NI43-101 TECHNICAL REPORT -NASSAU GOLD EXPLORATION PROJECT, SIPALIWINI DISTRICT, SURINAME SOUTH AMERICA

Effective date: July 23, 2019 Report Date: July 23, 2019

Report Prepared for:

79North Ltd. The Canadian Venture Building 82 Richmond Street East Toronto, Ontario CANADA M5C 1P1

Report Prepared by:



Capps Geoscience, LLC P.O. Box 2235 Evans, GA 30809 USA

Signed by QP: Richard C. Capps, PhD, Georgia RPG SME Registered Geologist

Contents

1	Sun	nmary	1
	1.1		1
	1.2	Geology and mineralization	2
	1.3	Exploration history and 79North acquisition	3
	1.4	Drilling and sampling	4
	1.5	Interpretation and conclusions	5
	1.6	Recommendations	5
2	Intro	oduction	6
	2.1	Reason for technical report	6
	2.2	Sources of data used in report	6
	2.3	Qualifications of qualified person and site visit	6
	2.4	Units used in report	7
3	Reli	ance on other experts	9
4	Proj	perty description and location	9
	4.1	General description	9
	4.2	Application for exploitation concessions	10
	4.3	Surinamese Mineral Law (Decree 58)	11
	4.4	Environmental liabilities	13
5	Acc	essibility, climate, local resources, infrastructure and physiography	13
	5.1	Accessibility	13
	5.2	Climate	13
	5.3	Local resources and infrastructure	18
	5.4	Physiography and topography	18
	5.5	Sufficiency of surface rights	19
6	Hist	ory	19
	6.1	General	19
	6.2	Acquisition of Nassau gold project	19
	6.3	Past production	21
	6.4	Historic exploration	21
		6.4.1 Introduction	21
		6.4.2 Historic exploration methods at the Nassau Gold Project	22

		6.4.3	Historic exploration - Years 2001 through 2018	22							
		6.4.4	Historic exploration at the Witlage Creek gold placer area	24							
		6.4.5	Historic sample preparation, analyses, and security	34							
		6.4.6	Data verification	34							
7	Geo	logic s	etting and mineralization	45							
	7.1	Regior	nal geology	45							
	7.2	Conce	ssion geology	50							
		7.2.1	Summary	50							
		7.2.2	Witlage Creek geology	50							
8	Dep	osit typ	Des	58							
	8.1	Placer	gold	58							
	8.2	Lode g	Jold deposit types	58							
		8.2.1	Currently mined	58							
		8.2.2	West African shield	60							
		8.2.3	Laterite	60							
9	Expl	oratior	า	60							
10	Drill	ing		64							
11	Sam	ple pre	eparation, analyses, and security	64							
12	Data	verific	ation	64							
13	Mine	eral pro	ocessing and metallurgical testing	64							
14	Mine	eral res	ource estimates	65							
15	Adja	icent p	roperties	65							
16	Othe	er relev	ant data and information	66							
17	Inter	pretati	on and conclusions	66							
18	Reco	ommer	ndations	67							
19	Refe	rences	5	68							
20	20 Certificate of Author										

List of Figures

1	Nassau Concession location map	14
2	Nassau and adjoining concession boundaries	15
3	Nassau 2018 access roads, trails, and porknocker placer workings	16
4	Nassau site visit locations	17
5	Soil profile	23
6	Mineralized areas of the Witlage Creek prospect	26
7	Mineralized shear zone	27
8	Panorama of the mineralized shear zone area	28
9	Workings along NW-striking shear zone at Witlage Creek	29
10	Historic Duyfjes trenches	35
11	Cinnabar nodules, Witlage Placer	36
12	Gold deposits of Northern South America	37
13	Current compilation of the total gold assay results of the Nassau Project	38
14	Current compilation of the total gold assay results of the Nassau Project	
	on geologic map interpreted from airborne geophysical data	39
15	Current compilation of the total auger sample gold assays from the Wit-	
	lage Creek target area	40
16	Isometric countouring of compilation of the total current auger sample	
	gold assays from the Witlage Creek target area	41
17	Current compilation of all grab sample assays from the Witlage Creek tar-	
	get area	42
18	Current compilation of all pan sample gold grain counts from the Witlage	
	Creek target area	43
19	Paleoproterozoic greenstone belts of the Guiana Shield (Watson 2008)	47
20	Regional framework of the Guiana Shield (Voicu, 2010)	48
21	Paleoproterozoic greenstone belts of the Guiana Shield and West Africa	49
22	GMD geologic map (Wong and others 1998)	52
23	GMD geologic map legend (Wong and others 1998)	53
24	Geologic Map of the Witlage Creek prospect area (Capps and others,	
	2004a)	54
25	Interpretive geologic map of the Nassau concession from a Terraquest	
	airborne geophysical survey by Lubbe Geophysics, Inc., Clearwater, FL	55
26	Mineralized quartz vein, southern Nassau Concession	56
27	Boudin formation	61

28	Ore plunge formation	62
29	Rosebel gold deposit vein formation	63
30	Diagram of low-sulfide Orogenic gold deposit model	63
31	Portable drill rig	68

List of Tables

1	Definition of terms	8
2	March 2014 reconnaissance sample locations, field description and assay .	30
3	Multielement chemistry from March 2014 reconnaissance samples	31
4	Continued multielement chemistry from March 2014 reconnaissance sam-	
	ples	32
5	Continued multielement chemistry from March 2014 reconnaissance sam-	
	ples	33
6	Elements and detection limits - FILAB Suriname	34
7	Gold assays including QA/QC screens from March 2014 exploration	44
8	Proposed generalized Phases 1 and 2 budget for the Nassau Gold Project	67

1 Summary

This technical report for the Nassau Gold Project was prepared by consulting geologist and Qualified Person (QP) Richard C. Capps at the request of a private company, 79North Limited ("79North"), and Dr. Capps take responsibility for all sections of this report. This technical report is written in compliance with disclosure and reporting requirements set forth in the Canadian Securities Administrator's National Instrument 43-101. This report presents the results of both historic and recent exploration.

The purpose of this technical report is to provide a summary of scientific and technical information concerning mineral exploration activities at the Nassau concession and to suggest additional gold exploration. 79North intends to seek investment funds and to pursue an Initial Public Offering in the exploration of the concession. This current technical report establishes a summary of historic data and recommends a Phase 1 exploration program as a continuation of earlier exploration with a goal of developing a Phase 2 core drilling program whereby Phase 2 exploration is contingent on Positive results from the Phase 1 programs. The Nassau Gold Project is in a relatively early phase of exploration and no mineral resource or reserve estimates are disclosed in this report.

1.1 Introduction

The Nassau exploration concession is 21,076 hectares in area, reduced by 25% of the original size at each renewal, and is located in northeastern Suriname, South America in the district of Sipaliwini. The concession is located approximately 125 kilometers southeast of Paramaribo, the capital city of Suriname (Figure 1). The coordinates of the approximate center of the concession are E764956, N539882 meters; WGS 1984, UTM Zone 21N. The concession is centered on the Nassau Plateau, a laterite plateau preserved as an erosional remnant of a much older regolith (rock weathered in place) and paleosol horizons (older soil).

The property is reached by 4x4 truck and ATV (Figures 2 and 3). The distance by road is about 180 kilometers and includes a newly paved road from Paramaribo to Moengo and then a lateritic dirt road, known as the road to Snesi Kondre, which passes the Newmont Ventures Limited (a 100% owned subsidiary of Newmont) base camp at Newmont/Surgold's Merian gold deposit.

The original exploration concession of the Nassau Gold Project was acquired by Integral Agriculture and Mining Industries N.V. ("IAM"), a local Suriname entity on May 24, 2012. The current concession is known as GMD 202/17 with an area of 21,076 hectares, reduced from the original size by 25% at each renewal. The concession had its second and final renewal on August 25, 2017 for a period of two years. The exploration concession expires on August 25, 2019. On May 9, 2019, IAM applied for two exploitation concessions of 9,950 hectares each to supersede and substantially cover the same area as the exploration concession. There is no guarantee that the exploitation concessions will be granted by August 25, 2019 or at all but to the best of the knowledge of the Corporation there is no reason to think that the exploitation concessions will not be granted (based on the results of other such applications in Suriname) and such concessions should be granted to avoid any delays in the Corporation's planned exploration activities.

1.2 Geology and mineralization

The Nassau concession area lies within the greenstone belt and related granitic and gneissic rocks (Figures 5 through 9) of the Guiana Shield. The Guiana Shield is one of three cratons of the South American Plate and a Paleoproterozoic age (1.8 to 2.2 Ga) massif. The area is in the northwest corner of South America between the Orinoco River, to the north, and Amazon River, to south (Gibbs and Barron, 1993; Wong and others, 1998). Most of the Guiana Shield is composed of granitic rocks formed during the transpressional Paleoproterozoic Transamazonian Orogeny. These granitic dome or dome-like features likely provided a focus for movement of deep fluids and deposition of metals into the upper crustal volcanic-sedimentary extensional rocks (Figure 7. Granite-greenstone-belts are present, predominantly in the northern part of the shield between Venezuela and French Guiana, trend roughly NW-SE, and span a geographic distance of about 200 kilometers.

The lithologies of the upper crustal volcanic-sedimentary formations are typical of the arc-related sequence of rocks found in greenstone belts and major gold deposits throughout the world. The lithologies of the upper crustal volcanic-sedimentary formations are typical of the arc-related sequence of rocks found in greenstone belts and major gold deposits throughout the world. Based on preliminary mapping, rocks in the Witlage Creek area of the Nassau Gold Project have more volcanic affinity and lithologies at the Merian Deposit are dominated by a sedimentary package. The Rosebel ore deposits occur in both volcanic and sedimentary rocks.

For over one hundred years the concession area has been prospected for placer gold within Tertiary to recent gravels. Most of the placer workings are within streams draining the Nassau Plateau which is central to the concession. The historically most active placers are associated with Witlage Creek in the north-central concession and the Bamboo Creek in the west-central portion of the Nassau concession (Figure 3). Recent placer workings and historic excavations and trenching in the headwaters areas of numerous creeks (bowl area) have exposed saprolitic outcrops beneath the placer and thick soil horizon (Figure 5). Geologic mapping and geochemical sampling show that much of the saprolite contains gold mineralization (Figures 7, 8, and 9).

Most gold mineralization found to date best fits the orogenic gold deposit model as do the Merian and Rosebel gold deposits. Gold mineralization is within sheared quartz veins, folds, faults, and contact zones. The results of multi-element analyses from samples taken during author's 2014 site visit (Figure 4) show the same pathfinder associations determined during historic exploration in 2001 (Capps and others, 2004a). The highlevel mercury, arsenic-tungsten-iron, and antimony-arsenic-iron associations typical of the orogenic gold deposit models are a good match to the geochemistry associated with gold at the Witlage Creek prospect (Figure 30).

As exploration progresses, laterite gold deposits or paleoplacer deposits may also be discovered within the thick laterite cap of the Nassau Plateau. The eastern Suriname laterite plateaus are under explored for such deposits.

1.3 Exploration history and 79North acquisition

The Nassau concession has a very long history of alluvial gold mining, but there is no evidence of historic lode production. The author is unaware of the existence of alluvial or lode gold production records and it is unlikely that records were kept.

Although the history of modern gold exploration in Suriname and the Nassau concession is relatively short, bauxite exploration began on the Nassau Plateau, central to the Nassau concession, in the early 1900's and has continued until recently. Bauxite exploration built an infrastructure of exploration roads, camps, and barrow pits which now aids gold exploration.

The 79North acquired its indirect interests in the Nassau Gold Project and the Sandpiper Gold Project through its acquisition of all of the issued and outstanding shares (the "Sumin Shares") of Sumin Resources Limited ("Sumin") effective December 29, 2017, pursuant to a merger agreement dated November 27, 2017 (the "Merger Agreement") among the Corporation, Sumin and 79North (BVI) Ltd., a wholly owned subsidiary of the Corporation (the "Merger"). At the time of the Merger, Sumin owned 80% of Nassau Gold Limited ("NGL"), a Guernsey entity, and the remaining 20% interest in NGL was held by Mariana Resources Limited ("Mariana"). Effective July 10, 2019, Sumin acquired the remaining 20% interest in NGL from Mariana in exchange for a 1% net smelter return royalty ("NSR") on the Nassau Gold Project calculated based upon the proportionate interest held by the Corporation therein (subject to a minimum payment equal to a 0.5% NSR on the entire Nassau Gold Project), pursuant to (i) a share transfer and termination agreement between Sumin, Mariana and NGL dated July 10, 2019; and (ii) a royalty agreement between the Corporation, Sumin Delfstoffen N.V. ("SD") and Sandstorm Gold Ltd. ("Sandstorm") (an affiliate of Mariana) dated July 10, 2019.

Following the completion of the transaction described above with Sandstorm, NGL transferred its 100% interest in SD, a Suriname entity, to Sumin. Sumin now holds a 100% interest in SD. Pursuant to an option agreement dated November 28, 2013 between IAM, the shareholders of IAM, Sumin and SD, Sumin had the right, through SD, to earn up to an 80% interest in IAM which holds a 100% interest in the Nassau Gold Project. Prior to the closing of the Merger, Sumin, through SD, had earned a 48% interest in IAM. Since the Merger, SD has earned a 70% interest in IAM pursuant to the IAM Agreement. In order to earn the remaining 10% interest, pursuant to the IAM Agreement, SD must complete a scoping study by no later than December 29, 2020 unless the Nassau concession expires early and is not extended, and pay to the shareholders of IAM a sum of US\$500,000.

If Sumin earns an 80% interest in IAM through SD, IAM will become a joint venture for the exploration, evaluation and development and exploitation of the Nassau Gold Project. The shareholders of IAM will hold a 20% carried interest in IAM and may elect to pay their 20% proportionate share of the joint venture costs, or convert their 20% shareholding into Sumin Shares equal to 10% of the net present value of the Nassau Gold Project divided by the then current price of Sumin Shares and a 3% NSR which may be reduced to a 2% NSR for a payment of US\$1,000,000 to the shareholders of IAM. Should SD (or the joint venture if formed) complete either a pre-feasibility study or a feasibility study, SD must pay to the shareholders of IAM sums of US\$500,000 and US\$650,000, respectively.

1.4 Drilling and sampling

79North has not conducted exploration drilling or sampling of a material nature at the Nassau concession. Historic drill sites were identified at the Witlage Creek prospect in the west central concession area. These holes were likely drilled by Newmont Mining when they explored the area under an agreement with Suralco but the author has no access to this data.

During 2014 exploration, summarized in this report, the author sampled shear zones and veins at the Witlage Creek prospect and these were analyzed for gold and Multielement total digestion (ICP-MS 46; Tables 2-). The fifty (50) samples were mostly two (2) meter long continuous-chip line samples of sapolite and saprock with gold assay values up to 3 g/MT and only two of the samples from the plateau were not anomalous in gold.

Under an agreement with Sumin, Mariana Resources (a subsidiary of Sandstorm) conducted exploration on portions of the Nassau concession from January 2015 through February 2016. Mariana confirmed the prospective gold mineralization at Witlage Creek and encountered several anomalous intercepts associated with a limited program of hollow-stema auger drilling of the saprolite. There was no follow up conventional core drilling.

1.5 Interpretation and conclusions

The Nassau Project shares a geologic setting with many of the world's largest and most long-lived gold mines and including current world class mines of the geologically-linked Guiana Shield and Western Africa. The Nassau Project is a project that merits aggressive gold exploration. Current gold targets within the concession include the headwaters of Witlage Creek, which includes the currently very active Northern Witlage Creek area, and in the western concession the large, but largely unexplored, Bamboo Creek placer. However, the entire concession is prospective and new targets will emerge as new exploration data is acquired. Nassau is part of the highly mineralized Eastern Greenstone Belt gold trend and because of the geologic similarity and proximity to Merian and Rosebel deposits the concession is highly prospective.

In 2015, gold exploration conducted by Mariana under an agreement with Sumin confirmed and broadened the Witlage Creek and Nassau Plateau anomalies.

1.6 Recommendations

A Phase 1 exploration program is recommended which includes continued geologic mapping, stream sediment panning, and soil, rock, auger and trench sample collection as well as a Lidar survey. A subsequent Phase 2 is contingent on the positive exploration results of Phase 1. A Phase 2 exploration core drilling program will explore the most advanced areas discovered in Phase 1 exploration and will determine the underlying tenor of the gold mineralization. Table 8 outlines a general Phase 1 and Phase 2 budget in the amount of CAN\$2,500,000 to support this exploration.

