

REPORT N° 141-15748-RPT01-07

# TECHNICAL REPORT AND UPDATE RESOURCE ESTIMATE ON THE ENCHI GOLD PROJECT

ENCHI AND AOWIN DISTRICTS, GHANA

JULY 2014

TECHNICAL REPORT AND  
UPDATE RESOURCE ESTIMATE  
ON THE ENCHI GOLD PROJECT  
ENCHI AND AOWIN DISTRICTS, GHANA

**Pinecrest Resources Ltd.**

Project no: 141-15748-00

Issue Date: July 15, 2014  
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# SIGNATURES

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*“Original document signed and sealed  
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# ABBREVIATIONS

## UNITS OF MEASURE

above mean sea level.....	amsl	kilo (thousand).....	k
acre.....	ac	kilogram.....	kg
ampere.....	A	kilograms per cubic metre.....	kg/m <sup>3</sup>
annum (year).....	a	kilograms per hour.....	kg/h
billion.....	B	kilograms per square metre.....	kg/m <sup>2</sup>
billion tonnes.....	Bt	kilometre.....	km
billion years ago.....	Ga	kilometre.....	km
British thermal unit.....	BTU	kilometres per hour.....	km/h
Centimetre.....	cm	kilopascal.....	kPa
cubic centimetre.....	cm <sup>3</sup>	kiloton.....	kt
cubic feet per minute.....	cfm	kilovolt.....	kV
cubic feet per second.....	ft <sup>3</sup> /s	kilovolt-ampere.....	kVa
cubic foot.....	ft <sup>3</sup>	kilowatt.....	kW
cubic inch.....	in	kilowatt hour.....	kWh
cubic metre.....	m <sup>3</sup>	kilowatt hours per tonne.....	kWh/t
cubic yard.....	yd <sup>3</sup>	kilowatt hours per year.....	kWh/a
Coefficients of Variation.....	Cvs	less than.....	<
day.....	d	litre.....	L
days per week.....	d/wk	litres per minute.....	L/m
days per year (annum).....	d/a	megabytes per second.....	Mb/s
dead weight tonnes.....	DWT	megapascal.....	Mpa
decibel adjusted.....	Ba	megavolt-ampere.....	Mva
decibel.....	dB	megawatt.....	MW
degree.....	°	metre.....	m
degrees Celsius.....	°C	metres above sea level.....	masl
diameter.....	∅	metres Baltic sea level.....	mbsl
dollar (American).....	US\$	metres per minute.....	m/min
dollar (Canadian).....	Cdn\$	metres per second.....	m/s
dry metric ton.....	mt	microns.....	µm
foot.....	ft	milligram.....	mg
gallon.....	gal	milligrams per litre.....	mg/L
gallons per minute.....	gpm	millilitre.....	mL
Gigajoule.....	GJ	millimetre.....	mm
Gigapascal.....	GPa	million.....	M
Gigawatt.....	GW	million bank cubic metres.....	Mbm <sup>3</sup>
Gram.....	g	million bank cubic metres per annum ...	Mbm <sup>3</sup> /a
grams per litre.....	g/L	million tonnes.....	Mt
grams per tonne.....	g/t	minute (plane angle).....	'
greater than.....	>	minute (time).....	min
hectare (10,000 m <sup>2</sup> ).....	ha	month.....	mo
hertz.....	Hz	ounce.....	oz
horsepower.....	hp	pascal.....	Pa
hour.....	h	centipoise.....	mPa·s
hours per day.....	h/d	parts per million.....	ppm
hours per week.....	h/wk	parts per billion.....	ppb
hours per year.....	h/a	percent.....	%
inch.....	in	pound(s).....	lb

pounds per square inch .....	psi	three-dimensional.....	3D
revolutions per minute .....	rpm	tonne (1,000 kg) (metric ton).....	t
second (plane angle) .....	"	tonnes per day .....	t/d
second (time) .....	s	tonnes per hour .....	t/h
short ton (2,000 lb) .....	st	tonnes per year .....	t/a
short tons per day .....	st/d	tonnes seconds per hour metre cubed ....	ts/hm <sup>3</sup>
short tons per year .....	st/y	volt.....	V
specific gravity .....	SG	week .....	wk
square centimetre .....	cm <sup>2</sup>	weight/weight .....	w/w
square foot.....	ft <sup>2</sup>	wet metric ton.....	wmt
square inch .....	in <sup>2</sup>		
square kilometre .....	km <sup>2</sup>		
square metre.....	m <sup>2</sup>		

### ACRONYMS

Canadian Institute of Mining, Metallurgy and Petroleum.....	CIM
Companion Policy.....	CP
Digital Terrain Model .....	DTM
East Contact Zone .....	ECZ
Electricity Commission of Ghana.....	ECG
Electronic Distance Measurement.....	EDM
Enchi Gold Project.....	the Project
Form 1 .....	F1
Graphitic Phyllite.....	SPG
Hilltop Shear .....	SHS
Inverse Distance Squared .....	ID2
Kinross Gold Corporation .....	Kinross
Light Detection and Ranging .....	LIDAR
Leo Shield Exploration Ghana NL .....	Leo Shield
Letter of Intent.....	LOI
Main Contact Zone .....	MCZ
Mutual Ghana Ltd.....	Mutual
National Instrument .....	NI
Nearest Neighbor.....	NN
Nyamebkyere Shear Zone.....	NSZ
Red Back Mining Inc.....	Red Back
Ordinary Krig.....	OK
Polyvinyl-chloride.....	PVC
Preliminary Economic Assessment .....	PEA
Qualified Person .....	QP
Quality Assurance\Quality Control.....	QA\QC
Quartz Vein.....	QV
Reverse Circulation .....	RC
Rotary Air Blast.....	RAB
Standard Reference Material.....	SRM
Road Zone .....	SRZ
Sewum West Zone .....	SWZ
Sewum-Tokosea Mine Trend .....	SETO
Sewum Ridgetop Shear.....	SRTSZ
Turbidite.....	SPH
Universal Transverse Mercator .....	UTM

Volcanic .....	MB
Volcaniclastic .....	SVC
West Contact Zone .....	WCZ
World Geodetic System .....	WGS
WSP Canada Inc. ....	WSP





# 1 SUMMARY

## 1.1 INTRODUCTION

The Enchi Gold Project (the Project or the Property) is located in southwestern Ghana, in a region well known for prolific gold production, and hosts numerous historical and current operating mines located along strike to the northeast of the Project. In 2010, Ghana was the second largest gold producer in Africa at 2.97 Moz. The Project covers a 50 km strike length of the Bibiani Shear Zone along the eastern margin of the Sefwi Belt stretching from the Cote d'Ivoire border in the southwest to the southern margin of the Suhuma Forest Reserve to the northeast. The Bibiani shear is known to host significantly large lode-gold deposits such as Bibiani (5 Moz) and Chirano (5 Moz).

The Project is located 290 km west of the capital of Accra and 70 km southwest of the Chirano Gold Mine operated by Kinross Gold Corporation (Kinross). The Project is centered on 5°47' north latitude and 2°42' west longitude.

In April 2014, WSP Canada Inc. (WSP) was commissioned by Edgewater Exploration Ltd. (Edgewater) to complete a resource estimate and technical report on the Property. This report is to comply with disclosure and reporting requirements set forth in National Instrument 43-101 (NI 43-101), Form 43-101F1 of NI 43-101 (NI 43-101F1) and Standards of Disclosure for Mineral Projects, Companion Policy 43-101CP (NI43-101CP) to NI 43-101.

The Project area is comprised of thirteen licenses totaling 696 km<sup>2</sup> held 45.9% by Edgewater, 44.1% by Kinross and a 10% carried interest by the Government of Ghana. On May 22, 2014, Pinecrest Resources Ltd. (Pinecrest) announced that it had signed Letters of Intent (LOI) with both Red Backing Mining Ghana Limited (Red Back) and Edgewater to acquire 100% of the legal and beneficial ownership of the Project.

## 1.2 GEOLOGY

The Project is situated on the contact between the Sefwi Belt to the west and the Kumasi Basin to the east. The Sefwi Belt is dominated by mafic volcanics, metasediments, and intrusive granitoids. The Kumasi Basin contains wide basins of marine clastic sediments. All the rocks of the region have been extensively metamorphosed to greenschist facies.

Extensive faulting, on local and regional scales, occurs along the margins of the volcanic-sedimentary belts. These northeast-trending structures are fundamentally important in the development of the gold deposits for the region. The major shear system within the Project area is located at the boundary of the Sefwi Belt and the Kumasi Basin is called the Bibiani Shear Zone. Gold deposits are typically located on second or third order structured or splay off the Bibiani Shear.

The Project contains mineralized zones that are characteristic of mesothermal quartz vein style gold deposits. This type of mineralization is the most important type of gold occurring within West Africa and is commonly referred to as the Ashanti-type.

Mineralization can occur as both refractory and non-refractory styles. Refractory mineralization is characterized by early stage disseminated sulphides of primarily pyrite and/or arsenopyrite, hosting significant gold content, which is overprinted by late-stage quartz veining with minor amounts of visible gold and accessory polymetallic sulphides. Non-refractory mineralization is described as gold not hosted within sulphide minerals or either the early or later stage-mineralizing event.

Extensive exploration has been conducted at Enchi by various operators in the past. Red Back Mining Inc. (Red Back) (now Kinross) had consolidated the land package and had successfully compiled most of the historic data available. Besides sporadic small-scale mines that operated in the past, there is no history of mining operations in the Project area.

Widespread soil sampling and other regional-scale exploration techniques have been used in the past. Extensive trenching, rotary air blast, reverse circulation and diamond drill programs have delineated at least 14 gold prospects of which 3 contain the Inferred Resource.

### 1.3 CONCLUSION

The Project database is up to date and includes the results of the 2011 drilling and trenching programs. The borehole database has been validated against the original drill logs and assay certificates. As a result, WSP is of the opinion that using all the diamond drilling, reverse circulation and trenches is appropriate for any resource estimate.

All the procedures implemented by Edgewater in regard to core-logging, sample collection, sample analysis and quality assurance/quality control (QA/QC) meet industry standards. The data quality supports the resources estimate. The resource estimate update was completed on the Boin, Nyamebikyere and Sewum zones, using the ordinary kriging (OK) methodology on a capped and composited borehole dataset consistent with industry standards. Validation of the results was conducted through the use of visual inspection, swath plots, and global statistical comparison of the model against an inverse distance squared (ID2) and nearest neighbor (NN) models.

Table 1.1 summarizes the results of the Inferred Resource estimation.

**Table 1-1 Enchi Resource Summary**

Category	Cut-off (g/t)	Zone	Tonnes	Grade Au (g/t)	Contained Gold (ounces)
Inferred	0.7	Boin	9,551,000	1.20	368,500
Inferred	0.7	Nyamebikyere	3,716,000	1.13	135,000
Inferred	0.7	Sewum	7,549,000	1.09	264,500
Inferred		Total	20,816,000	1.15	768,000

## 1.4 RECOMMENDATIONS

It is WSP's opinion that additional exploration expenditures are warranted to improve the understanding of the Project and delineate additional resources. It is recommended that Pinecrest undertake a two-phase program.

The initiation of Phase 2 is contingent on results from Phase 1.

### 1.4.1 PHASE 1: METALLURGICAL TESTING AND PRELIMINARY ECONOMIC ASSESSMENT

The Phase 1 program would consist of metallurgical testing of the deposits on the projects and the completion of a Preliminary Economic Assessment (PEA).

The metallurgical test work would involve the collection of one oxide sample and one sulphide sample from each of the delineated deposits on the project, Boin, Sewum and Nyamebekyere, for a total of six composite samples.

The metallurgical test would be conducted in order to provide the necessary data to support a PEA study.

A geotechnical study is recommended to characterize the rock strengths properties. This will be required for engineering studies involving pit designs.

A PEA study of the project will provide an initial assessment of the economic viability of the project based on open pit designs and a combined heap leach/conventional milling operation.

The Phase 1 program is estimated to cost Cdn\$550,000.

### 1.4.2 PHASE 2: DELINEATION STUDIES

The Phase 2 program is planned to increase the confidence of the resource by improving resource categories as well as to further advance the project based on the anticipated recommendations from the PEA completed in Phase 1.

The drill program is recommended to improve the geometry of the mineralization as well as the grade distribution within the deposit. The diamond drilling is required to further understand the structural complexity of the deposits. The reverse circulation drilling allows for low cost drilling for grade distribution.

Compensation is to be paid to plantation owners for the destruction of coca trees in order to set up drill pads and access roads.

A second round of metallurgical testing is anticipated to further optimize the flow sheet from the Phase 1 results.

As the program advances past the PEA stage, an Environmental Impact Assessment should be initiated.

A high-resolution topographic survey, such as Light Detection and Ranging (LIDAR), should be flown over the Property to generate a topographic base. One of the steps required before the resource can be improved beyond the Inferred classification, is that all the collar elevations on the property need to be corrected.

The Phase 2 program is estimated to cost Cdn\$2.0 million.

## 2 INTRODUCTION

The Project is a shear-hosted gold bearing system located in southwestern Ghana within the Birimian aged rocks of the Sefwi volcanics and Kumasi sediments. The region is well known as a prolific gold producing camp, hosting numerous historical and current operating mines along strike to the northeast. The licenses are currently held by a joint venture owned by Edgewater (45.9%) and Kinross (44.1%), with the Government of Ghana holding a 10% carried interest. Pinecrest signed a LOI on May 22 to acquire 100% interest of the Project from Kinross and Edgewater.

In April 2014, WSP was commissioned by Edgewater to complete a resource estimate update and technical report on the Property based on the drilling program was completed in December 2012. The object of the report is to:

- prepare a technical report on the Project in accordance with NI 43-101 summarizing land tenures, exploration history, and drilling
- disclose a current mineral resource on the Property
- provide recommendations and budget for additional work on the Property.

This report has been prepared in accordance with NI 43-101, Form 43-101F1 and Companion Policy 43-101CP.

All data reviewed for the report was provided by Edgewater in digital format, with access to paper reports and logs when requested. The work completed by Edgewater encompasses exploration, primarily surface trenching, reverse circulation drilling and diamond drilling. Historical work conducted in the region has been compiled by Edgewater and was available for review and use in the resource estimation.

The Nyamebekyere and Sewum resources were updated with the 2012 Reverse Circulation (RC) drilling for this technical report. The Boin resource was not updated for this report as no additional work has been completed on the deposit since the last technical report.

The author and qualified person (QP) of this report is, Mr. Todd McCracken, P.Geo., a professional geologist with 22 years of experience in exploration and operations, including several years working in shear hosted lode gold deposits and 9 years completing resource estimation and block models. Mr. McCracken visited the Property for three days from April 28, 2014 to May 1, 2014. This was Mr. McCracken's third visit to the Property, having visited previously in 2011 and 2010. During the most recent trip Mr. McCracken was accompanied by Mr. Vincent Dzorkpetey, a geologist with Edgewater.

WSP considers the site visit current, per Section 6.2 of NI 43-101CP, on the basis that the material work completed on the Property was reviewed during the site visit and all practices and procedures documented were adhered to.

### 3 RELIANCE ON OTHER EXPERTS

WSP has reviewed and analyzed data and reports provided by Edgewater, together with publicly available data, drawing its own conclusions augmented by direct field examination.

WSP is not qualified to provide extensive comment on legal issues, including status of tenure associated with the Property referred to in this report. A description of the Property and ownership found in Section 4.0 was provided by Edgewater and was sourced from the Government of Ghana. The information is provided for general understanding only.

This report includes technical information, which required subsequent calculations to derive subtotals, totals and weighted averages. Such calculations inherently involve a degree of rounding and consequently introduce a margin of error. Where these occur, the QP does not consider them to be material.

# 4 PROPERTY DESCRIPTION AND LOCATION

## 4.1 LOCATION

The Project comprises thirteen prospecting licenses; totaling 696 km<sup>2</sup> located in the Enchi and Aowin Suaman Districts, in the southwestern region of Ghana.

The Project covers a 50 km strike length of the eastern margin of the Sefwi Belt stretching from the Cote d'Ivoire border in the southwest to the southern margin of the Suhuma Forest Reserve, to the northeast. The Project is located 290 km west of the capital of Accra and 70 km southwest of the Chirano Mine operated by Kinross (Figure 4.1). The Project is centered on 5°47' north latitude and 2°42' west longitude.

## 4.2 MINERAL DISPOSITION

The thirteen licenses that make up the Project are summarized in Table 4.1 and displayed in Figure 4.2. Lease boundaries are defined by a list of latitude and longitude coordinates of the corners (pillar points) submitted to the Minerals Commission (Mincom). The boundaries are not physically marked on the ground and have not been surveyed by Edgewater.

Yiwabra, Yankoman, Domeabra and Ntejeso are new license applications and are required to proceed through the full application process. These licenses are submitted between 2008 and 2009, prior to Edgewater's involvement on the Property. The application process for a prospecting license, which is required for drilling and excavation work, is as follows:

- application submitted to the Minerals Commission
- Minerals Commission completes paper work and checks maps
- Minerals Commission generates a letter that is sent to the local authorities and is posted for three weeks; this provides an opportunity for objections to the license application
- local authorities write back to the Minerals Commission if no objections are presented
- application proceeds to a technical committee
- upon technical committee approval, the license is prepared and sent to the Minister for signature.

The entire process typically takes two years or more to complete. Once an application is submitted, work in the license is allowed to proceed.

The renewal process is similar to the application process indicated above yet do not require approval of the district and community. The applications for renewal were submitted June 2012. The time frame for extending the licences is variable depending on how busy Mincom is and can take as little as six months to as long as two years.

During the renewal process, the licences are not subject to a reduction in land size.



Despite the fact that most of the licences have expired and renewal applications have been filed, the company still has legal access to the property and has the sole right to conduct work on the Property. Only in the event of a rejection of the renewal application by Mincom, is the company required to stop work.

**Figure 4.1 Location Map**

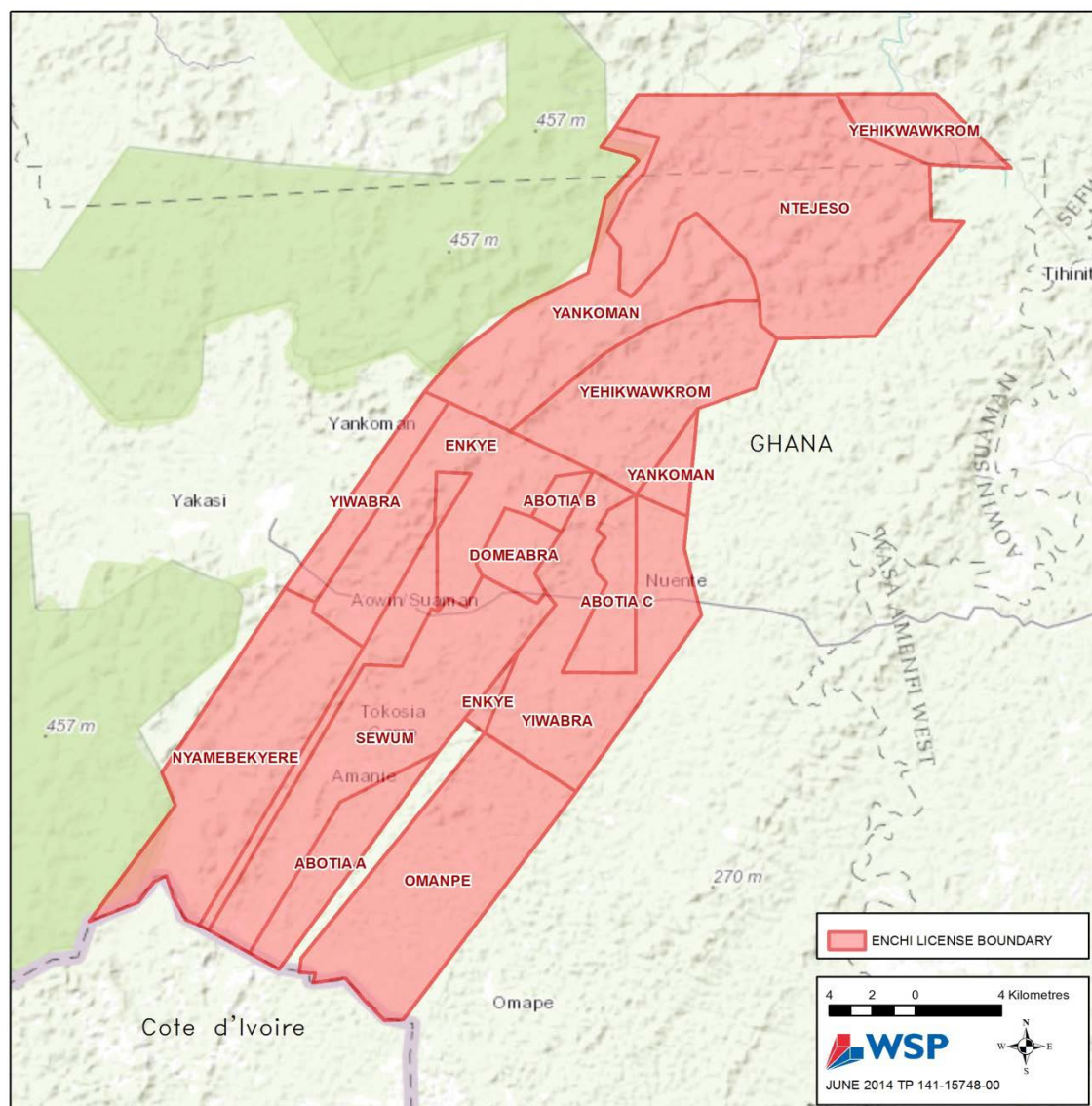




Name	Type	Number	Area (km)	Holding Company	Grant Date	Status	Action/Date
<b>Sewum</b>	PL	PL 2/424	68.79	RBMGL	30-Nov-08	Extension application made. Renewal granted 19th July 2013. Expiring 19th July 2014.	EPA Permit Received. Renewal on July 20 2014. Application of Working Permit in progress.
<b>Enkye (1, 2)</b>	PL	PL 2/404	69.49	RBMGL	9-May-05	Extension granted 11th October 2012. Expiring 11th October 2013. E. P. A. unable to grant permit on time due to loss of documents. Mincom notified of this development	EPA Permit Received. Application process for License Extension in progress.
<b>Nyamebekyere</b>	PL	PL 2/406	80.16	RBMGL	9-May-05	Renewal granted 16 January 2010. Extension granted 11th October 2012. Expiring 11th October 2013. E. P. A. unable to grant permit on time due to loss of documents. Mincom notified of this development.	EPA Permit Received. Application process for License Extension in progress.
<b>Abotia (A, B, C)</b>	PL	PL 2/119	66.91	RBMGL	10-May-06	PL granted 31/12/09. Extension granted 11th October 2012. Expiring 11th October 2013. E. P. A. unable to grant permit on time due to loss of documents. Mincom notified of this development.	EPA Permit Received. Application process for License Extension in progress.
<b>Yehikwakrom</b>	PL	PL 2/405	68.49	RBMGL	9-May-05	Renewal granted 16 January 2010. Extension granted 11th October 2012. E. P. A. unable to grant permit on time due to loss of documents. Mincom notified of this development.	EPA Permit Received. Application process for License Extension in progress.
<b>Omanpe</b>	PL	PL.2/436	67.92	RBMGL	25-Oct-11	Shed off area, new application. Approval letter received from Mincom. PL granted 24th October 2011. Renewal granted 23rd April 2014. Expiring 23rd	Extension granted to be renewed on April 25, 2015. Application for EPA and Working Permit

Name	Type	Number	Area (km)	Holding Company	Grant Date	Status	Action/Date
						April 2015.	in progress.
<b>Yankoman</b>	PL	Not assigned yet	67.7	RBMGL	Not yet granted	Shed off area, new application. Awaiting response from Mincom with Minister.	Awaiting Response from Mincom
<b>Yiwabra</b>	PL	Not assigned yet	68.43	RBMGL	Not yet granted	Shed off area, new application. Awaiting response from Mincom with Minister	Awaiting Response from Mincom
<b>Domeabra</b>	PL	Not assigned yet	10.37	RBMGL	Not yet granted	Reviewed by the Technical Committee. Application referred to WRC. MinCom has taken up the issue with WRC for further discussion.	Awaiting Response from Mincom
<b>Ntejeso</b>	PL	Not assigned yet	128.07	RBMGL	Not yet granted	Conversion from Enchi RL. Forest Reserve. MinCom aiding RBMGL to obtain permit. Forestry Commission is unwilling to grant forest entry permit.	Awaiting Response from Mincom

Figure 4.2 Enchi License Map



### 4.3 TENURE RIGHTS

Edgewater has executed a definitive Option Agreement dated May 5, 2010 that outlines the terms of an Option-Joint Venture agreement with Red Back, whereby Edgewater can earn a 51% interest in Red Back's ownership interest in the Project. Red Back, through its subsidiary Red Back Mining Ghana Ltd, owns and controls 90% interest in the prospecting

and reconnaissance licenses that make up the Project. The Government of Ghana owns the remaining 10% interest.

In order to earn the 51% interest, Edgewater must spend a total of Cdn\$5.0 million on work expenditures on the Project within 26 months, including Cdn\$2.0 million in the first 14 months. Edgewater will be the operator of the Option-Joint Venture agreement, and would continue to be the operator of the joint venture as long as Edgewater holds the largest equity interest in the joint venture.

On September 17, 2010, Kinross announced that it had successfully completed the transaction to acquire all outstanding shares of Red Back for Cdn\$7.1 billion and that Red Back would become a wholly owned subsidiary of Kinross.

On May 22, 2012, Edgewater announced that it had completed the earn-in requirements of the 2010 Option Agreement with Kinross. Edgewater now has a 51% interest in Kinross's ownership of the licenses and a joint venture company will be formed. The shares of the ownership of the joint venture company will be as follows:

- Edgewater 45.9%
- Kinross 44.1%
- Government of Ghana 10.0%.

On May 22, 2014, Pinecrest announced that it had entered into an agreement to earn 100% interest of the Project from Kinross and Edgewater. The Government of Ghana retains a 10% carried interest in the Project. The terms of the transaction are as follows;

For Pinecrest to acquire Kinross's 49% interest;

- Red Back will receive 19.9% of the issued and outstanding common shares of Pinecrest post-closing of the transaction;
- Red Back will receive a 2% NSR on the Project with an option for Pinecrest to acquire 1% of the NSR at any time for US\$3.5 Million;
- Red Back will receive \$10/oz on any new NI 43-101 Measured and Indicated Resource Estimate or any ounce of gold mined whichever occurs first. Such amount shall be payable in cash or, if agreeable to Pinecrest, common shares of Pinecrest, at Pinecrest's sole discretion, provided that, Pinecrest shall not be entitled to elect to pay in common shares if such issuance would result in Red Back holding more than 20% of the issued and outstanding shares of Pinecrest;
- Red Back will have first right to process ore from the Project at its Chirano Mill if toll processing is considered.
- Red Back will receive 5,000,000 share purchase warrants priced at \$0.40/warrant exercisable for a five year term from closing of the Transaction.

For Pinecrest to acquire Edgewater's 51% interest;

- Upon closing of the Transaction, Edgewater will receive one Pinecrest post-consolidated common share (the "Acquisition Shares") for every five common shares of Edgewater issued

and outstanding on the Closing, which will represent approximately 40% of the issued common shares of Pinecrest post-closing of the Transaction. All shares issued to Edgewater will be subject to resale restrictions as follows; 25% to be free trading six months and nine months from closing and the remaining 50% twelve months from closing;

- Edgewater will agree to distribute the Acquisition Shares pro-rata to its shareholders as soon as reasonably practicable after the closing of the Transaction;
- Pinecrest will pay to Edgewater a cash payment of Cdn\$150,000
- The completion of the transactions contemplated by the Edgewater LOI are subject to the execution of a definitive agreement with Pinecrest and the concurrent completion of the transactions contemplated by the Red Back LOI.

