

Exploration, Geology and Mineral Resources - At the Effective Date of the report, Coffey is preparing the mineral resource estimation of the Ity Flat deposit on the property and expect the final figures to be completed within two months of the effective date. This deposit contains both oxidized material similar to current Heap Leach material and fresh material that could be considered for CIL. Recommendations for any additional work on this deposit will be made in the final report.

Some additional drilling is recommended on Verse Ouest to evaluate the undrilled portion of the dump to provide material for the Heap Leach operations. There are some changes that need to be made to the quality control programme and the data management systems still needs some improvement. SMI is aware of these needs and will be making the changes as part of the normal exploration activities.

Several additional targets at different stages of exploration (i.e. Verse Ouest and others) have been identified in the very close vicinity of present Ity facilities, on both the Exploitation Permit and Exploration Permit, which comprise the Ity Project. The company considers that additional resources could be defined and potentially provide additional feed for the Heap Leach operation to extend its life by 2 to 3 years and also to increase the CIL project mineral resources and mineral reserves base.

A follow-up exploration program aiming at achieving this target and consisting of approximately 25,000m of drilling (80% diamond/ 20% RC drilling) has therefore been proposed for the Ity Project. This program is designed to maximize the opportunity to expand the potential of known deposits and for discovery of new zones of gold mineralization for the minimum exploration expenditures in the shortest time frame. The total exploration budget to complete most of the required work is estimated to be roughly USD 5.5M. This program is scheduled to begin in Q4 2015 and to be completed within 9 to 12 months

Metallurgy - Heap Leach - a Site visit and review if the Heap Leach operations was scheduled for 14-17 September 2015. Recommendations for any improvement of the current operations will be addressed in the site visit report to be completed at the end of September 2015.

Metallurgy CIL - The mining plan shows that, while most of the planned plant feed was tested, some geological facies have not been tested during the PFS stage. These facies should be tested to confirm the adequacy of the currently developed process.

Additional mineralogical and metallurgical test work is also required to firm up the process flowsheet that has been developed. The additional test work will allow determination of optimum operating parameters (final grind, reagent consumption, etc.) in order to minimize CAPEX and OPEX.

Additional rheology and settling testwork is also recommended for equipment selection sizing and design, as there are wide variability characteristics in the various facies

The increase in mineral resources of the sulphide facies (particularly in the Daapleu deposit) may warrant to investigation of the pressure oxidation process (POX) for these sulphidic facies. Pressure oxidation followed by POX product cyanidation along with the flotation tailings stream, are very likely to produce higher gold recovery than the direct cyanidation of the ore. However the additional CAPEX and OPEX need to be investigated and evaluated to demonstrate the economics.

Mineral Reserves - It is recommended, at the next stage of technical reporting, that a more detailed scheduling exercise be undertaken to determine the optimal scenario for feeding ore from the various pits and stockpiles to the mill, particularly with the different types of ore coming from the pits (hard vs. soft vs. sulphides). This should be done using mine scheduling software such as Minesight MSSO or Geovia Minesched.

A more detailed pit phasing plan for Zia and Daapleu should also be carried out in future studies of the project as these pits have the potential to bring higher grade material to the mill earlier in the production schedule, especially Daapleu.

Tailing Storage Facility - At next phase of the work, an optimization of the TSF in terms of location, dam alignment and footprint will need to be carried out. The validation and the design of TSF should consider key issues such as geotechnical investigation, construction material sourcing, construction staging, stability, settlement, spillway and liner design.

Water Management - During the next phase of the study, significant work will be required to optimize the design diversion of Cavally River and minimize the environmental and social impacts. The work foreseen includes:

- Optimization of the diversion alignment
- Hydrology and Hydraulic studies of the diversion
- Geotechnical design of the diversion channel and related bridge
- Assessment of impact of diversion on current river flow system and flooding pattern

Geotechnical - During the next phase, the following should be carried out:

- A geotechnical investigation program for all proposed pits to obtain the geotechnical information required for the Definitive Feasibility Study (DFS) level open pit slope design. This will include drilling inclined holes with core orientation at selected locations especially for pits located at east of Cavally River. The design of pit slopes based on the findings of the above investigation program should be re-assessed.
- A geotechnical field investigation for all infrastructure including TSF, process plant, Cavally River diversion, perimeter protection dykes, bridge, access roads, waste rock dumps, etc.

Hydrogeology - Considering the proximity of the Cavally River from certain deposits, it is strongly recommended to perform water pumping test to better define the dewatering requirement and the risk associated with hydrogeology. An extensive site-wide hydrogeological investigation program including pumping test at selected locations to collect groundwater data required for the design of an effective pit dewatering program for each pit should be carried out.

Geochemistry - During the DFS, a geochemical characterization of the waste rock, tailings and potential aggregate material should be carried out. This will confirm is the material are acid generating or not and provide the basis for the design of various facilities required for management of such material.

Environmental - Considering that three different SEIAs were carried out for the expansion project (CIL operations), we recommend that the results (cumulative impacts) pertaining to the integrated SEIA be presented to interested parties (mainly local communities).

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