2 Introduction

2.1 Reason for technical report

This technical report has been prepared at the request of a private company, 79North Limite, whose address is The Canadian Venture Building, 82 Richmond Street East, Toronto, Ontario, CANADA M5C 1P1. 79North intends to conduct exploration on the Nassau concession and to use the current technical report to assess the scope of that exploration.

This report is to comply with disclosure and reporting requirements set forth in the National Instrument 43-101 Standards of Disclosure for Mineral Projects (NI 43-101), Companion Policy 43-101CP to NI 43-101 and Form 43-101F1 of NI 43-101.

2.2 Sources of data used in report

Data used in this report is from a variety of sources including internal exploration reports provided by 79North with data acquired as part of their exploration program as well as publically available maps and reports on the Nassau concession area and adjacent areas referenced in this report.

2.3 Qualifications of qualified person and site visit

The author and Qualified Person for the current report, Richard C. Capps, PhD, QP, and SME registered member geologist, visited the Nassau concession on 25 January 2018 and previously from 21 March to 31 March 2014 and July and August 2001. The author is familiar with the geology of the concession because he conducted gold exploration for Suralco (a subsidiary of Alcoa) in the Witlage Creek area of the Nassau concession during July 2001 (Capps and others, 2004a), and he was involved in the initial geologic modeling of the Merian deposit in 2003 (2004b).

During the 2014 exploration and the 2018 site visit the area was explored for new workings, exploration roads, artisanal miner (porknockers) workings, and drill sites (Figures 2, 3, and 4). In 2014, fifty continuous chip line samples were taken in new saprolitic exposures near the head of Witlage Creek and, five core hole drill sites for Newmont/Suralco gold exploration were located. Helicopter surveys of more remote areas, such as the Bamboo Creek area placers and a quartz vein in the southern concession(Figure 26), were made to note the extent of porknocker workings and to explore for new exposures of mineralized saprolite. Several additional drill sites were noted on a relatively recently created exploration road between Witlage Creek area placers and its intersection with the existing Suralco-Nassau road near the head of Bamboo Creek. 79North has no access to this drilling data.

2.4 Units used in report

Most of the information on the property and surrounding area are in metric units. Currency is in United States Dollars. The following units of measurement and conversion factors are provided for clarification.

1 ppm = 1 part per million 1 ppb = 1 part per billion

100 hectares = 1 square kilometers

1 foot = 31.28 cm or 0.3128 meters

```
1 mile = 1.609 kilometer
```

```
1 \text{ m}^3 = 1 \text{ cubic meter} = 35.31 \text{ feet}^3
```

```
1 ton (Imperial) = 2240 pounds
```

1 short ton = 2000 pounds

```
1 hectare = 10,000 \text{ m}^2 = 2.471 \text{ acres}
```

```
1 cubic foot = 0.028317 cubic meters
```

```
1 \text{ acre} = 43,560 \text{ feet}^2
```

Ma = million years ago

Ga = billion years ago

Geologic terms used are those of standard usage (Table 1).

Table 1:	Definition	of terms
----------	------------	----------

Term	Definition
Capital Expenditure	All other expenditures not classified as operating costs.
Crushing	Initial process of reducing ore particle size to render it more amenable for further processing
Dilution	Waste which in unavoidably mined with ore.
Dip	Angle of inclination of a geological feature/rock from horizontal
Fault	The surface of a fracture along which movement has occurred
Footwall	The underlying side of a fault, orebody or stope
Gangue	Non-valuable components of ore
GMD	Geologische Mijnbouwkundige Dienst van Suriname/Geological and Mining Service of Suriname
Grade	The measure of concentration of gold within mineralized rock
Hanging wall	The overlying side of a fault, orebody or stope
IAM	Integral Agriculture and Mining Industries, N.V.
Igneous	Primary crystalline rock formed by the solidification of magma.
Lithological	Geological description pertaining to different rock types
Material properties	Physical and chemical properties of rocks mined
Metamorphic processes	Pertaining to rocks formed by the recrystallization in the solid state of a pre-existing rock of any type to one with dif- ferent texture and new minerals by the application of pressure, temperature, and/or deformation of the original rock (Chemically reactive solutions are sometimes also responsible for the change or alteration of the rock.)
Milling	A general term to describe the process in which the ore is crushed and ground and subjected to physical or chemi- cal treatment to extract the finished product
Porknockers	Artisanal miners
Saprolite	A chemically weathered rock, mostly soft or friable and commonly retaining the structure of the parent rock since it is not transported (Saprolites contain quartz and a high percentage of kaolinite with other clay minerals which are formed by chemical decomposition of primary minerals, mainly feldspars.)
Sedimentary	Pertaining to rocks formed by the accumulation of sediments, formed by the erosion of other rocks
Stratigraphy	The study of stratified rocks in terms of time and space
Strike	Direction of line formed by the intersection of strata surfaces with the horizontal plane, always perpendicular to the dip direction.
Stripping ratio	The ratio of tonnes of waste rock divided by the tonnes of mineralization destined for the processing plant
Sulfide	A sulfur bearing mineral
Tailings	Finely ground waste rock from which valuable minerals have been extracted
Total Expenditure	All expenditures including those of an operating and capital nature
USGS	United States Geological Survey

3 Reliance on other experts

The author has reviewed the agreement and documents regarding the concession, but is not a legal expert in Suriname law, mineral agreements or the rules and laws governing exploration rights and thus relies on the information provided by 79North. The author saw no obvious issues during his review for this report.

4 Property description and location

4.1 General description

The Nassau exploration concession consists of 21,076 hectares and is located in northeastern Suriname, South America in the district of Sipaliwini. The Nassau exploration concession has been reduced by 25% from the original size at each renewal. The concession is located approximately 125 kilometers southeast of Paramaribo, the capital city of Suriname (Figure 1). The center of the concession is approximately located at coordinates E764956, N539882 meters; WGS1984, UTM Zone 21N.

Under Suriname law there is no requirement for physical boundaries to be located in the field. Boundaries to concessions are defined from 1:100,000 scale maps typically using mechanical drafting methods.

The Geologische Mijnbouwkundige Dienst van Suriname or Geological and Mining Service of Suriname (GMD) maintain all maps and records. Official coordinates submitted to the GMD are in latitude and longitude with a datum of Zanderij (the regional airport). This coordinate system is not well supported and of limited use in field work. All data and boundary coordinates in this report are in the grid based Universal Transverse Mercator coordinate system (UTM) coordinates with WGS 84 as a datum in Zone 21, Northern Hemisphere.

Exploration and mining activities in Suriname are governed by the Ministry of Natural Resources under the Mining Decree of 1986, which states that mining rights are divided into right of reconnaissance, right of exploration, right of exploitation, right of small scale mining and right to quarry building materials.

IAM holds a right of exploration for the Nassau concession area which allows for an initial three year exploration period (until 24 May 2015) followed by two extensions each for a period of two years. At the end of the initial three year term, and after the first two year extension, the right of exploration must be reduced each time in size by 25% of the original area.

The original exploration concession of the Nassau Gold Project was acquired by Integral Agriculture and Mining Industries N.V. ("IAM"), a local Suriname entity on May 24, 2012. The concession is known as GMD 202/17 with an area of 21,076 hectares. The concession had its second and final renewal on August 25, 2017 for a period of two years and the concession has been reduced from the original size by 25% at each renewal. The exploration concession expires on August 25, 2019. On May 9, 2019, IAM applied for two exploitation concessions of 9,950 hectares each to supersede and substantially cover the same area as the exploration concession. There is no guarantee that the exploitation concessions will be granted by August 25, 2019 or at all but to the best of the knowledge of the Corporation there is no reason to think that the exploitation concessions will not be granted (based on the results of other such applications in Suriname) and such concessions should be granted to avoid any delays in the Corporation's planned exploration activities.

Under the terms of the Mining Decree, the right of exploration entitles the holder to drill holes and make excavations/sub-surface work for sample collection, erect exploration camps and temporary buildings, build necessary infrastructure and use geological samples for tests and analysis. A right of exploration does not include any surface rights, which remain with the government of Suriname.

If the presence of economic mineralization is demonstrated, the right of exploration can be converted to the right of exploitation, subject to compliance with all due regulatory process. A right of exploitation is valid for a period of 25 years and can cover an area of up to 10,000 hectares. The period of 25 years can be extended under conditions to be agreed upon.

4.2 Application for exploitation concessions

The original exploration concession of the Nassau Gold Project was acquired by Integral Agriculture and Mining Industries N.V. ("IAM"), a local Suriname entity on May 24, 2012. The concession is known as GMD 202/17 with an area of 21,076 hectares which has been reduced by 25% with each exploration renewal. The concession had its second and final renewal on August 25, 2017 for a period of two years. The exploration concession expires on August 25, 2019. On May 9, 2019, IAM applied for two exploitation concessions of 9,950 hectares each to supersede and substantially cover the same area as the exploration concession. There is no guarantee that the exploitation concessions will be granted by August 25, 2019 or at all but to the best of the knowledge of the Corporation there is no reason to think that the exploitation concessions will not be granted (based on the results of other such applications in Suriname) and such concessions should be granted to avoid any delays in the Corporation's planned exploration activities.

Furthermore, according to our local partner IAM, Applications for Exploitation Concessions require that the applicant (in this instance IAM) provide; i) An original application and map, ii) proof of payment of any fees and taxes, iii) a Memorandum of Association, iv) By Laws, v) Final Exploration Report, vi) Excerpt from the Chamber of commerce, vii) a copy of the Exploration Concession, and iix, Detailed work plan. 79North has provided the Final Exploration Report and Detailed work plan (i.e. v and iix), and has been instructed by IAM that they will take responsibility for the other items listed. Article 30 c sets out that the company provides a report on the nature of the mineral deposit, however, to the best of our knowledge all or the vast majority of all of the Exploitation Concessions in Suriname (except the operating mines at Rosebel and Merian) were acquired by application to the Minister without any resource estimation, and if any, certainly nothing to 43-101 standards.

In this author's experience (QP) most of the Exploitation Concessions are held by local

companies and individuals who conduct informal placer mining. In general, Exploitation Concessions are applied for on the basis that the owner will continue to mine placer gold and pay royalties or taxes to the government. The QP confirms that there are no disclosed resources, but only informal placer mining on the majority of Exploitation Concessions. Exploitation Concessions that have been granted have variable terms that range from a few years to 25 years, and each Exploitation Concession application is taken on a case by case basis.

In 2018, 79North commissioned a reconnaissance-level non-NI43-101 compliant review of the placer gold deposits of the Nassau Concession which is reported in Section 8.5 of the 79North Annual Report and in the Appendices A and B of that report. A review of that work suggests that the presence of a defined ore deposit is generally not a factor in whether an Exploitation Concession is granted.

An Exploitation Concession gives the owner the exclusive right to mine in the Concession (Article 34). It appears as though the level of State participation (Article 32), and level of taxes, royalties, and other issues such as Areas of Influence about Exploitation Concessions is determined on a case by case basis.

4.3 Surinamese Mineral Law (Decree 58)

An English translation of Mineral Law (Decree 58) states that the holder of an exploration concession is entitled to:

• Enter the exploration area for exploration activities.

• To drill holes for sample collection, make excavations and carry out any subsurface work that is judged necessary.

• Erect camps and temporary buildings necessary for personnel and equipment.

• Build necessary infrastructure.

• Use geologic samples collected in the exploration area for tests and analysis.

• After approval by Minister, take samples abroad.

The right of exploration provides all of the permits required to carry out the proposed work program including drilling.

Obligations to the concession holder, defined in Decree E-58 are as follows:

• To commence exploration within three months following the granting of the right and continue activities without any interruption of longer than four months unless a longer period has been granted by the Minister.

• To carry out exploration in accordance with the agreed work program and submit each year a detailed work program for the following year, no changes shall be made without prior consent of the Minister.

• To notify the Minister of every discovery of mineral deposit (s) within 30 days after such discovery.

• To spend the minimum amount of money committed at the granting of right.

- To keep complete and accurate records of exploration
- To refrain from commercial production.
- To have locally available one half of each core sample.
- Report quarterly to Minister on activities.

Prepare an annual report.Report all raw data, tests, analyses, detailed reports, and interpretation deemed necessary by Minister.

• If an enterprise, present the annual report to the Minister.

4.4 Environmental liabilities

There are no known environmental liabilities associated with a right of exploration that affects the ability of 79North to conduct exploration and later exploitation. To the author's knowledge, the government has not required any concession holder to take environmental responsibility for the small scale mining activities, but this does remain a potential future risk to 79North (Alonso and others, 2007; Mol and others, 2007). The Mining Law states that a concession holder work according to best international environmental practices but there are no specific requirements. Although, recently Newmont/Surgold set up standards for the Merian Project in releasing of the final ESIA project report, and this report will likely be the defacto standard (Gow-Smith, A., 2013).

The author knows of no significant factors or risks to prevent exploration by 79North on the Nassau concession in terms of access rights, title, or local community relations. For many years Alcoa has conducted bauxite exploration on the Nassau concession.

5 Accessibility, climate, local resources, infrastructure and physiography

5.1 Accessibility

The closest straight line distance to the Nassau Project is 108 kilometers southeast of the capital city of Paramaribo, and about 10 kilometers west of the Marowijne River in District Sipaliwini which forms the Surinamese eastern border with French Guyana. The distance by road is about 180 kilometers and includes a newly paved road from Paramaribo to Moengo and then a lateritic dirt road, known as the road to Snesi Kondre which passes the Surgold base camp at the Merian Gold Project. The trip takes at least 6 to 7 hours under ideal road conditions. ATV trails for small scale gold mining and exploration drill roads prepared for bauxite development provide access within the concession.

5.2 Climate

The Nassau concession is within tropical rainforest 4 degrees north of the equator. Suriname has a tropical climate, and there are four seasons: a minor rainy season from early December to early February, a minor dry season from early February to late April, a major rainy season from late April to mid-August and a major dry season from mid- August to early December. Daytime temperatures range between 23 and 31 degrees C, with an annual average temperature of 27 degrees C, but temperatures are much cooler locally in the higher elevations of the Nassau Plateau. Nights, in general, can be pleasant sleeping by late evening. The range in average temperatures between the warmest month, September, and the coldest, January, is only 2 degrees C. Rainfall is highest in the central and southeastern parts of the country. Annual rainfall averages 1,930 millimeters (mm) in



Figure 1: Regional Nassau Concession Location map in Suriname. Projection: WGS1984



Figure 2: Nassau and adjoining concession boundaries. Projection and datum are WGS1984, UTM Zone 21N.



Figure 3: Nassau concession 2018 access roads and trails. Projection and datum are WGS1984, UTM Zone 21N.



Figure 4: Exploration and site visit locations on 25 January 2018, 21 – 31 March 2014, and July and August 2001 by foot, ATV, and helicopter. The mineralized quartz vein prospect in the southern concession area was visited in 2018. Projection and datum are WGS1984, UTM Zone 21N.

the west and 2,400 millimeters in the town of Paramaribo. The relative humidity is 70 to 90 percent.

Exploration sampling and drilling is done at any time of the year, but the best period for work is the dry season from August to the end of the year (about 150 days) and work programs should attempt to take advantage of this period. Drinking water in remote fly camps may be in short supply in the dry season. Suriname is outside of the hurricane belt, but heavy rains can cause flooding of low-lying areas. In the rainy season, a high water table also causes flooding and swampy conditions in low-lying areas and makes access to the concession more difficult until the road and bridges are improved. This is the case for portions of the Bamboo Creek portion of the concession.

5.3 Local resources and infrastructure

There are no villages on or near the concession. An unknown number of artisanal miners (porknockers), mainly Brazilian, live in primitive camps to work the alluvial gravels. These camps are like any gold camp in that they are short lived settlements that depend on the level of activity of gold mining. These miners create the road and trail access in the concession and, when actively mining, create exposures for sampling weathered bedrock (saprolite) and quartz veins, but they also destroy access roads with their pits, heavy equipment and overuse of trails for fuel and other supplies. Logging companies, especially in the northern concession, damage access with their equipment and skidding logs. Bauxite exploration has built an infrastructure of exploration roads, camps, and barrow pits which now aids both bauxite and gold exploration. Suralco (an Alcoa subsidiary formerly in Suriname) conducted bauxite exploration on the concession for many years (refer to 6.0 History).