#### 4.4 ROYALTIES AND RELATED INFORMATION

There are no known royalties, back-in rights, or payments outside of the agreement between Pinecrest and Kinross. A 3.5% royalty on revenues is due to the Government of Ghana (Price Copper Waterhouse, 2012).

#### 4.5 ENVIRONMENTAL LIABILITIES

WSP is not aware of any known environmental liabilities on the Property.

#### 4.6 PERMITS

All required permits for conducting exploration on the licenses have been granted, or applied for and awaiting government approval.

#### 4.7 OTHER RELEVANT FACTORS

The Company is able to work in areas with no existing surface properties free of fees. In areas where there is an established surface holder, the Company is required to pay compensation when properties are disturbed, in most cases this is related to the damage of crops during establishment of access of exploration activities.

The risk to the Project would come in the form of the licence applications being denied by Mincom and work having to be halted.

There are no other significant risks factors which could affect access, title or the right or ability to perform work. The Company has completed successive and extensive exploration programs covering the majority of the Licences over the last five years.

# 5 ACCESSIBILITY, CLIMATE, LOCAL RESOURCES, INFRASTRUCTURE AND PHYSIOGRAPHY

## 5.1 SITE TOPOGRAPHY, ELEVATION, AND VEGETATION

The Project area is primarily drained by the Tano River and its tributaries, which flow generally in an easterly direction. Much of the Project area comprises steep topography incised by river tributaries with scattered flat plateaus with an average height of about 300 masl.

The majority of the Project area is covered by farmland. The main food crops grown locally are cocoa, plantain, maize, cocoyam, cassava, and rice (Figure 5.1).

**Figure 5.1 Cocoa Plantation**



The northern part of the Project lies within forest reserves, and is covered by tall, primary, semi-deciduous rain forest (Figure 5.2). Most of this area is reserved for commercial timber production.



**Figure 5.2 Forest Reserve**

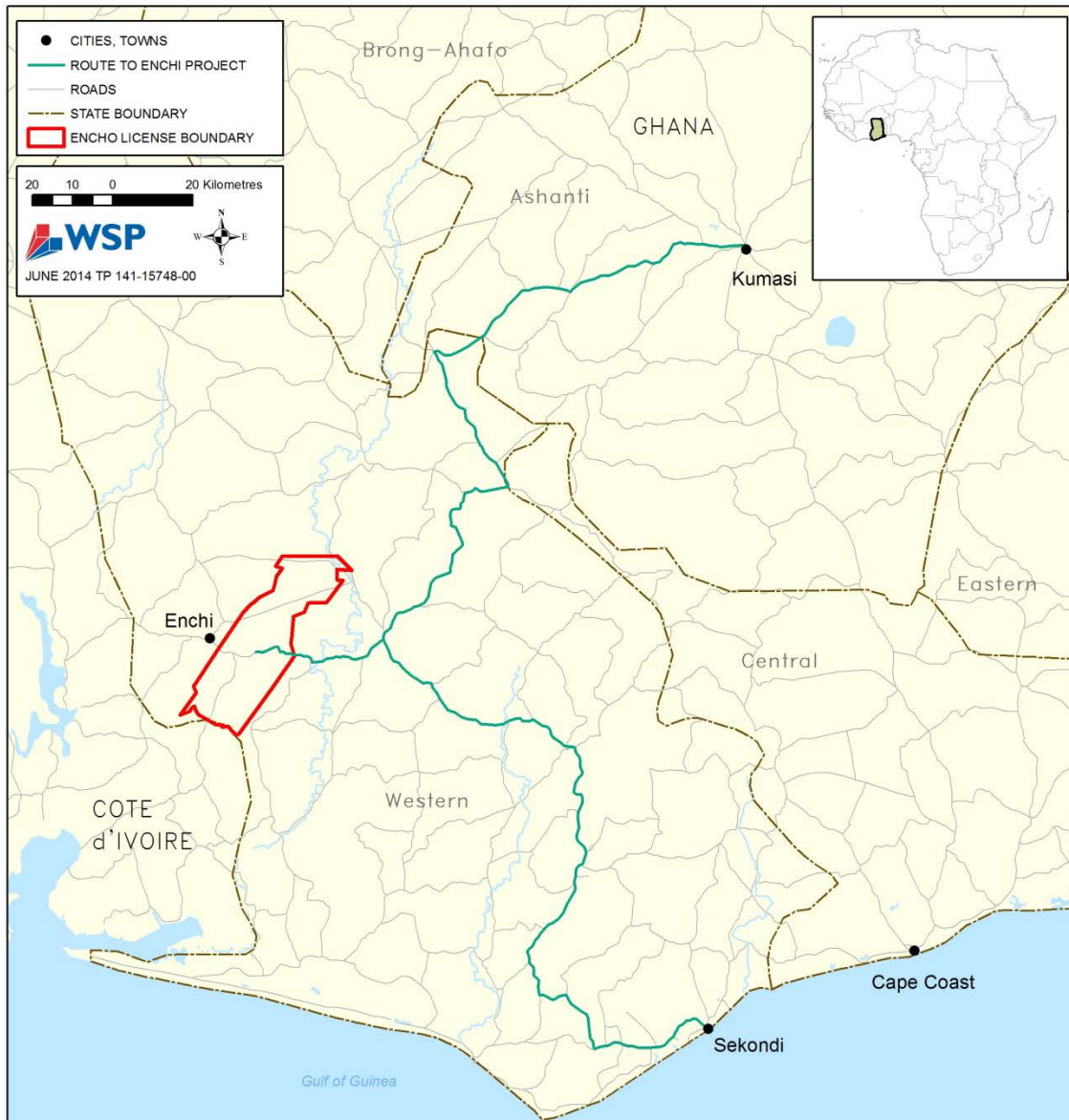


## 5.2 ACCESS

The Project is located in the south-western Region of Ghana and is accessed from Accra on sealed roads via the regional port city of Takoradi or the mining centre of Tarkwa. From either of these centers access to Enchi (population 9,270), the capital of Aowin-Suaman district is available by paved and gravel roads (Elubo-Enchi Road or the Asankragua-Enchi Road). Access through the remainder of the Project area is by earthen roads (Figure 5.3).

Accra has daily international flights to and from Europe, the US and various African locations. Domestic flight services are available with scheduled flights between Accra and Kumasi which is located 170 km northeast of the Project. There is no known scheduled air service to the Project area.

**Figure 5.3 Project Access Map**



### 5.3 CLIMATE

The Project is situated in the Wet-Semi Equatorial Climatic Zone with mean-monthly temperature of 27°C. It experiences two rainy seasons; the major rainy season occurs from May to July and the minor rainy season from September to October. Generally, the annual rainfall is between 1,500 and 1,800 mm.

During the dry season, particularly December to February, Harmattan winds blow from the northeast bringing dust from the Sahara and lower the humidity.



Exploration and mining operation can be conducted on the Project year round if required.

## 5.4 INFRASTRUCTURE

The entire Project area has limited infrastructure. The district capital of Enchi is located 77 km north of the substation at Elubo serviced by a 225 kV line and 122 km southwest of the substation at Asawinso serviced by a 161 kV line. The Chirano Gold Mine located 70 km northeast of the Project is supplied by power from a 33 kV overhead power line from an existing transformer supplying the Bibiani gold mine plant. In addition, six diesel generators are located at the Chirano facility to provide stand-by power in case of Electricity Commission of Ghana (ECG) supply issues.

Potable water must either be trucked into the area or supplied through water wells. The region has a long history of mining, and there is a large population base of skilled and unskilled labour to draw upon during the exploration programs.

Modern seaports at Takoradi and Tema located 207 km and 447 km southeast of the Project respectively and have been used for the implementation and construction of several gold mines in recent years.

## 6 HISTORY

The exploration activities in the entire Project area date back to colonial times, with activities completed sporadically and by various different individuals and companies.

Alluvial and reef gold were prospected and exploited by several generations of galamsey (local artisanal gold miner) workings to the present day. European companies explored, developed, and mined in several phases since 1900. The result is that erratic gold in vein quartz mineralization was "opened up" in a large number of pits, shafts, and drives, notably at the Sewum, Tokosea, Alatakrom, Achimfu, Nkwanta, and Kojina Hill prospects. Only the colonial Sewum and Tokosea mines appear to have any significant development and production history although this is poorly recorded. The limited mining activity ceased in the 1940s.

Table 6.1 summarizes the exploration activities that have taken place within the boundaries of the Project as currently held by Edgewater. Due to the scattered nature of the work and the various license holders, WSP cautions that the history may not be complete. The majority of the information was derived from reports and digital data acquired from Leo Shield Exploration Ghana NL (Leo Shield), Mutual Ghana Ltd (Mutual) and Kinross.

The extensive work completed by the previous landholders has resulted in the identification of at least 13 gold bearing prospects. A summary of the results for each prospect is provided in Section 7.0.

**Table 6-1 Enchi Project History**

Year	Company	Activities
1987	EQ Resources	2,837 soil samples on a 100 m x 25 m spaced grid
1993	Mt. Edon	3,260 soil samples on 6 km by 3 km, followed by a 100 m x 25 m grid spacing 250 rock chip and float samples
1994-1997	Mutual	Spot Imagery Helicopter magnetic and electromagnetics on 100 m spaced lines Fix wing magnetic and radiometric on 200 m spaced lines 2,837 soil samples on 100 m by 25 m grid spacing 2,257 soil samples on 200 m x 40 m grid spacing 34 trenches totaling 2,396 m Six diamond drillholes totaling 464 m. RC drill program totaling 1,202 m
1995-1998	Leo Shield	14,470 soil samples in 400 m by 50 m grid 89 trenches totaling 10,240 m Audit sampling at Kojina Hill and Achimfu Stream sediment sampling (76 pit) 121 RC holes totaling 7,621 m 49 RAB holes totaling 2,028 m
2003	Red Back	Assess historical data
2004	Red Back	237 regional stream sediment samples 16,728 soil samples 148 rock chip samples
2005	Red Back	695 soil samples 69 trenches totaling 5,750 m 102 RAB holes totaling 5,261 m 80 RC holes totaling 9,715 m
2006	Red Back	Ground magnetic survey IP survey 2,221 soil samples 38 trenches totaling 3,564 m 217 RAB holes totaling 7,182 m 73 RC holes totaling 7,403 m
2011	Edgewater	9,441 soil samples over 461 line kilometers Twelve trenches at Nyamebekyere totaling 396 m Three trenches at Sewum totaling 781 m Eight trenches at Boin totaling 359 m Seven trenches at Eradi totaling 1,294 m VTEM/magnetic/radiometric survey totaling 3,084 line km 180 diamond drillholes and 13 RC holes totaling 23,697 m Resource estimation completed on Boin, Sewum and Nyamebekyere. Results summarized in Section 14.11 of this technical report

# 7 GEOLOGICAL SETTING AND MINERALIZATION

## 7.1 REGIONAL GEOLOGY

The Enchi concession is located within southwest Ghana and straddles the boundary between the Sefwi Volcanic Belt to the west and the Kumasi Sedimentary Basin to the east. The Sefwi and Kumasi are comprised predominantly of Birimian-age rocks (2.17 to 2.18 Ga) (Davis et al. 1994) (Figure 7.1).

The Sefwi Belt is dominated by mafic volcanics, metasediments and intrusive granitoids that are sandwiched between sedimentary basins (Sunyani Basin to the west and the Kumasi Basin to the east). The Sefwi Belt is traceable for hundreds of kilometres along strike, but is usually only 20 to 60 km wide. The metavolcanic and metasedimentary sequences are believed to be contemporaneous, with the sediment deposited in basins eroded from the adjacent volcanic terrains (Asiedu et al. 2004).

The Kumasi basin is characterised by wide sequences of marine clastic sediments (quartzite, conglomerates and phyllites). Both the Birimian sediments and volcanics have been extensively metamorphosed to greenschist facies, locally to amphibolite facies. The boundary between the volcanic belts and basins can be gradational but is typically faulted with the faults most likely representing basin margin growth faults along which basin subsidence occurred (Hirdes and Leube 1989).

Granitoid intrusions are common within the belt and basin terrains and can be divided into two types: Belt Type (Dixcove) and Basin Type (Cape Coast) granitoids. Belt type granitoids (2,180 Ma) range from tonalite to granodiorite in composition and are confined to the metavolcanic belts. Basin granitoids (approximately 2,116 to 2,088 Ma) are mainly granodiorite in character and contain more potassium and rubidium relative to the belt granitoids and are concentrated in the central portions of the Birimian metasedimentary basins (Hirdes and Leube 1989).

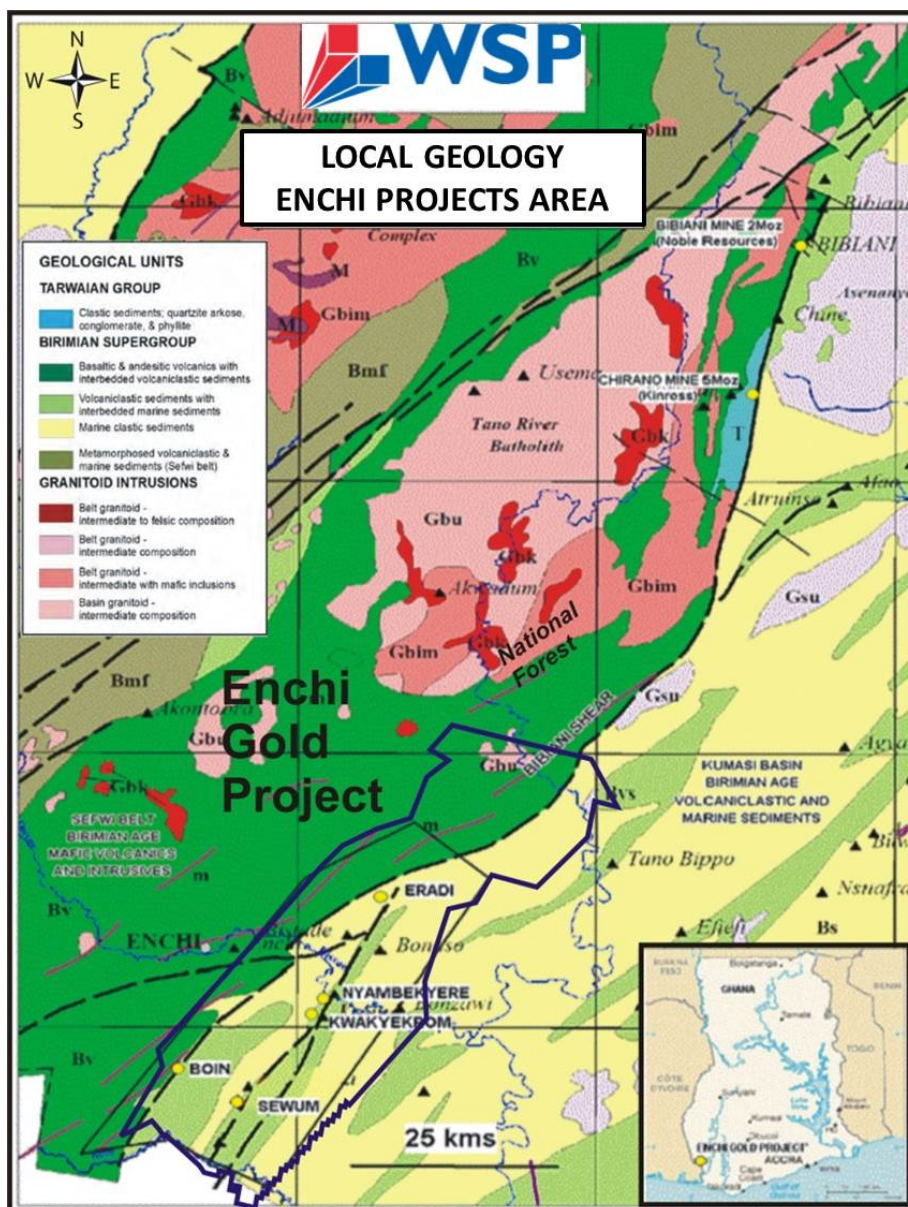
Extensive faulting occurs along the margins of the volcanic-sediments belts. Observed at local and regional scales, these northeast-trending structures are fundamentally important in the development of gold deposits for the region. The major shear system within the Enchi concession at the boundary of the Sefwi Belt and Kumasi basin is termed the Bibiani Shear Zone. Gold deposits are located in third order structures that splay off the second order structures and sub-parallel to the overall trend of the Bibiani Shear Zone. The Bibiani Shear Zone has been traced for 40 km on the Project area. Major structures within the concession are named from west to east, the Bibiani Shear (BS), the West Sewum Shear (WSS), and the Nyamebekyere Shear (NS).

The Obuasi-Enchi lineament, a major east-west crustal scale feature deflects the Bibiani Shear Zone at the north end of the Property in the vicinity of the Eradi gold prospect. This

lineament is associated with the major (40 Moz) Ashanti and (3 Moz) Akyem gold deposits in the Ashanti Belt, 100 to 200 km to the east.

Multiple tectonic events have affected virtually all Birimian rocks. The dominant event is compressional folding and thrusting from the Eburnean Orogeny (2.1 to 2.2 Ga) (Schofield 2006; Eisenlohr 1989).

**Figure 7.1 Regional Geology**



## 7.2 PROJECT GEOLOGY

The Project overlaps 40 km of the belt-basin contact on the east side of the Sefwi Volcanic Belt north of the Cote d'Ivoire border. The contact is marked by a major fault known as the Bibiani Shear Zone which also hosts the Chirano and Bibiani Gold mines located 70 km north of the Enchi licenses (Figure 7.2).

The Project is characterized by variably degraded laterite to residual soil profiles with minor caps of indurated ferro-duricrust across the main hilltops. Rock outcrops are rare due to the thick tropical weathering and jungle cover. Most rock exposures are found in road cuttings and by trenching.

Numerous other major faults splay off the Bibiani Shear Zone pass through the license area, e.g. Boin Fault, Sewum Fault, and Nyamebikyere Fault. Many gold deposits in the Enchi district are localized along or adjacent to these structures.

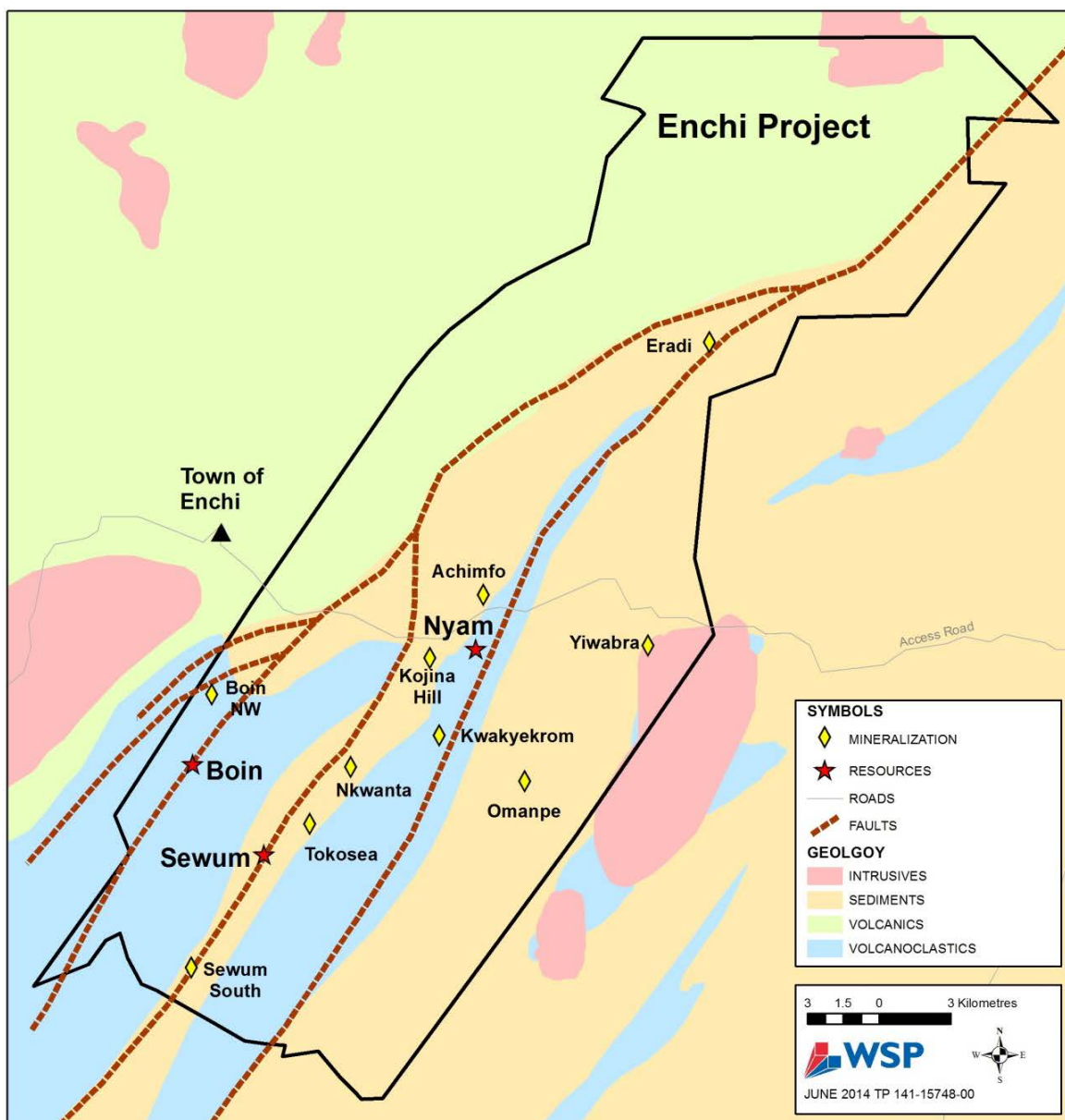
The regional scale shears are believed to have been originally formed as thrusts during northwest-southeast compression with later movements dominated by left lateral strike slip shearing (Griffis 2002).

The principal rock types found on the Project are defined below:

- Volcanics (MB): massive, very fine-grained, textureless, weathered white to brown, to deep pink and red, igneous rock generally evident as un-deformed rafts, fault-bound, within foliated and sheared volcanoclastics and pelitic sediments.
- Volcanoclastics (SVC): hanging wall, fine- to medium-grained, lithic to crystal volcanoclastic wacke, with a characteristic porous, spongy, honeycombed texture. It weathers to light pink and is variably graphitized and foliated to sheared, proximal to the late faults.
- Turbidites (SPH): footwall, metre-thick, cyclically bedded, turbidite sequence of graded, fine to medium grained, grey to black, phyllitic pelite-psammite beds. The finer pelite horizons are more preferentially strained and the coarser units are more preferentially fractured.
- Graphitic Phyllites (SPG): black, very fine to fine-grained carbonaceous and graphitically altered phyllites and schists. Each of the host rock-types may be preferentially graphitized ±silicified and sheared proximal to the reactivating faults and shears, becoming increasingly assimilated to SPG. Within and proximal to the main SPG deformation zones texture was the main discriminating feature used to distinguish and map the SVC-SPH contact.
- Quartz Veins (QV): massive 0.5 to 5 m wide, white to smoky, blue polyphase quartz veins variably faulted and graphitized and mineralized. The major quartz zones represent the main hanging wall deformation zone developed as a result of the progressive movement along the basal contact shear zone.
- Basic, Intermediate and Felsic Dykes and Sills: coarse grained granodiorite to diorite and finer grained equivalent andesites to dolerites have been logged. The felsic and intermediate dykes tend to be layer parallel, altered and structurally deformed within the surrounding host volcanics and sediments. The dolerites are generally much later, crosscutting. They were traditionally mapped as post-deformational, though they are often crosscut and displaced by late reactivation. There is evidence for multiple generations of dolerites through to post-Cretaceous times.



Figure 7.2 Project Geology



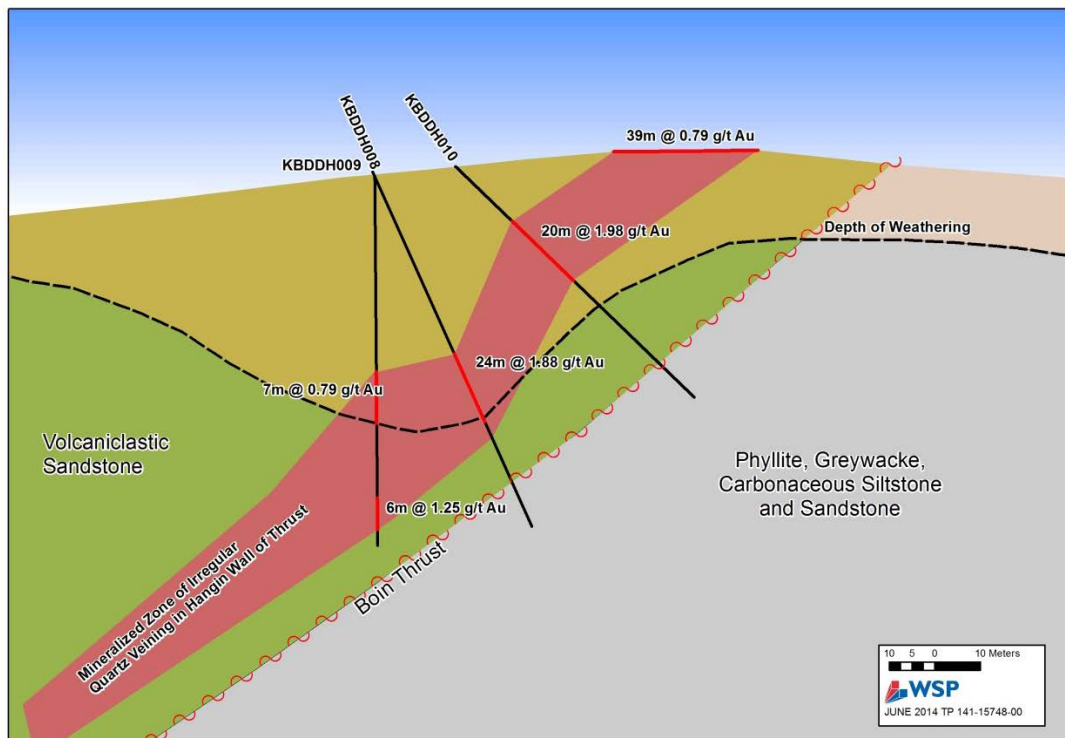
### 7.3 MINERALIZATION

Thirteen gold zones or prospects have been identified on the Project to date. A summary of the zones is illustrated in Figure 7.2.

### 7.3.1 BOIN ZONE

The Boin Shear Zone is one of a number of major structures that splay off the BS and pass through the Project. The Boin Shear Zone is interpreted as a thrust fault, dipping moderately west and is responsible for the development of the zone of mineralized quartz veins at Boin. Eleven kilometres of the Boin Shear Zone has been drill tested at shallow depths over regular intervals across the structure. Narrow intervals (1 to 2 m) of gold mineralization were intersected on most drill sections (Figure 7.3).

**Figure 7.3 Boin Generalized Section**



The Boin Shear Zone is formed in the west hanging wall of this major second-order, west-dipping, thrust contact between mafic volcanic ±volcaniclastic sediments which over-thrust turbidites to the east. The whole contact is expressed as a 10 to 30m wide graphitic shear zone, which trends 025 to 040° and dips west 30 to 70°. The Boin thrust is an early, regionally second-order splay or replication off the main basin-boundary contact further to the west. Multiple sets of crosscutting fabrics, veins and faults have been recorded within the core and trench logging. The gold is mostly found in the hanging wall quartz zone and is characterized by massive 20 to 30 m wide zones of intensive quartz veining cut and fractured by late, graphitic faults.

There are multiple generations of pyrite developed within the Boin structures. The early, barren, non-auriferous pyrite tends to be intense, well formed, coarse and cubic. The later, possibly re-mobilized, auriferous pyrite tends to form as fine to very fine, disseminated cubic



crystals within graphitic fault margins, or amorphous ribbons, rims or coatings within quartz veins.

Hydrothermal alteration displays a typical greenschist assemblage (gold + quartz + sericite ± graphite ± chlorite ± epidote ± ankerite). Chlorite + epidote clots are observed within, or proximal to, the gold mineralization within the brecciated quartz veins. These probably result from remobilization associated with regional alteration.