5.4 Physiography and topography

The physiography of the Nassau concession (Figures 2, 3 and 4) reflects the underlying rock types and regolith (weathering profile, Figure 5). The southern and southeastern portion is dominated by the Nassau Plateau whose duricrust cap is being dissected by erosion. Marginal to the plateau rocks, the greenstone belt and granites form a terrain of lower, rolling relief with more swampy conditions in the wet season.

Topographic relief is less than 500 meters and the highest elevations are approximately 550 meters. The greatest relief is along the Nassau Plateau in the east-central portion of the concession and low throughout the remainder of concession. The slopes can be somewhat steep and thus more difficult to drive when wet due to clay content.

Topographic maps are available at a variety of scales ranging from 1:20,000 to 1:100,000 but are of limited use due to poor ground control and location errors. Cut lines and GPS coordinates are used as the primary method of location. The DEM from the airborne geophysical survey is also used.

The ground cover is jungle with a tree canopy and understory. Trees have a shallow root system and can be dangerous in storms if the root system is damaged by heavy equipment.

5.5 Sufficiency of surface rights

The Nassau Gold Project is in relatively early exploration stage and the sufficiency of surface rights is adequate to conduct exploration and no additional permitting is required for exploration. It is the authors (QP) opinion that there are sufficient surface rights to accomplish the currently proposed work program as recommended in this technical report (Section 18) and including exploration phase 1 and phase 2 as summarized in the proposed budget (Table 8). The sufficiency of surface rights for mining operations, the availability and sources of power, water, mining personnel, potential tailings storage areas, potential waste disposal areas, heap leach pad areas and potential processing plant sites is not required at this stage of the Nassau Gold project. These questions will be addressed by scoping studies, pre-feasibility and feasibility studies once a potential economic resource is located. A summary of this pre-mining phase is provided in item 15.0 Adjacent Properties of this current report and a detailed example is Newmont/Surgold's Environmental and Social Monitoring Plan for the Merian Gold Project (Gow-Smith, 2013) which is available at project website which is www.newmont.com/south-america/meriangold-project-suriname-details. No information has been disclosed to the author to indicate that there are any issues with surface use for mining, processing and disposal.

6 History

6.1 General

The Nassau concession was part of a concession first held by Suralco (subsidiary of Alcoa) and then became part of the joint venture with Newmont (Surgold). Newmont subsequently dropped the concession in 2009 to focus on acquiring a mineral agreement with the government of Suriname that was finally signed 22 November 2013 for the Merian Gold Project. A portion of this concession was acquired by Integral Agriculture and Mining Industries, N.V. (IAM) in May 2012. Pursuant to an Option Agreement dated 28 November 2013 between IAM and Sumin, Sumin had the right to earn in up to an 80% shareholding in IAM. On December 29, 2017, 79North Ltd., and its wholly-owned subsidiaries, acquired 100% interest in Sumin Resources and its wholly-owned subsidiaries through a merger agreement in which 79North Ltd. acquired all of the issued and outstanding shares of Sumin Resources through a share exchange.

6.2 Acquisition of Nassau gold project

The Corporation acquired its indirect interests in the Nassau Gold Project and the Sandpiper Gold Project through its acquisition of all of the issued and outstanding shares (the "Sumin Shares") of Sumin Resources Limited ("Sumin") effective December 29, 2017, pursuant to a merger agreement dated November 27, 2017 (the "Merger Agreement") among the Corporation, Sumin and 79North (BVI) Ltd., a wholly owned subsidiary of the Corporation (the "Merger"). At the time of the Merger, Sumin owned 80% of Nassau Gold Limited ("NGL"), a Guernsey entity, and the remaining 20% interest in NGL was held by Mariana Resources Limited ("Mariana"). Effective July 10, 2019, Sumin acquired the remaining 20% interest in NGL from Mariana in exchange for a 1% net smelter return royalty ("NSR") on the Nassau Gold Project calculated based upon the proportionate interest held by the Corporation therein (subject to a minimum payment equal to a 0.5% NSR on the entire Nassau Gold Project), pursuant to (i) a share transfer and termination agreement between Sumin, Mariana and NGL dated July 10, 2019; and (ii) a royalty agreement between the Corporation, Sumin Delfstoffen N.V. ("SD") and Sandstorm Gold Ltd. ("Sandstorm") (an affiliate of Mariana) dated July 10, 2019.

Following the completion of the transaction described above with Sandstorm, NGL transferred its 100% interest in SD, a Suriname entity, to Sumin. Sumin now holds a 100% interest in SD. Pursuant to an option agreement dated November 28, 2013 between IAM, the shareholders of IAM, Sumin and SD, Sumin had the right, through SD, to earn up to an 80% interest in IAM which holds a 100% interest in the Nassau Gold Project. Prior to the closing of the Merger, Sumin, through SD, had earned a 48% interest in IAM. Since the Merger, SD has earned a 70% interest in IAM pursuant to the IAM Agreement. In order to earn the remaining 10% interest, pursuant to the IAM Agreement, SD must complete a scoping study by no later than December 29, 2020 unless the Nassau concession expires early and is not extended, and pay to the shareholders of IAM a sum of US\$500,000.

If Sumin earns an 80% interest in IAM through SD, IAM will become a joint venture for the exploration, evaluation and development and exploitation of the Nassau Gold Project. The shareholders of IAM will hold a 20% carried interest in IAM and may elect to pay their 20% proportionate share of the joint venture costs, or convert their 20% shareholding into Sumin Shares equal to 10% of the net present value of the Nassau Gold Project divided by the then current price of Sumin Shares and a 3% NSR which may be reduced to a 2% NSR for a payment of US\$1,000,000 to the shareholders of IAM. Should SD (or the joint venture if formed) complete either a pre-feasibility study or a feasibility study, SD must pay to the shareholders of IAM sums of US\$500,000 and US\$650,000, respectively.

There are no detailed published reports on the geology or gold mineralization of the overall Nassau concession but some historic information is available for the area surrounding the head of Witlage Creek. The Witlage Creek information consists of several company reports which are available through the GMD. According to an un-authored internal Billiton report (1953), the earliest gold placers were developed in Witlage Creek around 1900. The nearby Tempati Creek area is famous for abundant cinnabar nodules (Pough, 1996, p. 119). According to the 1953 Billiton report the Witlage Creek alluvial cinnabar (Figure 11) was described by the American engineer Dawson in 1912 and the Chin-A-Qui mercury concession was prospected and surveyed at the head of Witlage Creek at about the same time. Relatively detailed geologic mapping (1:10,000) and geochemical sampling for mercury began in 1915 by engineering geologist G. Duyfjes (Figure 10). Duyfjes explored the area to find the primary source of the mercury on behalf of the mining firm Mercuur and constructed at least 13 trenches.

In 1953 Billiton geologists re-sampled these trenches and conducted pan sampling in all of the surrounding creeks in order to define the primary bedrock source of the alluvial cinnabar and native mercury. Billiton produced a geologic map of the area, in part summarizing Duyfjes earlier work, and mapped the locations of the 13 Duyfjes trenches. Billiton concluded that Witlage Creek carried the largest amount of alluvial Cinnabar and native mercury and that the head of Witlage Creek was the primary source area. Incidental to the mercury exploration Billiton found placer gold in the Witlage drainage and much smaller amounts or no gold in surrounding drainages but did not speculate regarding the primary source of the gold.

In July 2001, a Suralco gold exploration program began near the head of Witlage Creek placer and included geologic mapping as well as stream panning, soil auger sampling, rock chip, and panel sampling of saprolitic exposures. All historic trenches were sampled as well as porknocker roads and exposures along the creeks (Capps and others, 2004a). In addition, geologist Wim Malfait (2002) performed XRD and petrographic studies on strongly weathered saprolite samples from the Duyfjes trenches of the Chin-A-Qui concession. He determined the weathering mineralogy of the metamorphosed mafic and clastic sedimentary rocks characteristic of the trenches, and the mineralogy of several heavy mineral pan fractions from the creeks.

Although the history of modern gold exploration in Suriname and the Nassau concession is relatively short, bauxite exploration began on the Nassau Plateau, central to the Nassau concession, in the early 1900's. Bauxite exploration has built an infrastructure of exploration roads, camps, and barrow pits which now aids both bauxite and gold exploration. Alcoa formerly conducted bauxite exploration on the concession for many years.

6.3 Past production

There is no known record of past lode gold production and there are no records of past or current alluvial production or recent alluvial exploration results.

The concession has a long history of alluvial mining. Recent alluvial workings are significant in size and length of the drainages mined and there is active small scale mining primarily by Brazilians.

6.4 Historic exploration

6.4.1 Introduction

79North gold exploration in the Nassau concession is in the pre-drilling phase, where targets are being refined for trenching and drilling. The results of reconnaissance exploration are very encouraging. Wirosono, 2018 (Figures 13 through 18) confirms widespread gold mineralization in pan samples from streams and new exposures of mineralized saprolite in areas of porknocker workings. The Nassau concession has a long history of gold production from alluvial placers and, at Witlage Creek and other locations, mineralized saprolite and vein material is currently being mined in small underground and surface workings. Gold mineralization is very widely distributed in the concession.

Throughout the world's goldfields the easily discovered gold deposits have been mined. The deposits now being sought are generally concealed by weathered and leached outcrops, soil, talus, and other coverings (regolith). In Suriname, as in most humid tropical climates, the bedrock and contained mineral deposits are usually masked by a thick cover of mostly chemical weathering products (De Munck, 1954). In general, the weathering profile is thickest on hill and plateau tops and relatively unweathered (fresh) rock can exist at around 30 meters depth in valleys. In the valleys, the groundwater table is less affected by seasonal fluctuations and there has been more erosion of the upper soil horizons.

In exploration of bedrock, and especially true in saprolite, it is often challenging to find the roots of the underlying gold system. Weathering can disperse the gold and produce a mushroom or dispersion halo effect. In Suriname, gold can be redistributed during weathering by chemical as well as mechanical processes, and so understanding of the process of regolith development is essential to an exploration program. This weathering process is just as important as is an understanding of the structural and geologic controls to mineralization through mapping and recognizing lithologies, structure and alteration in saprolite (LaPoint, 2004).

Figure 5 (modified after Rapprecht, 2007) illustrates an ideal humid tropical weathering profile. An entire profile is rarely preserved due to erosion. The weathering profile is controlled by parent rock type, topography, and subsequent erosion.

6.4.2 Historic exploration methods at the Nassau Gold Project

A variety of reconnaissance exploration methods are used to help narrow the scope and define drill targets (LaPoint, 2004). These techniques were useful in the discovery of the Merian gold deposit (Newmont/Surgold) and other deposits of the Guiana Shield. These methods include prospecting for historic and current workings, panning of stream and surface samples (Figure 18), geologic mapping, soil sampling (including by hand auger) continuous chip and grab samples of saprolite, duricrust and outcrop for gold assay and pathfinder geochemistry, trenching, and systematic drilling. Locally, small scale alluvial mining by artisanal techniques can be used to demonstrate the occurrence of gold and assist in determining source areas for gold deposits based on drainage basins with the artisanal mining activity. Well exposed saprolite and fresh rock are usually limited to the small scale mining operations where pits and roads are prepared with an excavator or dozer. Geochemical and geophysical exploration methods are essential to defining targets and bedrock sources of gold prior to drilling.

6.4.3 Historic exploration - Years 2001 through 2018

The results of 2014 through 2018 reconnaissance exploration, pan sampling, and geologic mapping show evidence of widespread gold mineralization throughout the Nassau concession (personal communication, Eriaan Wirosono, 2018). Recent work confirms and broadens anomalous sites discovered in earlier exploration(Figures 13 through 18).

Helicopter surveys of more remote areas, including the Bamboo Creek area and the southern Nassau Concession were made to note the extent of porknocker workings and to explore for new exposures of mineralized saprolite. During the helicopter reconnaissance, several additional saprolitic outcrops were identified for follow up field work including current porknocker workings in the northern Witlage Creek area, in the southern Nassau



Figure 5: Diagram showing an ideal weathering profile (Rapprecht, 2007)

Concession, and in the western Bamboo Creek areas (Figure 4).

In 2014, several days were spent at Witlage Creek sampling new exposures and workings, locating Newmont/Surgold drill sites, and exploring new roads and trails in the western concession area. Drill sites were noted on a relatively recently created exploration road between Witlage Creek placer and its intersection with the existing Suralco-Nassau road near the head of Bamboo Creek.

Beginning in January 2015 and Under an agreement with Sumin, Mariana Resources (a subsidiary of Sandstorm) conducted exploration on portions of the Nassau Concession. The Mariana exploration included airborne geophysics, local geologic mapping of geochemically anomalous areas, trenching, widely spaced hand auger grids, biogeochemical surveys utilizing the Wallaba tree bark, and widely spaced hollow stem auger core drilling. The hollow-stem auger drill holes were up to 30 m deep. Mariana confirmed the prospective gold mineralization at Witlage Creek and other anomalies previously identified by Sumin on the Nassau Plateau. The airborne geophysics confirmed the mafic intrusive body previously mapped at Witlage Creek and a similar anomaly to the south. In addition the airborne magnetic data suggested two shear zones in the northern concession (Figure 25). Widely spaced hand augers and hollow stem auger grid drilling identified anomalous but discontinuous gold anomalies up to 6060 ppb on the plateau (Figures 13 and 14).

In February 2018, in the southern Nassau concession a mineralized quartz vein worked by porknockers was visited by the QP, 79North geologist Jon North, and consulting geologist, Eriann Wirosono (Figure 26). The vein strikes east-west and dips at a high angle to the south. A grab sample from the vein ran over 10 grams. Unweathered amphibolite host rocks and vein material are exposed beneath about 100 meters of saprock and saprolite.

6.4.4 Historic exploration at the Witlage Creek gold placer area

In 2001 gold exploration identified at least three bedrock sources at the head of the Witlage Creek drainage for the NE-striking Witlage Creek placer gold and mercury (Capps and others, 2004a) and these sources were confirmed during 2014 through 2016 exploration.

• In Area One, gold and mercury are associated with a contact along the southwestern limb of a NW-striking anticline between metamorphosed mafic rocks and overlying arenites and litharenites. This location was first discovered in the early 1900s (De Munck, 1954). Gold and mercury values are highest at the contact and are most disseminated in the sediments. Gold in the mafic rocks is associated with trace platinum, anomalous iron (up to detection limits of 25%), phosphorus, and titanium. Native mercury is common in the mafic rocks and discontinuous cinnabar-pyrite-gold veins are along the contact. Relatively recent trenching and road construction was discovered during the current site visit.

• In Area Two, vein gold is hosted by an andesite within an east-west trending 400 by 1000 meter zone of stockwork quartz veining, alteration, and anomalous arsenic. Vein minerals include pyrite, pyrrhotite(?), and visible gold. This area corresponds with the broad NW-striking shear zone exposed in current workings and exploration sample up to

3 g/MT Au gold (this report).

• In Area Three, gold values are near the contact of an intrusive gabbro within the axis of the anticline of the first area. The current site visit found additional workings and road construction at this location.

In March 2014, the author returned to Witlage Creek to conduct exploration on behalf of Sumin. The 2014 exploration identified mineralization associated with sheeted synkinematic tension and shear veins along the northwestern side of Witlage Creek and, to the northeast, within an adjacent NW-striking and steeply NE-dipping shear zone (Figures 6 through 9; Tables 2 through 6). The current workings approximately correspond to the north-northwestern portion of Area 2 identified in 2001 (Figure 6). The shear zone is currently being worked by porknockers and at least three active shafts and several surface workings are within the shear. A sample of quartz vein from the northern most shaft assayed over 3 g/MT Au, 10 ppm mercury, 854 ppm tungsten, and 15 ppm tantalum (Figure 9; Tables 2 through 5).

In addition, there are new workings and evidence of new exploration in areas Two and Three as originally identified during the 2001 survey. Three shafts and associated tunnels are being developed in Areas Two and Three Newmont/Suralco drill pads for core holes were located In area one. Some of the historic Duyfjes trenches have been reopened and expanded (Figure 10). On the eastern side of the placer (Figures 8 through 10) Newmont drill site NADD784 was drilled to the east and NADD785 and was drilled to the west from the same drill site(Figure 6). Both holes were drilled at 60 degree inclinations. The drill pad was located (E764262, N545639) along the north slope of a small hill on the east side of the Witlage Creek placer area. The drill pad was built within a reopened east-west oriented historic trench. Anomalous gold values were found in a grab sample from the trench (Table 2, Sample NWCC032), but 79North does not have access to results of the drilling.

During the March 2014 exploration, a total of 50 samples were taken and submitted to FILAB AMSUD SAS, an ALS representative lab in Paramaribo, Suriname, for gold assay and multielement ICP-MS 46 geochemistry (Figure 6; Tables 2 through 5) sample locations and description are listed in Table 2 and assays and multielement chemistry are listed in Tables 3 through 5. These samples assayed up to over 3 g/MT Au and of the fifty (50) 2-meter continuous-chip samples taken only two were not anomalous in gold. Several samples were anomalous in tantalum (up to 15 ppm) and tungsten (up to 854 ppm) and arsenic and mercury (up to 10 ppm) were generally anomalous.

Twenty-four (24) continuous-chip line samples were taken from well exposed shear and tension vein sets (ladder veins) along a NW-trending shear zone (Figures 7 through 9). These samples included 8 samples along the SW wall (see photos), 8 samples up the center of the trench, and 8 samples along the NE wall. All but one sample was anomalous. A total of 50 samples were taken at Witlage as part of this site visit assisted by Geologist Erny Afonsoewa and Geotechnician Awinie Johannes.

In 2015 and 2016, Mariana Resources confirmed these anomalies by a program of trenching (8 trenches totaling about 368m), hand augering (539 ridge and spur samples, up to 0.439 ppm gold), and widely spaced hollow stem auger drilling (55 vertical holes totaling about 1,325 m). These Mariana data are compiled with Suralco, Sumin, and 79North due dilegence analyses in Figures 13 through 18.



Figure 6: Mineralized areas adjacent to the Witlage Creek placer and the locations of Newmont drill holes NADD 784 and 785 (map modified from Figure 24 of this current report; after Capps, 2004a).



Figure 7: Mineralized shear zone sampling at the Witlage Creek Prospect

SOUTHEAST



Trench sampled For current study

Full 180 degree panorama of the Witlage Placer with center of view to the northeast This view is centered on about 300 m strike-length of new workings in saprolite (up to 3 grams in current study).

These workings are located on the highly mineralized porknocker road samples taken during the year-2001 exploration.

Figure 8: Panorama of the mineralized shear zone area



Figure 9: Workings along NW-striking shear zone at Witlage Creek

Table 2: March 2014 reconnaissance sample locations, field description and assay

Sample NWCC001	Easting 763811	Northing 545399	Type Grab	Description Sample of quartz vein in tunnel about 10 m below surface; Strike AZ of vein =341-345°, dip about 61°SE; vn width 10-20	Au ppm 3.052	Ag ppm 0.566
NWCC002	763854	545194	Grab	cm & 20-40 cm with selvage Thin-3 vn set about 2-8 cm wide; Dip Az=259-261 °, 17-22 °; in	0.136	2.166
NWCC003	763833	545128	Grab	N-bank of pk road; perp. to tollation cleavage; stg teoxs; metaandesite? Host; thin tension vn about 3 cm wide; very gentle dip toward AZ=312°; stg feoxs & vuggy with botryoidal	0.022	0.000
NWCC004	763898	545217	Grab	dark gy minerals (goethite?) sygmoidally deformed (shear?) tension? Vein set; 20-30° dip towards 330°AZ;mod. Feoxs, vuggy, sericitic selvage; about	0.073	0.000
NWCC005	763778	545316	Line	1-4 cm wide with selvage beginning of 24 two m continuous chip line samples in pk trench and shear zone; strike of trench=310°, vns strike 310- 355° with highly variable dip (-90° to +11°); vns along trench AZ are probably primary shear veins and those between these shears were prob. Primary tension vns (ladder) but both are now sheared and with at least two generations of folding	0.172	0.136
NWCC006	763777	545317	Line	central trench area(floor)	0.171	0.034
NWCC007	763775	545319	Line	central trench area(floor)	0.210	0.826
NWCC008	763774	545320	Line	central trench area(floor)	0.069	0.207
NWCC009	763772	545321	Line	central trench area(floor)	0.181	0.977
NWCC010	763771	545323	Line	central trench area(floor)	0.362	1.259
NWCC011	763769	545324	Line	central trench area(floor)	0.448	1.461
NWCC012	763768	545325	Line	central trench area(floor)	0.699	1.638
NWCC013	763777	545315	Line	SW wall of trench; about 40% vn in sample; dip AZ82°, 61°	0.349	1.504
NWCC014	763776	545317	Line	ptygm. Folds + vein; vns AZ 230-261° & 30-278° & variable dip; about 20% vein in sample	0.380	1.036
NWCC015 NWCC016	763774 763773	545318 545319	Line Line	l.gy & yell. Saprolite; 3 vns; Dip AZ 235-240°,30-80° dip 2 tolded vns; Dip AZ 30-241°; Dip 30-40°; overturned fold with AZ 230° centle plugge	0.287 0.180	1.067 1.080
NWCC017	763771	545320	Line	Vns Dip AZ 230-245°, 30-45°, folded & recumbent upper vein & the overturned is gently folded (photo)	0.085	0.793
NWCC018	763770	545322	Line	complexly folded; silic dk red oxidized vns	0.051	0.744
NWCC019	763768	545323	Line	2 veins refolded	0.110	0.910
NWCC020	763767	545324	Line	2 veins refolded	0.200	0.998
NWCC021	763779	545317	Line	Qz vein dip AZ 072, 75; about 12 cm wide, about 15 % of sample	0.194	0.778
NWCC022 NWCC023	763777 763776	545318 545319	Line Line	Qz vein dip AZ 073°, 67° ptygm. Folding of oxidized & weathered qz vn; 10% vn in	0.091 0.028	0.592 9.611
NWCC024	763774	545321	Line	sample ptygm. Folding of oxidized & weathered qz vn; 15% vn in	0.259	0.925
NWCC025	763773	545322	Line	sample ptygm. Folding of oxidized & weathered qz vn; dip AZ 079°,65°, 5% vn in sample	0.131	0.932
NWCC026	763771	545323	Line	ptygm. Folding of oxidized & weathered qz vn; weathered to just gz in saorolite	1.574	0.814
NWCC027	763770	545325	Line	ptygm. Folding of oxidized & weathered qz vn; weathered to just qz in saprolite	0.139	0.868
NWCC028	763768	545326	Line	ptygm. Folding of oxidized & weathered qz vn; weathered to just qz in saprolite; Dip AZ 080°, 61°; about 5% vn in sample	0.137	0.936
NWCC029	763076	544722	Grab	0.3 m wide quartz vn striking with foliation at about 340 az and dipping steeply to NE. Intersects a vn set striking about 300° AZ and also steep. Mod FEox and after sulphide? Host is well sorted coarse grained clastic. All in placer west of Witlage Creek head hills	0.167	0.676
NWCC030	763775	545319	Grab	Shear vn continuous chip sample from about NWCC005-009.5 in trench	0.000	0.736
NWCC031	763777	545317	Grab	tension vns only from about NWCC006 in trench	0.173	1.031
NWCC032	764276	545662	Float	Float of silic stg Feox shear, vn, duricrust and bx old trench near NADD784&785	0.015	0.717
NWCC033	763835	545265	Line	2 m samples NWCC033-NWCC045 along AZ 318°; trench/bank with shear & tension vns; stg feoxs	0.090	0.692
NWCC034	763833	545266	Line	oxidized metavolcanic? & deeply ox & weathered vn in sapro- lite; qz vn with NW strike	0.113	0.589
	760000	545268	Line	n vn m continuous chip sample	0.088	0.701
NWCC036	763830	545269	Line	Tr vn in continuous chip sample	0.078	0.845
NWCC037	763827	545270	Line	Tr vn in continuous chip sample; vn about 45 to bank trend; Iddor use	0.093	0.794
NWCC039	763826	545273	Line	Tr vn in continuous chip sample; smp parallels a large nearly vertical shear	0.082	0.722
NWCC040	763824	545274	Line	Tr vn in continuous chip sample; ladder? Veins	0.083	0.770
NWCC041	763823	545275	Line	Tr vn in continuous chip sample: vns about 20-30 % of sample	0.082	0.879
NWCC042	763821	545277	Line	Tr vn in continuous chip sample mostly saprolite sample	0.094	0.795
NWCC043	763820	545278	Line	Tr vn in continuous chip sample mostly saprolite sample	0.168	0.803
NWCC044	763818	545279	Line	Tr vn in continuous chip sample mostly saprolite sample	0.095	1.138
NWCC045	763817	545280	Line	Tr vn in continuous chip sample mostly saprolite sample; boudined vein material in an nearly horiz shear (overturned?)	0.000	0.581
NWCC046	764026	545202	Dump	Dump sample highly porphyritic metavolc possible ash flow tuff: from working at 24 m level	0 540	1.038
NWCC047	764026	545190	Dump	Dump sample highly porphyritic metavolc possible ash-flow tuff; from working about 10m south of 046 in another underground working at 24 m level both with NE trending tunnels towards NW sheer	0.046	0.564
NWCC048	763803	545397	Grab	2 m sample across 320-335° trending foliation cleavage dip AZ about 42-45° about 65° No apparent vejning. Sto kaolinitic	0.008	0.483
NWCC049	763783	545411	Line	Thin veins transposed into foliation; Strike of foliation about 330° & dip about 68° to NE Sample 49° to east and 50° to west. Outcrop about 30 m north of shaft	0.080	0.712
NWCC050	763782	545410	Line	bank sampled is a few meters NNW of shaft entrance	0.303	0.551

Table 3: Multielement chemistry from March 2014 reconnaissance samples

Sample	Al %	As ppm	Ba ppm	Be ppm	Bi ppm	Ca %	Cd ppm	Co ppm	Cr ppm	Cs ppm	Cu ppm	Fe %	Ga ppm	Ge ppm	Hf ppm	Hg ppm
NWCC001	0.608	6.031	46.127	0.555	0.282	0.012	0.367	20.143	210.732	0.318	16.427	2.688	3.785	1.674	0.207	10.572
NWCC002	0.804	13.567	41.784	0.360	0.186	0.022	0.250	7.007	41.791	0.188	121.647	5.756	4.563	1.382	0.139	0.199
NWCC003	0.669	4.809	11.116	0.248	0.088	0.000	0.140	12.438	133.786	0.118	39.791	6.261	4.093	1.540	0.373	0.158
NWCC004	0.662	21.718	28.614	0.231	0.120	0.021	0.140	4.507	66.552	0.107	11.892	3.502	3.176	1.558	0.088	0.111
NWCC005	1.189	23.635	35.843	0.554	0.093	0.008	0.141	28.096	18.563	0.258	62.592	27.797	7.408	2.583	0.422	0.902
NWCC006	1.150	13.881	37.846	0.506	0.064	0.000	0.118	26.895	46.889	0.253	49.467	23.371	9.637	1.664	0.352	0.753
NWCC007	0.817	34.781	440.984	0.515	0.152	0.023	0.106	12.755	53.622	0.176	66.029	11.490	27.443	2.011	0.760	0.607
NWCC008	0.544	4.272	33.026	1.050	0.054	0.000	0.119	0.932	38.794	0.548	12.225	1.682	17.414	1.817	3.936	0.164
NWCC009	1.239	26.482	72.071	0.744	0.067	0.007	0.105	27.263	90.740	0.172	67.342	28.555	14.538	2.544	0.838	0.912
NWCC010	1.201	42.737	10.009	0.678	0.053	0.000	0.111	16.964	76.841	0.134	51.795	25.943	13.287	2.532	1.002	0.416
NWCC011	0.662	5.422	49.296	1.030	0.070	0.006	0.100	1.682	40.344	0.623	8.138	5.581	19.346	1.954	2.814	0.164
NWCC012	1.618	57.423	22.242	1.167	0.096	0.009	0.109	6.375	46.972	0.269	30.141	7.983	22.887	3.187	4.016	0.286
NWCC013	0.865	18.252	51.916	0.382	0.036	0.006	0.067	14.302	280.730	0.278	76.337	13.203	7.949	1.966	0.281	0.652
NWCC014	0.956	25.407	47.913	0.451	0.036	0.000	0.071	16.671	69.375	0.280	150.617	17.998	9.152	2.235	0.512	0.549
NWCC015	0.783	11.531	49.219	0.331	0.027	0.005	0.071	13.235	308.796	0.248	31.863	12.775	6.153	1.624	0.670	0.250
NWCC016	0.650	7.483	42.624	0.309	0.039	0.000	0.066	5.892	386.489	0.149	20.087	6.860	6.327	1.858	0.493	0.147
NWCC017	1.083	19.804	12.618	0.773	0.035	0.006	0.093	16.379	25.941	0.142	54.062	24.753	16.596	2.448	0.975	0.307
NWCC018	0.822	7.396	20.844	0.265	0.037	0.000	0.067	8.676	201.022	0.100	20.570	10.317	4.325	2.004	0.214	0.217
NWCC019	2.392	18.238	12.055	0.653	0.042	0.007	0.079	10.954	45.838	0.135	53.606	17.352	14.223	3.273	0.937	0.223
NWCC020	1.071	31.401	15.108	0.556	0.052	0.000	0.088	18.611	30.962	0.135	46.652	25.245	12.687	4.640	1.415	0.237
NWCC021	1.049	31.057	49.036	0.487	0.063	0.000	0.081	21.066	98.807	0.325	55.930	24.109	10.022	2.819	0.669	0.366
NWCC022	1.046	19.380	21.237	0.420	0.035	0.000	0.073	18.658	63.403	0.162	72.836	19.995	8.455	2.824	0.568	0.454
NWCC023	0.776	5.213	122.134	0.171	0.735	0.000	0.051	9.156	239.888	0.137	43.608	6.988	8.308	1.795	0.165	0.275
NWCC024	1.475	8.038	20.068	0.428	0.038	0.000	0.071	13.993	191.782	0.139	39.785	12.579	12.067	2.209	0.751	0.346
NWCC025	0.792	8.592	20.596	0.316	0.024	0.006	0.054	11.488	108.473	0.123	26.213	11.574	7.084	1.974	0.479	0.259
NWCC026	1.163	32.869	14.647	1.052	0.049	0.010	0.094	21.372	74.646	0.157	58.299	25.143	20.308	2.277	1.789	0.806
NWCC027	1.131	49.211	24.874	0.696	0.045	0.006	0.068	32.198	16.580	0.193	37.266	38.884	13.986	1.628	0.979	0.675
NWCC028	0.940	28.045	8.772	0.905	0.042	0.000	0.062	10.997	52.782	0.167	65.455	18.131	20.720	3.261	1.855	0.237
NWCC029	1.083	23.484	4.880	0.797	0.042	0.000	0.070	11.449	30.759	0.165	63.050	22.942	19.223	2.694	1.873	0.231
NWCC030	0.314	1.635	12.695	0.054	0.016	0.006	0.029	0.748	328.423	0.073	12.375	1.063	1.444	1.417	0.090	0.060
NWCC031	1.002	16.448	43.424	0.416	0.024	0.007	0.059	21.115	64.330	0.267	39.988	21.762	8.207	1.783	0.378	0.319
NWCC032	1.146	7.348	104.002	2.521	0.027	0.006	0.057	10.901	32.485	0.277	44.564	44.589	10.301	0.596	1.395	0.143
NWCC033	1.126	32.050	22.720	0.794	0.066	0.000	0.119	30.322	24.516	0.100	76.948	29.811	21.937	2.562	2.091	0.150
NWCC034	1.111	19.133	5.677	0.524	0.029	0.000	0.096	18.871	52.594	0.082	91.270	26.218	27.594	4.128	2.211	0.204
NWCC035	1.294	19.645	6.563	0.509	0.047	0.000	0.071	8.580	73.353	0.123	89.160	19.470	36.445	4.184	2.743	0.201
NWCC036	2.320	15.703	4.619	0.682	0.089	0.000	0.061	9.882	74.881	0.130	119.691	23.772	35.535	3.622	2.866	0.215
NWCC037	1.290	13.975	3.375	0.570	0.027	0.000	0.067	10.409	77.382	0.066	195.999	24.613	32.781	3.562	2.439	0.170
NWCC038	1.173	15.859	8.963	0.502	0.023	0.000	0.084	18.409	37.836	0.084	84.682	30.518	23.874	2.175	1.574	0.271
NWCC039	1.210	17.711	4.872	0.537	0.020	0.000	0.055	7.808	31.411	0.080	129.751	27.999	26.095	2.125	1.655	0.311
NWCC040	1.161	17.581	14.172	0.713	0.264	0.000	0.307	10.820	53.278	0.141	91.746	22.997	21.389	2.057	1.846	0.146
NWCC041	1.175	25.340	24.903	0.834	0.207	0.000	0.283	24.432	36.495	0.217	111.470	36.886	18.889	2.108	1.110	0.342
NWCC042	1.072	13.157	19.782	0.526	0.058	0.000	0.154	31.518	25.491	0.172	88.157	40.314	16.064	1.582	0.803	0.316
NWCC043	1.122	13.467	9.134	0.530	0.042	0.000	0.106	24.898	22.841	0.077	90,709	37.398	18.758	1.860	0.867	0.309
NWCC044	1.167	15.120	9.270	0.547	0.035	0.000	0.075	14.763	27.098	0.112	80.064	34.638	22.417	2.301	1.169	0.273
NWCC045	1.809	2.107	16.260	1.096	0.027	0.011	0.073	1.852	197.454	0.667	8.574	2.651	17.758	1.245	2.529	0.067
NWCC046	1.084	23.264	82.282	0.492	0.082	0.000	0.076	21.176	63.331	0.324	70.974	32.907	15.560	2.248	1.681	0.324
NWCC047	1.467	2.071	12.424	1.065	0.033	0.000	0.166	0.811	183.812	0.779	8.242	1.643	16.834	1.475	2.551	0.094
NWCC048	1.035	2.244	17.955	1.019	0.060	0.000	0.047	0.617	40.199	0.762	9.130	3.512	18.647	1.707	2.722	0.055
NWCC049	1.271	53.264	53.294	0.605	0.088	0.000	0.068	34.253	75.386	0.317	69.920	36.860	11.073	1.825	0.877	0.864
NWCC050	1.125	48.845	6.038	0.803	0.051	0.000	0.047	20.945	95.909	0.139	74.511	24.071	16.796	2.909	1.104	0.414