No visible bleaching or other styles of alteration have been observed in the host sediment related to the quartz veining apart from narrow silicified vein selvages. At the Boin Zone, the depth of intense weathering is up to 100 m in places. Weathering is deepest where the mineralization is best developed suggesting the greater intensity of veining and fracturing may have enhanced the weathering over the deposit.

### 7.3.2 NYAMEBEKYERE ZONE

The Nyamebekyere Zone strikes over a distance of 1,600 m, hosted by altered phyllite, 200 to 300 m west of the interpreted position of the second order NS. The zone of mineralization lies in the hanging wall of a northeast-striking shear that dips 70° east and is up to 30 m thick. Nyamebekyere mineralization is part of a continuous 15 km strike length of gold prospects on the Project from Nyamebekyere southwest through Kojina Hill to Sewum in the south. An extensive envelope of weak gold mineralization (more than 0.25 g/t) dips sub-vertically and strikes 030° (Figure 7.4).

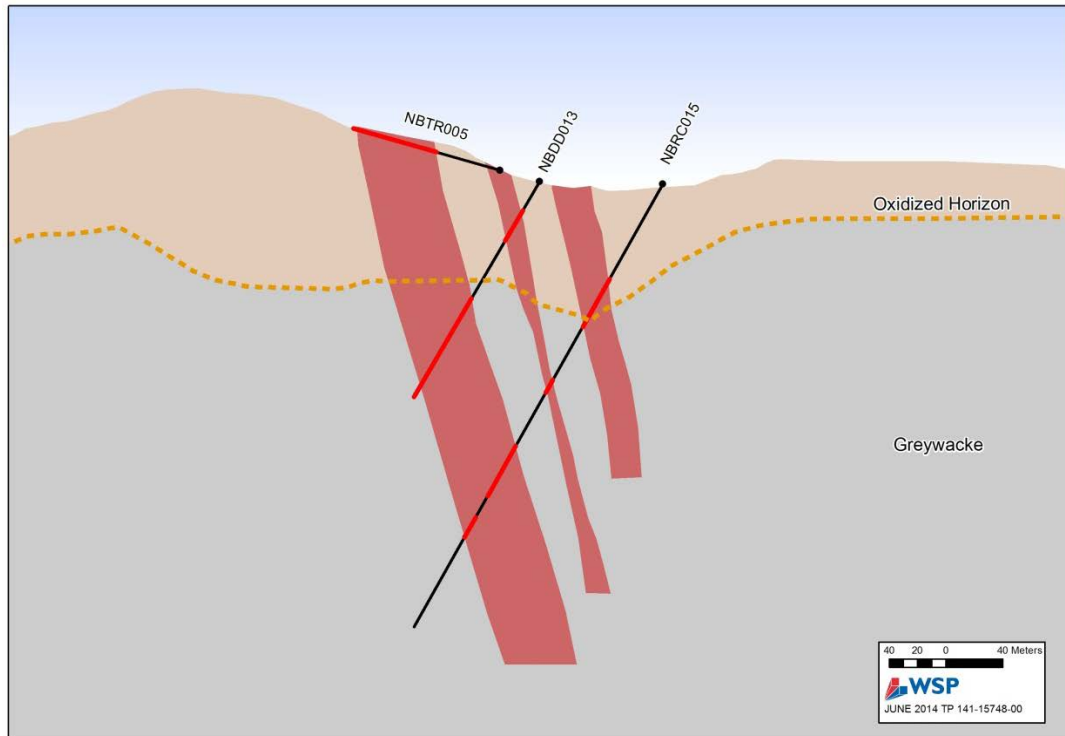
Mineralization at the Nyamebekyere Zone is composed of veined and brecciated sediment and phyllite cemented by quartz, carbonate (ankerite?), and albite and has been traced continuously in trenching and drilling for over 2,000 m along strike.

Alteration associated with the zone of veining and brecciation consists of bleaching due to replacement by sericite, quartz, ankerite, albite, rutile and minor pyrite. Pyrite typically makes up less than 1% of the infill and alteration minerals. No visible gold or arsenopyrite or base metal sulphides have been identified in any core samples to date.

The footwall of the mineralization is marked by carbonaceous shears and a 2 to 3 m wide zone of green coloured fuchsite-magnesium chlorite alteration. The fuchsite is believed to represent an alteration front where chromium leached from the altered volcanoclastic sandstone beds and has been re-deposited in micas replacing the basal shear adjacent to the quartz-carbonate-sericite alteration zone.

The zone of quartz-sericite-carbonate bleaching has a gradational upper contact and is not always mineralized. Carbonaceous shears cut through the mineralization indicating that the shear zone has continued to move after the mineralization event. Post mineralization deformation is also supported by petrologic studies that describe stylolites, recrystallization, strained and sutured quartz and albite grains in the vein material (England 2011).

**Figure 7.4 Nyamebekyere Generalized Section**



Rare sphalerite and anhedral grains of chalcopyrite less than 0.1 mm in size, rimmed by tetrahedrite – tennantite have been observed in the quartz veins during petrological studies (England 2011).

### 7.3.3 SEWUM GOLD PROSPECTS GEOLOGY

The Sewum West and South Prospects are found along the eastern contact of a thrust-bounded volcanic sliver, outcropping 6 km to the east of the Boin Zone on the NS. The gold mineralization is associated with late D2 to D4 deformation phases. It is structurally controlled within, and adjacent to, late graphitic faults focused on the margins of poly-phase quartz veins within faults. The veins developed along the axial planes of hinges and limbs of earlier hanging wall D3 drag folds ± intrusives.

The Sewum Gold Prospects form a continuous 40 km strike length of prospects from Sewum Hill northeast through Kojina Hill and Nyamebekyere Zone to the north.

The main relief of Sewum West Hill is characterized by a relict indurated, duricrust or ferricrete plateau along the main hilltop, degraded breakaways forming the slope crests and variably mixed and transported upper-slope soils progressing into residual mid- and lower-slope soils. The duricrust mantle is geochemically subdued and potentially transported ferricrete. Various surrounding hilltops have similar remnant duricrust caps and should be

evaluated with care to understand and develop the regolith model for the region. Sewum West Hill has a very significant deep weathering profile.

The Sewum setting differs, however, in the scale of shear zones as compared to those expressed at Boin and has proportionally more igneous volcanic rocks and late-stage, intrusive intermediate and felsic dykes or sills.

The Sewum Prospects are situated along several major thrust zones that crop out across the regional 3 km wide north-south corridor, south of Tokosea. The structures comprise (west to east) (Figure 7.5):

- the Road Zone (SRZ)
- Hilltop Shears (SHS)
- Main Contact Zone (MCZ)
- Sewum West Zone (SWZ)
- Sewum-Tokosea Mine Trend (SETO).

The host rocks at Sewum are dominated by interbedded carbonaceous siltstone and sandstone (turbidite). The sediments have been regionally deformed to greenschist facies, are steeply dipping, and typically strike north-northeast (30°) parallel to the regional structural grain. A steeply dipping dolerite dyke 3 km long and up to 500m wide has been intersected in the drilling and acts as an important host to gold mineralization in the Sewum area.

Three styles of mineralization have been identified at Sewum:

- disseminated arsenopyrite associated with quartz veining and silicification in sheared sediment, e.g. Sewum Shear Zone
- quartz – sericite – carbonate replacement of sheared dolerite and sediment localized along moderately (40°) dipping shears hosted within dolerite, e.g. Sewum Ridge Top Shears (SRTSZ)
- brecciated and stockworked sediment and dolerite developed at the margin of the dolerite dyke and replaced and in-filled by quartz-sericite ankerite and minor sulphides, e.g. Checkerboard Hill, East Contact Zone (ECZ), and West Contact Zone (WCZ).

The Sewum Shear Zone represents a major regional structure that can be traced within Ghana for 25 km south from where the shear branches off the Bibiani Shear Zone and continues across the Ghana border into Cote d'Ivoire. The shear has a complex anastomosing geometry with numerous splays and has played a major role in localizing gold mineralization in the Sewum area, e.g. Adamansu, Sewum and Tokosea goldmines currently operating small scale mines.

Striking north-northeast, the Sewum Shear is typically vertical to steep west dipping and can be up to 100 m wide. Mylonitic fabric has been observed within the shear zone in places. Gold mineralization within the Sewum Shear is related to a phase of quartz veining with associated arsenopyrite.

Mineralization is discontinuous and appears to be related to an early phase of quartz veining that has been brecciated by later movement along the Sewum Shear.

The dolerite dyke at Sewum has acted as a solid “node” with the bulk of the regional scale deformation absorbed by the surrounding host fine grained carbonaceous sediment. Branches of the Sewum Shear have anastomosed around the dolerite dyke and in places mark the contact.

The most significant zone of continuous gold mineralization identified in drilling at Sewum is the Ridge Top Shears Zone (RTSZ), related to moderately dipping shears up to 20 m thick hosted within the dolerite dyke.

The relationship of these shears with the Sewum Shear Zone is unclear but they are most likely temporally related. The shears within the dolerite may be thrust faults or faults that link between the steep shears that anastomose around the dolerite dyke.

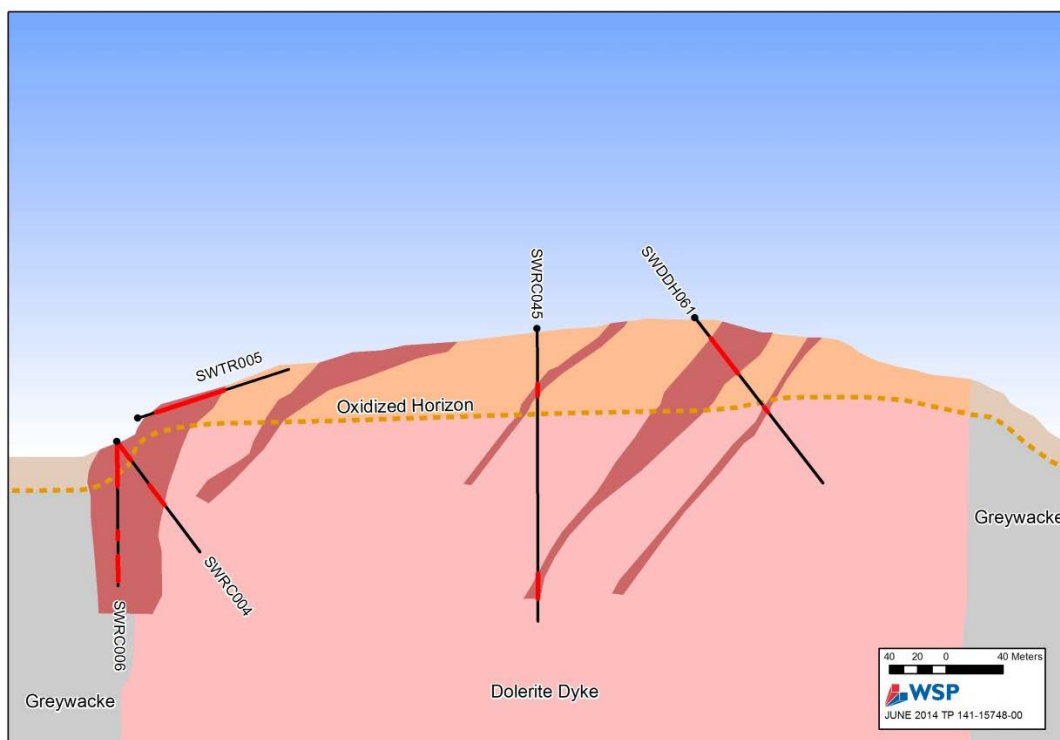
The dolerite intrusive has not been faulted into place as along the dykes west margin features typical of intrusive contacts such as frictional “intrusive breccia”, hornfelsing of adjacent sediment and chilled margins within the intrusive have been observed. The age of the dolerite dyke is not certain however the partially sheared east contact, spatial relationship with gold mineralization and some drill core features indicative of soft sediment deformation at the intrusive contact, indicates the intrusive was probably emplaced during the Eburnean Orogeny similar to most other mafic intrusives in the region. It is also possible the dyke may have been intruded as a sill along bedding planes and later tilted vertical during region deformation along with the host sediment.

The size and composition of the intrusive at Sewum is more akin to the “belt” style intrusives than the “basin” style intrusives which tend to be larger, coarser grained and felsic in composition (Griffis et al. 2002).

The presence of the dolerite body within the Sewum Shear Zone is significant in that the intrusive represents a more competent rock type compared to the surrounding sediment and is more likely to deform in a brittle manner during faulting and deformation, potentially making a better (more permeable) host to mineralization similar to the Chirano Gold Mine (brecciated granite host).

Mineralized breccia and stockworking is commonly found along the margin of the dolerite dyke (ECZ and WCZ). The breccia is composed of angular clasts of siltstone and dolerite in a clast support fabric cemented by quartz, carbonate and minor pyrite. The breccia texture indicates very little milling and mixing of fragments has occurred and was formed by hydraulic fracturing, probably in response to fault movement near the intrusive contact.

Figure 7.5 Sewum Generalized Section



### 7.3.4 ERADI

The Eradi Prospect is located in the north of the Enchi license area where the regional structures converge and gradually change strike from north-northeast to northeast. Very little outcrop exposure is present at Eradi due to the thick weathering profile and laterite development. All geology mapped comes from trenches and drillholes.

The Nyamebekyere Shear Zone (NSZ) is one of a number of major structures that splay off the Bibiani Shear and pass through the Enchi license area. Mineralization at Eradi is developed within a second order shear that parallels and lies 300 m west of the NSZ. Gold mineralization at Eradi is entirely hosted in quartz veins. The veins are very irregular in shape, size and orientation, rarely exceeding 1 m in thickness and tend to dip moderately (20 to 60°) east. The intensity of veining varies markedly between drill sections. Quartz in the veins is composed of white, less than 10 mm anhedral grains that are often fractured and recrystallized by later shearing. The quartz veins are generally quite pure; contain no sulphides and rare carbonate minerals.

No visible bleaching or other styles of alteration have been observed in the host sediment related to the quartz veining apart from narrow silicified vein selvages. No intrusives have been identified in trenches or drill core at Eradi.

The host rocks at Eradi are dominated by interbedded carbonaceous siltstone and sandstone (turbidite). The sediments have been regionally deformed to greenschist facies,

are steeply dipping, and typically strike NE (40°) parallel to the regional structural grain. Gold mineralization at Eradi is hosted in irregular quartz veining localized along northeast striking shear zones with a near vertical dip.

### 7.3.5 ACHIMFU

Several thin (less than 1 m wide) quartz veined structures are hosted by phyllite exposed in old workings including small shafts and galamsey workings over strike-lengths of up to 400 m and depths of up to 40 m. Erratic high-grade gold is hosted by quartz veining. The vein hosting structures are considered steep southeast dipping thrusts that juxtaposed folded finer and coarser grained metasediments (carbonate altered siltstones, pyrite altered quartzite and greywacke).

### 7.3.6 ADAMANSU

Quartz veining is hosted by phyllite, within a contact zone, with volcanoclastics to the west. The contact zone is possibly the fault displaced strike extension of that at the Sewum mine and the southern extension of that at the Tokosea Mine.

### 7.3.7 ALATAKROM

The Alatakrom Prospect is along strike, north-east of the Tokosea East Prospect. Several conformable sub-vertical gold mineralized quartz vein zones are hosted by phyllite, within 50 m of a contact with volcanoclastics to the west.

### 7.3.8 BEEKOKROM

The prospect straddles projected strike positions of mineralized structures defined at the Kwakyekrom Prospect, 2 km to the southeast.

### 7.3.9 KOJINA HILL

Mineralization is hosted by a zone of deeply weathered quartz-veined phyllite. Fuchsite altered greywacke is also noted. Mineralized zone dips west at 80° and plunges steeply to moderately north.

### 7.3.10 KWAKYEKROM

The Kwakyekrom Prospect is 4 km southwest of the Nyamebekyere Zone. Several shear hosted gold lodes strike northeast and dip steeply (70 to 80°) east within phyllite, 500 to 900 m west of the NS.

### 7.3.11 NKWANTA

An adit at the Nkwanta Prospect tests a weakly mineralized narrow quartz vein over a strike of 300 m. The quartz vein is hosted by phyllite, within a contact zone, with volcanoclastics to the west. The contact zone is possibly the strike extension of that in the Tokosea Mine 3 km to the south.

### 7.3.12 SEWUM MINE

The Sewum Mine developed two narrow (0.5 to 1 m wide) quartz veins; the Main Reef and West Reef, over a strike of 450 m. The veins dip southeast at 45 to 60° within a strongly deformed carbonaceous phyllite near a contact with less deformed volcanoclastics to the west. The Sewum Mine is possibly hosted by a bedding concordant splay from the second order splay.

From 1940 to 1951 the Kwahu Mining Co. deepened the main shaft to 120 m and developed the 45 m and 78 m levels. No production was recorded (Kesse 1985).

### 7.3.13 TOKOSEA MINE

The Tokosea Prospect is located on the same phyllite/volcanoclastic contact as that located west of the Sewum Mine, although offset by faulting south of Adamansu. The prospect includes the workings of the Tokosea Mine along with several parallel and en echelon gold mineralized quartz veined zones some 30 m to the east, including the Tokosea East Prospect. The mine has development on the 18 m, 27 m, and 45 m levels.

All the significant gold mineralization is hosted by sub vertical quartz veined structures in phyllite with some gold in quartz veinlets within the volcanoclastic unit. The main structure developed in the Tokosea Mine is a shear hosted, thin (0.3 to 1 m) lenticular quartz vein, dipping 85° northwest, and following a contact between a dominantly argillaceous (phyllite) footwall (eastern) and a dominantly volcanoclastic hanging wall (western) unit. The immediate host rock is a black carbonaceous phyllite. The general strike is 030°.

### 7.3.14 TOKOSEA SOUTH

An adit intersected patchy gold (the best result was 1 m at 2.04 g/t) on a shear zone with quartz stringers and veins hosted by phyllite, within a contact zone, with volcanoclastics to the west. The contact zone is the strike extension of that in the Tokosea Mine, 800 m to the northeast.



## 8 DEPOSIT TYPES

The Project mineralized zones have the characteristics of epigenetic, mesothermal quartz vein style gold deposits. This type of mineralization is the most important type of gold occurrence in West Africa, and is commonly referred to as the Ashanti-type.

Mesothermal mineralization has a strong structural control and brittle-ductile deformational style that is related to large tectonic corridors (more than 50 km long and several kilometres wide). These deformational zones display evidence of complex multiphase displacement with mineralization typically associated with second and third order structures (Roberts 1988). Auriferous veins are best developed at dilatational sites where structural or compositional irregularities occur within the shear structure. Favourable sites include conjugate or branching shear zone intersections, major flexures within the shear plane and compositional variations associated with major lithological contacts or incorporated dyke material.

The most common host rock is usually a fine-grained metasediment in close proximity to graphitic or siliceous chemical sediments. However, in some areas, mafic volcanic and intrusive rocks are known to host significant gold mineralization as at Kinross's Chirano Gold Mine located 70 km north-east of the Project.

Mesothermal alteration is generally more visible within greenschist facies settings. Alteration usually occurs as chloritization, pyritization, silicification and tourmalinization, with minor amounts of potassic and alkali feldspar alteration as well as potassic phyllosilicate (sericite, muscovite, and biotite) alteration. Carbonate alteration is pervasive (ankerite, and calcite) on regional- and deposit-scales (Vu et al. 1987).

Mineralization can occur as both refractory and non-refractory styles. Refractory mineralization is characterized by early-stage, disseminated sulphides of primarily pyrite, and/or arsenopyrite hosting significant gold content, which is overprinted by late-stage quartz veining with minor amounts of visible gold and accessory polymetallic sulphides. Examples of the refractory-style deposits include Obuasi (10.11 Moz gold proven + probable reserves 2013, AngloGold), and Boloso/Prestea (3.95 Moz gold proven + probable reserves 2013, Golden Star Resources). Non-refractory ore is described as gold not hosted within sulphide minerals of either the early or late stage mineralization events. Examples of non-refractory mineralization include Chirano (1.42 Moz gold proven + probable reserves 2013, Kinross), and Ahafo (17.3 Moz gold proven + probable reserves 2013, Newmont).

The reserves and resource stated in the previous paragraph have not been validated by the QP, are not indicative of the mineralization on the Enchi Project. The reserves and resources stated in the previous paragraph and have been only been disclosed to show the potential of the Property based on existing or past producers in the regions.



# 9 EXPLORATION

Exploration was completed by Edgewater in 2012 – 2013 consisting of line cutting, soil sampling, trenching, and auger drilling. The principal targets were anomalies generated from the airborne geophysical surface. The work included both wide-spaced and detailed surveys. Results included anomalous gold in soils, trenches and auger which warrant additional follow-up work.

The procedures for each of the exploration method was summaries from the “Geologist’s Procedures Manual, Version 1.0, October 1, 2005” generated by Red Back Mining (Red Back, 2005).

## 9.1 SOIL

All soil sampling is conducted in the presence of a geologist and was not carried out by technicians alone. Samples were collected from +/- 50cm depth and were 2-3kg of material. Duplicates samples were collected every 25 samples. To collect the duplicate, a larger hole to be dug to collect 5-6kg of sample and mixed thoroughly on plastic sheet. The material was then coned and quartered into 2 samples. Table 9.1 summarizes the soil work completed.

**Table 9-1 Soil Survey Summary**

Prospect	Area covered (km <sup>2</sup> )	No. of lines	Grid (spacing)	Total line Length (km)	No. of samples	Type of sample
<b>Yiwabra</b>	56.00	57	400m x 50m 200m x 50m	108.8	4722	Soil
<b>Omanpe</b>	52.00	33	400m x 50m	96.8	2595	Soil
<b>Enkye</b>	35.00	10	400m x 50m	60.0	986	Soil

## 9.2 TRENCHING

The trenches were dug 80 cm to 100cm wide with a maximum depth of 3.5m.

The name of a trench consists of a two letter prospect prefix, followed by “TR” and then a sequential numbering.

For consistency trenches start at the western end (collar) and intervals are measured along the surface using slope distance, not horizontal distance. This allows correct plotting of the trench as a three dimensional entity. If a trench needs to be dug in separate segments to get around obstacles such as large boulders and trees. To allow routine plotting of the trench as a Drillhole, each segment must be considered to be a separate trench, with its own collar, and with its sample intervals starting at zero at its western end. The segments of a trench are identified by suffixes, for example CHTR798A, CHTR798B, from west to east.

Completed trenches are measured by marking out intervals along the surface starting from zero at the western end. Strings may be dropped down the sides of the trench to help the marking of the 1 or 2 metre sampling intervals near the base of the trench.

The trenches are surveyed as a three dimensional entity, and trench data is stored in the standard drilling tables of the database (collar, survey, assay, geology). The collar coordinates are determined by tape and compass, GPS, DGPS, EDM survey dependent on the stage of the project.

The surface trace of the trench is surveyed from the collar to the end using tape, compass and clinometer the produce a “downhole” survey file. The intervals are chosen to match inflection points in the trench trace.

The from and to measurements are slope measurements along the surface and are not corrected to horizontal distances.

The survey is usually done by a geologist and assistant. The assistant has a pole with a mark at the geologist’s eye height. The geologist stands at the collar, the assistant at the first inflection point, and the geologist sights on the mark on the pole to record the inclination and azimuth.

Continuous channel samples are cut from the centre line of the floor of the trench. The trench must be checked by a geologist prior to sampling to ensure saprolite has been reached. The base of the trench must be cleaned by brushing or using a spade prior to sampling. Trenches are sampled by lithology, routinely using 2m intervals with a minimum interval 0.5m.

Duplicates were taken every 25 samples. This is a second channel cut either just above or just below the original sample.

Table 9.2 summarizes the work completed on the trenches.

**Table 9-2 Trench Summary**

Prospect	Area covered (km <sup>2</sup> )	No. of samples	No. of trenches	Total Length (m)	Significant results (ppm)	Type of sample
<b>Achimfo</b>	1.00	334	5	615.6	24m @ 0.84 g/t Au	Trench
<b>Sewum-Tokosea</b>	0.30	520	7	992.0	34m @ 0.31 g/t Au	Trench
<b>Boin NW</b>	0.40	783	11	1563.7	10m @ 1.64 g/t Au	Trench
<b>Gyasikrom</b>	0.50	292	3	540.0	no sig. assays	Trench

### 9.3 AUGER

Auger holes are vertical (-90°) and therefore no azimuth is required in the collar file. In the survey file a -90° dip will be required at 0m and at end of hole in the downhole survey file.

Sampling should be carried out on the basis of regolith geology. Lateritic soils, mottled clays and saprolite were sampled separately. The A soil horizon was not sampled

Duplicates were taken every 25 samples.

Table 9.3 summarizes the Auger work completed.

**Table 9-3 Auger Summary**

Prospect	Area covered (km <sup>2</sup> )	No. of samples	No. of holes	Total Depth (m)	Significant results (ppm)	Type of sample
<b>Achimfo</b>	1.00	587	264	776.0	assays to 0.5g/t Au	Auger
<b>Yiwabra</b>	0.26	325	240	790.0	assays include 2.35g/t and 1.21 g/t Au	Auger
<b>Gyasikrom</b>	1.55	1051	278	949.0	assays to 0.5 g/t Au	Auger

## 9.4 ACHIMFO

The Achimfo Target is located in the central portion of the Enchi Project, approximately one kilometer north of the Nyamebkyere deposit (Figure 9.1). The mineralized zone is located along the same structure which hosts the Nyamebkyere mineralization. Previous soil sampling at Achimfo had generated moderate anomalous results and the airborne geophysical survey highlighted a linear radiometric anomaly. Work completed consisted of five trenches for 615.6m and 264 holes for 776m (587 samples). The trenches and augers were completed over an area of one kilometre by one kilometre. Significant results for trenches included 24m 0.84 g/t Au and 14.0m @ 0.49 g/t Au (Figure 9.2).

## 9.5 BOIN NW

The Boin NW Target is located in the west-central portion of the Enchi Project, approximately one kilometer west-northwest of the Boin deposit (Figure 9.1). The mineralized zone is located along a sub-parallel structure to that which hosts the Boin mineralization. Previous soil sampling at Boin NW had generated moderate anomalous results and the airborne geophysical survey highlighted a linear radiometric anomaly. Work completed consisted of eleven trenches for 1563.7m. The trenches exposed silicified and brecciated volcanoclastic sediments and quartz veining with disseminated sulphides. The trenches were completed over an area two kilometres long and 200 metres wide. Weakly to Moderately anomalous results were returned in most trenches with significant results including 10m @ 1.64 g/t Au and 8.0m @ 0.49 g/t Au (Figure 9.2).

## 9.6 SEWUM-TOKOSEA

The Sewum-Tokosea Target is located in the south-central portion of the Enchi Project, approximately 500 to 1500 metres north of the Sewum deposit (Figure 9.1). The mineralized zone is located along a series of structures sub-parallel and along trend from the structure which hosts the Sewum mineralization. Previous soil sampling at Sewum-Tokosea had generated moderate anomalous results and the airborne geophysical survey outlined a series of linear radiometric anomalies. Work completed consisted of seven trenches for 992metres. The trenches were completed over an area of two kilometres by 200 metres. The trenches exposed highly oxidized volcanoclastic sediments with brecciated quartz veins and foliated graphitic phyllites. Weakly anomalous results were returned in most trenches with significant results including 34m @ 0.31 g/t Au (Figure 9.2).

Figure 9.1 Enchi 2012 Exploration Summary Map

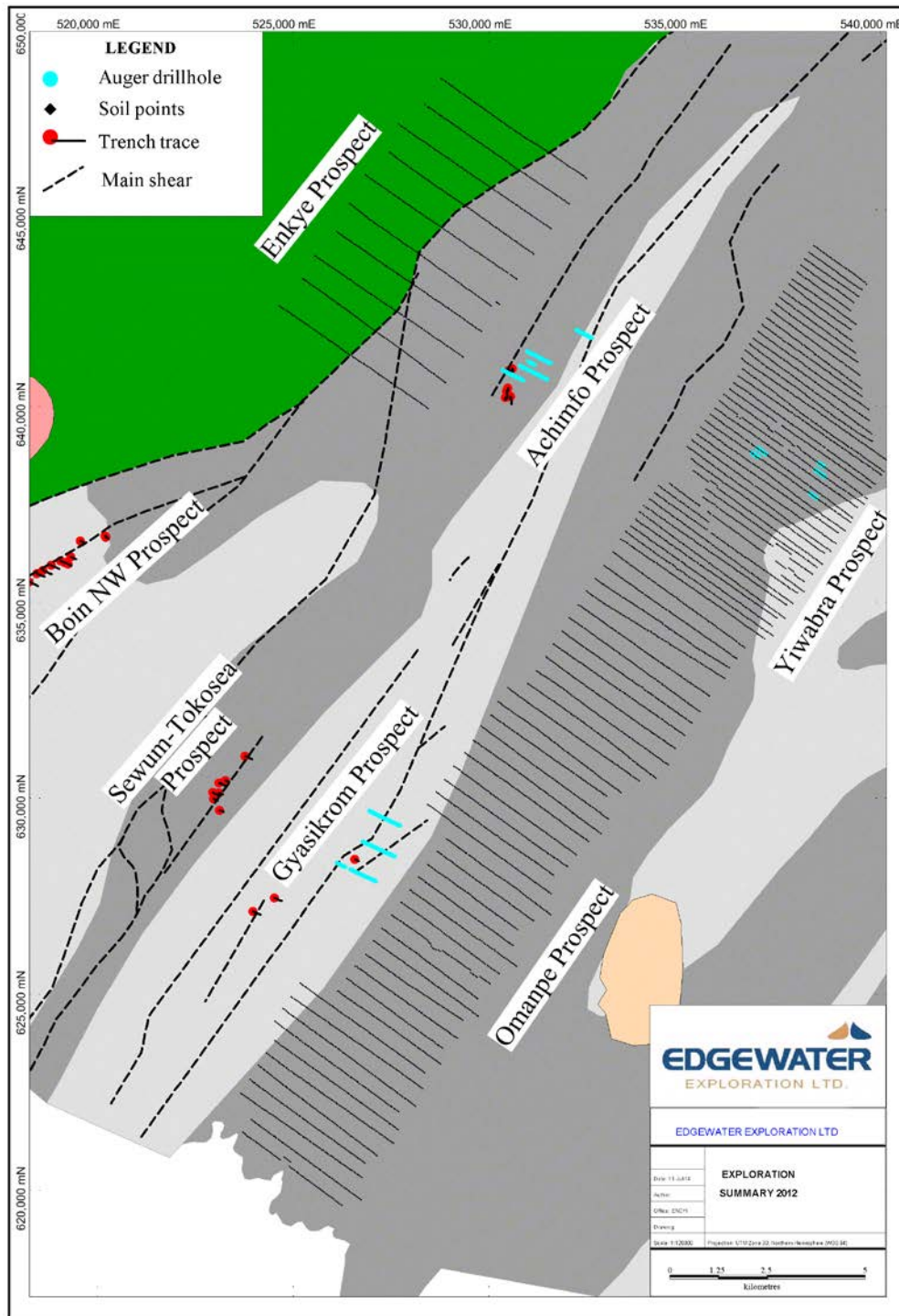
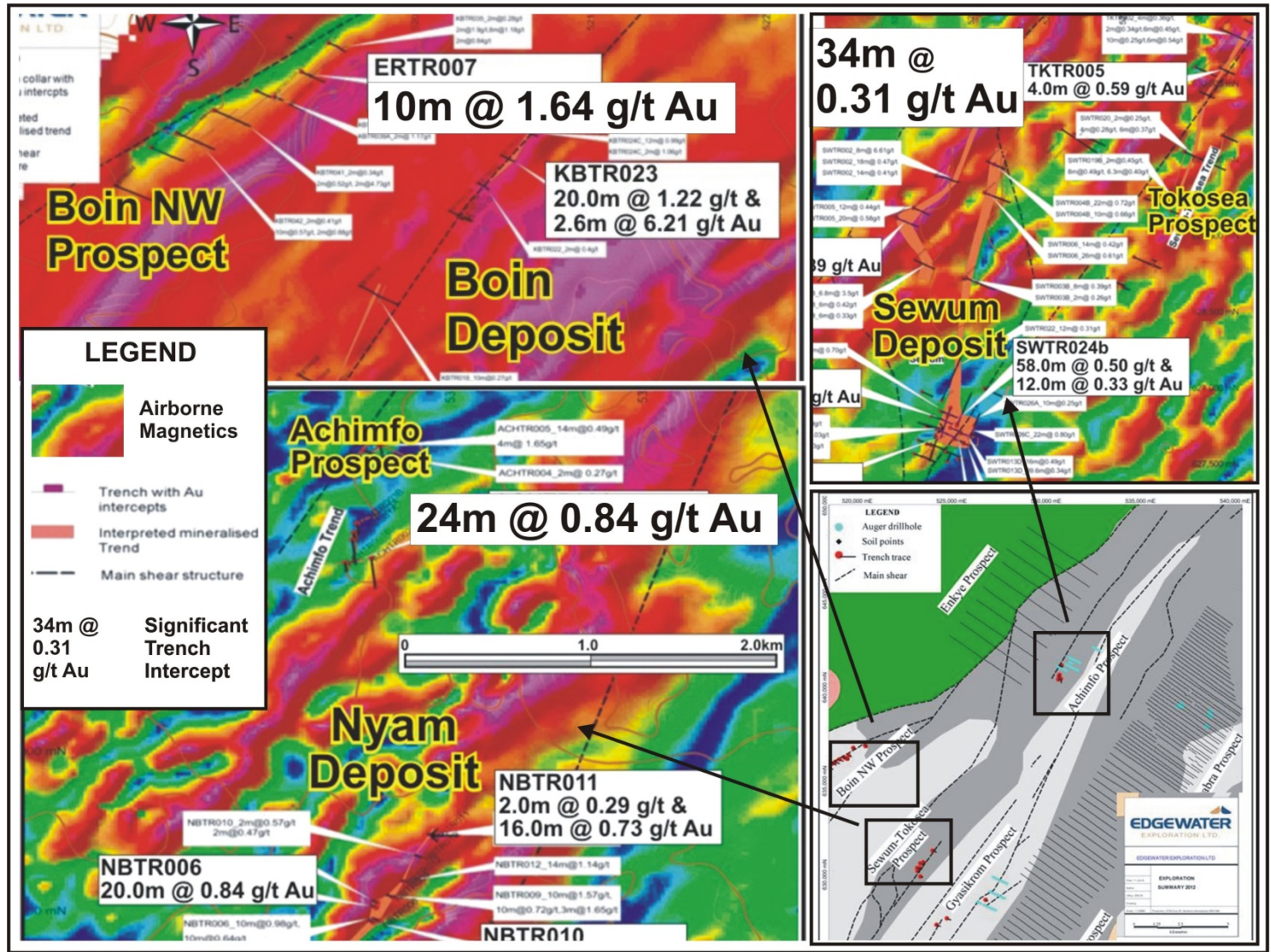




Figure 9.2 Enchi Trench Results



## 9.7 GYASIKROM

The Gyasikrom Target is located in the south-eastern portion of the Enchi Project, approximately two kilometers east of the Sewum deposit (Figure 9.1 and Figure ). Limited previous work had been complete in this area consisting of wide-spaced soil sampling which generated isolated weakly anomalous results. The airborne geophysical survey outlined a large one kilometre by three kilometre area interpreted to be underlain by intrusive rocks. Work completed consisted of three trenches for 540metres and 278 auger holes for 949.1metres (1051 samples) completed over an area of four kilometers by one kilometer. The trenches did not return anomalous values and the auger returned isolated moderately anomalous values including 0.66 and 0.58 g/t Au (Figure 9.3).

## 9.8 YIWABRA

The Yiwabra Target is located in the east-central portion of the Enchi Project, approximately four kilometers east of the Nyamebekyere deposit (Figure 9.1). Limited previous work had been complete in this area consisting of wide-spaced soil sampling which generated isolated weakly anomalous results. The airborne geophysical survey outlined a large area interpreted to be underlain by intrusive rocks. Work completed consisted of a detailed soils sampling program including the collection of 4722 soil samples along 57 lines totaling 108.8kilometres over an area of fourteen kilometers by four kilometers. Additionally 240 auger holes for 793.5metres resulting in the collection of 325 samples were completed. The soil sampling generated a series of moderately anomalous results including some approximately five areas, each 100 metres wide and several hundred metres long, with generally anomalous results. The auger drilling follow-up on the anomalous soil results and returned significant values including; 2.35 and 1.21 g/t Au (Figure 9.3).

## 9.9 OMANPE

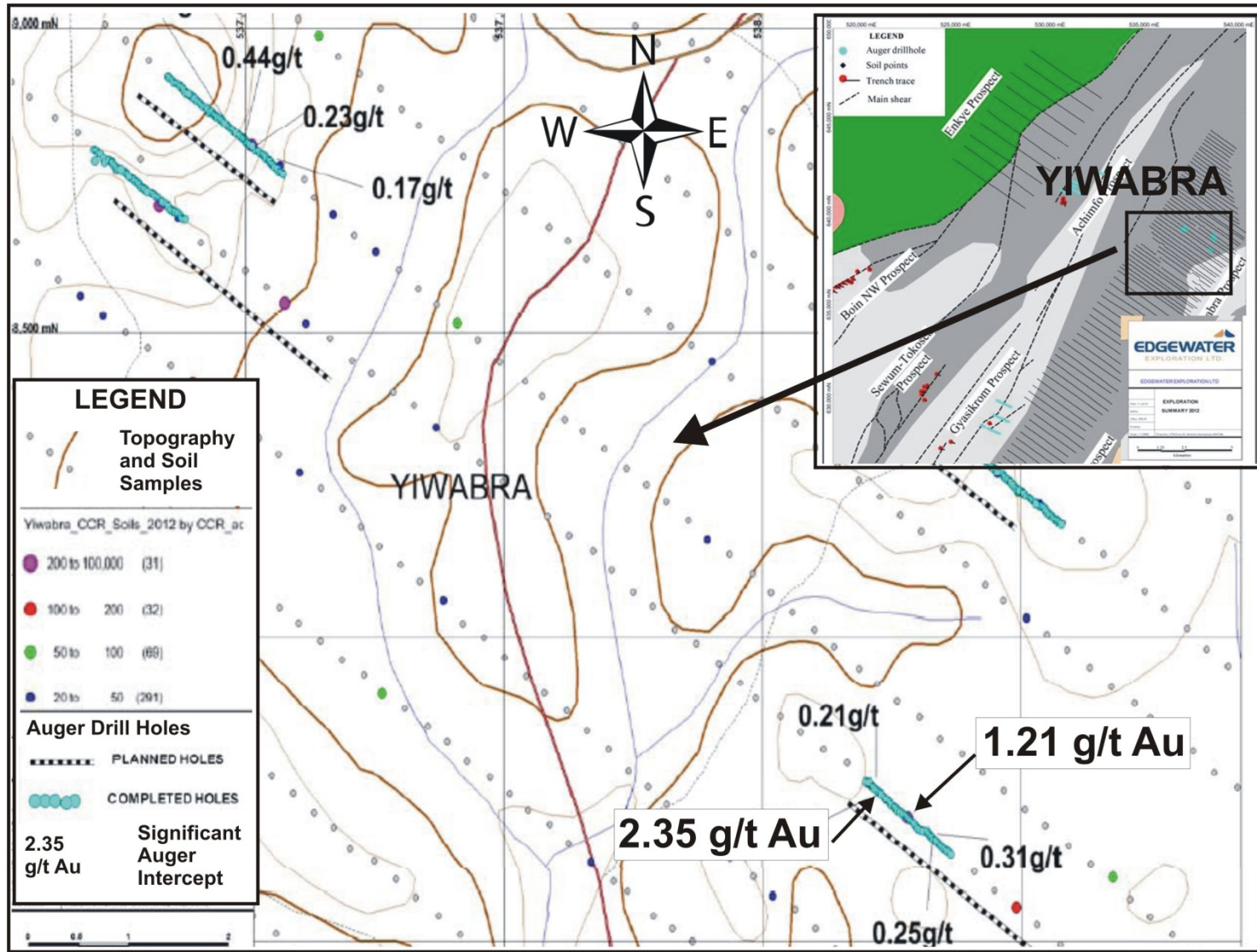
The Omanpe Target is located in the east-central portion of the Enchi Project, approximately five kilometers southeast of the Nyamebekyere deposit (Figure 9.1). Limited previous work had been complete in this area consisting of wide-spaced soil sampling which generated isolated weakly anomalous results. The airborne geophysical survey outlined a large area interpreted to be underlain by intrusive rocks. Work completed consisted of 2595 soil samples along 33 lines totaling 96.8 kilometres over an area of thirteen kilometer by four kilometers. The soil sampling generated weakly and rarely moderately anomalous results often as isolated anomalous results.

## 9.10 ENKYE

The Enkye Target is located in the west-central portion of the Enchi Project, approximately five kilometers northwest of the Nyamebekyere deposit (Figure 9.1). Limited previous work had been complete in this area consisting of wide-spaced soil sampling which generated isolated anomalous results. The airborne geophysical survey outlined a large area with moderately complex radiometric and magnetic anomalies. The line cutting and soil sampling program was completed over the interpreted volcanic–sediment contact within the Enkye license on 400m x 50m spacing infilling the original 800m x 50m. Work completed consisted of 986 soil samples completed along 10 lines of length totaling 60.0.8kilometres over an area seven kilometers by five kilometers. The soil sampling generated a limited number of weakly anomalous results as well as three spot highs including; 354, 1386, and 6453 ppb Au.



Figure 9.3 Enchi Significant Auger Results



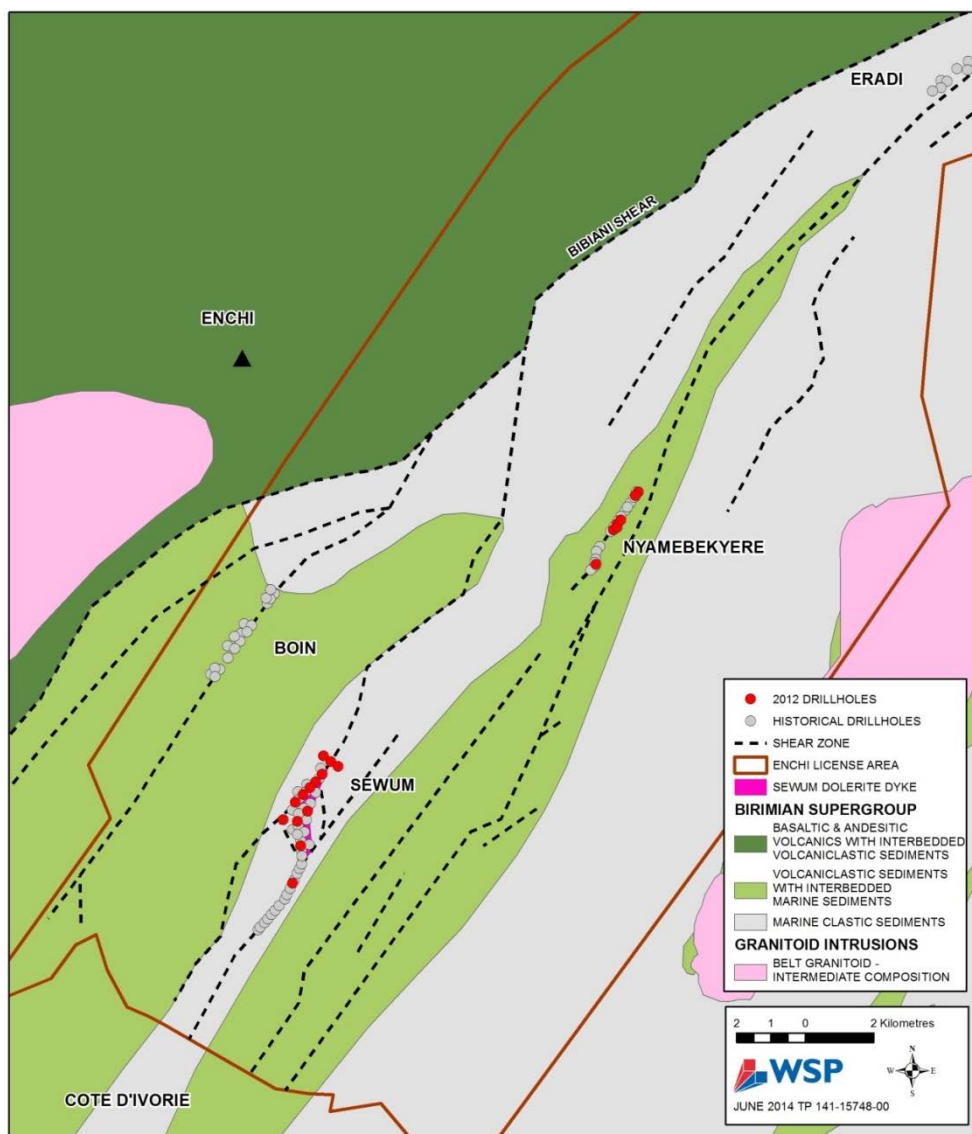


# 10 DRILLING

## 10.1 DRILLING

The 2012 RC drilling program undertaken on the Project commenced in March 2012 and was completed in April 2012. A total of 25 RC drillholes were completed for a total of 4,058 m (Figure 10.1 and Table 10.1).

**Figure 10.1 2012 Enchi RC Drillhole**



**Table 10-1 2012 Enchi RC Collar Locations**

<b>Borehole Id</b>	<b>Hole Type</b>	<b>Easting</b>	<b>Northing</b>	<b>Elevation</b>	<b>Bearing</b>	<b>Dip</b>	<b>Depth (m)</b>	<b>Prospect</b>
NBRC007	RC	531304.91	639189.88	69.85	294	-60	120.0	Nyamebekyere
NBRC008	RC	531324.98	639177.38	70.64	294	-60	130.0	Nyamebekyere
NBRC009	RC	530424.41	637522.88	91.19	294	-60	180.0	Nyamebekyere
NBRC010	RC	531079.83	638767.67	72.35	294	-60	150.0	Nyamebekyere
NBRC011	RC	531074.26	638694.50	78.32	294	-60	150.0	Nyamebekyere
NBRC012	RC	530745.87	638053.57	133.17	294	-60	220.0	Nyamebekyere
NBRC013	RC	530706.39	637955.97	100.90	294	-60	200.0	Nyamebekyere
NBRC014	RC	530651.13	637904.31	88.62	294	-60	200.0	Nyamebekyere
NBRC015	RC	530656.72	637945.96	90.32	294	-60	174.0	Nyamebekyere
SWRC041	RC	521733.72	629877.10	228.48	0	-90	150.0	Sewum
SWRC042	RC	521768.10	629965.57	181.69	0	-90	150.0	Sewum
SWRC043	RC	521771.55	629964.53	181.12	114	-50	100.0	Sewum
SWRC044	RC	521287.51	629011.41	231.08	0	-90	210.0	Sewum
SWRC045	RC	521356.04	629090.71	192.11	0	-90	216.0	Sewum
SWRC046	RC	521383.22	629175.57	230.59	0	-90	206.0	Sewum
SWRC047	RC	521533.49	629530.43	235.08	0	-90	200.0	Sewum
SWRC048	RC	521601.03	629724.12	233.58	0	-90	204.0	Sewum
SWRC049	RC	521691.94	629788.02	193.58	0	-90	162.0	Sewum
SWRC050	RC	521733.22	629877.11	228.48	114	-55	140.0	Sewum
SWRC051	RC	521293.79	628589.07	226.12	114	-60	150.0	Sewum
SWRC052	RC	521168.95	628244.19	128.67	84	-60	156.0	Sewum
SWRC053	RC	521001.41	628915.55	98.99	114	-60	120.0	Sewum
SWRC055	RC	522064.47	630264.37	119.80	114	-60	120.0	Sewum
SWRC056	RC	521894.04	630257.95	120.92	114	-60	120.0	Sewum
SWRC057	RC	521784.09	630273.10	121.12	114	-60	130.0	Sewum

## 10.2 NYAMEBEKYERE

Edgewater completed an RC drilling program at Nyamebekyere from between April 13 and April 24, 2012. The program consisted of nine reverse circulation holes totaling 1,524 m. Seven of the RC holes targeted the know resource area while two of the holes were exploration holes, well outside the resource area. The program used a truck mounted LC 36 operated by Boart Longyear (Figure 10.2).

Reverse circulation drilling within the resource area was designed to test the eastern shear system and the northern strike extension of the Nyamebekyere mineralized zone. All seven reverse circulation holes drilled to test the Nyamebekyere mineralized zone intersected quartz veining and zones of bleaching caused by quartz – sericite – carbonate alteration with anomalous gold results (Table 10.2). The intervals stated in the results table reflect downhole intervals and do not reflect true thickness of the mineralization.

Generally, the width and grade of the mineralization intersected in the near surface, clayey, weathered zone were better than in fresh rock, suggesting some supergene enrichment has occurred.

Figure 10.2 Reserve Circulation Drill



Table 10-2 Nyamebekyere RC Results

Borehole Id	Prospect	From (m)	To (m)	Interval (m)	Grade (g/t gold)
NBRC009	Nyamebekyere	85	88	3	0.73
		91	92	1	0.74
		108	109	1	0.42
		113	114	1	2.08
		117	126	9	0.49
NBRC010	Nyamebekyere	73	91	18	0.46
NBRC011	Nyamebekyere	113	115	2	0.51
NBRC012	Nyamebekyere	108	110	2	1.76
		117	118	1	0.46
		121	122	1	0.48
		166	174	8	0.47
NBRC013	Nyamebekyere	144	160	16	0.64
		165	166	1	0.44
NBRC014	Nyamebekyere	67	69	2	0.90
		104	105	1	0.41
		109	115	6	1.03
		124	137	13	0.80
		175	177	2	0.69

Borehole Id	Prospect	From (m)	To (m)	Interval (m)	Grade (g/t gold)
<b>NBRC015</b>	Nyamebekyere	55	58	3	0.82
		93	95	2	0.92
		113	116	3	2.20
		121	122	1	0.92

### 10.3 SEWUM

Edgewater completed 16 RC holes totaling 2,534 m at Sewum. The aim of the program was to better delineate the mineralization associated with the RTSZ.

Drilling at Sewum was completed using a truck mounted LC 36 operated by Boart Longyear.

No new drilling was conducted on the Sewum South, ECZ, WCZ or Checker Board areas.

The 2012 RC holes drilled to target the RTSZ were drilled either vertically or dipping east. The RTSZ is hosted within the dolerite intrusive and is situated on top of the main Sewum Ridge. The zone consists of several stacked shallow dipping hears which average 20 m in thickness, was traced in drilling for over 1,000 m along strike and remains along strike to the south toward the Checker Board Zone.

The northern strike extension of the RTSZ appears to be significantly thinner as evident in SWRC056 and SWRC057 with intervals approximately 7 m thick. The down dip extension of the RTSZ would be limited by the width of the dolerite intrusion. If additional zones exist at depth, these zones would appear as stacked lenses at depth. Currently, there have been no indications that such a system exists at depth.

Table 10.3 summarizes the significant results from the 2012 Sewum drilling. The intervals stated in the results table reflect downhole intervals and do not reflect true thickness of the mineralization.

**Table 10-3 Sewum 2012 RC Results**

Borehole Id	Prospect	From (m)	To (m)	Interval (m)	Grade (g/t gold)
<b>SWRC041</b>	Sewum	1	3	2	0.84
		28	30	2	1.02
		42	45	3	1.09
		134	143	9	0.44
<b>SWRC042</b>	Sewum	146	150	4	0.43
		62	63	1	1.35
<b>SWRC043</b>	Sewum	54	55	1	0.81
		89	95	6	0.77
<b>SWRC044</b>	Sewum	149	150	1	0.45
		171	172	1	0.47
		206	210	4	1.35

Borehole Id	Prospect	From (m)	To (m)	Interval (m)	Grade (g/t gold)
<b>SWRC045</b>	Sewum	23	24	1	0.61
		174	180	6	0.78
<b>SWRC046</b>	Sewum	30	31	1	2.84
		37	38	1	0.55
		105	106	1	1.37
<b>SWRC047</b>	Sewum	46	47	1	0.63
		63	64	1	0.69
<b>SWRC048</b>	Sewum	60	63	3	0.66
		163	169	6	0.46
<b>SWRC049</b>	Sewum	97	98	1	1.17
		113	114	1	0.35
		123	138	15	1.10
		144	147	3	0.40
		158	160	2	0.47
<b>SWRC050</b>	Sewum	61	67	6	0.99
<b>SWRC051</b>	Sewum				N/A
<b>SWRC052</b>	Sewum				N/A
<b>SWRC053</b>	Sewum	9	12	3	0.42
		42	43	1	0.75
		46	102	56	0.49
		118	120	2	0.45
<b>SWRC054</b>	Sewum				N/A
<b>SWRC055</b>	Sewum				N/A
<b>SWRC056</b>	Sewum	26	27	1	0.50
<b>SWRC057</b>	Sewum				N/A

## 10.4 RESERVE CIRCULATION DRILLING PROCEDURES

### 10.4.1 SURVEYING

#### *COLLAR CURVEY*

Before a hole is drilled, the proposed collar position is located by tape and compass survey from the nearest point whose coordinates are accurately known or by hand held GPS. When there is a surveyor on site, the collar is located by electronic distance measurement (EDM) survey (Figure 10.3).



**Figure 10.3 Collar Survey**



The inclination is set using a clinometer attached to the rod tracks while the mast is tilted and is checked and approved by the geologist prior to the start of drilling

Comparison of the first downhole surveys with the nominal collar dip and azimuth should be checked by the geologist.

After drilling, all holes drilled the collar locations accurately surveyed. The survey is by EDM, operated by qualified and experienced surveyors.

It was the responsibility of the geologist to enter all collar details from each day of drilling into the relevant computer file.

#### *DOWNHOLE SURVEY*

A minimum of two surveys minimum were completed on each hole. For holes less than 100 m, the survey was completed at half depth and at the end of hole. Holes over 100m were surveyed at 50m intervals and at the end of the hole.

All surveys were completed during drilling process.

### 10.4.2 RC DRILLING PROCEDURES

Only face-sampling hammers will be used. A length of PVC casing was inserted into the top of the hole to a sufficient depth to create a secure seal at the top of the hole.

The hole was cleaned out at the end of each rod by blowing the hole in order to reduce any potential contamination.

The cyclone is cleaned after every hole to minimize contamination between holes.

### 10.4.3 CHIP LOGGING PROCEDURE

RC drill logs were completed manually on standard logging forms. All necessary fields were completed and a standard set of codes were documented.

The geological log recorded the percentage sample recovery for each one meter interval estimated by visual comparison.

Samples were examined and logged on site and washed chips glued to a chip board for future reference (Figure 10.4). Chip boards are storage at the Edgewater field office in Enchi.

**Figure 10.4 Chip Board Preparation**





#### 10.4.4 SAMPLING APPROACH

Sampling was done at the rig. The standard form and ticket books was filled in by a technician and signed off by the project geologist.

A one meter sampling interval was used in all holes with then entire hole being sampled.

##### *DRY SAMPLING*

Each sample was collected in a large plastic bag clamped tightly onto the base of the cyclone.

Each sample was weighed then a split taken for analysis using a 4" polyvinyl chloride (PVC) tube splitter (Figure 10.8). Care was taken to ensure the tube was speared down the center of the bag to the base of the plastic. The Sample split was placed in pre-numbered calico sample bags for dispatch to the geochemical laboratory. A record is made on the geological log and in the ticket books, at the drill site, of the sample identity numbers and corresponding intervals.

The splitter was thoroughly cleaned between samples.

**Figure 10.5 Reserve Circulation Sampling Using Tube Splitter**



### *WET SAMPLES*

The sample was collected in a plastic bag and the excess water drained, and as far as possible, left to settle before subsequent sampling using the same procedure as with the dry samples.