 $\underline{\omega}$
Table 4: Continued multielement chemistry from March 2014 reconnaissance samples

Sample	In ppm	K %	La ppm	Li ppm	Mg %	Mn ppm	Mo ppm	Na %	Nb ppm	Ni ppm	P %	Pb ppm	Rb ppm	S %
NWCC001	0.011	0.102	0.120	7.426	0.000	657.419	0.802	0.162	6.308	21.934	0.037	4.830	1.783	0.015
NWCC002	0.159	0.105	0.738	3.651	0.000	43.275	0.659	0.243	2.854	12.471	0.013	3.682	2.939	0.000
NWCC003	0.033	0.065	0.000	4.067	0.000	155.578	0.411	0.458	2.405	25.217	0.020	3.191	1.353	0.199
NWCC004	0.024	0.057	0.670	2.002	0.000	97.119	0.421	0.160	2.760	3.821	0.022	3.076	1.513	0.000
NWCC005	0.070	0.277	0.000	7.118	0.000	233.392	0.810	0.382	4.618	36.649	0.163	6.519	4.300	0.408
NWCC006	0.085	0.264	0.000	7.331	0.000	216.259	0.774	0.566	4.631	35.893	0.120	7.340	4.872	0.452
NWCC007	0.091	0.266	0.148	11.517	0.000	69.433	0.641	0.636	3.926	10.521	0.046	4.679	4.486	0.332
NWCC008	0.030	1.068	0.000	28.408	0.000	2.033	0.407	0.975	6.386	6.727	0.010	4.765	25.099	0.180
NWCC009	0.097	0.322	0.000	12.153	0.000	121.036	2.722	0.808	3.657	36.530	0.176	6.307	5.343	0.594
NWCC010	0.103	0.274	0.000	12.659	0.000	68.497	1.790	0.869	3.828	28.337	0.186	5.662	3.687	0.598
NWCC011	0.036	1.155	0.000	25.495	0.000	3.706	0.576	0.799	3.683	7.688	0.022	5.746	28.898	0.222
NWCC012	0.069	0.822	0.000	27.481	0.000	5.188	1.236	0.460	3.904	19.926	0.047	4.828	13.416	0.201
NWCC013	0.080	0.254	0.000	5.885	0.000	58.799	0.903	0.338	2.081	16.728	0.050	3.770	5.465	0.207
NWCC014	0.312	0.282	0.000	8.364	0.000	89.968	0.824	0.439	1.292	16.440	0.082	4.728	5.373	0.502
NWCC015	0.020	0.168	0.156	5.333	0.000	69.288	1.798	0.246	1.455	16.797	0.058	3.067	4.363	0.295
NWCC016	0.035	0.133	0.000	5.409	0.000	34.552	0.648	0.336	1.108	8.101	0.027	2.663	3.124	0.169
NWCC017	0.143	0.324	0.000	16.248	0.000	80.772	1.051	0.912	2.618	21.025	0.215	4.992	5.106	0.426
NWCC018	0.044	0.060	0.000	3.921	0.000	44.013	0.989	0.279	1.417	8.436	0.064	3.984	1.438	0.138
NWCC019	0.097	0.181	0.000	13.380	0.000	104.026	2.222	0.838	3.296	24.112	0.096	4.462	2.403	0.286
NWCC020	0.094	0.352	0.000	11.810	0.000	84.487	1.402	0.578	2.377	32.197	0.108	5.450	4.702	0.575
NWCC021	0.073	0.337	0.146	6.990	0.000	96.688	1.356	0.365	1.814	40.475	0.136	5.483	6.440	0.554
NWCC022	0.075	0.192	0.000	6.650	0.000	67.132	0.776	0.392	1.890	35.233	0.119	4.319	3.093	0.198
NWCC023	0.042	0.089	0.000	3.084	0.000	46.829	0.757	0.189	1.208	9.889	0.026	18.698	2.254	0.067
NWCC024	0.083	0.201	0.000	10.434	0.000	43.019	0.784	0.619	3.074	14.047	0.036	3.412	2.969	0.101
NWCC025	0.065	0.102	0.000	5.257	0.000	41.363	0.776	0.368	1.689	13.157	0.059	3.310	1.964	0.054
NWCC026	0.141	0.350	0.114	17.731	0.000	61.123	1.820	1.067	3.266	15.532	0.142	5.157	5.118	0.370
NWCC027	0.089	0.253	0.000	10.306	0.000	98.789	0.985	0.857	2.349	41.926	0.211	5.912	3.928	0.567
NWCC028	0.130	0.517	0.000	15.012	0.000	31.894	2.299	0.702	3.748	15.286	0.075	4.261	9.625	0.412
NWCC029	0.111	0.430	0.000	13.342	0.000	48.245	3.546	0.758	3.970	20.121	0.133	4.058	6.637	0.174
NWCC030	0.000	0.028	0.436	1.078	0.000	26.046	0.550	0.046	1.367	4.643	0.000	1.442	1.071	0.000
NWCC031	0.087	0.174	0.000	6.673	0.000	184.179	1.165	0.505	1.255	17.028	0.121	9.035	4.013	0.216
NWCC032	0.019	0.217	0.589	6.027	0.000	69.906	0.916	0.294	2.324	37.311	0.160	12.716	6.219	0.570
NWCC033	0.125	0.221	0.113	12.161	0.018	804.401	1.397	0.576	3.891	14.615	0.209	5.956	3.120	0.367
NWCC034	0.161	0.091	0.187	7.516	0.000	390.162	1.543	0.184	7.810	17.523	0.111	3.181	1.267	0.254
NWCC035	0.200	0.106	0.257	6.671	0.000	43.031	2.456	0.259	13.402	16.609	0.011	5.310	1.870	0.229
NWCC036	0.198	0.115	0.163	6.806	0.000	82.331	2.101	0.247	13.079	17.470	0.013	4.444	2.123	0.259
NWCC037	0.202	0.073	0.187	5.681	0.000	55.928	2.029	0.197	10.755	14.099	0.013	3.613	0.972	0.359
NWCC038	0.146	0.129	0.102	3.349	0.000	3240.157	1.488	0.156	6.907	13.271	0.089	3.607	1.604	0.260
NWCC039	0.167	0.126	0.000	3.910	0.000	235.639	1.471	0.203	6.164	8.576	0.070	2.516	1.533	0.428
NWCC040	0.143	0.183	0.151	4.673	0.000	463.434	1.399	0.288	5.078	8.133	0.046	6.967	2.853	0.321
NWCC041	0.155	0.209	0.137	5.689	0.000	2190.195	1.756	0.388	3.945	10.256	0.065	9.973	3.475	0.496
NWCC042	0.116	0.185	0.000	3.409	0.000	2140.265	1.034	0.207	3.587	12.729	0.081	6.835	3.088	0.506
NWCC043	0.144	0.077	0.000	2.550	0.000	1557.706	0.995	0.116	4.487	10.402	0.036	3.652	1.163	0.569
NWCC044	0.177	0.178	0.000	4.046	0.000	482.909	1.226	0.221	5.278	9.118	0.040	4.919	2.494	0.454
NWCC045	0.028	1.088	0.000	11.649	0.000	71.582	0.589	0.644	9.109	9.633	0.018	4.068	28.905	0.052
NWCC046	0.090	0.212	0.000	3.273	0.000	803.562	0.862	0.241	3.718	12.930	0.095	8.503	4.701	0.413
NWCC047	0.020	1.042	0.000	17.363	0.000	13.295	0.864	0.834	5.931	8.649	0.014	6.413	27.098	0.028
NWCC048	0.031	1.134	0.000	22.768	0.000	5.281	0.337	1.019	3.981	4.495	0.008	4.695	28.264	0.000
NWCC049	0.066	0.305	0.107	11.543	0.000	114.730	2.106	0.547	1.529	27.474	0.158	6.146	6.324	0.437
NWCC050	0.108	0.476	0.000	13.326	0.000	43.338	1.336	0.844	2.532	28.011	0.075	3.494	7.626	0.309

Table 5: Continued multielement chemistry from March 2014 reconnaissance samples

Sample	Sb ppm	Se ppm	Sn ppm	Sr ppm	Ta ppm	Tb ppm	Te ppm	Ti %	Tl ppm	U ppm	V ppm	W ppm	Y ppm	Zn ppm	Zr ppm
NWCC001	3.172	2.166	0.419	4.619	15.248	0.000	2.986	0.012	0.515	0.148	10.911	854.608	0.072	58.194	9.765
NWCC002	3.385	1.235	0.279	13.125	6.100	0.077	3.025	0.054	0.328	0.053	192.925	8.969	1.488	64.260	4.782
NWCC003	1.753	1.458	0.277	3.342	4.400	0.000	3.011	0.036	0.200	0.056	94.834	5.460	0.122	67.254	13.340
NWCC004	1.396	2.084	0.202	11.767	5.568	0.049	3.039	0.059	0.206	0.044	61.818	3.814	1.881	25.841	2.811
NWCC005	5.677	2.287	0.323	6.158	10.056	0.000	3.002	0.079	0.250	0.144	184.836	46.771	0.250	223.827	15.058
NWCC006	5.094	0.933	0.371	3.826	9.368	0.000	2.967	0.131	0.230	0.091	235.758	40.038	0.186	220.087	13.568
NWCC007	5.395	0.884	0.501	17.098	5.990	0.000	2.841	0.196	0.160	0.124	269.127	30.749	0.177	112.766	29.855
NWCC008	5.964	0.589	0.846	1.531	2.111	0.000	2.996	0.114	0.321	0.345	51.710	6.954	0.000	13.323	136.647
NWCC009	4.928	1.797	0.375	6.441	5.834	0.000	2.996	0.148	0.145	0.266	321.612	47.692	0.290	232.712	32.058
NWCC010	5.728	2.475	0.464	3.640	5.066	0.000	3.108	0.195	0.145	0.216	318.224	19.764	0.182	183.172	39.649
NWCC011	5.337	0.000	0.767	3.775	1.544	0.000	2.987	0.072	0.345	0.386	55.717	4.201	0.058	27.013	92.974
NWCC012	3.544	1.237	0.726	5.726	3.977	0.000	3.321	0.125	0.245	0.402	191.064	11.022	0.234	45.076	133.519
NWCC013	6.384	0.000	0.349	4.291	3.665	0.000	3.007	0.067	0.105	0.094	161.360	39.076	0.080	92.038	11.168
NWCC014	19.133	2.279	0.237	7.066	1.754	0.000	3.000	0.060	0.111	0.126	180.927	28.671	0.247	167.288	19.491
NWCC015	2.330	0.529	0.763	5.279	2.576	0.000	2.961	0.011	0.086	0.155	41.530	14.751	0.207	104.065	23.434
NWCC016	1 786	0.683	0 197	5 657	1 425	0.000	3 000	0.044	0.080	0.093	77 073	7 971	0 120	61 059	18 196
NWCC017	5 453	2 572	0 499	5 224	2 179	0.000	3 037	0.222	0.116	0.269	380.006	11 738	0.244	203 787	39 410
NWCC018	1 635	0.418	0.221	6 229	2 216	0.000	2 986	0.040	0.073	0.071	83 594	14 884	0.291	79 157	8 920
NWCC019	4 129	2 501	0.426	6 470	3 768	0.000	3 046	0.192	0 1 1 5	0.260	336 866	12 804	0.199	112 091	36 927
NWCC020	2 632	3 016	0.379	2 540	2 139	0.000	3 081	0.099	0.173	0.272	223 254	7 138	0.084	126 249	49 884
NWCC021	3 756	1 290	0.310	2 3 1 5	2 276	0.000	3 020	0.000	0.178	0.178	168 173	18 955	0.004	172 097	25 062
NWCC022	4 514	1.230	0.200	4 332	1 874	0.000	2 985	0.004	0.130	0.170	179 184	23 057	0.100	126 970	23 389
NWCC022	2 285	0.545	0.235	4 587	1 490	0.000	2,000	0.072	0.112	0.100	78 636	17 377	0.001	66 274	6 809
NWCC024	4 4 2 1	1 322	0.422	4 024	3 115	0.000	3 003	0.040	0.000	0.000	275 819	21 951	0.170	106.052	29.626
NWCC025	3 1/7	0 701	0.422	3 367	1 364	0.000	2 970	0.140	0.117	0.141	1/3 517	16 616	0.102	100.002	18 282
NWCC025	5 669	0.791	0.232	5.307	1.304	0.000	2.970	0.003	0.071	0.090	400.012	47 072	0.095	224 221	69 409
	2 1 2 9	0.972	0.340	7.076	2 469	0.014	2.000	0.201	0.132	0.277	262 460	21 020	0.303	224.001	26 240
	4 354	2 592	0.552	2 058	1 318	0.015	3.075	0.171	0.111	0.204	510 703	11 /68	0.433	111 / 50	72 620
	7.004	2.552	0.013	2.050	2 212	0.000	2 049	0.240	0.155	0.020	127 749	7 016	0.230	102 060	72.025
NWCC029	0.000	2.510	0.341	2.003	2.213	0.000	2 002	0.209	0.100	0.035	437.740	0.725	0.147	2 1 9 5	2 055
NWCC030	0.293	1 916	0.247	6 092	2.074	0.000	2 071	0.014	0.033	0.000	162 102	0.725	0.274	199 041	15 605
NWCC022	2,000	1 292	0.210	0.900	2 050	0.011	2.371	0.000	0.077	1 476	107 291	0 972	1 020	266 556	50 917
NWCC032	4 406	1.502	0.231	2 510	1 701	0.002	2.919	0.072	0.034	0.227	404 225	5.072	0.201	200.000	77 229
NWCC033	2 906	1.010	0.042	1 024	1.791	0.000	2,000	0.212	0.143	0.007	709 029	2 6 1 9	0.201	146 520	79 701
	2 611	4.021	1 1 1 4	1.034	2 / 10	0.000	2.999	0.299	0.095	0.400	942 474	5.010	0.100	46.529	00 161
NWCC035	4 002	4.944	1.114	0.657	4 246	0.000	3.002	0.401	0.114	0.313	974 565	5 206	0.272	45.402	105 955
	2 075	5 921	0.010	0.007	9.417	0.000	2,000	0.301	0.100	0.700	074.000	4 277	0.132	94 949	90.000
NWCC037	3.975	2.001	0.910	0.000	1 010	0.000	3.009	0.419	0.090	0.307	707 115	4.377	0.117	200 612	57 021
NWCC030	4.140	2.309	0.596	0.959	1.919	0.000	3.000	0.394	0.320	0.734	707.115	3.022	0.110	200.013	57.031
NWCC039	4.000	2 212	0.301	1 0 4 0	1.924	0.000	3.025	0.310	0.070	0.012	202.065	3.000	0.100	101 000	70 502
	4.440	3.213	0.402	1.040	1.275	0.000	3.030	0.204	0.300	0.011	393.005	3.510	0.201	121.920	12.525
	3.604	3.334	0.439	4.649	1.930	0.011	3.001	0.200	0.384	0.002	494.646	3.017	0.100	210.000	40.655
	3.018	1.954	0.382	2.305	1.494	0.000	2.973	0.250	0.323	0.505	360.438	2.890	0.109	221.021	29.002
	5.382	2.324	0.465	2.049	1.635	0.000	3.023	0.401	0.162	0.451	511.837	3.333	0.093	325.726	35.028
	5.467	1.047	0.508	0.997	1.053	0.000	3.019	0.348	0.156	0.367	1028.678	3.999	0.114	170.783	45.229
NWCC045	2.587	0.418	0.734	2.200	1.950	0.000	2.964	0.182	0.329	0.546	50.040	1.091	0.293	35.766	95.660
	4.588	2.842	0.339	2.5/8	1./9/	0.000	3.087	0.189	0.178	0.508	2/8.8/1	6.042	0.169	120.069	02.866
	1.864	0.000	0.674	2.804	2.023	0.000	3.022	0.122	0.296	0.366	46.733	3.165	0.112	8.485	94.062
	3.530	0.501	0.679	2.22/	1.349	0.000	2.962	0.083	0.280	0.314	49.538	2.036	0.106	6.229	98.713
NWCC049	4.814	1.748	0.295	4.18/	1.937	0.012	3.122	0.081	0.092	0.240	208.621	52.124	0.428	282.068	33.532
INWCC050	5.345	3.1/1	0.490	2.043	1.249	0.000	3.195	0.199	0.134	0.177	387.443	24.132	0.224	152./36	46.937