The samples were transported each day to Edgewater's core storage facility to wait shipment to the analytical laboratory. The core storage facility maintains a night watchman on the property to ensure samples and equipment are not tampered.

## **10.5 QP'S OPINION**

It is WSP's opinion that the drilling and logging procedures put in place by Edgewater meet acceptable industry standards and that the information can be used for geological and resource modeling.

# 11 SAMPLE PREPARATION, ANALYSES AND SECURITY

## 11.1 REVERSE CURCULATION SAMPLE PREPARATION

Each batch of samples is delivered using the Edgewater vehicles and drivers directly from site to the Intertek lab in Tarkwa, approximately a 130km from Enchi. Each batch of samples is submitted to Intertek with a sample submission form outlining the method of preparation and analysis. Once delivered the lab staff sign and date Edgewater's copy of the sample submission form acknowledging receipt of the samples.

The Intertek Tarkwa facility operates under the umbrella of Intertek/Genalysis Services Pty Ltd. and is independent of Edgewater. The facility is certified with the following credentials; ISO 17025 and NATA certificate 3244.

Ten percent of the samples sent to the labs were either a duplicate sample, blank, or standard.

All RC chip samples were prepared at the Intertek laboratory in Tarkwa using preparation code PT01/SP02.

Below is a brief description of the sample preparations procedure:

- samples are sorted and dried at 105°C,
- once dried, than entire the sample is crushed to a 75% passing at 2 mm,
- sample is split to get a sample up to 2 kg in weight for pulverizing,
- the entire sample split is then pulverized to allow a 95% passing of 75 µm,
- the pulp is split to 150 g for analysis.

At no time was an employee, officer, director or associate of Edgewater involved with the preparation of the samples.

## 11.2 REVERCE CURCULATION ANALYTICAL PROCEDURE

A 50 g portion of pulverized sample is weighed, mixed with a fluxing reagents containing litharge (PbO) and then placed into fusion furnace and fused at approximately 1100°C. During this stage, the reduced lead collects the precious metals and forms a button. The sample is then removed from the furnace and cooled. The lead button is separated from the silicate slag.

The second stage of fire assay is called cupellation. During cupellation process at approximately 950°C, the lead in the button oxidizes and is absorbed into the cupel leaving a precious metal bead known as a prill. The resultant prill is digested with Aqua Regia, by

adding nitric acid first to dissolve the silver and then hydrochloric acid. Gold content is determined by Atomic Absorption spectrometer: The detection threshold limits are in the range of 0.01 ppm to 100 ppm.

At no time was an employee, officer, director or associate of Edgewater involved with preparation or analysis of the samples.

### **11.3 SOIL SAMPLE PREPARATION AND ANALYSIS**

Soil samples were dried and pulverised to 90% -75micron.

Analysis was completed by 50g fire assay with aqua regia digest and di-isobutyl ketone (DIBK) extraction with AAS finish at a detection limit of 1ppb.

### **11.4 TRENCH SAMPLE PREPARATION AND ANALYSIS**

Trench samples were dried and pulverised to 90% -75micron.]

Analysis was completed by 50g fire assay with aqua regia digest with AAS finish at a 10ppb detection limit.

### **11.5 AUGER**

Auger samples were dried and pulverised to 90% -75micron.

Analysis was completed by 50g fire assay with Aqua regia digest and DIBK extraction with AAS finish at a detection limit of 10ppb.

### **11.6 QA/QC**

#### **11.6.1 SOIL**

Blanks were inserted at a frequency of one every 50 samples with a minimum of one per batch. The material consisted of red-brown soils (2.5kg) collected in Accra.

Commercial standards were inserted at a frequency of one every 50 samples with a minimum of one per batch.

WSP has not reviewed the QA/QC results for the soil survey program.

#### **11.6.2 TRENCH**

Blanks were inserted at a frequency of one every 50 samples with a minimum of one per batch. The material consisted of oxide rock fragments supplied from Accra.

Commercial standards were inserted at a frequency of one every 50 samples with a minimum of one per batch.

The results of the trench QA/QC samples were incorporated with the RC results and charted accordingly.

### 11.6.3 AUGER

Blanks were inserted at a frequency of one every 50 samples with a minimum of one per batch. The material consisted of red-brown soils (2.5kg) collected in Accra.

Commercial standards were inserted at a frequency of one every 50 samples with a minimum of one per batch.

WSP has not reviewed the QA/QC results for the soil survey program.

### 11.6.4 REVERSE CURCULATION

Every 10th sample submitted was a QA/QC sample. These samples were prepared prior to core sampling and were placed in the sample stream. Every 20th sample was a duplicate and in between the duplicates was either a standard or a blank. Duplicate samples were prepared at the lab. The entire sample was crushed to -2 mm and two splits (less than 1.5 kg) were collected from the one sample using a Jones Splitter which was then processed as separate samples.

#### *BLANKS*

A total of 108 blank samples were submitted to test for preparation contamination or carry over. A failure was considered to be three times the detection limit. A total of 3 sample or 2% of the samples failed (Figure 11.1). A single sample was removed from the blank data set as it returned the same value as one of the standards.

#### *DUPLICATES*

A total of 211 course rejects duplicate samples were submitted. The control limit of  $\pm 20\%$  is typically considered a failure by industry standards. A total of 13 samples or 6% failed (Figure 11.2). If the samples below 0.1 g/t are not considered in the dataset, the failure rate increases to 50%.

This is an extremely high failure rate. Due to the nature of gold mineralization, it is not uncommon to have a high failure rate. Efforts have been made to minimize the variation of the grades within the samples by using a larger sample size. Edgewater should work with the laboratory to determine what preparation and analytical methodology should be used to minimize the variation of the assays.

Figure 11.1 Enchi Blank QA/QC Chart

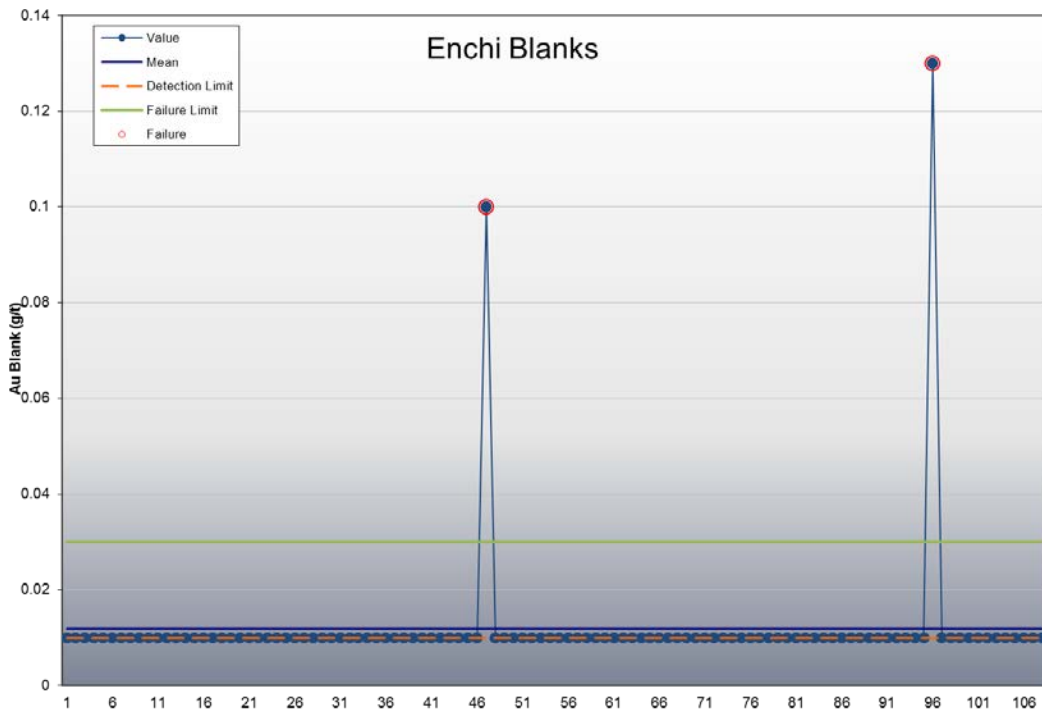
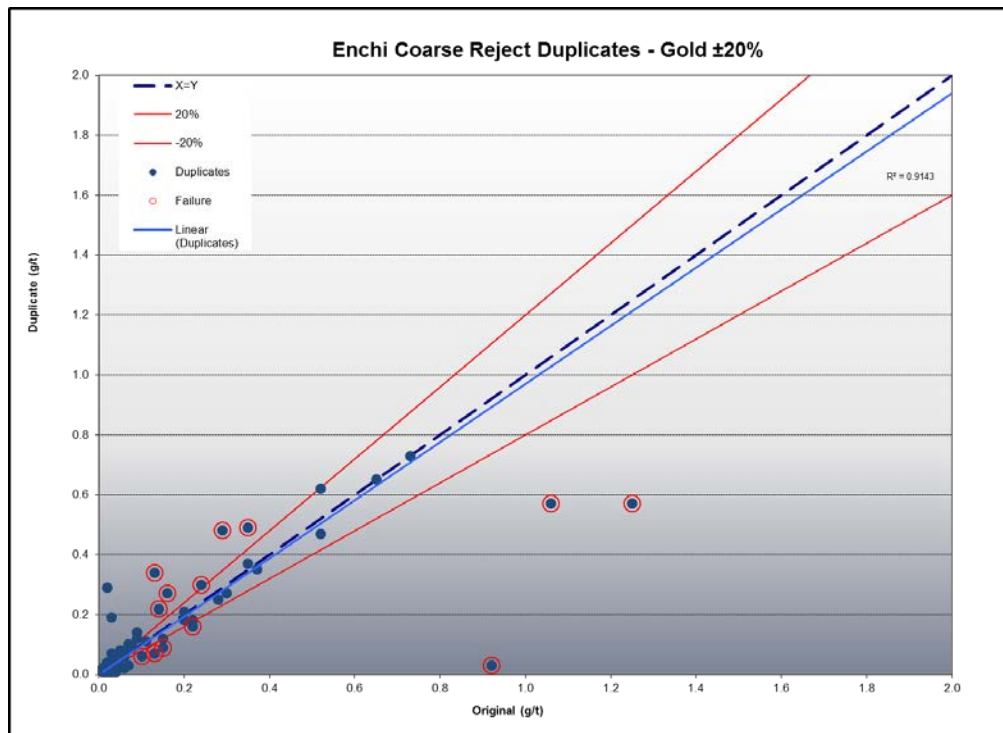


Figure 11.2 Enchi Course Reject Duplicate QA/QC Chart



## STANDARDS

The charts generated for the Standard Reference Materials (SRM) have two components; the top portion of the chart displays the accuracy; how close the result come the expected value. The bottom portion of the chart, displays the precision to the results; how repeatable are the results from one sample to the next.

Five separate SRM were used during the drilling program with grades ranging from 0.36 g/t gold up to 6.75 g/t gold. The SRM GLG904-6 with an expected value of 0.36 g/t had 20 samples submitted and returned an average of 0.361 g/t (Figure 11.3). The SRM G909-10 with an expected value of 0.52 g/t had 20 samples submitted and returned an average of 0.508 g/t (Figure 11.4). There is a significant amount of variability in the results specifically sample 13 and 14 which are considerably lower than the rest of the data set.

The SRM G901-7 with an expected value of 1.52 g/t had 22 samples submitted and returned an average of 1.507 g/t gold (Figure 11.5). The SRM G995-1 with an expected value of 2.75 g/t had 22 samples submitted and returned an average grade of 2.736 g/t gold (Figure 11.6). The SRM G905-10 with an expected value of 6.75 g/t had 16 samples submitted and returned an average grade of 6.89g/t gold (Figure 11.7).



Figure 11.3 Enchi GL904-6 QA/QC Chart

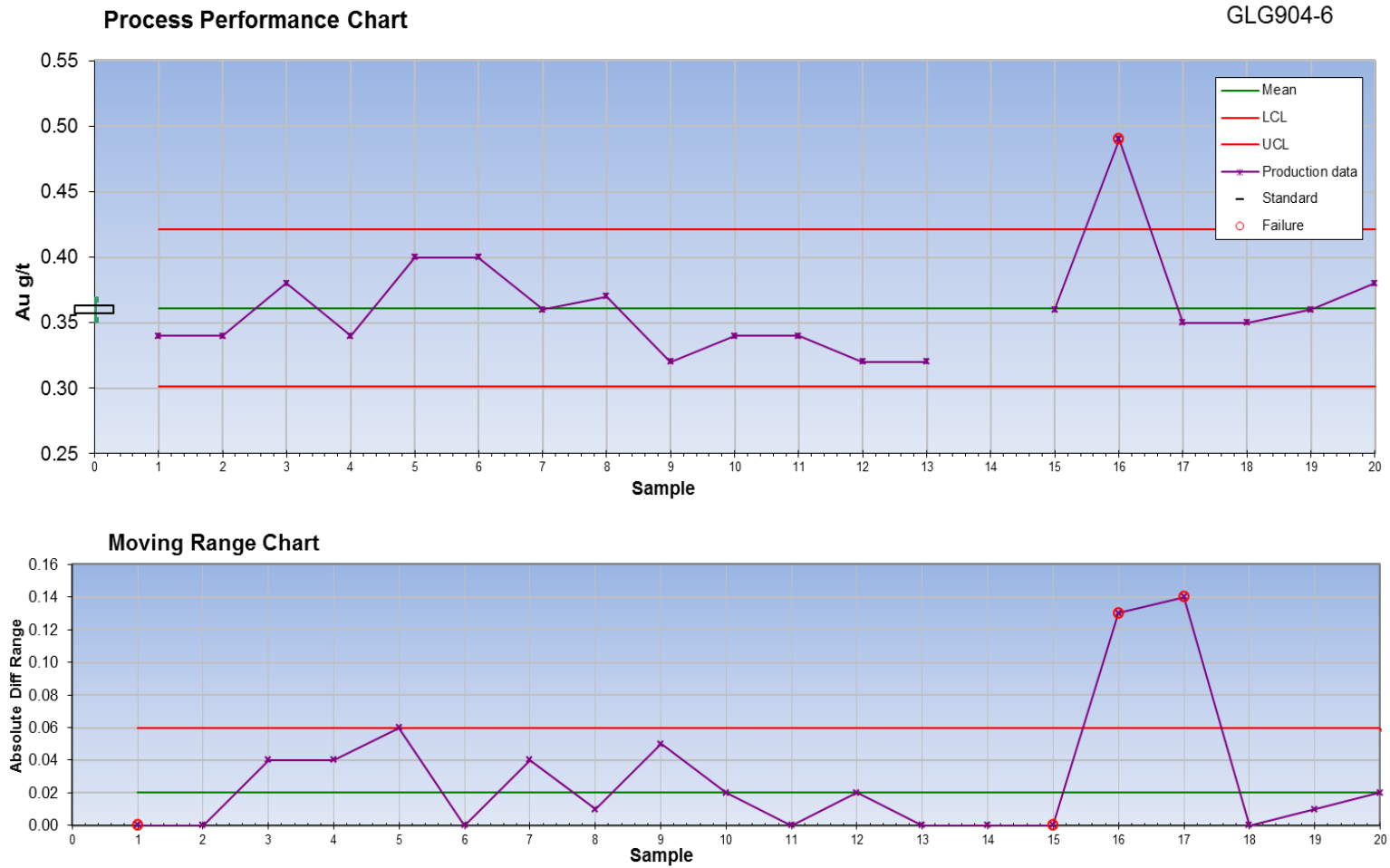


Figure 11.4 Enchi G909-10 QA/QC Chart

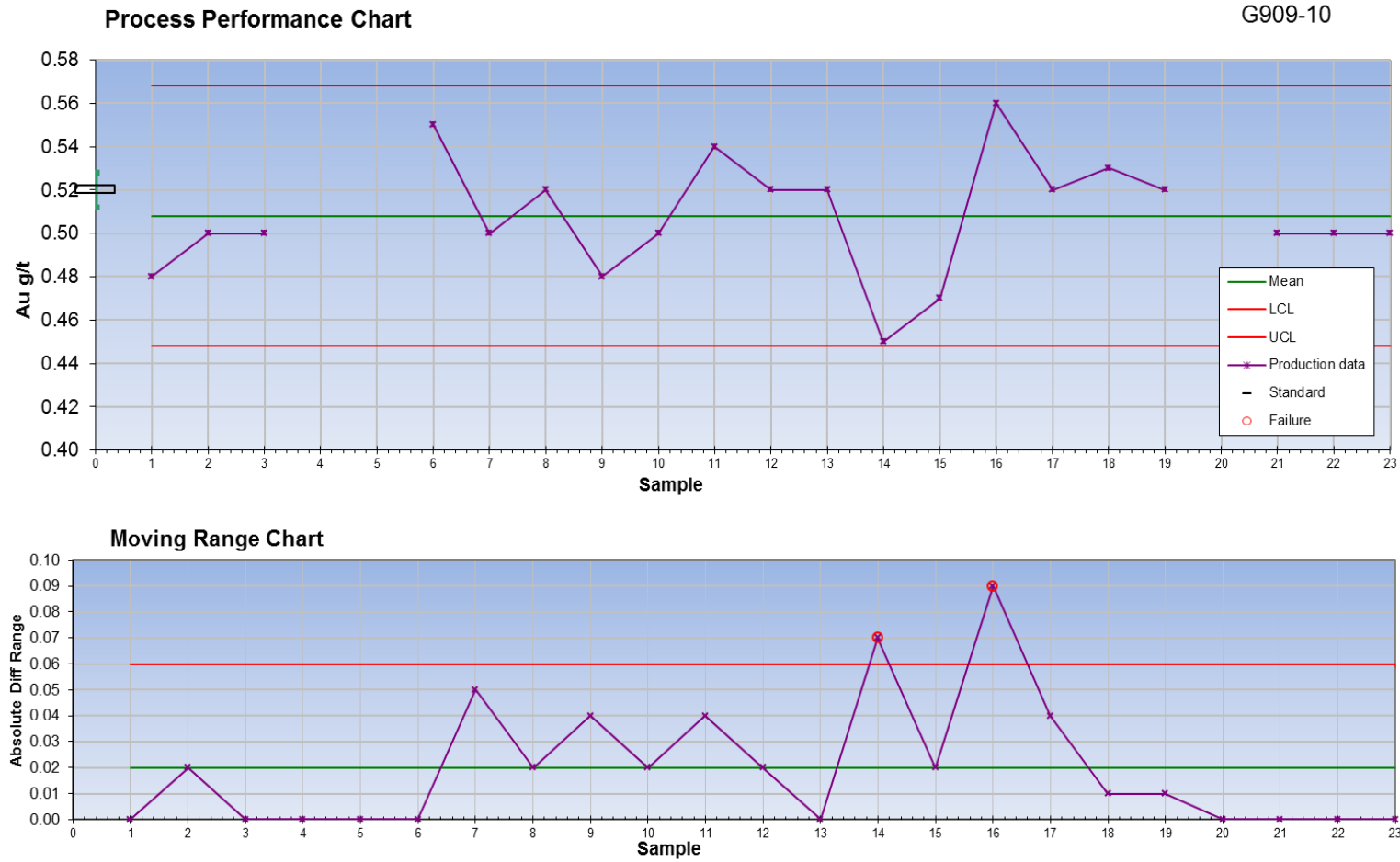


Figure 11.5 Enchi G901-7 QA/QC Chart

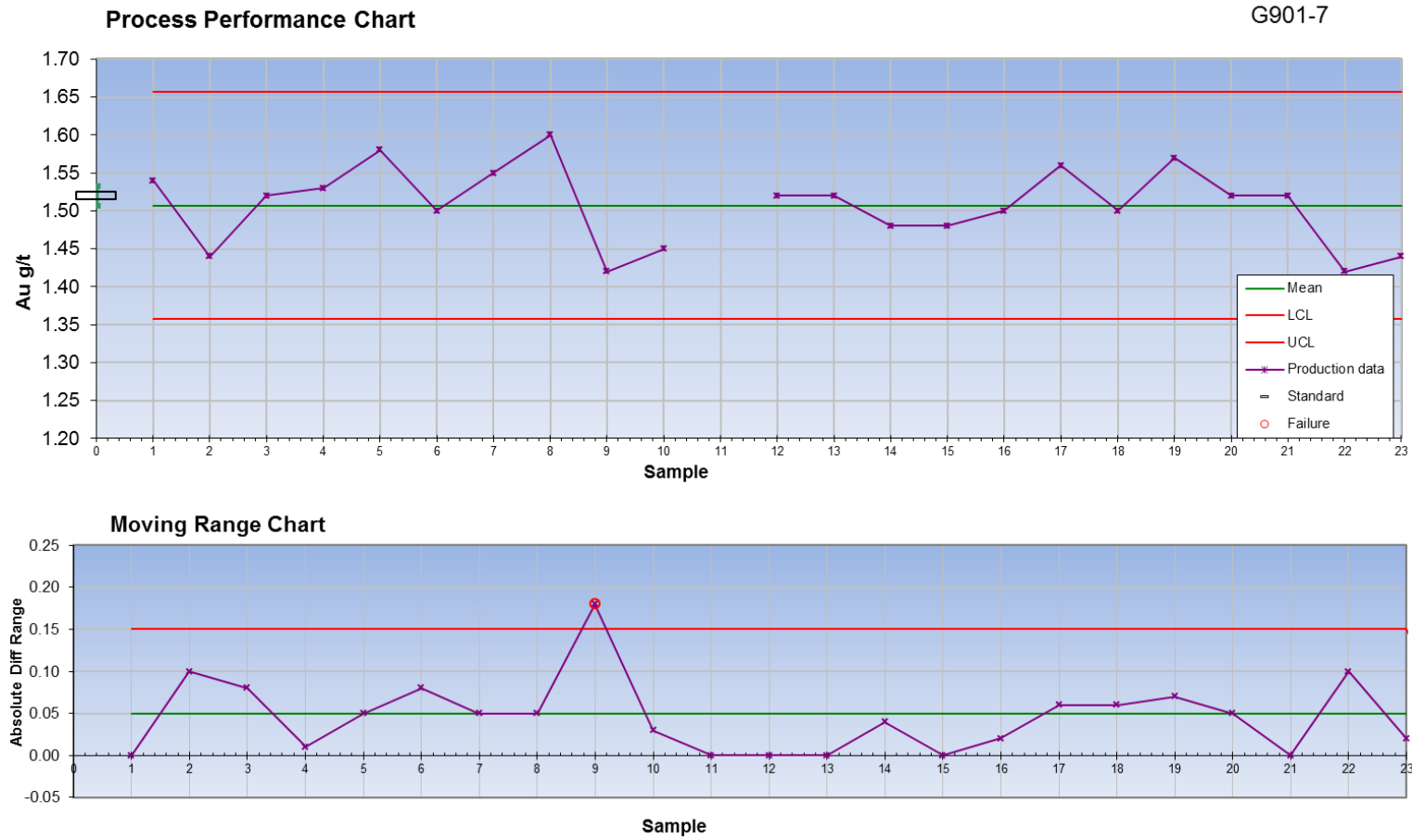


Figure 11.6 Enchi G995-1 QA/QC Chart

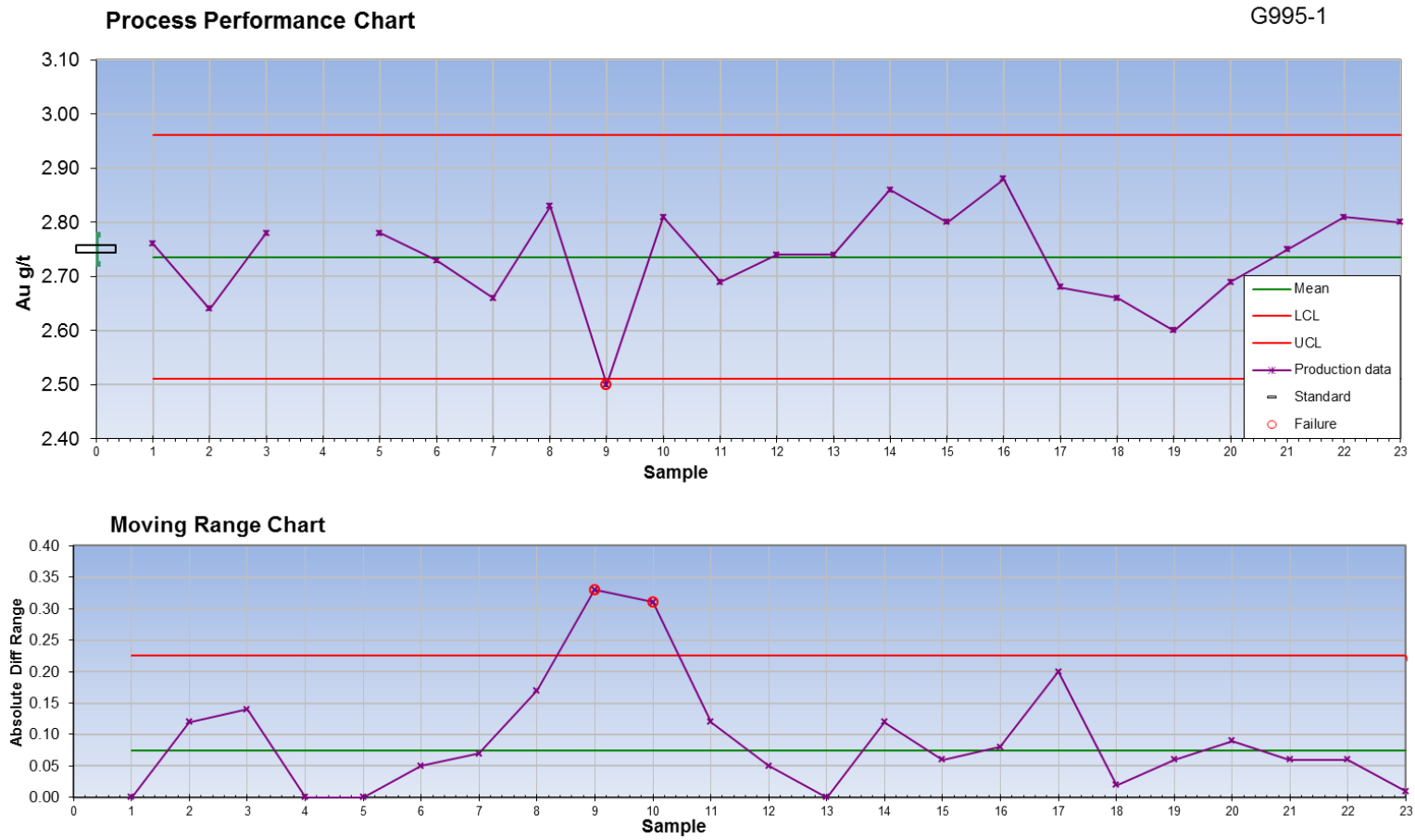


Figure 11.7 Enchi G905-10 QA/QC Chart



## 11.7 QP'S OPINION

It is WSP's opinion that the sample preparation, analytical procedures and security measures put in place by Edgewater and Intertek meet acceptable industry standards and that the information can be used for geological and resource modeling.



# 12 DATA VERIFICATION

## 12.1 DRILL COLLAR

A validation of the Edgewater 2012 reverse circulation drill collars was conducted during the 2014 site visit. Twenty-one collars representing 2% of the drilling completed on the Project were surveyed using a handheld Garmin GPSMAP 62. GPS readings were collected in Universal Transverse Mercator (UTM) World Geodetic System (WGS) 84 coordinate system (Figure 12.1). Table 12.1 contains the results of the collar checks.

The accepted error for the handheld GPS is typically 3 to 5m in the X and Y coordinates. Three collars are outside the customary error range. There appears to still be issues with the Z coordinates in the database relative to the GPS. Although the Z coordinates from a handheld GPS tend to have a large error, the elevation of the drill collars did not match the topographic file provided.