6.4.5 Historic sample preparation, analyses, and security

For the 2014 exploration, the author and QP took geochemical samples disclosed in the current report and delivered these samples to the laboratory. All 50 rock samples (50 g assays) were analyzed by fire assay and for multi-element total digestion (ICP-MS 46, 0.005 ppm, Table 3 through 5). Subsequent samples by Sumin and Merian geologists were delivered to the lab in like manner.

Standards and blanks are used as part of the analyses but no external blanks or standards have been added. No check samples have been sent to certified labs as of yet, but duplicate samples have been taken and replicate, second cut, and screened samples taken as part of the current analyses (Table 7).

For this stage of program, the sample collection, quality control, and sample security are adequate for results that can be relied on. When drilling is started, additional QA/QC procedures must be established.

EI	DL	El	DL	EL	DL	EL	DL	EI	DL
	ppm		ppm		ppm		ppm		ppm
Ag	0.005	Cs	0.01	Li	0.1	S	0.01%	U	0.01
Al	0.01%	Cu	0.05	Mg	0.01%	Sb	0.05	V	0.05
As	0.05	Fe	0.01%	Mn	0.1	Se	0.05	W	0.05
Ba	0.5	Ga	0.05	Мо	0.05	Sn	0.05	Υ	0.05
Be	0.01	Ge	0.01	Na	0.01%	Sr	0.05	Zn	0.05
Bi	0.01	Hf	0.01	Nb	0.05	Та	0.05	Zr	0.05
Ca	0.01%	Hg	0.05	Ni	0.05	Tb	0.01		
Cd	0.005	In	0.01	Ρ	0.01%	Те	0.05		
Со	0.01	Κ	0.01%	Pb	0.05	Ti	0.00%		
Cr	0.05	La	0.1	Rb	0.01	ΤI	0.01		

Table 6: Elements and detection limits - FILAB Suriname

6.4.6 Data verification

The QP verified from predecessor company files in Parimaribo that all logs sheets from auger samples, panning, grab samples and trench samples where entered into secure databases. These databases have been reviewed by the author and original datasheets and assay sheets examined. In addition, other experienced geologists and database personnel have examined the data for errors. The field sheets also have a number of descriptive fields to be filled and recorded that can add useful information. Mapinfo and Discover are used to review and evaluate data and note errors in position.

The basic data of historic sample locations and assay data is verified and is maintained in a secure access database with backup.



Figure 10: Historic Duyfjes trenches. Locations (left) on historic base map surveyed by Billiton geologists in 1953 and recent Newmont exploration pit at site of 2001 sample NAR-RCC-172 at head of Witlage Creek (below). The mercury was first prospected in the early 1900s (De Munck, 1954). According to the Billiton report (1953), trenches 1 and 13 contained the most cinnabar. Projection and datum are WGS1984, UTM Zone 21N.



Figure 11: Cinnabar nodules (about 0.5 to 2 cm diameter) from the Witlage Creek placer and the gold nugget is about 9.6 grams (Malfait, 2002)



Figure 12: Nassau Project of 79North relative to gold deposits of Northern South America



Figure 13: Current compilation of all exploration sample gold assay results for the Nassau Project (Personal communication, Eriaan Wirosono, 2018)



Figure 14: Current compilation of all exploration sample gold assay results for the Nassau Project overlain on geologic map compiled from airborne geophysical data (Personal communication, Eriaan Wirosono, 2018)



Figure 15: Current compilation of the total auger sample gold assays from the Witlage Creek target area (Personal communication, Eriaan Wirosono, 2018)

č

764,000 m

legend

Roads

Porknokking workings

763,200 m



Figure 16: Isometric contouring of compilation of the total auger sample gold assays from the Witlage Creek target area (Personal communication, Eriaan Wirosono, 2018)



Figure 17: Compilation of all grab sample assays from the Witlage Creek target area (personal communication, Eriaan Wirosono, 2018)



Figure 18: Compilation of all pan sample grain counts from the Witlage Creek target area (personal communication, Eriaan Wirosono, 2018)

Table 7: Gold assays including QA/QC screens from March 2014 exploration

140133	NAS-3182014-01				_	_
SAMPLE ID	SAMPLE REF.	Au ppm	1st Cut Replicate (ppm)	2nd Cut Au ppm	% Passing 8 mesh	% Passing 170 mesh
140133-001	NWCC-001	3.052		3.125		
140133-002	NWCC-002	0.136				
140133-003	NWCC-003	0.022				
140133-004	NWCC-004	0.073				
140133-005	NWCC-005	0.172				
140133-006	NWCC-006	0.171				
140133-007	NWCC-007	0.210		0.265		
140133-008	NWCC-008	0.069				
140133-009	NWCC-009	0.181				
140133-010	NWCC-010	0.362		0.402		
140133-011	NWCC-011	0.448				
140133-012	NWCC-012	0.699				
140133-013	NWCC-013	0.349				
140133-014	NWCC-014	0.380				
140133-015	NWCC-015	0.287	0.275			
140133-016	NWCC-016	0.180				
140133-017	NWCC-017	0.085				
140133-018	NWCC-018	0.051				
140133-019	NWCC-019	0.110				
140133-020	NWCC-020	0.200				
140133-021	NWCC-021	0.194				
140133-022	NWCC-022	0.091				
140133-023	NWCC-023	0.028				
140133-024	NWCC-024	0.259				
140133-025	NWCC-025	0.131				
140133-026	NWCC-026	1.574		1.690		
140133-027	NWCC-027	0.139		0.155		97
140133-028	NWCC-028	0.137				
140133-029	NWCC-029	0.167				
140133-030	NWCC-030	<0,005	< 0,005		85	
140133-031	NWCC-031	0.173				
140133-032	NWCC-032	0.015				
140133-QC1	STD SL61	5.943				
140133-033	NWCC-033	0.090				
140133-034	NWCC-034	0.113				
140133-035	NWCC-035	0.088				
140133-036	NWCC-036	0.078				
140133-037		0.093				
140133-038		0.095				
140133-039		0.082				
140133-040		0.083				
140133-041		0.082				
140133-042		0.094				
140133-043		0.100				
140133-044		0.095				
140100-040		< 0,000		0 500		
140133-040		0.040	0.047	0.592		
140133-047		0.040	0.047			
140133-040		0.000				
1/0133-049		0.000				
140100-000						
140133-QOZ	DLAINN	<0,003				

7 Geologic setting and mineralization

7.1 Regional geology

Suriname is set in the Guiana Shield, one of three cratons of the South American Plate and a massif of rocks of Paleoproterozoic age (1.8 to 2.2 Ga) in the northwest corner of South America between the Orinoco and Amazon River basins, to the north and south respectively (Gibbs and Barron, 1993; Wong and others, 1998). Most of the Guiana shield is composed of granitic rocks formed during the Paleoproterozoic Transamazonian Orogeny. These granitic dome or dome-like features likely provided a focus for movement of deep fluids and deposition of metals into the upper crustal volcanic-sedimentary extensional rocks. Granite-greenstone-belts are present, predominantly in the northern part of the shield between Venezuela and French Guiana, trend roughly NW-SE, and span a geographic distance of about 200 kilometers (Figure 7).

The lithologies of the upper crustal volcanic-sedimentary formations are typical of the arc-related sequence of rocks found in greenstone belts and major gold deposits throughout the world. Based on preliminary mapping rocks in the Witlage Creek area of the Nassau Gold Project have more volcanic affinity and lithologies at Merian are dominated by a sedimentary package. Rosebel ore deposits occur in both volcanic and sedimentary rocks.

Voicu (2010; Figure 6) summarizes the general lithostratigraphic succession of the greenstone belts that host most of the gold mineralization in the Guiana Shield:

• (1) a lower sequence of tholeiitic basalt overlain by,

• (2) a mainly calc-alkaline volcanic suite including felsic to mafic members and,

• (3) an upper sedimentary succession generally including lithic sandstone, mudstone, chert and conglomerate.

In Suriname, sedimentary and volcanic units of the greenstone belts form the Marowijne Supergroup, which can be subdivided into two formations: the Paramaca and the Armina Formations. The Paramaca Formation mainly consists of volcanic rocks, whereas the Armina Formation is characterized by flysch sequences of lithic sandstone and mudstone. The volcanic succession is associated spatially and temporally to tonalite-trondhjemitegranodiorite (TTG) plutonism. The Marowijne Supergroup is unconformably overlain by an arenitic and conglomeratic sedimentary sequence that is locally termed the Rosebel Formation. This sedimentary sequence is interpreted to have been deposited in a series of intracontinental pull-apart basins that developed along major sinistral strike-slip structures during the later stages of the transpressional Transamazonian Orogeny. Granitic magmatism occurred synchronously with the formation of these basins in the eastern Guiana Shield.

Rocks of the Guiana Shield correlate directly to other rocks in several terranes of the circum-south-Atlantic continents that were involved in the Transamazonian - Eburnean (name used in Africa) Orogeny. This age of rocks is a major source of gold production and resources in both South America and Africa which were linked together prior to the opening of the Atlantic Ocean (Figure 7). Similar styles of sedimentation, structural evolution, and igneous evolution are recorded in the rocks of West Africa which host the

long-lived and current producing mines (LaPoint, 2012).

After formation, the entire Guiana Shield has undergone prolonged chemical weathering under a humid, tropical paleoclimate that may have started as far back as the Cretaceous period. Weathering has produced laterite and saprolite profiles up to 100 meters below surface soils(Figure 5). The chemical effects of the deep weathering include leaching of mobile constituents (alkali and alkali earths), partial leaching of SiO₂ and Al₂2O₃, formation of stable secondary minerals (clays, Fe-Ti and Al-oxides), mobilization and partial precipitation of Fe and Mn and the concentration of resistant minerals (zircon, magnetite, quartz). Exposures are very limited and rock types that are relatively resistant to weathering are over represented in outcrop area

These chemical weathering conditions are conducive to the formation of laterite gold deposits. The Nassau concession is highly prospective for such as deposit because there is a laterite cap currently being eroded that is surrounded by alluvial gold workings in the creeks. The Boddington gold deposit in Australia is an example of a laterite gold deposit occurrence although, the age (Archean) and lithology of underlying geology are very different from those of the Nassau Plateau. The early mining was entirely in the laterite and at relatively low cost.



Figure 19: Greenstone belts of Guiana Shield (Watson, 2008)



*Regional data are taken from Delor *et al.* 2003, Géologie de la France, The Bakhuis ultrahigh-temperature granulite belt (Suriname): II. implications for late Transamazonian crustal stretching in a revised Guiana Shield framework



Figure 20: Regional framework of the Guiana Shield (Voicu, 2010)

Tension Vein (Type 3)

Tension Vein (Type 2)

Tension Vein (Type 1)



Figure 21: The Nassau Project located on a tectonically reconstructed map of Greenstone belts of West Africa and South America with major gold deposits and mines. Note the general trend of greenstone belts and mines is to the NE in the West African Shield but to the NW in the Guiana Shield.

7.2 Concession geology

7.2.1 Summary

The Nassau concession area lies within greenstone belt and related granitic and gneissic rocks (Figures 19 and 21). For over one hundred years the area has been prospected for placer gold within Tertiary to recent gravels. Most of the placer workings are within streams draining the Nassau Plateau which is central to the concession. The historically most active placers are associated with Witlage Creek in the north-central concession and the Bamboo Creek placer in the west-central portion of the Nassau concession (Figure 3). Recent placer workings and recent and historic excavations and trenching in the headwaters areas of numerous creeks have exposed and mined saprolitic outcrops beneath the placer and thick soil horizon and allowed for some geologic mapping (Figures 6 though 9; 24 through 26). Reconnaissance geologic mapping and sample collection confirms structural styles, rock types, and a style of gold mineralization consistent with an Orogenic deposit model throughout the Nassau concession. Most gold mineralization found to date is associated with sheared guartz veins, faults, and contact zones. As exploration progresses, laterite gold or paleoplacer deposits may also be discovered because gold is known to occur within the Nassau Plateau laterite but only minor exploration for these gold deposit models has been done to date.

7.2.2 Witlage Creek geology

Summary - One of the most mineralized saprolitic exposures in the Nassau concession is in the area which includes the head of Witlage Creek. According to the published GMD geologic map (Wong et. al., 1998), the Witlage Creek gold prospect in the NW quadrant of the Nassau concession is located along the NW contact of the mafic to intermediate volcanic rocks of the Paramaca Formation and may be the contact between the volcanic rocks of the Paramaca and the terrigenous clastic sedimentary rocks of the Rosebel Formation. The most recent geologic mapping supports these contacts at Witlage (Capps and others, 2004a; Malfait, 2002). These formations are described as being part of the Marowijne Group, an early phase of the Transamazonian Orogeny, and cut by a younger felsic intrusive/volcanic complex.

Stratigraphy - In general, outcrop exposures illustrating stratigraphy are poor, but the best exposed outcrops are found along creeks banks, in areas of steep topography, and within the about 100-year-old Duyfjes trenches. In addition, relatively recent excavations have been made by small scale miners along the creeks during placer mining in the saprolite. Apparently barren, bull quartz veins cap ridges in the west and southern map areas and cut the layered Paleoproterozoic rocks. All of these Paleoproterozoic lithologies are meta-morphosed to lower greenschist grade and locally attenuated and deformed (Figure 24). The lithostratigraphy includes:

• Greenstones (gs). Fine-grained dark- to light-green and greenish grey amphibolite and minor granitic gneiss are in the southeastern map area, south of Tempati Creek. The rocks have felted, weakly deformed textures and locally resemble agglomerate. Their

protoliths may have been mafic to intermediate volcanic rocks or hypabbysal intrusives. This study found no anomalous, gold, mercury, or pathfinder element values associate with these rocks at this level of sampling.

• Mafic to intermediate and minor ultramafic and felsic volcanic and hypabbysal intrusive rocks; interbedded volcaniclastic rocks (v). These rocks are an intercalated series of volcanic rocks and volcaniclastic sediments intruded by fine to coarse-grained rocks of similar composition. The best exposures are along the northwestern side of Witlage Creek. Little-deformed porphyritic andesite in these exposures contains relict phenocrysts of feldspar and amphibole. These rocks may correlate with the Paramaca Formations (Wong, et.al, 1998).