**Figure 12.1 Collar Validation**



Table 12-1 Collar Validation

Edgewater Exploration				WSP				X-Y
BHID	Easting	Northing	Elevation	BHID	Easting	Northing	Elevation	Delta
SWRC041	521734	629877	228	SWRC041	521735	629875	196	2.46
SWRC042	521768	629966	182	SWRC042	521767	629966	190	1.19
SWRC043	521772	629965	181	SWRC043	521771	629960	190	4.56
SWRC044	521288	629011	231	SWRC044	521289	629015	193	3.88
SWRC045	521356	629091	192	SWRC045	521358	629089	194	2.60
SWRC046	521383	629176	231	SWRC046	521384	629179	196	3.52
SWRC047	521533	629530	235	SWRC047	521535	629527	198	3.75
SWRC048	521601	629724	234	SWRC048	521599	629723	197	2.32
SWRC049	521692	629788	194	SWRC049	521691	629786	195	2.23
SWRC050	521733	629877	228	SWRC050	521733	629880	195	2.90
SWRC051	521294	628589	226	SWRC051	521290	628592	200	4.79
SWRC052	521169	628244	129	SWRC052	521166	628242	138	3.67
SWRC053	521001	628916	99	SWRC053	521000	628918	114	2.83
SWRC055	522064	630264	120	SWRC055	522059	630268	131	6.56
SWRC056	521894	630258	121	SWRC056	521887	630262	128	8.12
SWRC057	521784	630273	121	SWRC057	521777	630279	127	9.23
NBRC009	530424	637523	91	NBRC009	530425	637524	100	1.27
NBRC012	530746	638054	133	NBRC012	530746	638054	145	0.45
NBRC013	530706	637956	101	NBRC013	530701	637956	113	5.39
NBRC014	530651	637904	89	NBRC014	530650	637904	101	1.18
NBRC015	530657	637946	90	NBRC015	530656	637947	103	1.26

## 12.2 ASSAY

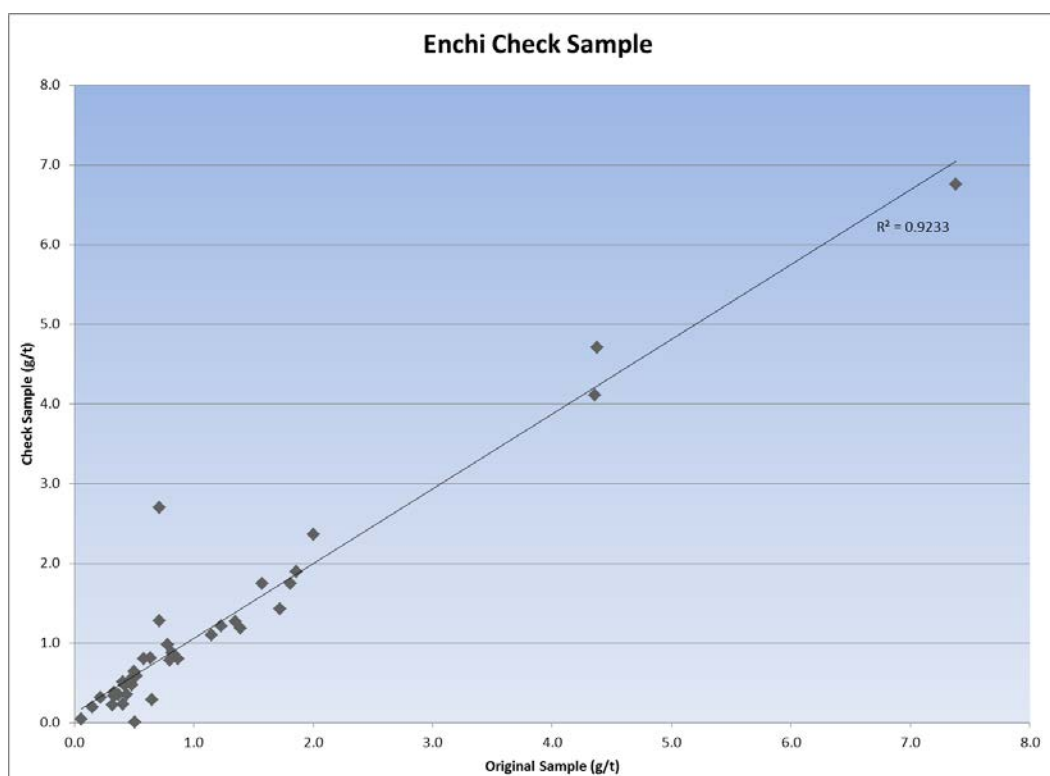
WSP collected 38 pulps from the drilling program and re-submitted the samples to ALS laboratories in Sudbury for check analysis. WSP used the same analytical procedure as Edgewater in order to minimize the potential variance from different analytical methods.

Overall, the data collected has a strong correlation to the original samples submitted by Edgewater (Table 12.2) with a  $R^2$  of 0.92 (Figure 12.2).

**Table 12-2 Check Assays**

<b>Borehole ID</b>	<b>Sample ID</b>	<b>Gold (g/t)</b>	<b>Sample ID</b>	<b>Gold (g/t)</b>	<b>LOG-QC (% passing 75 µm)</b>
NBRC009	1046734	0.51	120087500920	0.005	75.7
	1046763	0.41	120087501210	0.51	88.9
	1046778	1.23	120087501360	1.22	94.9
NBRC010	1046910	0.50	120087600680	0.64	
	1046935	1.35	120087600930	1.27	56.3
	1046940	0.37	120087600980	0.35	80.6
NBRC011	1047110	7.38	120088001020	6.75	
	1047115	0.33	120088001070	0.33	92.2
	1047135	0.42	120088001270	0.48	94.9
NBRC012	1047297	1.39	120088501220	1.19	87.6
	1047310	0.48	120088501350	0.48	
	1047352	0.15	120088501770	0.20	82.8
NBRC013	1047538	0.22	120089401180	0.32	
	1047604	0.44	120089401840	0.35	56.0
NBRC014	1047782	1.81	120098401400	1.74	92.0
	1047786	0.06	120098401440	0.04	90.0
	1047837	0.80	120098401950	0.78	84.2
NBRC015	1047978	0.78	120101101140	0.98	95.1
	1047992	4.36	120101101280	4.11	87.8
SWRC041	1042704	1.72	120061400330	1.43	89.9
	1042828	0.65	120061401570	0.29	75.5
	1042836	0.46	120061401650	0.51	92.8
SWRC043	1043104	0.48	120065001000	0.56	82.4
	1043108	0.87	120065001040	0.80	88.9
	1043114	0.32	120065001100	0.22	83.6
SWRC044	1043337	0.52	120065102220	0.58	90.1
	1043345	0.71	120065102300	1.28	80.6
	1043348	0.82	120065102330	0.87	80.4
SWRC047	1043888	0.71	120068300710	2.70	
SWRC048	1044108	1.15	120068600680	1.10	94.9
	1044223	0.64	120068601830	0.81	88.4
	1044265	0.41	120068602250	0.23	89.2
SWRC049	1044408	0.58	120069401420	0.80	94.6
	1044411	2.00	120069401450	2.36	78.0
	1044415	1.57	120069401490	1.75	84.7
SWRC050	1044515	0.33	120069500690	0.38	93.1
	1044520	4.38	120069500740	4.71	
	1045046	1.86	120089401650	1.90	50.5

**Figure 12.2 Enchi Check Assay**



In addition to the assay, WSP had the pulps checked for pulp fineness. The Intertek standard is listed as 95% passing 75  $\mu\text{m}$ . Only 10 samples had 90% passing 75  $\mu\text{m}$  of 31% of the samples. This discrepancy must be addressed with the laboratory prior to any further work.

## 12.3 DATABASE

### 12.3.1 EDGEWATER 2012 DATA VALIDATION

WSP carried out an internal validation of the diamond drillhole data files against the original drillhole logs and assay certificates. The validation of the data files was completed on the twenty three drillholes finished in 2012.

Data verification was completed on collar coordinates, end-of-hole depth, downhole survey measurements, from and to intervals, assay sample intervals, and analytical results. Assay intervals in the database listed as less than 0.01 were converted to a value of 0.01 and were not considered an error. Sample intervals that were not assayed were input as absent data. It is WSP's opinion that material not sampled should not be assigned a zero value.

A significant error rate in the collar coordinates was indicated in the validation (Table 12.3). The collars in the digital database match reasonably well with the GPS coordinates collected during the site visit. It would appear that the drill logs were not updated with the correct coordinates after the final survey was completed.

There is a 14.9% error rate in the survey data in the digital data compared to the drill logs. The electronic survey files were reviewed and indicate that the digital database results are correct. The errors are always the last reading in the hole.

The drillhole data was imported into the Surpac™ program, which has a routine that checks for duplicate intervals, overlapping intervals and intervals beyond the end-of-hole. The errors identified in the routine were checked against the original logs and corrected.

It is WSP's opinion that the data is of sufficient quality to support the resource estimation.

**Table 12-3 Data Validation Summary**

Field	Number of Records	Number of Errors	Error Rate
<b>Collar</b>			
Hole ID	23	0	0%
East	23	19	83%
North	23	19	83%
Elevation	23	0	0%
Azimuth	23	0	0%
Dip	23	0	0%
Depth	23	0	0%
<b>Survey</b>			
Hole ID	87	0	0%
Depth	87	0	0%
Azimuth	87	13	15%
Dip	87	13	15%
<b>Lithology</b>			
Hole ID	3806	0	0%
From	3806	0	0%
To	3806	0	0%
Litho	3806	37	1%
<b>Assay</b>			
Hole ID	3800	0	0%
Sample #	3800	0	0%
From	3800	0	0%
To	3800	0	0%
Au	3800	4	0%



### 12.3.2 EDGEWATER PRE-2012 DATA VALIDATION

Tetra Tech validated 18 of the 180 drillholes completed in 2011. The QP of the Tetra Tech report is the current QP therefore WSP accepts the results of the Tetra Tech validation.

### 12.3.3 RED BACK VALIDATION

The trench, rotary air blast and reverse circulation drilling log formats, procedures and dictionaries are found in the Exploration Procedures Manual provided by Red Back during the 2010 site visit conducted by Tetra Tech.

All Red Back geological logging and sampling was conducted by geologists at the face, or on the rig, manually using standardized paper copy logging forms and dictionaries. All hard-copy field logs were manually transcribed by a data entry clerk into a Red Back designed Microsoft Access™ front-end database. The front-end database was designed with a set of data entry forms, the digital equivalent of the exploration manual, to capture all drillhole and trench collar, survey, geology and sampling data. Each alphanumeric field, or attribute, has a linked look-up tables, which controls the entry of the specifically defined dictionary codes for each of the defined database attributes. This prevents the entry of incorrect codes. The numeric fields included in the survey, sampling and geology forms were also manually transcribed to complete the database for each project.

Following data entry, each drillhole or trench log is printed out for the logging geologist to validate and approve, or sign-off. The file is then transferred to the senior geologist to compile into the drillhole database. Micromine™ software has been used by the senior geologists to validate and compile the 3D drillhole databases at both the Boin and Sewum zones. Micromine™ includes a variety of techniques to validate the drillhole data. Senior geological staff completes the validation of the Project drillhole databases and all reverse circulation and diamond drill geological, geotechnical and structural logs were reviewed during the 2005 and 2006 programs, prior to compiling the final resource and project sections.

The numeric assay data, produced by Transworld and Analabs labs were merged and validated into the Access™ database through Datashed™ in Accra's head office. The senior geologist at site is responsible for the routine analysis and reporting on the QA/QC standards, blanks and duplicates submitted during the programs.

Red Back routinely submitted a combined 12% quality control component with project sampling, comprised of 8% blind field duplicates, 2% in-house blanks and 2% Rocklabs certified reference material (CRM) standards.

## 12.4 QP'S OPINION

It is WSP's opinion that the database has been adequately validated and is suitable to be used for geological and resource modeling.



# 13 MINERAL PROCESSING AND METALLURGICAL TESTING

Edgewater has conducted minor metallurgical testing on material from the Project. No final report was issued for the work conducted.

# 14 MINERAL RESOURCE ESTIMATES

WSP completed a resource estimation of the Enchi Project. The resource has an effective date of the resource is March 17, 2014.

The resource update was completed on the Nyamebekyere and Sewum Zones with the 2012 drilling. No new drilling was completed on the Boin Zone. The information related to the Boin resource is sourced from the previous technical report (McCracken, 2012).

## 14.1 DATABASE

Edgewater maintains all borehole data in a Microsoft Access™ database. Header, survey, assays, and lithology tables are saved on individual tabs in the database. Individual Excel files exported from the database were provided to WSP by Edgewater on March 17, 2014.

The Project database contains a total of 963 boreholes and trenches with 63,568 assays records. On the Project, 88% of the drilling occurring within the Boin, Nyamebekyere and Sewum Zones. Table 14.1 summarizes the borehole database.

**Table 14-1 Enchi Drillhole Database**

Zone	Hole Type	No of Holes	Total Meters	Project %
<b>Boin</b>	Diamond Drill	62	7,567	9%
	RC	131	14,795	17%
	RAB	275	9,338	11%
	Trench	64	5,719	7%
<b>Nyamebekyere</b>	Diamond Drill	47	5,133	6%
	RC	15	2,186	3%
	RAB	-	-	0%
	Trench	18	1,303	2%
<b>Sewum</b>	Diamond Drill	68	9,787	12%
	RC	57	7,144	8%
	RAB	44	3,105	4%
	Trench	88	8,482	10%
Other Zones		94	10,194	12%
<b>Project Total</b>		<b>963</b>	<b>84,753</b>	<b>100%</b>

The non-assayed intervals within the database were assigned a void (-) value. WSP believes that non-assayed material should not be assigned a zero value, as this does not reflect the true value of the material. Sample intervals with values below detection limit (<) in the database were assigned the detection limit.

The resource estimation was conducted using Surpac™ (v. 6.6)

## 14.2 SPECIFIC GRAVITY

WSP used a Specific Gravity (SG) of 2.45 for the resource estimate. This value is based on the average between the SG for transition zone material at the Chirano Mine and Asanko Gold's Essase Project.

Typically, the weathered material could have a slight lower SG, while fresh material would typically have a SG of 2.75 to 2.78. It was determined at this stage of the Project that a global SG would be appropriate.

WSP recommends that Edgewater collect SG measurements based on the weathering profile (weathered, transition and fresh) in order to build up the data set.

At a minimum, 5% of the data set should have SG measurements before an acceptable value can be determined.

## 14.3 TOPOGRAPHIC DATA

The topographic surface used in the resource estimate is digital terrain model ("DTM") based on the collar coordinates of the drillhole and trenches at each zone. Additional data points were inserted to smooth out some of the major discrepancies in the DTM.

## 14.4 GEOLOGICAL INTERPRETATION

The original three-dimensional wireframe models of mineralization were developed in Datamine™ by Tetra Tech with approval of all shapes by Edgewater. WSP received the wireframes files from Edgewater and adjusted the wireframes to include the recent drilling.

The basic wireframe designs for each of the zones were based on design criteria that included a minimum downhole width of 2.0 m and a minimum grade of 0.3 g/t gold.

Sectional interpretations used Surpac (v. 6.6) software and these interpretations were linked with tag strings and triangulated to build 3D solids. The solids were validated in Surpac™ and no errors were found.

The zones of mineralization interpreted for each area were generally contiguous; however, due to the nature of the mineralization there are portions of the wireframe that have grades less than 0.3 g/t gold, yet are still within the mineralizing trend.

Table 14.2 summarizes the basic parameters of the various mineral wireframes used in this resource estimate.

**Table 14-2 Enchi Wireframe Statistics**

	Zone	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Volume (m <sup>3</sup> )
		X	X	Y	Y	Z	Z	
<b>11</b>	Boin	518405	520686	632820	635874	-97	161	48,808,920
<b>21</b>	Nyamebekyere	530110	531068	637206	638815	-128	157	9,021,493
<b>22</b>	Nyamebekyere	530143	530850	637194	638353	-58	157	950,188
<b>23</b>	Nyamebekyere	530153	530927	637204	638441	-36	158	1,362,683
<b>24</b>	Nyamebekyere	530093	530250	637228	637401	-76	141	428,997
<b>31</b>	Sewum South	520017	520785	625748	626610	-49	128	1,025,848
<b>32</b>	Sewum Checker	521120	521515	627578	627910	-94	190	12,462,768
<b>33</b>	Sewum Road	520915	521157	629017	629281	-12	168	3,927,414
<b>34</b>	Sewum Hill	520968	521888	628580	630013	-1	266	28,302,440

## 14.5 EXPLORATORY DATA ANALYSIS

### 14.5.1 ASSAYS

The portion of the deposit included in the mineral resource was sampled by 16,784 gold assays. The assay intervals within each zone were flagged within the database. These borehole files were reviewed to ensure all the proper assay intervals were captured. Table 14.3 summarizes the basic statistics for the assays at Enchi as a whole and for each of the three zones individually.

**Table 14-3 Enchi Drill Statistics by Zones**

Zone	Samples	Length (m)			Gold (g/t)			
		Min	Max	Mean	Min	Max	Mean	Standard Deviation
<b>Nyam</b>	2634	0.5	2.0	1.0	0.010	44.200	0.355	1.199
<b>Boin</b>	9326	0.1	30.0	1.1	0.001	17.613	0.373	1.004
<b>Sewum</b>	4824	0.1	6.0	1.0	0.005	30.600	0.429	0.970

### 14.5.2 GRADE CAPPING

Raw gold assay was examined individually to assess the amount of metal that is at risk from high-grade assays. Cumulative frequency plots were used to assist in the determination if grade capping was required along with reviewing the 3D spatial distribution of the samples.

It was determined through the review, that only three samples representing less than 1% of the data set should be capped at 18 g/t gold in order to restrict the local influence of these samples. The potential for smearing high-grade samples elsewhere within the deposits would be controlled by the kriging process.

### 14.5.3 COMPOSITING

Compositing of Boin assay data was completed on interval lengths 1 m honoring the interpretation of the geological solids. Nyamebekyere and Sewum assay data was composited on 2 m intervals honoring the geological interpretation.

The 2 m composite for Nyamebekyere and Sewum was selected with the knowledge that the presumed mining method of the deposits would be open pit and thus large mining unit

for the block size. Boin was composited on 1 m interval was selected as it is the most abundant sample interval.

The process was used in the compositing routine to ensure all captured sample material was included. The routine adjusts the composite lengths for each individual borehole in order to compensate for the last sample interval. The minimum composite length was set at 0.75 m to ensure the backstitching process did not make sample too small. Table 14.4 summarizes the statistics for the boreholes after compositing.

**Table 14-4 Enchi Composited Drill Data Statistics**

Zone	Samples	Length (m)			Gold (g/t)			
		Min	Max	Mean	Min	Max	Mean	Standard Deviation
Nyam	1,058	0.3	2.0	1.9	0.005	14.800	0.485	0.883
Boin	9,722	0.8	1.1	1.0	0.005	17.613	0.370	0.992
Sewum	2,962	1.5	2.2	2.0	0.005	18.000	0.440	0.780

## 14.6 SPATIAL ANALYSIS

Variography, using Surpac (v.6.6) software, was completed for gold within Nyamebikyere and Sewum, while the 2012 Boin resource used Datamine software. Downhole variograms were used to determine nugget effect and then correlograms were modeled to determine spatial continuity in the zones. The Nyamebikyere and Sewum variogram were normalized, while the 2012 Boin variogram was not normalized.

Table 14.5 summarizes results of the variography. Figure 14.1 to 14.4 are the variograms for Nyamebikyere and Sewum respectively. The variogram used in the 2012 on the Boin Zone was a global variogram and includes data from Nyamebikyere and Sewum (Figure 14.5).

**Table 14-5 Enchi Variogram Parameters**

Wireframe	Model Type	Nugget	Number of Structure	Sill	Range
Nyamebikyere	Spherical	0.698889	2	0.13537	3.501
				0.166458	18.364
Boin	Spherical	0.300000	2	0.026	13
				0.871	50
Sewum	Spherical	0.306936	2	0.193955	2.514
				0.491753	96.942

Figure 14.1 Nyamebekyere Downhole Variogram

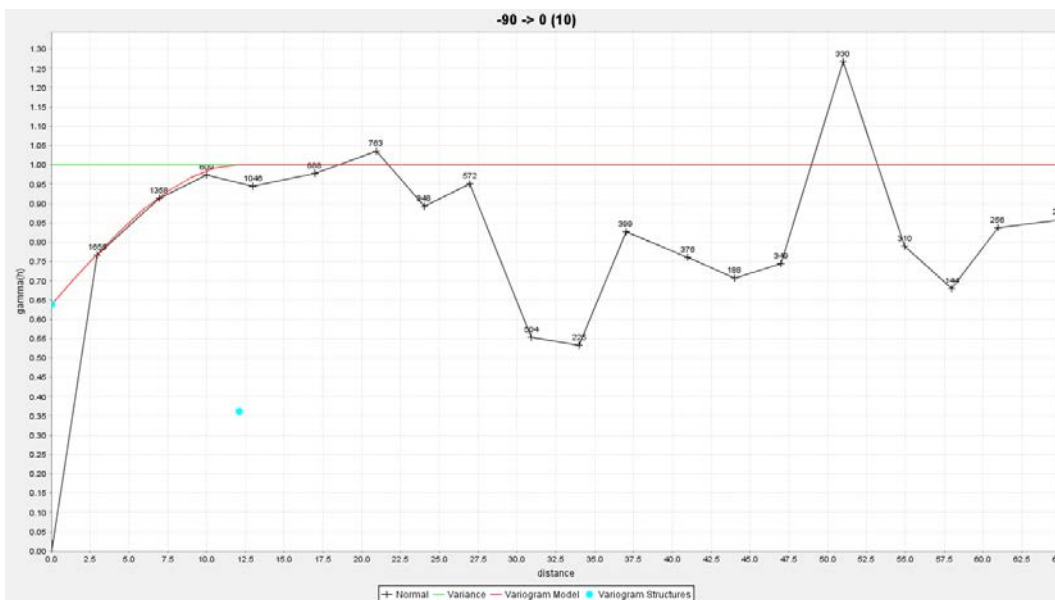


Figure 14.2 Nyamebekyere Variogram

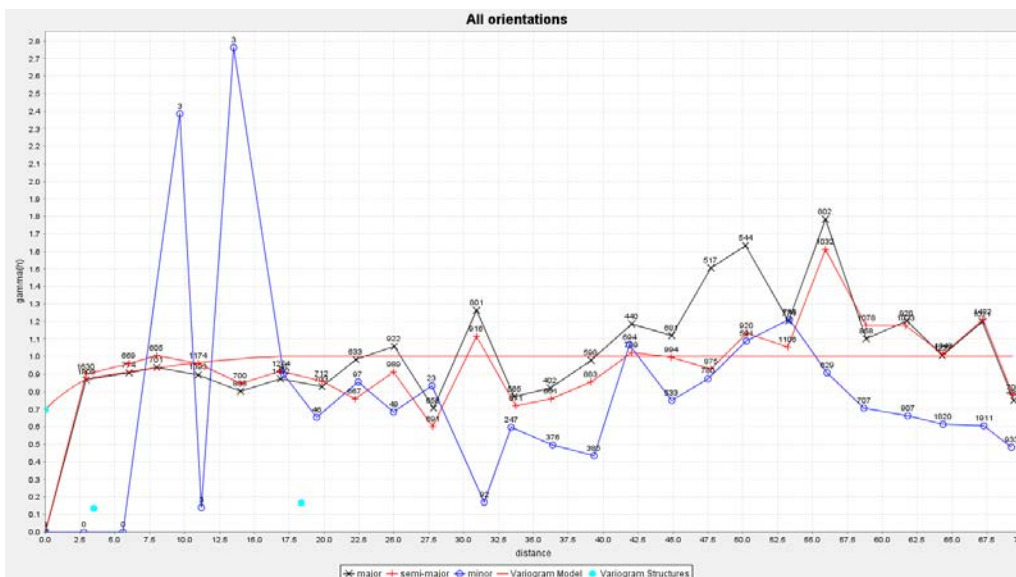




Figure 14.3 Sewum Downhole Variogram

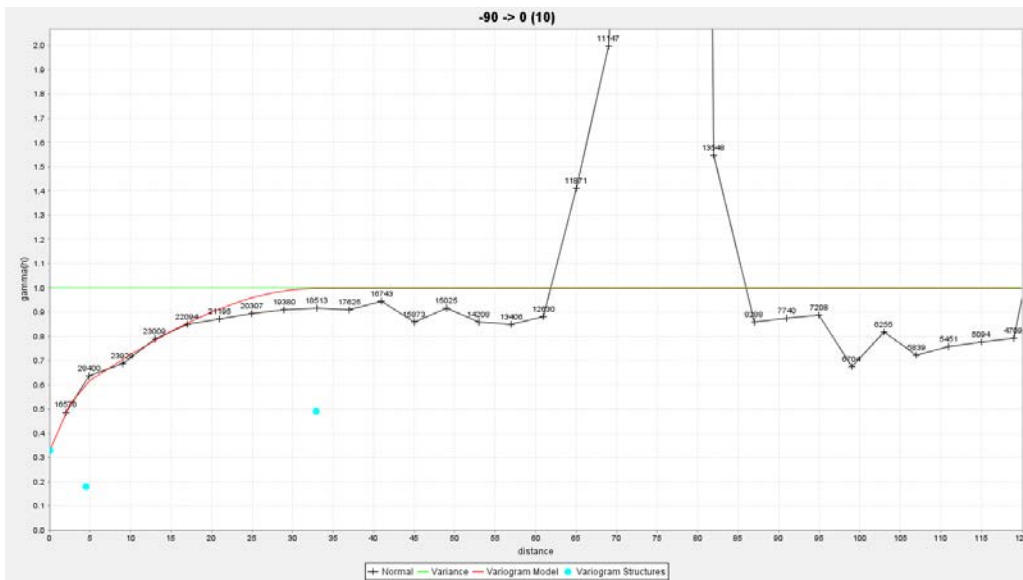


Figure 14.4 Sewum Variogram

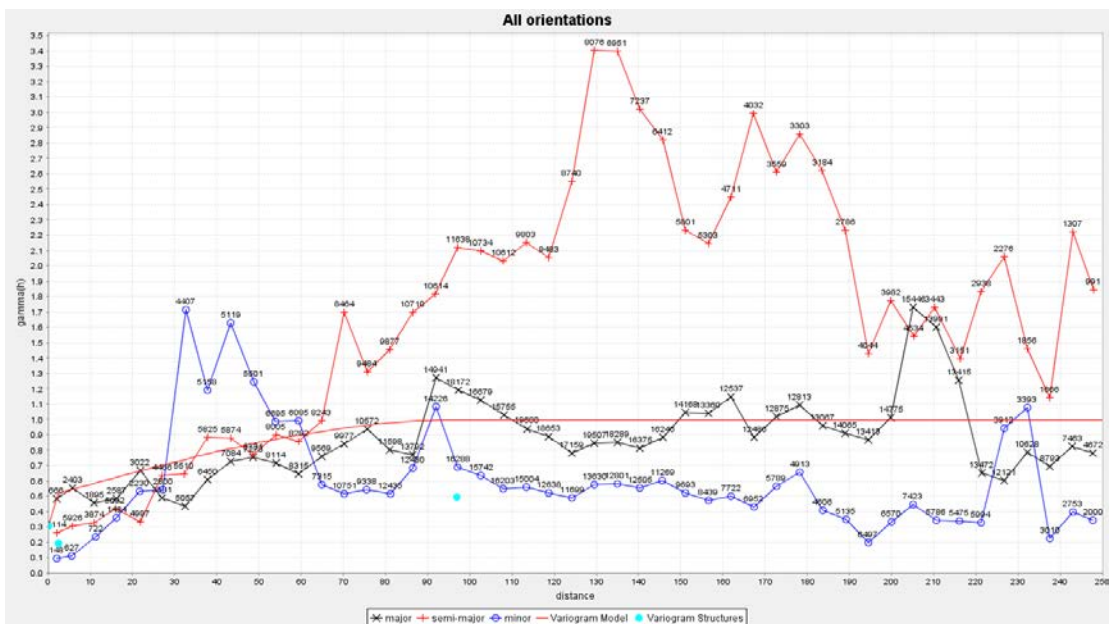
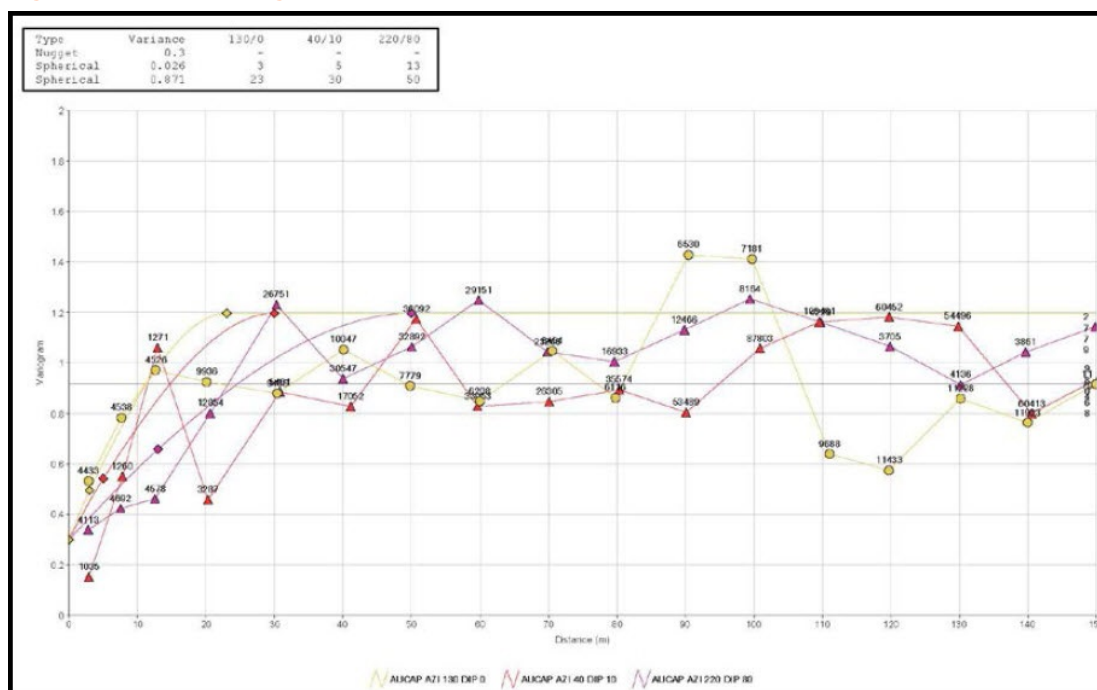


Figure 14.5 Boin Variogram



## 14.7 RESOURCE BLOCK MODEL

Individual block models were established in Surpac for each of the zones using one parent model as the origin. The model was not rotated. Drillhole spacing is variable with the majority of the surface drilling spaced at 25 m sections and 25 to 75 m on sections. A block size of 10 m x 10 m x 10 m was selected in order to accommodate the nature of the mineralization and be amenable for the open pit potential.

The block model was sub-celled on a 1.25 m x 1.25 m x 1.25 m pattern in the YZ plane allows the parent block to be split in each direction to more accurately fill the volume of the wireframes, thus more accurately estimate the tonnes in the resource.

Table 14.6 summarizes details of the parent block model.

Table 14-6 Enchi Parent Model

Zone	Origin			Cell Size			Number of Cells		
	X Origin	Y Origin	Z Origin	X	Y	Z	NX	NY	NZ
<b>Nyamebekyere</b>	529560	635280	-200	10	10	10	368	447	50
<b>Boin</b>	518000	625400	-150	10	10	10	1340	1400	60
<b>Sewum</b>	520040	625770	-55	10	10	10	180	420	25

### 14.7.1 ESTIMATION PARAMETERS

The interpolations of the zones were completed using the estimation methods: NN, ID2, and OK. The estimations were designed for three passes. In each pass a minimum and

maximum number of samples were required as well as a maximum number of samples from a borehole in order to satisfy the estimation criteria. Upon completion of the estimations a global SG field applied.

Table 14.7 and Table 14.8 summarize the interpolation criteria for the zones.

**Table 14-7 Boin Estimation and Search Parameters**

Across Strike	Along Strike	Down Dip	Z Rotation	Y Rotation	X Rotation
23	30	50	40	-65	10
SVOLFAC1	Min Samples	Max Samples	SVOLFAC2	Min Samples	Max Samples
1	5	30	3	5	30
Min No of Octants	Min/Octant	Max/Octant	Max Key		
2	1	15	15		

**Table 14-8 Nyamebekyere Sewum Estimation and Search Parameters**

		Nyamebekyere	Sewum 1,2,3	Sewum 4
<b>ANGLES OF ROTATION</b>	First Axis	115.23	34	19.3
	Second Axis	0	0	0
	Third Axis	-85.02	78	40
<b>ANISOTROPY FACTORS</b>	Major/Semi Major	1.67	1.44	1.44
	Major/Minor	2.09	3.29	3.29
<b>INTERPOLATION PARAMETERS</b>	Max Search	100	180	180
	Max Vertical Search	999	999	999
	Min Number Samples	4	5	5
	Max Number Samples	7	15	15
	Max Key	5	5	5

## 14.8 RESOURCE CLASSIFICATION

Several factors are considered in the definition of a resource classification:

- NI 43-101 requirements
- Canadian Institute of Mining, Metallurgy and Petroleum (CIM) guidelines
- author's experience with shear-hosted gold deposits and in particular the Enchi project
- spatial continuity based on variography of the assays within the drillholes
- drillhole spacing and estimation runs required to estimate the grades in a block.
- the uncertainty in the drillhole collar elevations

No environmental, permitting, legal, title, taxation, socio-economic, marketing or other relevant issues are known to WSP that may affect the estimate of mineral resources. Mineral reserves can only be estimated on the basis of an economic evaluation that is used in a preliminary feasibility study or a feasibility study of a mineral project; thus, no reserves have been estimated. As per NI 43-101, mineral resources, which are not mineral reserves, do not have to demonstrate economic viability.

## 14.9 MINERAL RESOURCE TABULATION

The resource estimate, effective as of March 2014, has been tabulated in terms of a gold cut-off grade. The mineral resource classification for each of the zones at Enchi is tabulated in Table 14.9 to Table 14.11 for the Inferred Resources. Resources are stated as all blocks above the cut-off grade. The resources are tabulated using various cut-off grades to demonstrate the robust nature of the resource.

**Table 14-9 Boin Cut-Off Table**

<b>Au OK Cut-off</b>	<b>Tonnes</b>	<b>Au (g/t)</b>	<b>Contained Gold (ounces)</b>
0.2	40,969,000	0.57	750,806
0.3	29,345,000	0.70	660,435
0.4	21,616,000	0.82	569,885
0.5	15,872,000	0.96	489,892
0.6	12,139,000	1.08	421,507
<b>0.7</b>	<b>9,551,000</b>	<b>1.20</b>	<b>368,492</b>
0.8	7,875,000	1.30	329,148
0.9	6,778,000	1.37	298,552
1.0	5,695,000	1.46	267,328
1.1	4,682,000	1.54	231,819
1.2	3,510,000	1.67	188,461
1.3	2,824,000	1.78	161,615
1.4	2,195,000	1.90	134,087
1.5	1,635,000	2.05	107,763
1.6	1,327,000	2.17	92,582
1.7	1,138,000	2.26	82,689
1.8	966,000	2.35	72,987
1.9	814,000	2.44	63,858
2.0	706,000	2.52	57,201

**Table 14-10 Nyamebekyere Cut-Off Table**

<b>Au OK Cut-off</b>	<b>Tonnes</b>	<b>Au (g/t)</b>	<b>Contained Gold (ounces)</b>
0.2	11,261,000	0.63	228,095
0.3	8,537,000	0.75	205,856
0.4	6,925,000	0.84	187,024
0.5	5,350,000	0.96	165,129
0.6	4,412,000	1.05	148,944
<b>0.7</b>	<b>3,716,000</b>	<b>1.13</b>	<b>135,006</b>
0.8	3,085,000	1.20	119,024
0.9	2,579,000	1.27	105,306
1.0	2,001,000	1.36	87,495
1.1	1,482,000	1.47	70,043
1.2	1,178,000	1.55	58,705
1.3	852,000	1.67	45,746
1.4	570,000	1.82	33,354
1.5	377,000	2.02	24,484
1.6	287,000	2.19	20,208
1.7	221,000	2.33	16,556
1.8	186,000	2.44	14,592
1.9	176,000	2.47	13,977
2.0	157,000	2.53	12,771

**Table 14-11 Sewum Cut-Off Table**

<b>Au OK Cut-off</b>	<b>Tonnes</b>	<b>Au (g/t)</b>	<b>Contained Gold (ounces)</b>
0.2	45,691,000	0.51	747,887
0.3	34,729,000	0.59	659,779
0.4	24,825,000	0.69	548,007
0.5	16,135,000	0.82	423,676
0.6	10,577,000	0.96	327,184
<b>0.7</b>	<b>7,549,000</b>	<b>1.09</b>	<b>264,481</b>
0.8	5,118,000	1.25	206,170
0.9	3,636,000	1.42	166,004
1.0	2,431,000	1.66	129,551
1.1	2,170,000	1.73	120,745
1.2	1,758,000	1.87	105,602
1.3	1,502,000	1.97	95,347
1.4	1,321,000	2.06	87,528
1.5	999,000	2.25	72,310
1.6	904,000	2.32	67,542
1.7	682,000	2.54	55,760
1.8	623,000	2.62	52,418
1.9	564,000	2.70	48,882
2.0	311,000	3.29	32,942

The corresponding grade-tonnage curve for the inferred resource is displayed in Figure 14.6 to Figure 14.8.

**Figure 14.6 Boin Grade-Tonnage Curve**

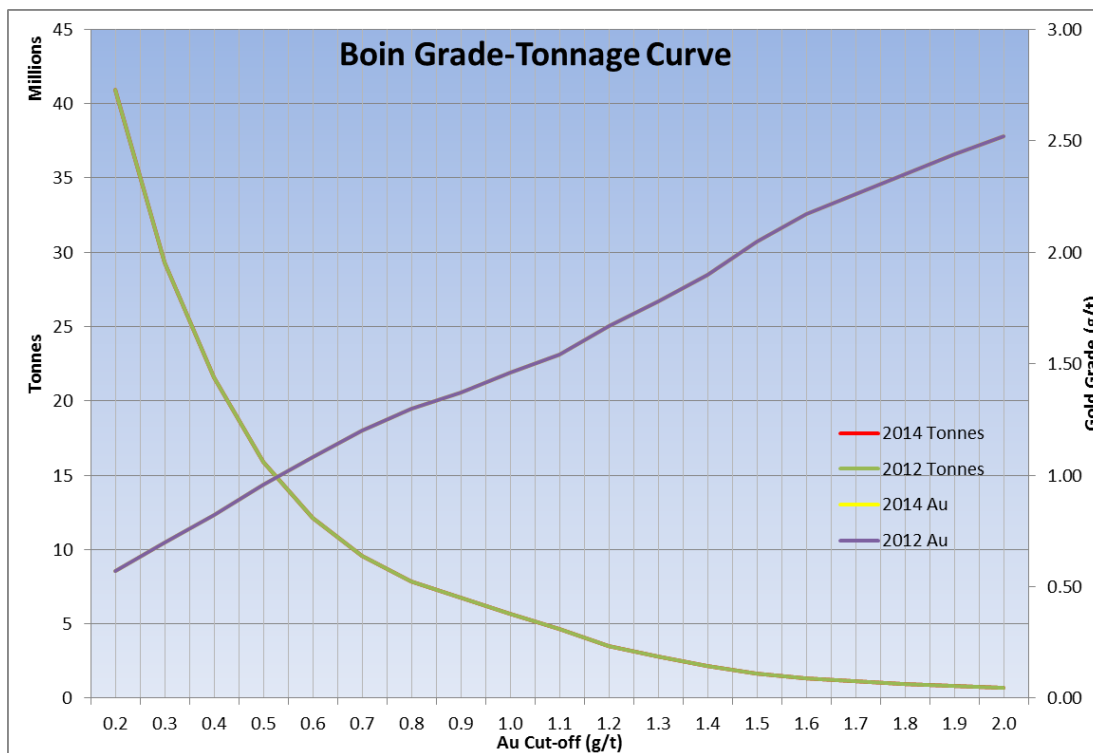




Figure 14.7 Nyamebekyere Grade-Tonnage Curve

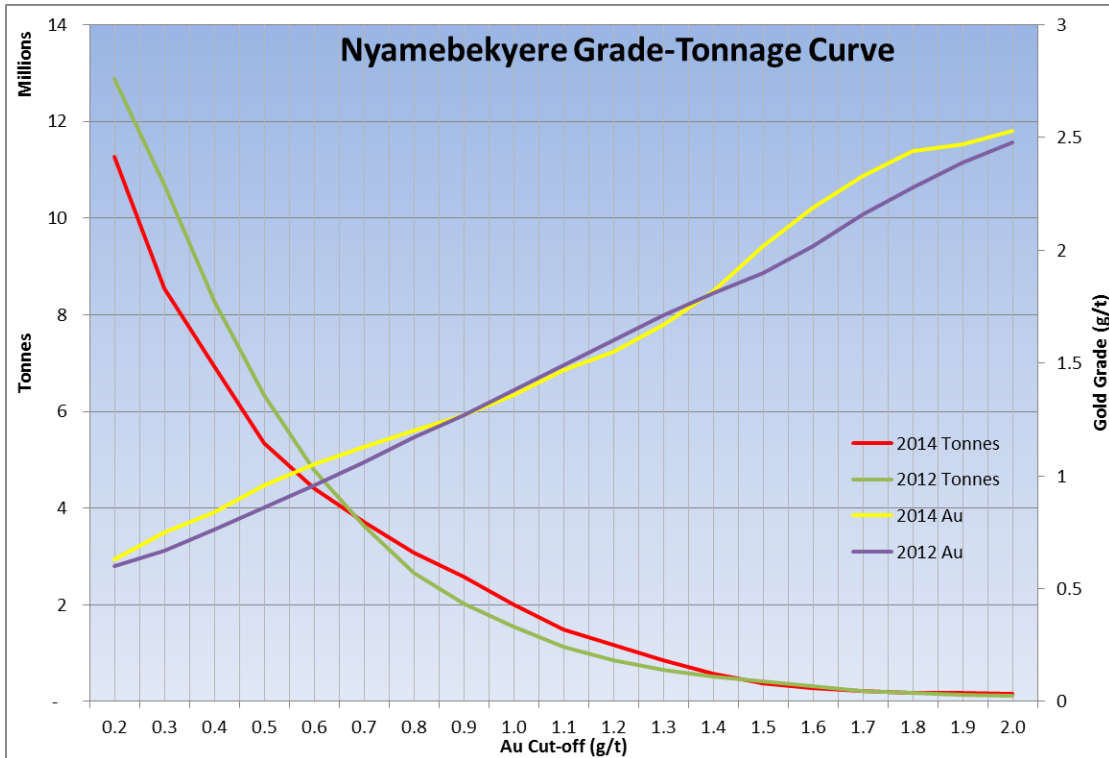
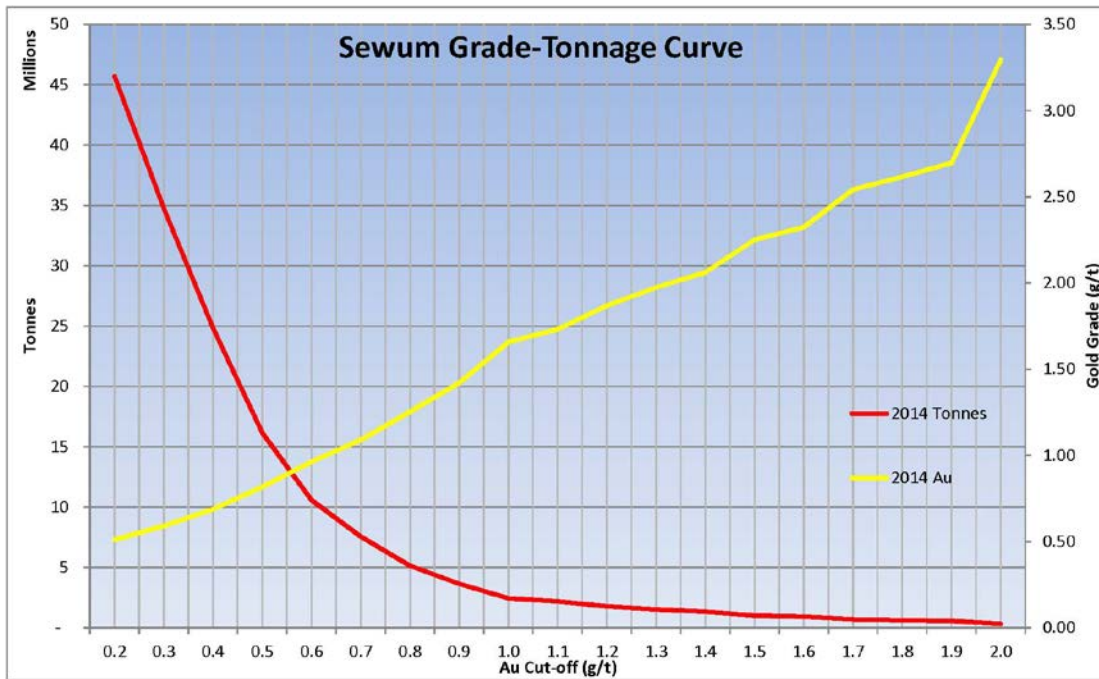


Figure 14.8 Sewum Grade-Tonnage Curve



Based on the analogous gold projects in the same region of Ghana, a 0.7 g/t gold cut-off was used to tabulate the resource for the various zones at Enchi. This potentially could support a 500 to 800 tpd open pit/heap leach operation at a gold price of US\$ 1,250/ounce.

Table 14.12 is a summary of the resource estimate.

**Table 14-12 Enchi Resource Summary**

Category	Cut-off (g/t)	Zone	Tonnes	Grade Au (g/t)	Contained Gold (ounces)
Inferred	0.7	Boin	9,551,000	1.20	368,500
Inferred	0.7	Nyamebekyere	3,716,000	1.13	135,000
Inferred	0.7	Sewum	7,549,000	1.09	264,500
Inferred		Total	20,816,000	1.15	768,000

## 14.10 VALIDATION

The Enchi model was validated by three methods:

- visual comparison of colour-coded block model grades with composite grades on section and plan
- comparison of the global mean block grades for OK, ID2, NN, and composites
- swath plots of the various zones in both plan and section views.

### 14.10.1 VISUAL VALIDATION

The visual comparisons of the block model grades with composite grades for each of the zones show a reasonable correlation between the values. No significant discrepancies were apparent from the sections reviewed, yet grade smoothing is apparent in some locations due to the distance between drill samples being broader in some regions.

Figure 14.9 to Figure 14.11 displays the comparison between the block model and the composited drillholes.

Figure 14.9 Boin Validation Sections

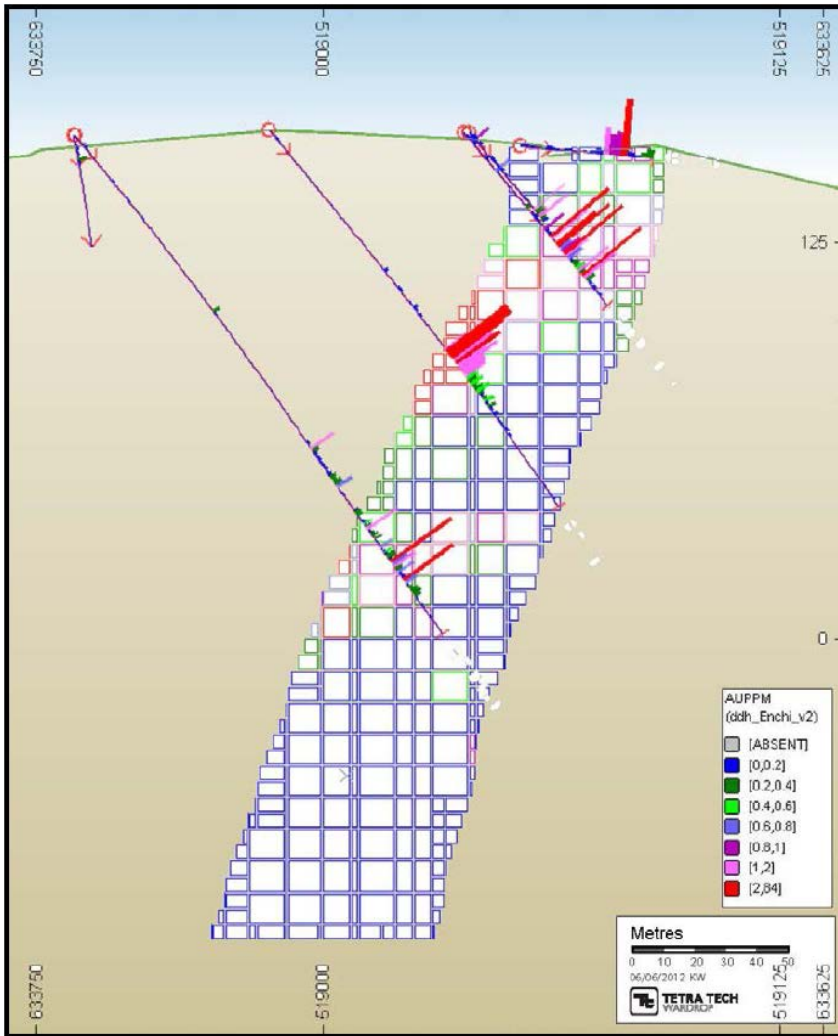


Figure 14.10 Sewum Validation Section

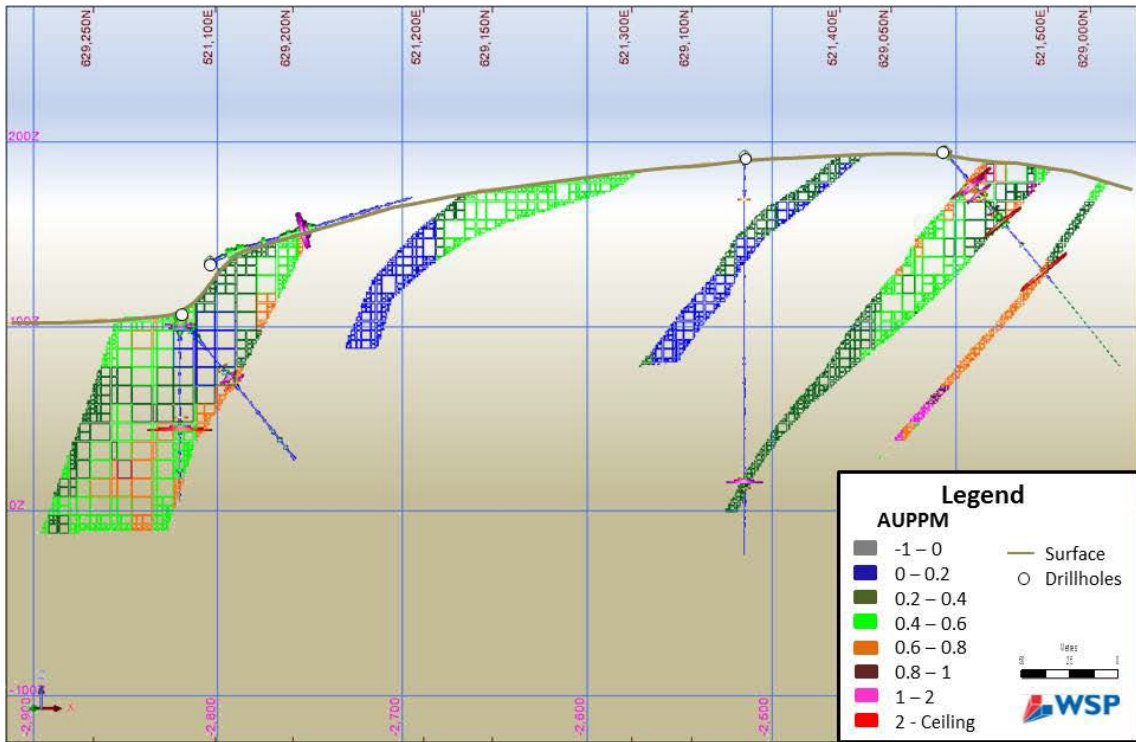


Figure 14.11 Nyamebekyere Validation Section



### 14.10.2 GLOBAL COMPARISON

The overall block model statistics for the OK model were compared to the overall ID2 and NN model values as well as the composite capped drillhole data. Table 14.14 shows this comparison of the global estimates for the three estimation method calculations. In general, there is agreement between the OK model, ID2 model, and NN model. Larger discrepancies are reflected as a result of lower drill density in some portions of the model. There is a degree of smoothing apparent when compared to the diamond drill statistics. Comparisons were made using all blocks at a 0 g/t cut-off.

**Table 14-13 Global Statics Comparison**

<b>Zone</b>	<b>DDH</b>	<b>OK</b>	<b>ID</b>	<b>NN</b>
<b>Nyamebekyere</b>	0.485	0.543	0.547	0.563
<b>Boin</b>	0.370	0.340	0.331	0.321
<b>Sewum</b>	0.440	0.475	0.497	0.625

### 14.10.3 SWATH PLOTS

Swath plots of northings and elevations were generated for each mineralized zone respectively. These plots are comparing the OK estimates with the NN and ID2 estimates. The plots are illustrated in Figure 14.12 to Figure 14.17.