• Fine to coarse-grained clastic sedimentary and minor volcanic rocks; abundant quartzite and shale (y). The rocks are very little deformed light-colored fine- to coarse-grained sandstones, intercalated conglomerates, and siltstones/mudstones. They overlie the volcanic and volcaniclastic rocks and largely outcrop in the western Witlage Creek area.

• Intrusive gabbro (g). Coarse-grained, holocrystalline intrusive gabbro is found as float and associate with very thick laterite (ferrite) in the east-central study area. Very fine-grained mafic to ultramafic intrusive rock found in several trenches (Trenches 2, 13, 14 and possible others; Malfait, 2002) may be related to this intrusive gabbro.



Figure 22: GMD geologic map (Wong and others 1998). See legend on following page. Projection and datum are WGS1984, UTM Zone 21N





Figure 24: Geologic Map of the Witlage Creek prospect area (Capps and others, 2004a)



Figure 25: Interpretive geologic map of the Nassau concession from a Terraquest airborne geophysical survey by Lubbe Geophysics, Inc., Clearwater, FL



Figure 26: Quartz vein in the southern Nassau concession within dark-gray amphibolite. (a) and (b) East-west striking quartz vein exposed in a several hundred meter trench beneath saprolite and saprock, (c) and (d) The quartz vein is more than 2 meters wide at the lowest point of excavation and a grab sample assayed over 10 grams gold. *Structure* - The layered sedimentary and volcanic rocks are folded into a series of northto northwest-striking folds that are generally overturned to the west-southwest. Bedding planes are transposed into the regional foliation. The fold limbs and fold axis generally dip isoclinally to the northeast. The upper drainages of Witlage Creek placer follow the synclinal axis of one of these folds and then follow the western contact of a plunging anticline that Witlage Creek gently follows as its course turns to the northeast and into the main area of the placer.

Gold mineralization, anomalous mercury, and intrusive gabbro are associated with the axis of a NW-striking anticline and adjacent NW-striking shear zone. Locally, anomalous gold values, visible gold and anomalous arsenic are associated with a roughly EW-striking stockwork of anastomosing and bifurcating narrow (mode about 1 to 3 cm) quartz veins within the shear zone. This zone and associated alteration locally cross cuts and is younger than the folded metamorphic rocks. The folds are generally tighter and possibly more attenuated in the area of the Duyfjes trenches (Figure 10) than further to the east. Weathering may have eroded more deeply in the trench area, especially along the anticlinal axis, than in less attenuated adjacent areas.

Mineralization - The highly productive and historic Witlage Creek gold placer has been worked since the early 1900's by small scale artisanal miners or porknockers. In addition, the headwaters were prospected for mercury in both the early 1900's and 1950's due to the occurrence of large cinnabar nuggets in Witlage Creek (De Munck, 1954). Gold exploration in 2001 (Capps and other, 2004) included geologic mapping (1:10,000 scale, about 20 kilometers²), stream panning, and geochemical sampling of rocks and soils (saprolite and ferricrete duricrust). In addition to gold (Malfait, 2002), stream sediment concentrates included cinnabar (Figure 11; including gold-bearing cinnabar), native mercury, magnetite, pyrite, specular hematite, garnet, pyrolusite, schorl tourmaline, rutile, ilmenite, goethite, leucoxene, gibbsite, kaolinite, diaspore, and paragonite.

Exploration identified at least three bedrock sources at the head of the Witlage Creek drainage for the NE-striking Witlage Creek placer gold and mercury. In area number one (Figure 6; Area 1), gold and mercury are associated with a contact along the southwestern limb of a northwest-striking anticline between metamorphosed mafic rocks and overlying arenites and litharenites. Gold and mercury values are highest at the contact and are most disseminated in the sediments. Gold in the mafic rocks is associated with trace platinum, anomalous iron (up to detection limits of 25%), phosphorus, and titanium. Native mercury is common in the mafic rocks and discontinuous cinnabar-pyrite-gold veins are along the contact. In a second area (Figure 6; Area 2), vein gold is hosted by an andesite within an east-west striking 400 by 1000 meter zone of stockwork quartz veining, alteration, and anomalous arsenic. Vein minerals include pyrite, pyrrhotite(?), and visible gold. In a third area (Figures 6 and 10; Area 3), gold values are near the contact of an intrusive gabbro within the axis of the anticline of the first area.

The March-April 2014 Sumin exploration program identified mineralization associated with synkinematic tension and shear veins (Figures 27, 28, and 29) along the north-western side of Witlage Creek and, to the northeast, within an adjacent NW-striking and steeply NE-dipping shear zone (Figures 6 through 9; Tables 2 through 7). The shear zone is currently being worked by porknockers and at least three active shafts and several sur-

face workings are within the shear. A sample of quartz vein from the northern most shaft assayed over 3 grams gold, 10 ppm mercury, 854 ppm tungsten, and 15 ppm tantalum (Figure 9).

8 Deposit types

8.1 Placer gold

Historic gold production has been from alluvial mining although the alluvial mining is not generally considered a current target for exploration and development, but does indicate widespread gold in the concession. The placer mining is useful locally as an exploration tool because it can create exposure for sampling in pits and along access roads. Also if exploration were to define a large paleo-terrace system or significant quantities of gold in alluvial gravels of large drainages then that could justify the capital investment for an effective process system to recover the finer gold that is lost by present mining methods. Current alluvial mining methods use an excavator to remove the overburden and then pressure from powerful hydraulic hoses to wash the gravels into a sump. The slurry is pumped to a sluice box where gold is concentrated. These processes lack efficiency and much fine grained gold is lost in the recovery. Mercury, a potential health risk to miners, is used to recover the fine grained gold (flour gold). Any development should use a mercury free process that recovers the fine gold and minimizes the environmental impact.

8.2 Lode gold deposit types

8.2.1 Currently mined

Based on other greenstone gold occurrences in Suriname and West Africa, the most likely target types and ones of most economic interest for major new gold deposits are:

• Shear-hosted gold deposits associated with deformation of the rocks during or after folding and thrusting are the single most likely target types in the Nassau concession. This type of deposit created the gold mineralization at the Rosebel gold mine (IAMGOLD) and Merian deposit (Newmont/Surgold) in Suriname, and is the classic geologic setting for many of the world's largest and long-lived gold mines. A contrast between various rock units creates zones of extension and high fluid flow during folding and shearing and strike-slip fault movement. This process creates open space for pressure release of the fluids which causes the deposition of silica (quartz) and gold during ductile and brittle faulting events. These veins have undergone multiple stages of deformation and shearing and studies have shown that repeated deformation of such veins tends to improve the gold grade by producing multiple stages of veining and recrystallization (Robert and others, 2005). These environments of gold mineralization form some of the larger gold deposits of the world such as those of Ontario and Quebec, Canada (Gosselin and Benoit, 2005) which include the Timmons Camp (71M oz, Kirkland Lake (24M oz), Larder Lake (13 M oz), Malartic (8 M oz), Val d'Or (20 M oz), Noranda (19M oz), and Bousquet (21M oz).

Poulsen and Robert (1989) illustrate some general controls on mineralization (Figures 27 and 28) in mesothermal veins formed during regional deformation. In low strain, shear zone hosted deposits the general plunge direction of mineralization follows the intersection of the foliation with extensional veining (ladder veins) formed in the fold. The ore plunge is generally formed at right angles to the transport direction. Continued strain produces new veins deposited in the stretched necks of earlier extensional vein array (boudin neck; Figures 11, 27, and 28).

Fold hinges and intersections of fault and shear zones are typical sites for high grade ore zones (Figures 27 through 29). In any one mine, there will likely be multiple deposits with gold endowments of over a million ounces each. Bulk mineable, open pit targets are the primary focus of exploration, but high grade quartz vein systems that can be mined by both open pit and underground methods are also a viable exploration target. The Aurora deposit in Guyana is being studied as both an open pit and underground mining option. At the Rosebel mine, deep drilling below the Pay Caro pit has provided initial information for the underground mining potential, and at Omai, Cambior tested the underground potential below the Fennell pit.

Within the Nassau concession, as at Rosebel, mineralization is hosted in spatially and temporally related shear and tension vein arrays. The association of these two vein systems in the Rosebel deposits is typical of orogenic gold systems where tension veins develop in extensional fractures that have accommodated deformation. Tension veins are more important in terms of contained gold, although shear veins can carry significant grades (e.g. Pay Caro deposit) and are thought to be a fundamental control on hydrothermal fluid circulation (Figure 29; Voicu, 2010).

Goldfarb and others (1995) describe similar deposit types as "consisting of Archean through Tertiary quartz veins, primarily mined for their gold content, that generally contain no more than 2 to 3 volume percent sulfide minerals, mainly pyrite, in allochthonous terranes dominated by greenstone and turbidite sequences that have been metamorphosed to greenschist facies." The alteration selvages and wall rocks contain abundant carbonate and sulfide minerals, quartz, and sericite. Arsenic, antimony, tungsten and mercury are enriched in alteration haloes (Figure 30). Goldfarb and others (1995) suggest that locally these deposits are also known as mesothermal, Mother Lode-type, orogenic, metamorphic rock-hosted, greenstone gold (Archean), turbidite-hosted (Phanerozoic), and slate belt gold (Phanerozoic) deposits. These low sulfide gold deposits often contain arsenictungsten-iron associations at lower levels, and antimony-arsenic-iron higher in the system. Increased concentrations of mercury are typical within the uppermost system.

• Intrusive bodies may form a primary host of gold associated with the intrusive event and/or can provide a rock type with more brittle deformation that creates open space for fluid flow. The source of the gold may be from fluids created during deformation or from fluids derived from the intrusive and areas of hydrothermal circulation. The Omai mine in Guyana (Cambior) was mined in this setting (Voicu and others, 2001) and the Toroparu gold-copper deposit in Guyana has many of these characteristics.

8.2.2 West African shield

The Guiana Shield was a part of the Shield of West Africa that broke off during the creation of the Atlantic Ocean and is geologically related to the rocks that host gold mineralization on trends such as Ashanti in Ghana. Gold mineralization in Ghana is found in three principal settings (similar to Suriname).

• (1) Major structures at the Upper and Lower Birimian contact. Deposits are of numerous styles, including quartz reefs hosted within carbonaceous phyllites and greywackes, associated with major semi-conformable shear structures and subsidiary oblique faults. Lower grade mineralization may also be present as disseminations or associated with sheeted quartz veining within tuffs, greywackes and mafic dikes situated in close proximity to major structures (same setting as the shear hosted gold deposits described above).

• (2) Gold mineralization is associated with sheeted vein swarms and stockwork zones within granitoids that may also be shear related. Newmont's recent mine at Ahafo is thought to be related to this deposit type. This style of mineralization is considered to be an important target at the Nassau concession because of the structural setting along major shears and structures and the presence of a complex assemblage of granitic rocks (same setting as item two above).

• (3) The third style is within sandstone and conglomerate units where gold has been re-deposited as ancient paleo-placers as well as structurally emplaced. This style may occur in unprospected areas of the Nassau Project. In Ghana, Damang is a recently recognized style of quartz vein stockwork deposit found in 1990 in sedimentary rocks traced 20 kilometers along strike from the old Abosso underground conglomerate mine.

8.2.3 Laterite

An additional target to consider is gold hosted within laterite. Laterite gold is a target of interest on the Nassau concession as there is a laterite cap currently being eroded that is surrounded by alluvial gold workings in the creeks. The Boddington mine in Australia is the classic example of this occurrence, and as exploration progresses, laterite gold deposits or paleoplacer deposits may also be discovered within the thick laterite cap of the Nassau Plateau. The Boddington gold deposit (Anand, 2005) was discovered in 1979 during a geochemical prospecting program by the Geological Survey of Western Australia. The survey discovered anomalous gold and pathfinder elements in an area 5 kilometers long by 500 meters wide in the Saddleback Greenstone belt on the eastern edge of the Darling Plateau, a deeply weathered plateau, which is similar to the Nassau Plateau of Suriname but with very different underlying geology.

9 Exploration

There is no additional mineral exploration by 79North on the Nassau concession of a material nature. The company has completed due diligence sampling and geologic mapping. Established a field warehouse, infrastructure verification, and a geochemical grid.



Figure 27: Continued strain produces new veins deposited in the stretched necks of earlier extensional vein array (boudin neck; after Robert, 1989)



Figure 28: General relationships between fold and vein formation and potential ore plunge (after Robert, 1989)



Figure 29: Shear and tension veins occuring at Rosebel gold mine (Voicu, 2010). Similar vein sets are common features of the mineralized saprolitic outcrop in the Nassau concession.



Figure 30: Diagram of low-sulfide Orogenic gold deposit model (Goldfarb and others, 1995). Generalized geochemical and environmental model for low-sulfide Orogenic gold deposits. The color ternary diagrams illustrate Nassau Gold Project data (multielement data this report) from the Witlage Creek target. In the model, the high-level mercury, arsenic-tungsten-iron, and antimony-arsenic-iron associations are a good match to the geochemistry associated with gold at the Witlage Creek target (50 samples Au by fire assay and multi-element analyses this report; Tables 2 through 5)

10 Drilling

No drilling has yet been completed on the Nassau Gold Project by 79North.

11 Sample preparation, analyses, and security

All historic samples (Section 6) described in this report were analyzed by an ALS representative lab in Suriname and 79North intends to use this lab for recommended exploration (Section 18). The lab is operated by:

FILAB AMSUD SAS, Aboenawrokostraat #71 - PARAMARIBO - Suriname Tel 00 (597) 45 58 57 / 45 59 79 E-mail : filab.suriname@orange.fr.

For the 2014 exploration, the author and QP took geochemical samples disclosed in the current report and delivered these samples to the laboratory. All 50 rock samples (50 g assays) were analyzed by fire assay and for multi-element total digestion (ICP-MS 46, 0.005 ppm, Tables 3 through 5). Subsequent samples by Sumin and Merian geologists were delivered to the lab in like manner.

Standards and blanks are used as part of the analyses but no external blanks or standards have been added. No check samples have been sent to certified labs as of yet, but duplicate samples have been taken and replicate, second cut, and screened samples taken as part of the current analyses (Tables 3 through 5; 7).

For this stage of program, the sample collection, quality control, and sample security are adequate for results that can be relied on. When drilling is started, additional QA/QC procedures must be established.

12 Data verification

79North policy is that all logs sheets from auger samples, panning, grab samples and trench samples are entered into secure access databases. These databases have been reviewed by the author and original datasheets and assay sheets examined. In addition, other experienced geologists and database personnel have examined the data for errors. The field sheets also have a number of descriptive fields to be filled and recorded that can add useful information. Mapinfo and Discover are used to review and evaluate data and note errors in position.

The basic data of sample locations and assay data is verified and is maintained in a secure access database with backup.

13 Mineral processing and metallurgical testing

No mineral processing or metallurgical testing has been done on the Nassau Gold Project on behalf of 79North.

14 Mineral resource estimates

There are no mineral resource estimates on the Nassau Gold Project on behalf 79North.

15 Adjacent properties

The Nassau concession is surrounded by other concessions (Figure 2). The author has been unable to verify the information obtained for these surrounding concessions and the information is not necessarily indicative of the mineralization on the Nassau concession property that is the subject of this technical report. The most important to adjoining exploration concession to the Nassau concession is Newmont/Surgold to the north and west which contain the Merian gold deposit and other targets (Merian Gold Fact Sheet, November 2013; March, 2014; July, 2018).

Newmont/Surgold is currently in production at the Merian gold mine in the Merian concession which is located south of Moengo and north of the Nassau Mountains and the Nassau concession. The Merian Gold Project involved the development of a gold mine and associated infrastructure. Following the directives of the National Institute of Environment and Development of Suriname (NIMOS), Newmont/Surgold prepared an Environmental and Social Impact Assessment (ESIA) for which Newmont/Surgold commissioned Environmental Resources Management (ERM), an independent international environmental consultancy. This study identified the potential impacts of the project and defined mitigation measures to address them. These efforts are designed to maximize positive impacts from the project, while reducing or avoiding potential negative impacts. Both studies were approved by Newmont's Board of Directors in the second quarter of 2014 and subsequently given the right to mine by Suriname. The mining of the Merian Gold deposit began in 2016.