Figure 14.12 Boin Cross Section Swath Plot

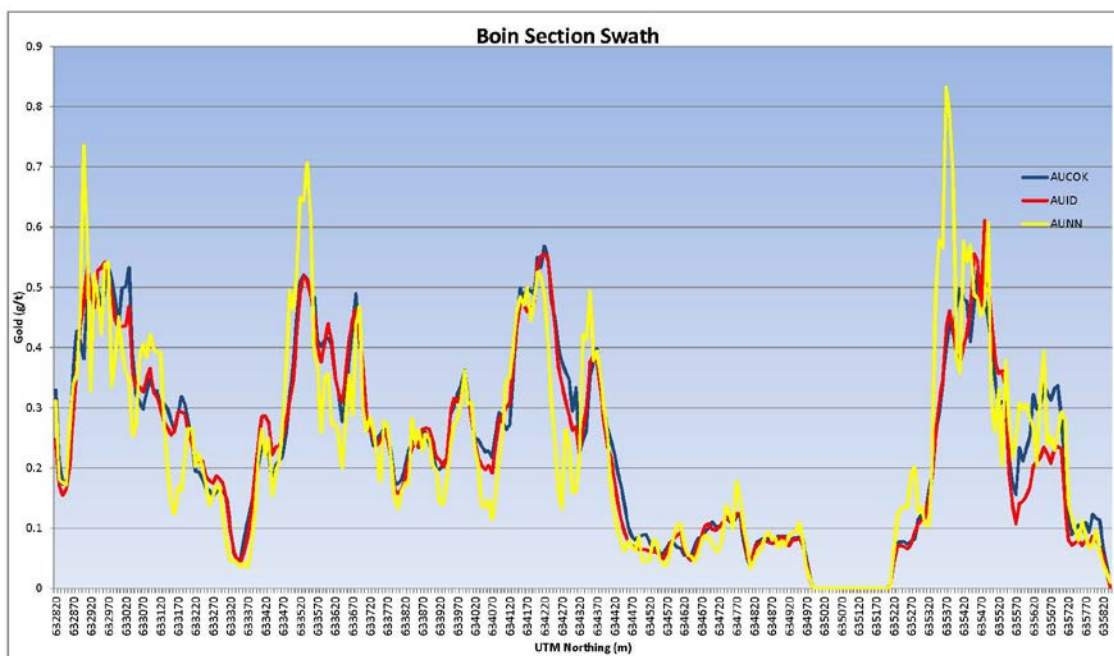


Figure 14.13 Boin Elevation Swath Plot

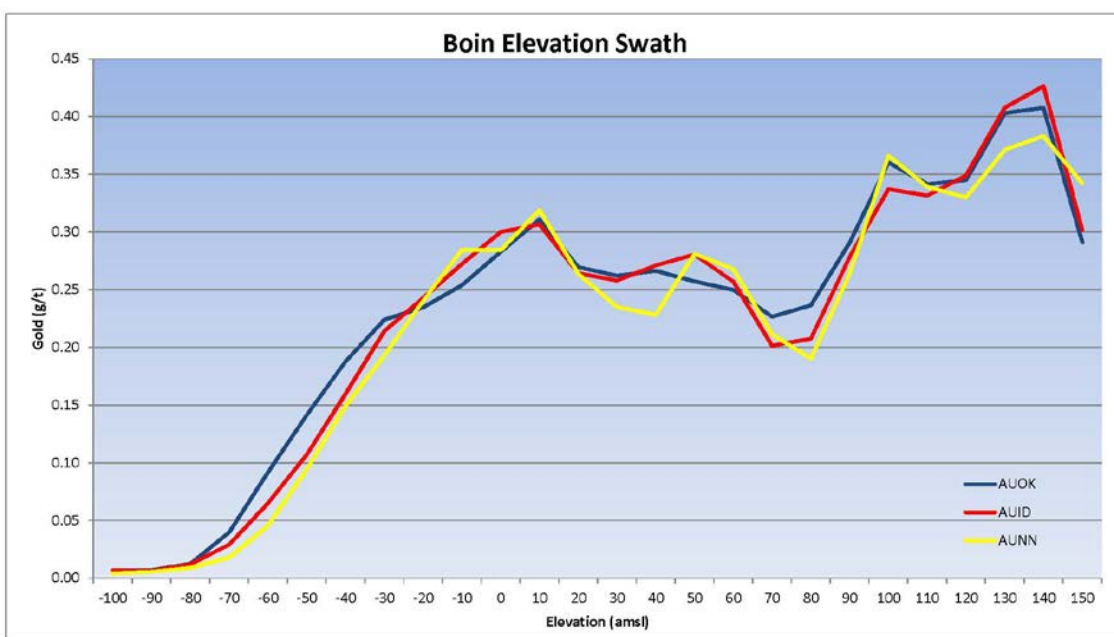




Figure 14.14 Nyamebekyere Cross Section Swath Plot

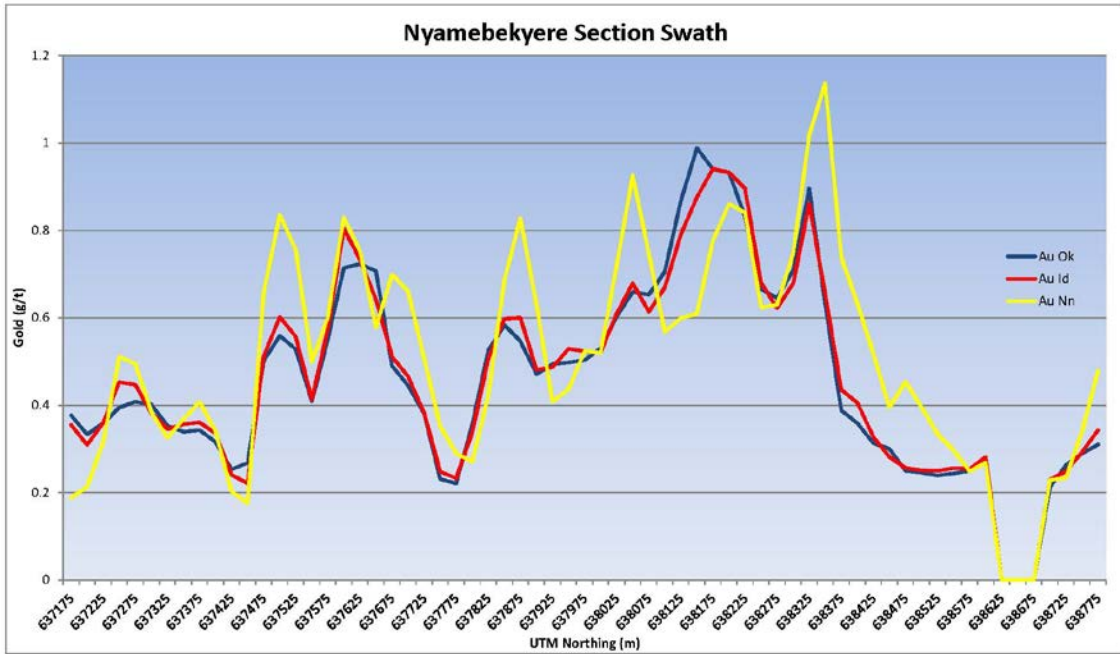


Figure 14.15 Nyamebekyere Elevation Swath Plot

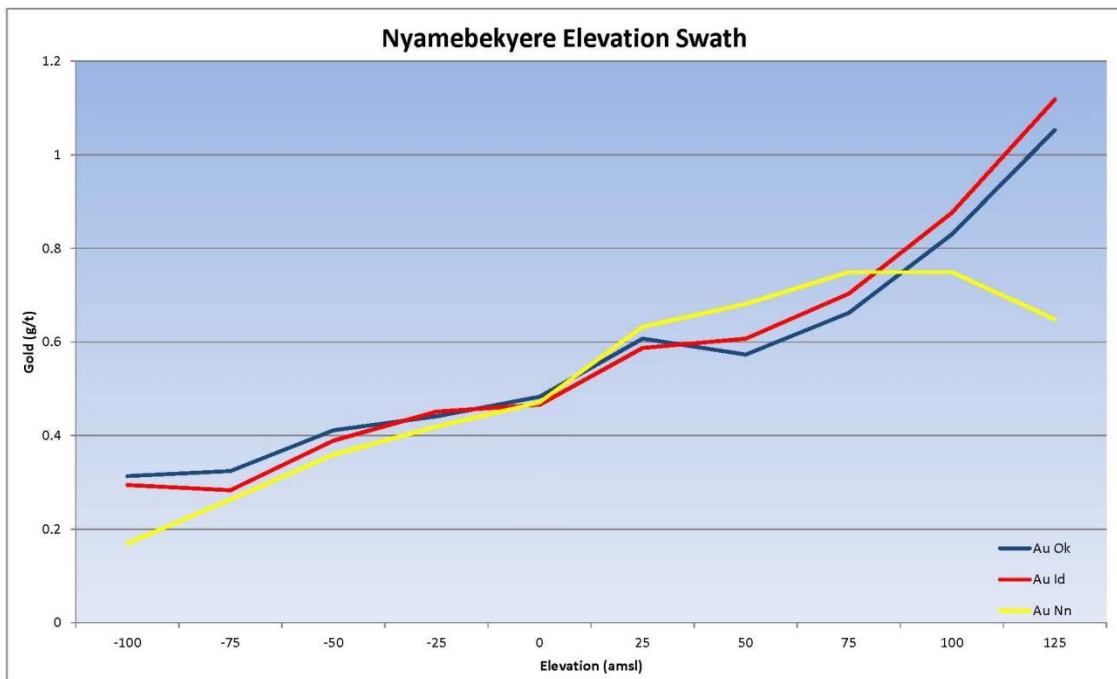


Figure 14.16 Sewum Cross Section Swath Plot

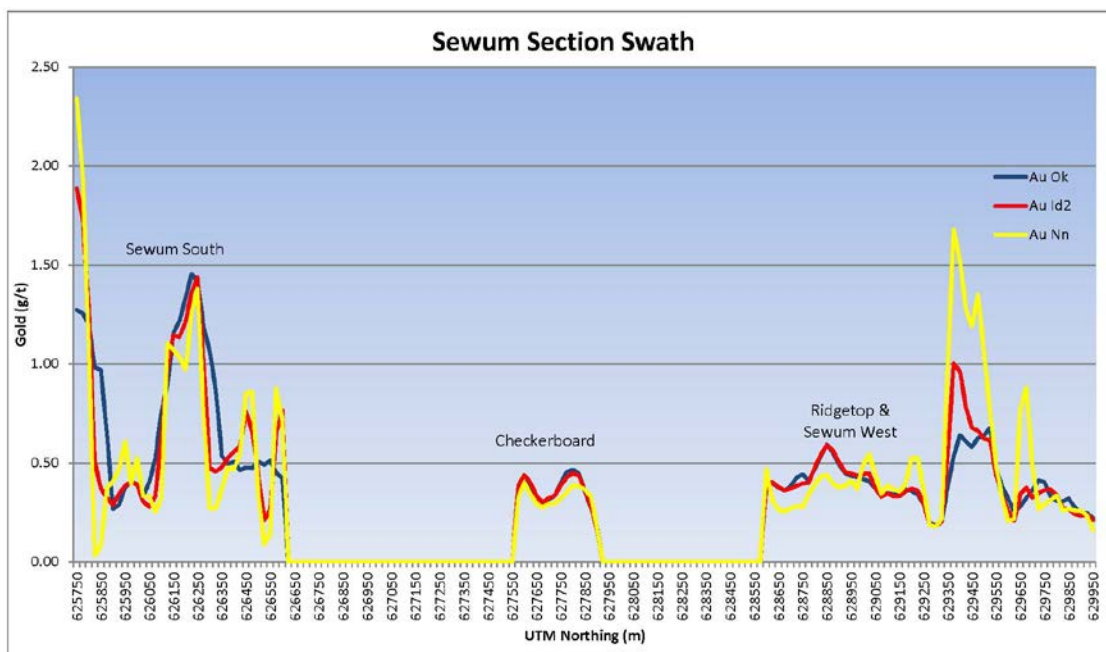
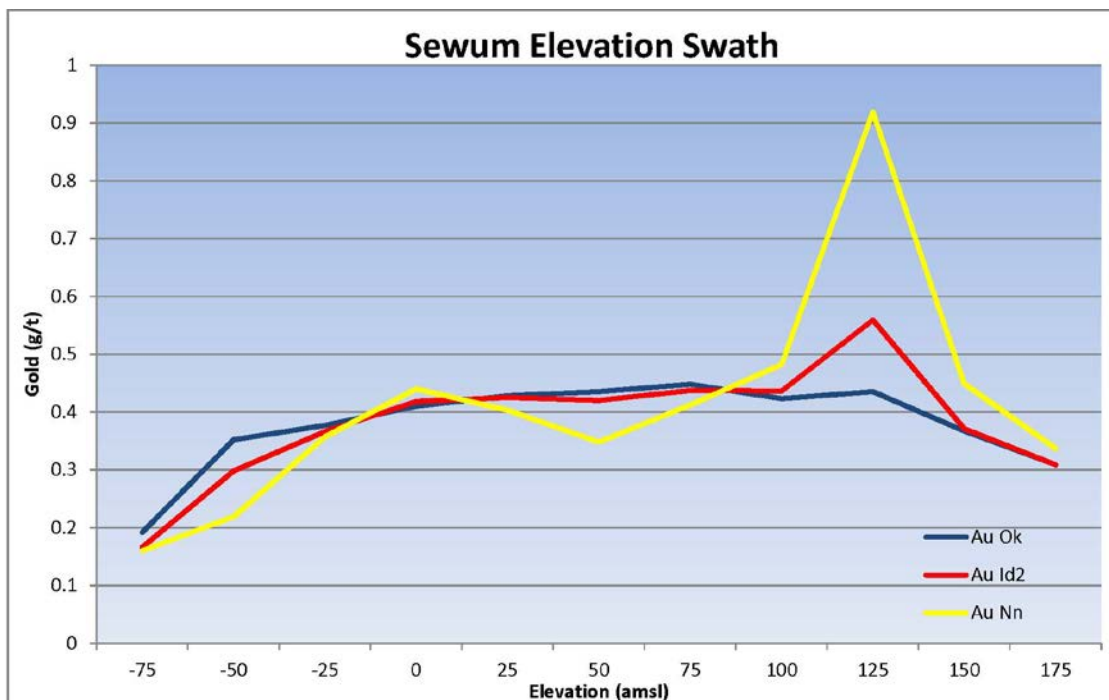


Figure 14.17 Sewum Elevation Swath Plot



## 14.11 PREVIOUS ESTIMATES

Edgewater commissioned Tetra Tech to generate a resource estimate in 2012 (McCracken 2012). That 2012 estimate was based on the premise that the resource could potentially be extracted using traditional open pit methods.

Table 14.15 illustrates the differences in the 2012 resource estimate with the current NI 43-101 compliant resource from 2014.

**Table 14-14 Comparison with Previous Estimate**

	2012 Tetra Tech Model	2014 WSP Model	Difference
<b>Zone</b>		<b>Boin</b>	
<b>Tonnes</b>	9,551,000	9,551,000	0.0%
<b>Au (g/t)</b>	1.20	1.20	0.0%
<b>Zone</b>		<b>Nyamebikyere</b>	
<b>Tonnes</b>	3,633,000	3,716,000	2.2%
<b>Au (g/t)</b>	1.06	1.13	6.2%
<b>Ounces</b>	123,718	135,000	8.4%
<b>Zone</b>		<b>Sewum</b>	
<b>Tonnes</b>	7,443,000	7,549,000	1.4%
<b>Au (g/t)</b>	1.07	1.09	1.8%
<b>Zone</b>		<b>Enchi Total</b>	
<b>Tonnes</b>	20,627,000	20,816,000	0.9%
<b>Au (g/t)</b>	1.13	1.15	1.7%

The difference between the 2012 resource model and the 2014 resource model is a slight change to the Nyamebikyere and Sewum wireframes to include the latest drill results. The newest drilling increased the volumes the wireframes lightly and the drillhole contained assay results that were above the average grade of the zones. These two minor adjustments resulted in a 1% increase in tonnage and a 1.7% increase in grade.

# 15 ADJACENT PROPERTIES

A few exploration licenses are active immediately adjacent to the Project (Figure 15.1).

Indo Gold Ltd (Indo Gold) signed an option to purchase agreement with Sikaso Gold Resources Ltd. on February 25, 2011 for a period of 42 months. No further activity regarding this transaction has been documented on the public records. Previous exploration on this property was limited to stream sediment sampling by Etruscan Resources Inc. Since the option agreement, Indo Gold has completed a regional stream sediment sampling program focusing on active streams as well as a ridge and spur soil sampling program in selected areas ([www.indogold.com.au](http://www.indogold.com.au)).

Geoman Consult Ltd. (Geoman) is a Ghanaian based consulting group which conducts work in geological management within the mineral exploration sector, specifically within Africa and in Ghana in particular. Geoman was working with the Minerals Commission of Ghana to prove viability within the area for small scale miners. There is no record indicating if this work has been completed.

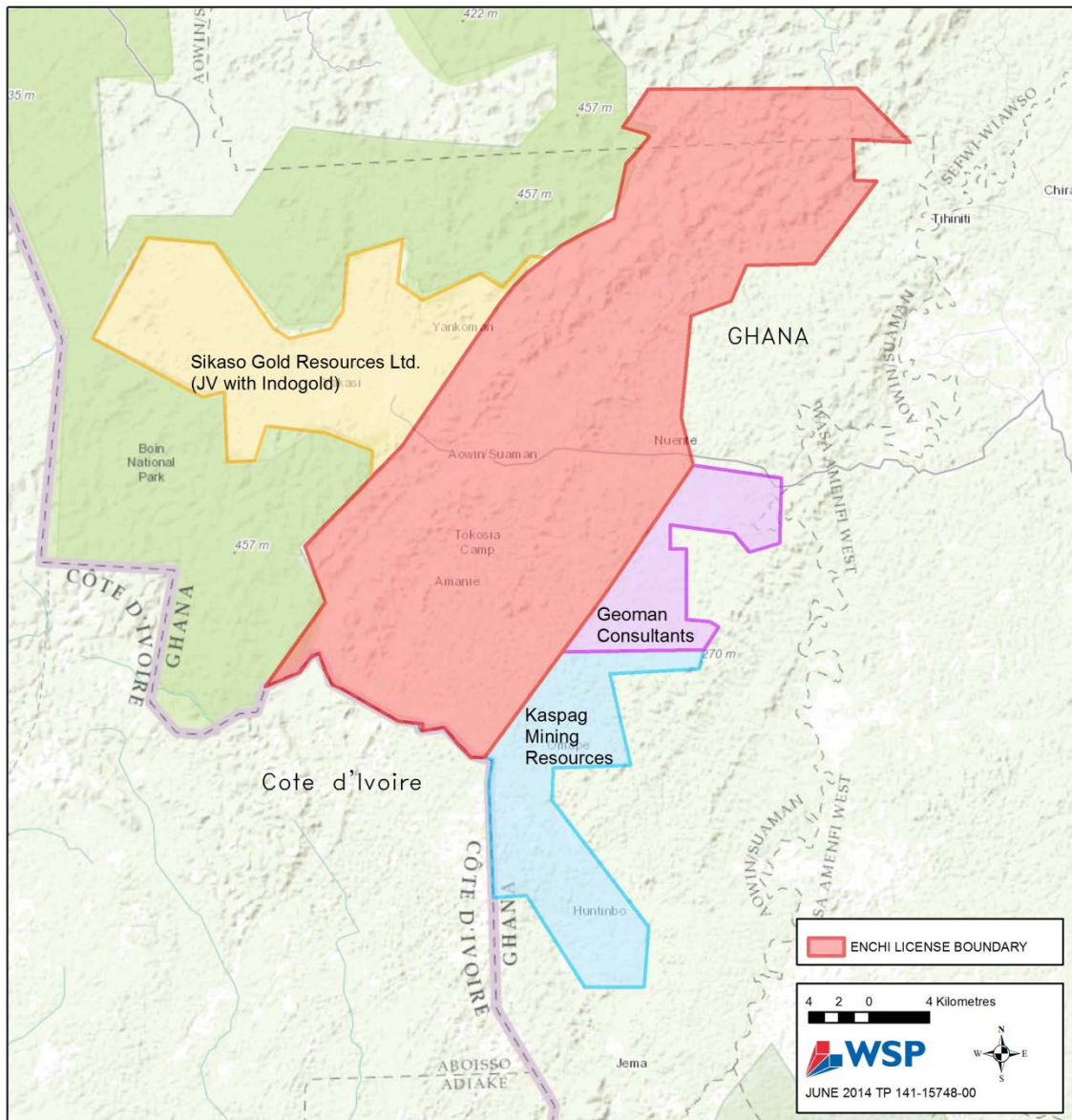
No public information could be located on any activities for Kasapag Mining Resources. It is unknown if these licenses are currently active.

Edgewater's Enchi Gold Project is located 70 km south of Kinross's Chirano Gold Mine property. The Chirano mine area lies within the Proterozoic terrain of southwest Ghana, along a major structure separating the Sefwi Belt to the west from the Kumasi Basin to the east known as the Bibiani Shear Zone. The Enchi Gold Project covers a 40 km segment of the Bibiani Shear Zone where known gold mineralization is associated with major structures and subsidiary splays. The Chirano gold mine was commissioned in September, 2005 and in 2013 produced 275,402 oz of gold at a cash operating cost of US\$761/oz ([www.kinross.com](http://www.kinross.com)). Gold mineralization at Chirano is hosted within fractured and intensely hydrothermally altered granite where gold is associated with 1 to 5% pyrite and the distribution of gold appears to be closely associated with the presence of pyrite (Red Back AIF March 30, 2010).

The Chirano Mine, has 14 known gold deposits over a 9 km strike length range in individual length from 150 to 700 m and range in thickness from a few metres to over 70 m (Red Back NI 43-101 Chirano Gold Mine Technical Report May 2009). Individual deposits may extend to over 700 m in depth. Mining at Chirano is done by both open pit and underground extraction. As of December 21, 2013 Proven and Probable reserves were 15.3 Mt grading 2.89 g/t gold for 1.42 Moz. The Measured and Indicated Resources totaled 8.0 Mt grading 2.42 g/t gold for 0.6 Moz and the Inferred Resource totaled 1.6 Mt grading 3.06 g/t gold for 0.2 Moz ([www.kinross.com](http://www.kinross.com)).

WSP has not verified the technical data on the Chirano Mine and the gold mineralization at Chirano is not necessarily indicative of the mineralization on the Project.

Figure 15.1 Adjacent Properties



# 16 OTHER RELEVANT DATA AND INFORMATION

No other data or information is relevant to the Project.

# 17 INTERPRETATIONS AND CONCLUSIONS

## 17.1 GEOLOGY

Based on the review of the available information and observations made during the site visit, WSP concludes the following, in no particular order of perceived importance:

- The Property is currently held 45.9% by Edgewater, 44.1% by Kinross and 10% carried interest by the Government of Ghana.
- A LOI between Pinecrest, Edgewater and Kinross whereby Pinecrest would acquire 100% of Edgewater and Kinross's interest in the Property.
- The approval process to grant licences in the country is very slow. Although work can start on a license once an application is submitted, this does not guarantee the license will be granted.
- The Property is analogous to shear-hosted gold mineralization in quartz veining or quartz flooding. This style of mineralization is present in other mineral resources in the region.
- The Property is associated with mineralization related to the Bibiani Shear Zone that is known to host significantly large lode-gold deposits.
- The mineralization on the Property is associated to secondary and tertiary order shears splays off the BS.
- Edgewater has a strong understanding of the regional and local geology to support the interpretation of the mineralized zones on the Property.
- Mineralization is currently defined in fourteen individual zones at various stages of exploration. Three of the zones have drill defined mineral resources.
- Drilling and sampling procedures, sample preparation, and assay protocols are conducted in agreement with industry best practices.
- Verification of the drillhole collars, surveys, assays and drillhole logs indicates the Edgewater data is reliable to support the resource estimation.
- Discrepancy in the collar elevations relative to the topography at Nyamebikyere and Sewum continue to be an issue. Until this issue is resolved the resources are likely to remain in the inferred category.
- Based on the QA/QC program, the data is sufficiently reliable to support the resource estimate generated for the three zones on the Property.
- The mineral model has been constructed in conformance to industry standard practices.
- The geological understanding is sufficient to support the resource estimation.
- The presence of an oxide domain, a transition domain and a fresh domain have been identified in the drill logs.
- The current resource does not differentiate between the various weathering domains.
- At a gold cut-off grade of 0.7 g/t, the Inferred Resource totals 20.8 Mt with an average grade of 1.15 g/t gold, based on the parameters for a small tonnage open pit heap leach operation.



- The current resource is not pit constrained. The resource does not extend beyond 200 vertical meters, which is well within open pit depth parameters.
- The Property contains resources that are comparable to other projects in the region
- The SG value used to determine that tonnage was derived from data used by operating mines in the region, which may reflect a lack of precision with respect to the resource tonnages.
- The resources at Boin, Sewum and Nyamebekyere remain open along strike and in the down-dip directions.
- The remaining eleven mineral zones on the Property do not have enough data to support resource estimations. Additional exploration on these zones will not guarantee that the zones will support potentially economic material.

# 18 RECOMMENDATIONS

It is WSP's opinion that additional exploration expenditures are warranted to improve the understanding of the Project and delineate additional resources. It is recommended that Pinecrest undertake a two-phase program.

The initiation of Phase 2 is contingent on results from Phase 1.

## 18.1 PHASE 1: METALLURGICAL TESTING AND PRELIMINARY ECONOMIC ASSESSMENT

The Phase 1 program would consist of metallurgical testing of the deposits on the projects and the completion of a Preliminary Economic Assessment (PEA).

The metallurgical test work would involve the collection of one oxide sample and one sulphide sample from each of the delineated deposits on the project, Boin, Sewum and Nyamebekyere, for a total of six composite samples.

The metallurgical test would be conducted in order to provide the necessary data to support a PEA study.

A geotechnical study is recommended to characterize the rock strengths properties. This will be required for engineering studies involving pit designs.

A PEA study of the project will provide an initial assessment of the economic viability of the project based on open pit designs and a combined heap leach/conventional milling operation.

The program is estimated to cost Cdn\$550,000. Table 18-1 summarizes the Phase 1 program proposed.

**Table 18-1 Phase 1 Budget**

<b>Program</b>	<b>Cost (Cdn\$)</b>
Metallurgical Test Program	250,000
Preliminary Economic Assessment	250,000
Geotechnical Assessment	50,000
<b>Total</b>	<b>550,000</b>

## 18.2 PHASE 2: DELINEATION STUDIES

The Phase 2 program is planned to increase the confidence of the resource by improving resource categories as well as to further advance the project based on the anticipated recommendations from the PEA completed in Phase 1.

The drill program is suggested to improve the geometry of the mineralization as well as the grade distribution within the deposit. The diamond drilling is required to further understand the structural complexity of the deposits. The reverse circulation drilling allows for low cost drilling for grade distribution.

The line item of compensation in the budget is paid to plantation owners for the destruction of coca trees in order to set up drill pads and access roads.

A second round of metallurgical testing is anticipated to further optimize the flow sheet from the Phase 1 results.

As the program advances past the PEA stage, an Environmental Impact Assessment should be initiated.

A high-resolution topographic survey, such as Light Detection and Ranging (LIDAR), should be flown over the Property to generate a topographic base. One of the steps required before the resource can be improved beyond the Inferred classification, is that all the collar elevations on the property need to be corrected.

The details of the Phase 2 budget are presented in Table 18-2.

**Table 18-2 Phase 2 Budget**

Program	Cost (Cdn\$)
Reverse circulation drilling 8,500 m @ \$80/m	680,000
Diamond drilling 4,000 m @ \$190/m	760,000
Compensation (drilling)	175,000
Metallurgical Test	100,000
Environmental Impact Assessment	150,000
Topographic Survey/LIDAR	165,000
<b>Total</b>	<b>2,030,000</b>

### 18.3 OTHER RECOMMENDATIONS

The following recommendations are based on observations by WSP during the site visit or during the resource estimation process. These recommendations are suggestions to policy and procedures conducted by Edgewater.

- A detailed elevation survey of the property is strongly recommended. The current uncertainty in collar elevation is one of the reasons that the resources are classified as inferred. Complete a LIDAR or airborne topographic survey of the project area and then adjust all the collar elevations to the new topographic file.
- On all future drilling programs, the company should collect SG samples from the various rock types and oxide domains. A minimum of 2% of the total drillhole data set should contain SG data.
- Downhole televiwer surveys should be considered for selected boreholes to acquire appropriate geotechnical data. This data would be utilized in future pit designs.

- Current logs contain incorrect collar information and can be misleading during the validation process. Drill logs require updating with correct information.

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# 20 CERTIFICATE OF QUALIFIED PERSON

Todd McCracken, P. Geo.

I, Todd McCracken, P. Geo., of Sudbury, Ontario do hereby certify:

- I am the Manager -Geology with WSP Canada Inc. with a business address at Unit 2, 2565 Kingsway, Sudbury, Ontario.
- This certificate applies to the technical report entitled Technical Report and Updated Resource Estimate on the Enchi Gold Project (the “Technical Report”), with an effective date of March 17, 2014.
- I am a graduate of the University of Waterloo with a Bachelor of Science degree in 1992. I am a member in good standing of Association of Professional Geoscientists of Ontario, license 0631. My relevant experience includes 22 years of experience in exploration and operations, including several years working in shear-hosted gold deposits. I also have 9 years of experience completing resource estimation and block models. I am a “Qualified Person” for the purposes of National Instrument 43-101 (the “Instrument”).
- My most recent personal inspection of the Property was from April 28 to May 1, 2014, inclusive.
- I am responsible for Sections 1 to 20 of the Technical Report.
- I am independent of Edgewater Exploration and Pinecrest Resources as defined by Section 1.5 of the Instrument.
- I have prior involvement with the Property that is the subject of the Technical Report, having authored two previous technical reports in 2010 and 2012.
- I have read the Instrument and the sections of the Technical Report that I am responsible for have been prepared in compliance with the Instrument.
- As of the date of this certificate, to the best of my knowledge, information, and belief, the sections of the Technical Report that I am responsible for contain all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.

Signed and dated this 15 day of July, 2014 at Sudbury, Ontario.

*“Original document signed and sealed  
by Todd McCracken, P. Geol.”*

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Todd McCracken, P. Geol.  
Manager - Geology  
WSP Canada Inc.