According to the Newmont March 2014 Fact Sheet, "Newmont Suriname, LLC, (previously known as Suriname Gold Company, LLC) ("Newmont Suriname"), a fully- owned subsidiary of Newmont Mining Corporation ("Newmont"), operates the mine on behalf of Suriname Gold Project CV, a Suriname limited partnership (the "CV"). Newmont Suriname is the managing partner, owning a 75 percent interest in the limited partnership, and Staatsolie Maatschappij Suriname N.V., Suriname's State-owned oil company ("Staatsolie"), the limited partner, owns the remaining 25 percent interest."

Suriname Gold Company, LLC (Surgold) was a limited liability company held by Newmont Overseas Exploration Limited (Newmont) and Alcoa World Alumina LLC. Newmont was the manager of Merian until 19 February 2014. Newmont Ventures Limited, a wholly owned subsidiary of Newmont, purchased Alcoa Word Alumina's ownership stake in the Surgold and now owns 100 percent of the Merian Gold Project (March 2014 Newmont fact sheet) and Surgold holds the Merian Right of Exploration where the Project is located.

Construction of Merian began in August 2014, and commercial production was achieved on October 1, 2016, on schedule and US\$150 million under budget. Details are available at Newmont's Merian Gold Project website which is:

https://www.newmont.com/operations-and-projects/south-america/merian-suriname

/overview/default.aspx.

16 Other relevant data and information

No other additional information or explanation is considered necessary to make the technical report understandable and not misleading.

17 Interpretation and conclusions

The Nassau Project shares a geologic setting with many of the world's largest and most long-lived gold mines and including current world class mines of the geologically-linked Guiana Shield and Western Africa shield areas. The tropical rain forest exploration environment is very challenging due to seasonal access problems, remoteness of services, and thick weathering profile, but the Nassau Project is a project that merits aggressive gold exploration. Current gold targets within the concession include the headwaters of Witlage Creek, which includes the currently very active northern Witlage Creek area, and in the western concession area the large, but largely unexplored, Bamboo Creek area adjacent to the Nassau Plateau. However, the entire concession is prospective and new targets will emerge as new exploration data is acquired. As part of the highly mineralized Eastern Greenstone Belt (EGB) gold trend of northern South America and the geologic similarity and proximity (Figures 12 and 21) to the Merian (about 5.1 Moz reserves, 2016) and Rosebel (about 6.5 Moz reserves, 2016) gold deposits of the EGB (Figure 12), the Nassau concession is highly prospective (Figures 13 through 18).

At Merian, Newmont forecasts an estimated five year annual production of 400,000 to 500,000 ounces of gold and a 4th quarter 2016 attributable production of 385,000 ounces. At Rosebel, IAM Gold disclosed a 2017 annual production of 302,000 ounces of gold.

Witlage Creek placer, in the north-central Nassau concession is one of the historically most productive placers in Suriname. Reconnaissance gold exploration at the head of the placer discovered gold in the saprolitic bedrock and a major source of the gold in the Witlage Creek placer. Current porknocker workings are centered on these earlier discoveries and expose at least a 300 meter strike length and 250 meter width of a mineralized shear zone developed in saprolitic bedrock.

Witlage area quartz veins sampled as part of the 2014 exploration in underground workings ran over 3 g/MT Au, up to 15 ppm tantalum, and up to 854 ppm tungsten. Of the fifty (50) two (2) meter continuous-chip and grab samples taken only two (2) samples were not anomalous in gold. Reconnaissance mapping and exploration show that this mineralized shear zone extends for at least two (2) kilometers along strike. The mineralized shear is open in all directions, and is likely part of a regional shear zone.

In 2015, gold exploration conducted by Mariana under an agreement with Sumin confirmed and broadened the Witlage Creek and Nassau Plateau anomalies.

18 Recommendations

The author recommends a two phase exploration program where Phase 2 exploration is contingent on the positive exploration results of Phase 1. The Phase 1 exploration will continue historic exploration techniques and which include geologic mapping, stream sediment panning, and soil, rock, auger and trench sample collection. A Lidar survey including data analysis and interpretation is recommended to penetrate the dense canopy and provide reliable base maps, elevation data and relate the underlying geology to detailed geomorphology provided by Lidar. Lidar (Light Detection and Ranging), according to the NOAA website is "a remote sensing method that uses light in the form of a pulsed laser to measure ranges (variable distances) to the Earth". In addition, small portable drilling rigs may be helpfully locally (Figure 31). Table 8 outlines a proposed generalized two phase exploration budget in the amount of CAN\$0.5M to support the continued Phase 1 exploration drilling and CAN\$2M for Phase 2 diamond core drilling at the Nassau Gold Project.

Table 8: Proposed generalized Phases 1 and 2 budget for the Nassau Gold Project

ITEM	TOTAL
Continuation of current explo-	\$400,000
ration activities (personnel, fuel,	
food, repairs, transport) includ-	
ing: geologic mapping, assays	
and geochemistry, auger sam-	
pling, panning, improving ATV	
trail, camp logistics (fuel & food)	
Lidar survey including data analy-	\$100,000
sis & interpretation	
PHASE 1 BUDGET (CAN\$)=	\$500,000
All inclusive support of 5,000 me-	\$2,000,000
ter diamond core drilling program	
PHASE 2 BUDGET (CAN\$)=	\$2,000,000
TOTAL BUDGET (CAN\$)=	\$2.500.000


Figure 31: Diedrich D-50 auger and core drill rig. Exploration geologist Dennis LaPoint using a track mounted Diedrich D-50 core and auger drill rig for gold exploration in eastern Suriname. The drill is capable of penetrating the duricrust layer and has excellent sample recovery.

19 References

- Aleva, G.J.J. and Th.E. Wong, 1998. History of bauxite exploration and mining in Suriname. In The history of earth sciences in Suriname (Wong, Th.E., D.R. DeVletter, L. Krook, J.I.S. Zonneveld and A.J. Van Loon, eds), p.275-310. Kon. Ned. Akad. Wet. and Ned. Inst. Toegep. Geowet. TNO.
- Alonso, L.E. and J.H. Mol (eds.), 2007, A rapid biological assessment of the Lely and Nassau plateaus, Suriname (with additional information on the Brownsberg Plateau): RAP Bulletin of Biological Assessment 43. Conservation International, Arlington, VA, USA.
- Anonymous, 1953, Eindrapport van het geologisch orientatie onderzoek bij Bonnidoro (Tempati). Unpublished.

- Anand, R.R., 2005, The Boddington Gold Deposit, Western Australia: CR LEME, CSIRO Exploration and Mining, P.O. Box 1130, Bentley, WA 6102, 3 pp.
- Bosma, W., Groeneweg, W., 1969, Review of the stratigraphy of Suriname. Geologie en Mijnbouw Dienst, 1969, 4; 31 pp.
- Capps, R.C., Malfait, Wim, and LaPoint, D. J. Bedrock sources of placer gold-mercury at the Witlage Creek Prospect, Eastern Suriname, South America (Abstract Paper 9-1): Geological Society of America, Abstracts with Program, Geological Society of America Northeastern and Southeastern Sections Joint Meeting (March 25-27, 2004a).
- Capps, R.C., Moye, R.J., LaPoint, D.J., Watson, T.C., Christensen, D., Stollenwerk, M. Evidence for syntectonic gold mineralization at Gowtu Bergi, Eastern Suriname, South America (Abstract Paper 9-2). Geological Society of America, Abstracts with Program, Geological Society of America Northeastern and Southeastern Sections Joint Meeting (March 25-27, 2004b).
- De Munck, V. C., 1954, Geologische Kaart van Suriname schaal 1:100,000, Kaartblad D8 Nassau: Geologische Mijnbouwkundige, Paramaribo.
- Duyfjes, G, 1915, Onderzoek voorkomen van delfstoffen concessie Chin A Qui en Mijnbroek ten W. Marowijne op last mijnbouwmaatschappij Merkuur. Unpublished.
- Freyssinet, Ph., 1993. Gold Dispersion Related to Ferricrete Pedogenesis in South Mali: Application to Geochemical Exploration. BRGM, Departement Exploration, France, 25–40 p.
- Gibbs, A.K. and Barron, C.N., 1993, Geology of the Guiana Shield. Oxford monographs on Geology and Geophysics, vol. 22. Clarendon Press, Oxford, 246 pp.
- Goldfarb, R. J., Berger, B. R., Klein, T. L., Pickthorn, W. J., and Klein, D. P., 1995, Low sulfide Au quartz veins: in Preliminary compilation of descriptive geoenvironmental mineral deposit models, USGS open-file report 95-831, p. 261-267.
- Goldfarb, R.J., Snee, L.W., and Pickthorn, W.J., 1993, Orogenesis, high-T thermal events, and gold vein formation within metamorphic rocks of the Alaskan Cordillera: Mineralogical Magazine, v. 57, p. 375-394.
- Gosselin, P., and Benoit, D., 2005, Gold deposits and gold districts of the world: Geological Survey of Canada Open-File 4894).
- Gow-Smith, 2013, Merian Project Final ESIA Report Volume IV Environmental and Social Management and Monitoring Plan 31, January 2013, by Environmental Resources Management (ERM) consultancy on behalf of Surgold, Merian Project, 92 pp.
- Kroonenberg, S. B. and de Roever, W.F., 2010, Geologic Evolution of the Amazonian Craton, in: Hoorn, C. and Wesselingh, ed., Amazonia, Landscape and Species Evolution, Blackwell Publishing.
- LaPoint, D.J., 2012, Technical Report: Goliat (Tibiti) Project Sipaliwini District Eastern Suriname, South America: An NI 43-101 technical report prepared on behalf of CANA-SUR GOLD LIMITED, 182 Bedford Highway, Halifax, Nova Scotia, B3M 0A4 Canada, 86 pp.
- LaPoint, D.J. and Watson, T. C, 2006, The Rosebel Gold Mine, Suriname, South America, a new window to understand orogenic evolution of a sedimentary basin and Earth's early history: Geological Society of America, abst, v. 38., no. 7, p. 344.
- LaPoint, D.J., 2004, A comparison of gold exploration techniques and new gold discoveries in deeply weathered environments of the Southeastern United States and Suri-

name, Abstract Paper 9-3,: Geological Society of America, Abstracts with Program, Geological Society of America Northeastern and Southeastern Sections Joint Meeting (March 25-27, 2004a), Vol. 36, No.2, p.43.

- Malfait, Wim, 2002, Mineralogie en petrografie van de verweringsproducten van een metaareniet en een mata-basiet uit de Proterozoische groensteengordel te Chin A Qui, Suriname. Unpublished MS thesis, Universiteit Gent, Belgium, 56pp.
- Mol, J.H., K. Wan Tong You, I. Vrede, A. Flynn, P. Ouboter and F. Van der Lugt, 2007. Fishes of Lely and Nassau Mountains, Suriname. In A Rapid Biological Assessment of the Lely and Nassau Plateaus, Suriname (with additional information on the Brownsberg Plateau), L.E. Alonso and J.H. Mol, eds, , p. 107-118. RAP Bulletin of Biological Assessment 43. Conservation International, Arlington, USA.
- Pough, F. P., 1988, A field guide to rocks and minerals: New York, Houghton Mifflin Company, 396 pp.
- Poulsen, K.H., and Robert, F., 1989, Shear zones and gold: practical examples from the southern Canadian Shield, in Bursnall J.T. (ed.), Mineralization and Shear Zones. Geological Association of Canada, Short Course Notes 6, p. 239-266.
- Rapprecht, R. M., 2007, Gold Mobility During Weathering in the Gros Rosebel Area, Unpublish B.S. Thesis, Anton de Kom University of Suriname.
- Robert, F., Brommecker, R., Bourne, B. T., Dobak, P. J., McEwan, C. J, Rowe, R. R, Zhou, X.,2005, Models and Exploration Methods for Major Gold Deposit Types: In "Proceedings of Exploration 07: Fifth Decennial International Conference on Mineral Exploration" edited by B. Milkereit, 2007, p. 691-7.
- Tunks, A.J., 2004, Vein mineralization at the Damang Gold Mine, Ghana: controls on mineralization: Journal of Structural Geology, p. 1257-1273.
- Voicu, G., Bardoux, M., Stevenson, R., 2001, Lithostratigraphy, geochronology, gold metallogeny in the northern Guiana Shield, South America: a review. Ore Geology Reviews 18 (2001) 211-236.
- Voicu, G., 2010, Rosebel Mine, Suriname, NI 43-101 Technical Report, IAMGOLD Website.
- Watson, T., 2008. Volcanism and Sedimentation: Stratigraphic Framework of a Synkinematic Paleoproterozoic Basin: Rosebel Gold Mine, Northeastern Suriname, unpublished M.S. Thesis, University of North Carolina, Chapel Hill.
- Wong, Th.E., Wong, de Vletter, D.R., Krook, L., Zonneveld, J.I.S., and van Loon, A.J. (editors), 1998, The history of earth sciences in Suriname: Royal Netherlands Academy of Arts and Sciences, Netherlands Institute of Applied Geoscience TNO Amsterdam.
- Yao, Y. and Robb, L.J., 2000, Gold Mineralization in Paleoproterzoic granitoids at Obuasi, Ashanti Region, Guiana: Ore geology, geochemistry and fluid characteristics: South African Journal of Geology, v. p. 255- 278.
- Yeates, R. J. and Hyde, R.I., 2004, Qualified Persons Report Southern Ashanti Gold Project, Ghana, West Africa: Prepared by RSG Global on behalf of Adamus ResourcesLimited.

20 Certificate of Author

I, Richard Crissman Capps, PhD, a Professional Geoscientist of Evans, Georgia, USA, hereby certify that:

- I am a geologist and president of Capps Geoscience, LLC, with physical address at 455 Columbia Industrial Blvd., Suite 1, Evans, Georgia USA 30809-5603 and receive mail at P.O. Box 2235, Evans, GA 30809-5603 and provide geological consulting services. I am responsible for the preparation of the technical report entitled: NI43-101 TECHNI-CAL REPORT - NASSAU GOLD EXPLORATION PROJECT, SUPALIWINI DISTRICT SURINAME, SOUTH AMERICA (the "Technical Report") with an effective date of July 23, 2019, relating to the Nassau gold property.
- 2. I am a graduate of the University of Georgia, Athens, Georgia with a PhD in Economic Geology awarded in August, 1996, an MS in Geology in 1981, and a BS in Geology in 1974 and have practiced my profession continuously since graduating with an MS in Geology in 1981.
- 3. I was a consulting geologist from 1987 until June 2006, an employee of Gold Reef International Inc. from 2006 until 2008, and am currently a consulting geologist.
- 4. I was an Associate Professor of Geology at Augusta State University from 1999 until June 2006 and taught geology at Augusta State since 1999. I am a Registered Professional Member of SME and a Registered Professional Geologist in Georgia, USA (License number 000814) and Alabama, USA (License number 1347). I am a member of the Geological Society of Nevada and the Society of Economic Geologists.
- 5. Since 1978 I have been involved in mineral exploration for precious metals, base metals, industrial minerals, and uranium. I have worked extensively on projects in Montana, Nevada, Arizona, and California in the eastern USA; on exploration projects in North and South Carolina in the eastern USA and international projects including the Nassau Project of Suralco in Suriname and on projects in Mexico.
- 6. I have read published documents relevant to the Nassau concession area.
- 7. I have read the definition of "qualified person" set out in National Instrument 43-101 ("NI 43-101") and certify that by reason of my education, affiliation with a professional association (as defined in NI 43-101) and past relevant work experience, I fulfill the requirements to be a "qualified person" for the purposes of NI 43-101. I have read the National Instrument 43-101 and Form 43-101F1 and this report has been prepared in compliance with National Instrument 43-101.
- 8. As of the effective date of the Technical Report, to the best of my knowledge, information and belief, the Technical Report contains all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.
- The author and Qualified Person for the current report, Richard C. Capps, PhD, QP, Georgia RPG and SME registered member geologist, reviewed 79North Nassau related documents and drill core at the 79North offices in Paramaribo, Suriname on 23 through 25 January 2018 and conducted a site visit to the Nassau Concession on 26 January 2018.
- 10. I have had no prior financial involvement with the property that is the subject of the Technical Report.

- 11. I am independent of 79North Limited and 79North Limited subsidiaries applying all of the tests in Section 1.5 of NI 43-101.
- I hereby grant 79North Limited the use of this Technical Report in support of documents submitted to any applicable stock exchange and other regulatory authority and any publication by 79North Limited including electronic publication.

Richard C. Capps, PhD, SME Registered Geologist Dated at Evans, Georgia, USA, this 23rd day of July 2019